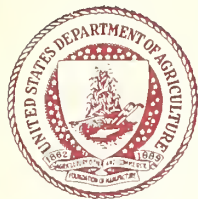


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1973 BUDGET EXPLANATORY NOTES

FOREST SERVICE



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FOREST SERVICE

Purpose Statement

The Forest Service is responsible for promoting the conservation and wise use of the country's forest and related watershed lands, which comprise one-third of the total land area of the United States. To meet its responsibility the Forest Service engaged in three main lines of work, as follows:

1. Management, protection, and development of the National Forests and National Grasslands. The 154 National Forests and 19 National Grasslands are managed under multiple use and for sustained yield. Under these principles natural resources of outdoor recreation, range, timber, watershed, and wildlife are utilized in a planned combination that will best meet the needs of the Nation without impairing the productivity of the land.

Direct as well as generated employment for rural residents contribute to community development and to environmental protection and improvement. Gross area within unit boundaries encompasses about 226 million acres in 44 States and Puerto Rico, of which some 187 million acres are under Forest Service administration.

In managing the National Forests, technical forestry is applied to the growing and harvesting of timber crops. Grazing use is managed to obtain proper range conservation along with utilization of the annual growth of forage. Watersheds are managed to regulate stream flow, prevent floods, and provide water for power, irrigation, navigation, and municipalities.

Management includes the development, maintenance, and protection of sites and facilities for the millions of people who visit the National Forests each year for recreation purposes. Emphasis is given to protecting scenic quality while at the same time assuring availability for forest users. Wildlife habitat is managed to provide a suitable land and water environment for both game and non-game wildlife.

Under the multiple use principles most areas are used for, or serve, more than one purpose or objective. For example, about 50 percent of the area within the National Forests serves five different purposes:

- (a) Timber production
- (b) Watershed protection
- (c) Forage production
- (d) Wildlife production
- (e) Recreation

An additional 28 percent serves four purposes in varying combinations. Of the remainder, 21 percent of the total serves three purposes with only 1 percent of the total reserved exclusively for a single purpose, mainly campgrounds and special use areas, such as summer homesites, pastures, and corrals.

The varied interests which frequently conflict and which must be reconciled, and the vast areas covered, clearly require careful planning and skillful management of the National Forest properties to most effectively serve the Nation's people.

The protection of the National Forests includes the control of forest fires, the control of tree disease and insect epidemics, and the prevention of trespass.

The major development activities of the National Forests are reforestation; timber stand improvement; revegetation; construction of roads, recreational facilities, range and other necessary improvements; and land acquisition and exchanges. Each of these activities contributes to the local economy and in many areas serves to improve incomes of the rural poor.

The economic importance of the National Forests and National Grasslands is evident when it is considered that:

- (a) They produced a cash income in fiscal year 1971 of \$236.2 million. Approximately 65 percent of this amount is credited to the general fund in the Federal Treasury (miscellaneous receipts). The remainder is distributed in accordance with special acts of Congress, including 25 percent to the States or counties in which lands are located, and 10 percent made available for construction and maintenance of the Forest Service system of roads and trails. In addition to these cash receipts, there are the even greater economic values which result from the processing of end products derived from this utilization of National Forest timber, forage, and minerals. Recreation, wildlife and water result in important economic activity in local, State, and national economies. There are also important intangible values of water, recreation, and wildlife such as the esthetic enjoyment of natural beauty.
 - (b) The area within National Forests boundaries is equivalent to some 10 percent of the area of the continental United States. Over 40 percent of this land is within areas now experiencing economic distress. Proper management, development, and utilization of these lands are important factors in permanent improvement of these local economies. Millions of people who live in and near the National Forests are supported in whole or in part through the economic development arising from the forests and their resources. These resources offer the most favorable basis for developing prosperous and vigorous local economies and communities.
 - (c) The National Forests supplied 10.3 billion board feet of timber in fiscal year 1971 to the Nation's forest products industries. This is expected to increase to 13.8 billion board feet in 1972. Dependence of the forest products industries on National Forest timber continues to increase as the result of depletion of good quality timber on private lands. In some areas, the dependence of local industry on National Forest timber is almost 100 percent. Without this supply some small communities could not exist.
 - (d) About 7.1 million head of domestic livestock (including calves and lambs) are grazed on the National Forests and Grasslands. In many local areas this is a major industry. Without such Federal rangelands the economic activity would be drastically curtailed from currently depressed levels.
 - (e) These lands provide protection to municipal water supplies for nearly all western cities and towns and many in the East, to irrigation water used on about 20 million acres of western lands, and to many streams with water power developments. They provide flood protection to thousands of acres of rich valley lands and help to prevent more rapid siltation of reservoirs and stream channels. A dependable water supply is an important prerequisite for economic and community development.
 - (f) They provide a habitat for a large part of the big game animal population, for birds, for millions of small game animals and furbearers, and for fish. Hunting and fishing constitute an important supplementary source of income for numerous communities, many of which are economically depressed.
 - (g) They provide opportunities for healthful outdoor recreation, with a minimum of restrictions. Outdoor recreation is an important source of supplementary income in most areas as well as providing recreational opportunities for local residents. In some relatively depressed communities it becomes even more important.
2. Forestry research. The Forest Service conducts research in the entire field of forestry and the management of forest and related lands. This includes the growth and harvesting of timber, its protection from fire, insects, and diseases, the protection and management of watersheds, and improved methods for

development and management of recreation resources. It conducts studies in forest economics, marketing of forest products, and a survey of the present extent and potential growth and use of the Nation's forest resources. It also conducts research to develop new and improved products from wood, to increase efficiency of utilizing forest products, and to advance the efficiency and mechanization of forestry operations.

The research program has a two-fold objective:

- (a) To backstop the National Forest development program by devising more efficient practices for protecting, managing, and utilizing forest resources and that will not have undesirable consequences on environmental quality and productivity.
- (b) To develop new and improved practices that will lead to sounder uses of forests in other public and private ownerships, more efficient and profitable utilization and marketing of forest products, and improvement of the environment on these lands.

Results of research are made available to owners of private forest and rangelands, to public agencies which administer such lands, to forest product industries, and to consumers. Research in the growing, harvesting, processing, and marketing of forest products results in increased competitiveness for forest products. Contribution of the forest resource to the economic and social welfare is made more effective. Research in the management of resources for water, forage, wildlife, and recreation has similar effects as a basis for community development and satisfaction of national demands.

3. Cooperation with State and private forest landowners. The Forest Service cooperates with State agencies and private owners to improve multiple use management of non-Federal forest lands. Technical help is also provided by the Forest Service in cooperation with the State agencies to the processors of forest products. Opportunities exist for greatly increasing the contribution of these lands in enhancing the environment and to the social and economic welfare of the Nation as a whole and more particularly through rural development activities to improve the economic levels, employment opportunities, and general welfare of the people living in these areas. Specific programs are designed to:

- (a) Better protect the 521 million acres of State and privately owned forests and critical watersheds against fires, insects, and diseases.
- (b) Encourage better forest practices, for resource conservation, betterment, and profit, on the 397 million acres of non-Federal forest land.
- (c) Aid in the distribution of planting stock for forest and windbarrier plantings on non-Federal lands.
- (d) Assist the harvesters, processors, and marketers of forest products in doing a better job and thereby bring about greater use of forest products and increased income and employment for rural people.
- (e) The Forest Service also provides assistance to States for forestation and tree improvement under Section 401 of the Agricultural Act of 1956 (16 USC 568e-568g), through the State forester, including advice, technical assistance, and financial contributions.
- (f) Provide assistance to State and local communities in an intensified development planning effort to improve both the economic situation and environmental quality in rural America.

Other work related to forestry includes:

4. Insect and disease control. Activities to suppress and control destructive forest insects and diseases to protect timber, recreation, scenic and other

environmental values. Protection is provided to Federal lands and in cooperation with the States to non-Federal forest lands.

5. Flood prevention and watershed protection. The Forest Service cooperates with the Soil Conservation Service, appropriate State agencies and the local organizations sponsoring small watershed protection projects initiated under the Watershed Protection and Flood Prevention Act of 1954 (16 USC 1001-1007) in planning and installing forestry and related land resource measures on the watersheds. The Forest Service also collaborates with the Soil Conservation Service, other Federal and State agencies in the conduct of comprehensive river basin studies relating to the development of water and related land resources under authority of the Water Resources Planning Act (42 USC 1962) and 16 USC 1006 mentioned above. Such studies can form part of the basis of plans for regional and community economic development.

On National Forest lands and on non-Federal forest lands within the watersheds authorized for treatment by the Department of Agriculture under the Flood Control Act (33 USC 701), the Forest Service plans and installs watershed improvement measures, in the form of minor physical structures, cultural measures, and intensified fire control, to retard runoff and reduce flood water and sediment damage. Work on non-Federal land is carried on in cooperation with the Soil Conservation Service and the appropriate State and local agencies.

The Forest Service cooperates with the Soil Conservation Service and other Federal, State, and local agencies or groups in the emergency treatment of watersheds impaired by fire or other similar disasters to prevent the loss of life or serious flood and sediment damages. This work is performed under the authority of Section 216 of the Flood Control Act of 1950 (33 USC 701b-1) with funds allotted to the Forest Service by the Soil Conservation Service. This section of the Act provides that not more than \$300,000 of the regular appropriations for Flood Prevention may be expended during any one fiscal year for emergency measures.

Generally, this work is performed with funds allotted to the Forest Service by the Soil Conservation Service. Forest Service funds are used to finance land treatment and certain other measures on small watershed projects located on National Forest lands.

6. Job Corps Civilian Conservation Centers. The Forest Service operates 20 Job Corps Civilian Conservation Centers on National Forests throughout the United States under agreement with the Department of Labor. The Forest Service provides the staffing, administration and logistical support to physically operate and maintain the Centers and conduct the basic education, plan and supervise the recreation, and fully implement the vocational training of corpsmen. The funds for this program are transferred from Department of Labor. There are 41 to 60 permanent staff assigned to each Center based upon enrollee capacity of 112 to 224. Total capacity of all Centers is 3,848 corpsmen and Centers operate on a 24-hour, seven-day week basis. Both human and natural resources are being upgraded through these Civilian Conservation Centers, as young men improve their education and job skills in preparation for a more productive life.
7. Youth Conservation Corps. The Forest Service and the Department of the Interior share equally in a three-year pilot program authorized by Act of August 13, 1970 (84 Stat. 794). This work-education program provides: Gainful employment of America's youths from a variety of economic, racial and social backgrounds, ages 15 through 18, during the summer months in a healthful outdoor atmosphere; an opportunity for understanding and appreciation of the Nation's natural environment and heritage; and further development and maintenance of the natural resources of the United States. The work projects include recreation facilities maintenance and construction, wildlife habitat improvement, timber stand improvement, trail maintenance and construction, and visitor information services. The residential program includes both urban and rural youth who

who reside away from, as well as adjacent to, public lands. The non-residential program includes those youth who reside adjacent to public lands.

8. Timber stand improvement. Funds collected from timber purchasers in connection with timber sales, under authority of the Knutson-Vandenberg Act, make possible some timber stand improvement work on cut-over areas each year looking to the establishment of natural tree growth and protecting it through the critical period of early growth. This work also helps to obtain stocking of trees of desirable species, form and quality. Timber stand improvement in promising young growth not associated with timber sale cuttings is done with funds directly appropriated by Congress.
9. Brush disposal. National Forest timber sale contracts require treatment of debris from cutting operations or deposit of funds to pay for the work. If it is not feasible for the timber purchaser to dispose of the logging slash, which is the case in most sales, it is done by the Forest Service using deposits made by the purchaser. This work is essential because logging slash increases the fire hazard and may contribute to the buildup of insect populations, increase certain disease infestations, and cause damage to stream channels.
10. Land and Water Conservation Fund. This fund, transferred from the appropriation made to the Department of the Interior, finances the acquisition of lands, waters, or interests in lands or waters by the Forest Service as well as certain other Federal agencies. The Act creating the fund from which appropriations are made requires that the lands and waters acquired be primarily of value for outdoor recreation. Means are provided for expanding outdoor recreation opportunities and protecting and improving environmental quality including natural beauty. The fund derives revenues from admission and user fees, sales of surplus real property, and motor boat fuel tax. The first purchase of recreation land made by the Forest Service was on October 19, 1965.
11. Rural fire defense. The Forest Service, as a part of its regular programs, also directs Federal activities and provides technical guidance and training to States concerned with the prevention and control of fires which might be caused by an enemy attack or a nuclear accident in rural areas of the United States.
12. Appalachian regional development program. Under the Appalachian Regional Development Act (40 USC app. 204), the Forest Service provides technical assistance to timber development organizations to improve development and utilization of timber stands in the Appalachian region. Regional and community development is encouraged and assisted with attendant progress in eliminating rural poverty. The funds for this program are transferred from the Appalachian Regional Development Commission.

ORGANIZATIONAL STRUCTURE

The Forest Service maintains its central office in Washington with program activities decentralized to 9 regional offices, 129 forest supervisors' offices, 760 district rangers' offices, 2 State and private forestry area offices, 8 forest and range experiment stations, the Institute of Tropical Forestry, and the Forest Products Laboratory. Location of headquarters offices:

Regional Offices:	Missoula, Montana	Portland, Oregon
	Denver, Colorado	Atlanta, Georgia
	Albuquerque, New Mexico	Milwaukee, Wisconsin
	Ogden, Utah	Juneau, Alaska
	San Francisco, California	

State and private forestry area offices: Upper Darby, Pennsylvania
Atlanta, Georgia

Experiment stations:	Ogden, Utah	Berkeley, California
	St. Paul, Minnesota	Fort Collins, Colorado
	Upper Darby, Pennsylvania	Asheville, North Carolina
	Portland, Oregon	New Orleans, Louisiana

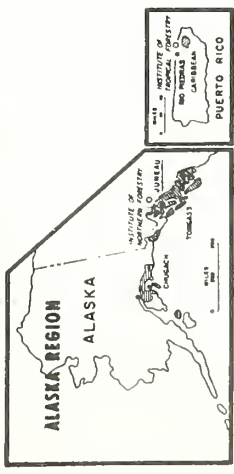
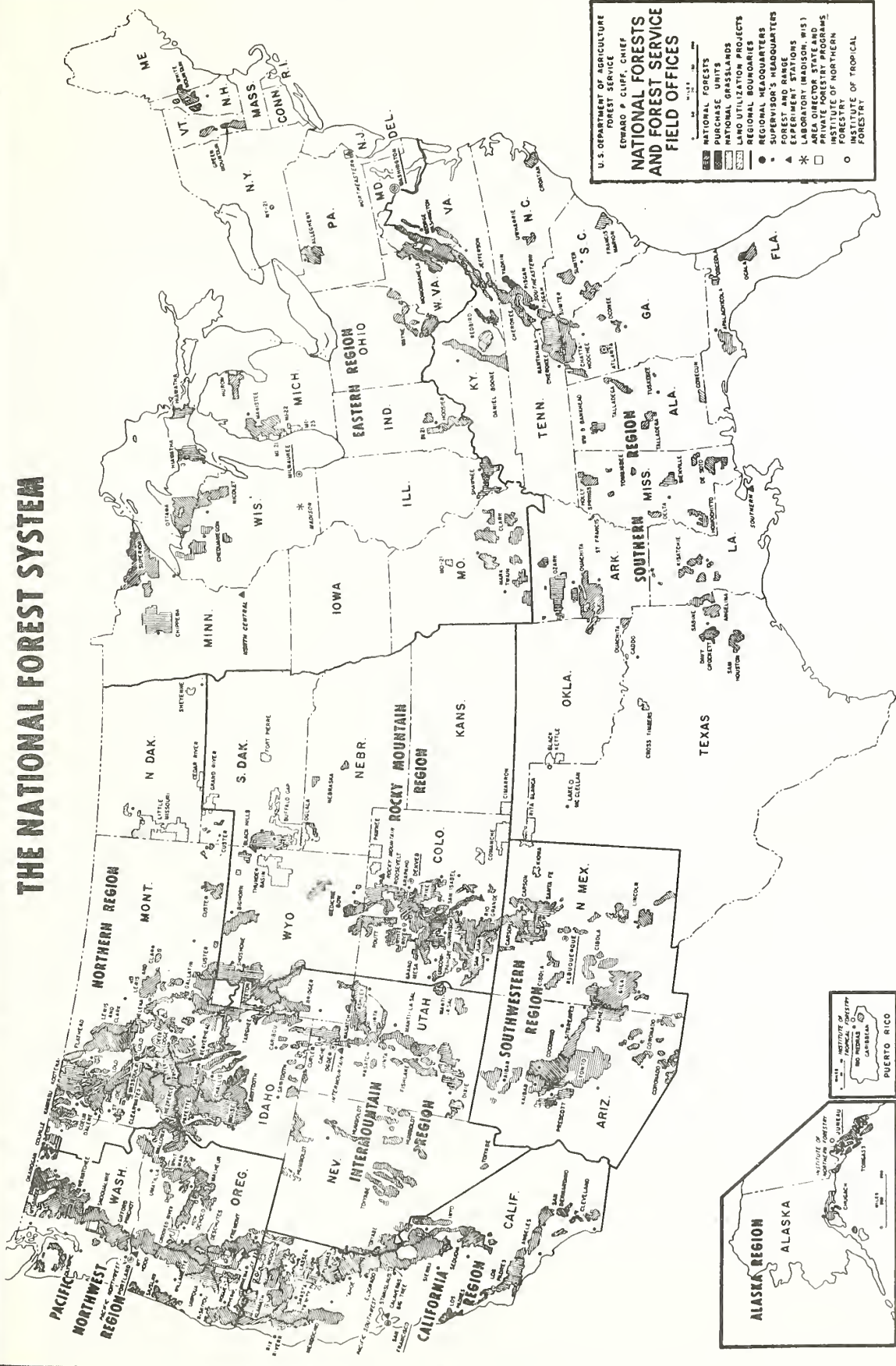
Forest Products Laboratory: Madison, Wisconsin

Institute of Tropical Forestry: Rio Piedras, Puerto Rico

National Forest, National Grasslands, and Utilization lands administered by the Forest Service are located in all States except the following six:

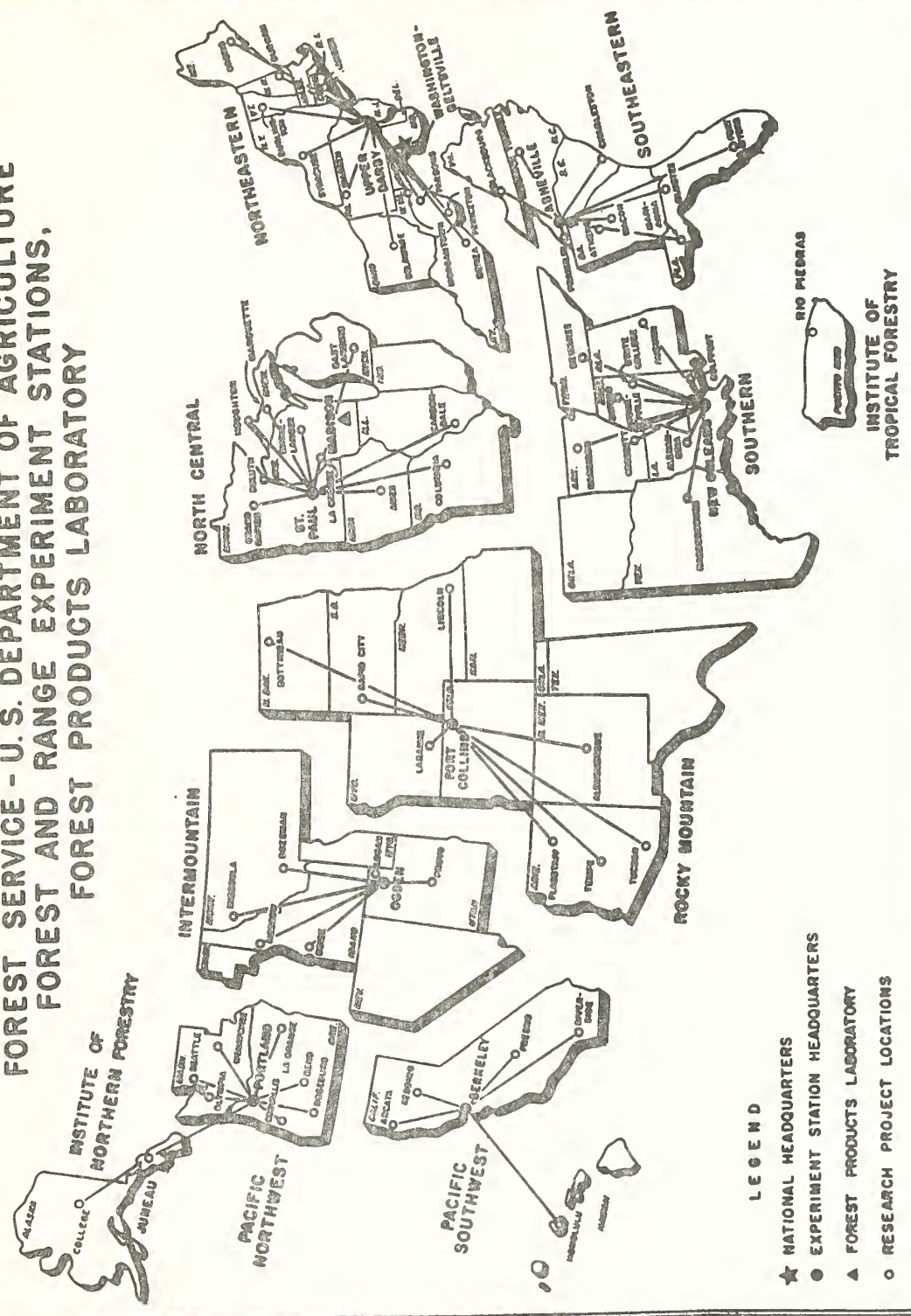
Delaware
Hawaii
Maryland
Massachusetts
New Jersey
Rhode Island

THE NATIONAL FOREST SYSTEM





FOREST SERVICE - U. S. DEPARTMENT OF AGRICULTURE FOREST AND RANGE EXPERIMENT STATIONS, FOREST PRODUCTS LABORATORY



LEGEND

- ★ NATIONAL HEADQUARTERS
- EXPERIMENT STATION HEADQUARTERS
- ▲ FOREST PRODUCTS LABORATORY
- RESEARCH PROJECT LOCATIONS



Summary of Estimated Appropriations and Receipts

Page No.	Item	Available : 1971 1/	Estimated : available : 1972 2/	Budget : estimates : 1973	Increase or decrease : 1973 over 1972
	<u>Appropriated Funds</u>				
	: Forest protection and utilization:				
21	: Forest land management	\$292,003,413:	\$238,165,300:	\$238,148,000:	-\$17,300
73	: Forest research	48,876,444:	54,320,000:	55,085,000:	+765,000
105	: State and private forestry cooperation	24,163,000:	27,741,000:	27,598,000:	-143,000
	: Total, Forest protection and utilization	365,042,857:	320,226,300:	320,831,000:	+604,700
119	: Construction and land acquisition 3/	15,933,700:	35,291,200:	37,190,000:	+1,898,800
137	: Forest roads and trails 3/	120,220,000:	148,740,000:	158,840,000:	+10,100,000
141	: Acquisition of lands for National Forests, Special Acts	80,000:	80,000:	80,000:	-
143	: Acquisition of lands to complete land exchanges	-	26,035:	-	-26,035
118	: Cooperative range improvements	700,000:	700,000:	700,000:	-
144	: Assistance to States for tree planting 3/	1,028,000:	1,028,000:	1,007,000:	-21,000
146	: Youth conservation corps 3/	2,500,000:	3,500,000:	3,500,000:	-
	: Permanent Appropriations				
158	: Expenses, brush disposal 3/	13,479,110:	14,000,000:	14,000,000:	-
157	: Roads and trails for States, National Forests Fund	28,761,091:	22,661,542:	34,280,000:	+11,618,458
159	: Forest fire prevention 3/	124,309:	200,000:	200,000:	-
160	: Restoration of forest lands and improvements 3/	11,452:	50,000:	50,000:	-
161	: Payment to Minnesota (Cook, Lake, and St. Louis Counties) from : the National Forests Fund	258,006:	259,038:	260,000:	+962
162	: Payments to counties, National Grasslands	511,935:	537,500:	553,750:	+16,250
163	: Payments to school funds, Arizona and New Mexico	84,338:	69,316:	75,000:	+5,684
164	: Payments to States, National Forests Fund	71,896,615:	56,648,064:	85,693,750:	+29,045,686
	: Total	620,623,413:	604,016,995:	657,260,500:	+53,243,505
	: Deduct permanent appropriations shown above	115,126,856:	94,425,460:	135,112,500:	+40,687,040
	: Total (excluding permanent appropriations)	505,496,557:	509,591,535:	522,148,000:	+12,556,465
	: Receipts 4/				
	: Timber sales	\$217,010,210:	\$332,300,000:	\$349,895,000:	+\$17,595,000
	: Grazing	4,774,468:	5,000,000:	5,860,000:	+860,000
	: Power	203,235:	205,000:	210,000:	+5,000
	: Recreation	3,370,281:	3,700,000:	4,000,000:	+300,000
	: Land uses	960,636:	950,000:	1,100,000:	+150,000
	: Mineral leases and permits	5,413,945:	5,500,000:	6,000,000:	+500,000
	: Admission and user fees	2,367,834:	2,800,000:	4,500,000:	+1,700,000
	: National grasslands and land utilization	2,088,440:	2,150,000:	2,215,000:	+65,000
	: Total receipts	236,189,049:	352,605,000:	373,780,000:	+21,175,000

(Footnotes on next page)



1/ Includes: Supplemental Appropriation Act, 1971 (PL 91-665, 1/8/71)--Forest land management, \$150,000 and forest research, \$108,000; Second Supplemental Appropriation Act, 1971 (PL 92-18, 5/25/71)--Fighting forest fires, \$70 million and increased pay costs, \$20,659,000; \$8.1 million of trust funds used for fighting forest fires to be repaid in fiscal year 1972; and \$2,821,000 of Forest roads and trails funds used for emergency burn rehabilitation and flood control work.

Excludes GSA space transfers of \$434,143.

2/ Excludes following: GSA space transfers of \$518,000 (Forest land management, \$513,000 and Forest research, \$5,000) and proposed supplementals as follows:

Forest land management--Forest fire protection	\$5 million
Fighting forest fires	44.94 million
Cooperative law enforcement program .	2.5 million

3/ In addition, prior year balances are available.

4/ Amounts include:

	<u>1971</u>	<u>1972</u>	<u>1973</u>
Suspense account, Alaska <u>a/</u>	\$4,093,254	\$4,100,000	\$4,100,000
Suspense account, O&C lands <u>b/</u>	7,403,799	7,500,000	7,500,000

a/ Account established pending settlement of Indian rights on Tongass National Forest, Alaska.

b/ Account established for Oregon and California railroad grant lands, for which receipts are transferred to Department of the Interior for distribution under the Acts of August 28, 1937, June 24, 1954, and August 3, 1961 (43 USC 1181f-g).



JOB CORPS CIVILIAN CONSERVATION CENTERS

(Funds transferred to Forest Service by Department of Labor)

	Available 1971		Estimate 1972		Estimate 1973	
	No. of Permanent Positions	Amount (in thousands)	No. of Permanent Positions	Amount (in thousands)	No. of Permanent Positions	Amount (in thousands)
Center readiness	- -	\$1,495	- -	\$1,360	- -	\$1,375
Center operation	975	22,919	937	23,562	933	23,157
Program direction and training	106	1,704	102	<u>1/</u> 2,687	101	<u>1/</u> 2,725
Total	1,081	26,118	1,039	27,609	1,034	27,257

NOTE: Fiscal years 1972 and 1973 estimates are based on best information available to the Forest Service as of January 10, 1972.

1/ Includes administration of union contracts.

FOREST PROTECTION AND UTILIZATION

	<u>Forest Land Management</u>	<u>Forest Research</u>	<u>State and Private Forestry Cooperation</u>	<u>Total</u>
Appropriation Act, 1972	\$238,678,300 a/	\$54,325,000	\$27,741,000	\$320,744,300
Budget estimate, 1973	238,148,000	55,085,000	27,598,000	320,831,000
Increase in appropriation	<u>-530,300</u>	<u>+760,000</u>	<u>-143,000</u>	<u>+86,700</u>
Adjustments in 1972:				
Appropriation Act, 1972	\$238,678,300 a/	\$54,325,000	\$27,741,000	\$320,744,300
Transfer to General Services Administration for rental of space	<u>-513,000</u>	<u>-5,000</u>	<u>-</u>	<u>-518,000</u>
Adjusted base for 1973	238,165,300	54,320,000	27,741,000	320,226,300
Budget estimate, 1973	238,148,000	55,085,000	27,598,000	320,831,000
Increase or decrease in program level	<u>-17,300</u>	<u>+765,000</u>	<u>-143,000</u>	<u>+604,700</u>

a/ In addition, \$700,000 is available by transfer from Cooperative Range Improvements.

SUMMARY OF INCREASES AND DECREASES
(On basis of adjusted appropriation)

	<u>1972</u>	<u>1973 estimate</u>	<u>Increase or decrease Employment reduction</u>	<u>Program change</u>
<u>Forest land management:</u>				
<u>Timber sales administration and management</u>	\$63,496,000	\$63,496,000	-\$1,590,000	+\$1,590,000
<u>Recreation-public use--To increase:</u>				
Operation and maintenance of developed and general forest areas, including application of intensive landscape management program on timber sale areas	31,753,300	31,807,000	-1,163,000	+1,216,700
Administration of concessions and permits	1,308,000	1,485,000	-23,000	+200,000
Other	7,076,000	6,612,000	-464,000	-
Subtotal	40,137,300	39,904,000	-1,650,000	+1,416,700



SUMMARY OF INCREASES AND DECREASES--continued
(On basis of adjusted appropriation)

	<u>1972</u>	<u>1973</u> <u>estimate</u>	<u>Employment</u> <u>reduction</u>	<u>Increase or decrease</u> <u>Program</u> <u>change</u>
<u>Forest land management--continued</u>				
<u>Wildlife habitat management--To provide for:</u>				
Coordination of timber activities with biological needs and requirements of fish and wildlife inhabiting areas	1,534,000	2,082,000	-52,000	+600,000
Increased level for habitat restoration and improvement	2,114,000	2,043,000	-471,000	+400,000
Protection and maintenance for rare and endangered species	545,000	745,000	-	+200,000
Other	1,994,000	1,917,000	-77,000	-
Subtotal	6,187,000	6,787,000	-600,000	+1,200,000
<u>Soil and water management--Increase for:</u>				
Resource protection requirements and design services	2,179,000	2,344,000	-135,000	+300,000
Surveillance of management activities	915,000	1,015,000	-	+100,000
Other	6,328,000	6,063,000	-265,000	-
Subtotal	9,422,000	9,422,000	-400,000	+400,000
<u>Mineral claims, leases, and special uses--</u>				
To provide early on-the-ground contacts and supervision of mining operations to prevent or reduce environmental damage	2,711,000	2,721,000	-390,000	+400,000
Other	2,717,000	2,707,000	-10,000	-
Subtotal	5,428,000	5,428,000	-400,000	+400,000
<u>Land classification, adjustments, and surveys--</u>				
To permit marking of landlines and monuments in support of timber management activities	2,489,000	2,966,000	-14,000	+491,000
Other	4,901,000	4,765,000	-136,000	-
Subtotal	7,390,000	7,731,000	-150,000	+491,000
<u>Forest fire protection--</u>				
To support continued fire protection through improved initial attack forces	17,645,000	17,155,000	-690,000	+200,000
Other	13,733,000	13,390,000	-343,000	-
Subtotal	31,378,000	30,545,000	-1,033,000	+200,000
<u>Maintenance of improvements for fire and general purposes (including communications)</u>	7,532,000	7,532,000	-500,000	+500,000

SUMMARY OF INCREASES AND DECREASES--continued
(On basis of adjusted appropriation)

	<u>1972</u>	<u>1973</u> <u>estimate</u>	<u>Employment</u> <u>reduction</u>	<u>Increase or decrease</u> <u>Program</u> <u>change</u>
<u>Forest land management--continued</u>				
<u>Payments to Employees' Compensation Fund--</u>				
To increase amount needed to reimburse Employees' Compensation Fund	1,622,000	2,131,000	-	+509,000
<u>Water resource development related activities--</u>				
Increase for 18 Wild and Scenic Rivers studies on State and private land to carry out Department of Agriculture responsibility	-	200,000	-	+200,000
Other	3,861,000	3,661,000	-200,000	-
Subtotal	3,861,000	3,861,000	-200,000	+200,000
<u>Cooperative law enforcement program--</u>				
To carry out authority in Public Law 92-82, 8/10/71. A supplemental request of \$2.5 million has been proposed for fiscal year 1972 ..	-	2,500,000	-	+2,500,000
<u>All other Forest land management:</u>				
Timber resource management: Reforestation and stand improvement ..	32,232,000	30,232,000	-2,000,000	-
Range resource management:				
Management	7,290,000	6,723,000	-567,000	-
Revegetation	3,419,000	3,419,000	-	-
Improvements	3,941,000	3,831,000	-110,000	-
Fighting forest fires	4,275,000	4,275,000	-	-
Insect and disease control	10,555,000	10,331,000	-224,000	-
Subtotal, Forest land management	238,165,300	238,148,000	-9,424,000	+9,406,700
<u>Forest research:</u>				
<u>Watershed management research--</u>				
Increase to be used at East Lansing, Michigan, to undertake research relating to disposal of sewage sludge on forest land	87,000	187,000	-	+100,000
Other	6,049,000	5,823,000	-226,000	-
Subtotal	6,136,000	6,010,000	-226,000	+100,000
<u>Fire and atmospheric sciences research--</u>				
Increase to be used at Macon, Georgia, to strengthen research in the South on the environmental impacts of prescribed burning and wildfire on air, water and soil.	196,000	287,000	-9,000	+100,000

SUMMARY OF INCREASES AND DECREASES --continued
(On basis of adjusted appropriation)

	<u>1972</u>	<u>1973</u> <u>estimate</u>	<u>Employment</u> <u>reduction</u>	<u>Increase or decrease</u> <u>Program</u> <u>change</u>
<u>Forest research--continued</u>				
<u>Fire and atmospheric sciences research--continued</u>				
Increase to be used at Seattle, Washington, to strengthen research on the problem of forest residue disposal in the Pacific Northwest	132,000	229,000	-3,000	+100,000
Increase to be used at Missoula, Montana, to develop improved fire retardant delivery systems for fixed wing aircraft and helicopters to permit safe and effective operation in smoke and during night or day firefighting	850,000	1,725,000	-25,000	+900,000
Increase at Riverside, California, will focus on performing systems analysis to determine most effective utilization of fixed wing aircraft and helicopters in fire control	200,000	394,000	-6,000	+200,000
Increase at Riverside, California, to develop advanced airborne fire intelligence methods for detecting and mapping fires, including real time telemetry of information and display at fire command control centers	400,000	1,088,000	-12,000	+700,000
Increase at Fort Collins, Colorado, to develop automatic techniques for measuring fire danger rating factors required at fire command control center	200,000	394,000	-6,000	+200,000
Other	3,182,000	3,089,000	-93,000	-
Subtotal	5,160,000	7,206,000	-154,000	+2,200,000
<u>Forest insect research--</u>				
Increase to be used at Berkeley, California, to accelerate research to develop attractants for managing western bark beetles	349,000	586,000	-13,000	+250,000
Increase to be used at Pineville, Louisiana, to strengthen research to develop procedures for integrating attractants into an overall management strategy for the Southern pine bark beetle	330,000	469,000	-11,000	+150,000
Other	5,017,000	4,843,000	-174,000	-
Subtotal	5,696,000	5,898,000	-198,000	+400,000
<u>All other Forest research:</u>				
Timber management research	11,697,000	11,232,000	-465,000	-
Range management research	1,576,000	1,512,000	-64,000	-
Wildlife habitat research	1,880,000	1,823,000	-57,000	-
Forest recreation research	1,059,000	1,059,000	-	-
Forest disease research	3,700,000	3,565,000	-135,000	-



SUMMARY OF INCREASES AND DECREASES--continued
(On basis of adjusted appropriation)

	1972	1973 estimate	Increase or decrease Employment reduction	Program change
<u>Forest research--continued</u>				
<u>All other Forest research--continued</u>				
Forest products utilization research	9,096,000	8,754,000	-342,000	-
Forest engineering research	1,473,000	1,432,000	-41,000	-
Forest survey	3,421,000	3,293,000	-128,000	
Forest products marketing research	2,023,000	1,948,000	-75,000	
Forest economics research	1,403,000	1,353,000	-50,000	
Subtotal, Forest research	54,320,000	55,085,000	-1,935,000	+2,700,000
<u>State and private forestry cooperation:</u>				
Cooperation in forest fire control	19,994,000	19,943,000	-51,000	
Cooperation in forest tree planting	325,000	322,000	-3,000	
Cooperation in forest management and processing	5,000,000	4,980,000	-20,000	
General forestry assistance	2,422,000	2,353,000	-69,000	
Subtotal, State and private forestry cooperation	27,741,000	27,598,000	-143,000	
Total	320,226,300 ^{a/}	320,831,000	-11,502,000	+12,106,700

^{a/} Includes savings of \$6,060 thousand due to employment limitations. It is proposed that these savings be used for expenses of fighting forest fires, thereby reducing the request for supplemental funds from \$58,500 thousand to \$52,440 thousand.



PROJECT STATEMENT
(On basis of adjusted appropriation)

Project	1971	1972 estimate	1973 estimate	Increase or decrease	
				Employment : reduction	Program change
FOREST LAND MANAGEMENT:					
National Forest protection and management:					
(1) Timber resource management:					
(a) Sales administration and management	\$52,730,393:	\$63,496,000:	\$63,496,000:	-\$1,590,000:	+\$1,590,000
(b) Reforestation and stand improvement	18,346,299:	32,232,000:	30,232,000:	-2,000,000:	-
(2) Recreation-public use	39,203,385:	40,137,300:	39,904,000:	-1,650,000:	+1,416,700
(3) Wildlife habitat management	4,921,842:	6,187,000:	6,787,000:	-600,000:	+1,200,000
(4) Range resource management:					
(a) Management	7,955,440:	7,290,000:	6,723,000:	-567,000:	-
(b) Revegetation	2,662,625:	3,419,000:	3,419,000:	-	-
(c) Improvements	3,656,304:	4,641,000:	4,531,000:	-110,000:	-
(5) Soil and water management	10,545,755:	9,422,000:	9,422,000:	-400,000:	+400,000
(6) Mineral claims, leases, and special uses	6,681,220:	5,428,000:	5,428,000:	-400,000:	+400,000
(7) Land classification, adjustments, and surveys .. 2/	7,604,071:	7,390,000:	7,731,000:	-150,000:	+491,000
(8) Forest fire protection	30,169,321: 3/	31,378,000:	30,545,000:	-1,033,000:	+200,000
(9) Maintenance of improvements for fire and general purposes (including communications)	8,475,867:	7,532,000:	7,532,000:	-500,000:	+500,000
(10) Payments to Employees' Compensation Fund	1,458,772:	1,622,000:	2,131,000:	-	+509,000
Subtotal	194,411,294:	220,174,300:	217,881,000:	-9,000,000:	+6,706,700
Amount advanced from Cooperative Range Improvements:	-700,000:	-700,000:	-700,000:	-	-
Subtotal, National Forest protection and management:	193,711,294:	219,474,300:	217,181,000:	-9,000,000:	+6,706,700
(11) Water resource development related activities	3,687,994:	3,861,000:	3,861,000:	-200,000:	+200,000
(12) Fighting forest fires	82,929,089: 3/	4,275,000:	4,275,000:	-	-
(13) Insect and disease control	11,182,577: 4/	10,555,000:	10,331,000:	-224,000:	-
(14) Cooperative law enforcement program	-	-	2,500,000:	-	+2,500,000
Total, Forest Land Management	291,510,954:	238,165,300:	238,148,000:	-9,424,000:	+9,406,700
FOREST RESEARCH:					
Forest and range management research:					
(15) Timber management research	11,434,073:	11,697,000:	11,232,000:	-465,000:	-
(16) Watershed management research	5,199,358:	6,136,000:	6,010,000:	-226,000:	+100,000
(17) Range management research	1,609,370:	1,576,000:	1,512,000:	-64,000:	-
(18) Wildlife habitat research	1,544,516:	1,880,000:	1,823,000:	-57,000:	-
(19) Forest recreation research	981,038:	1,059,000:	1,059,000:	-	-
Subtotal, Forest and range management research	20,768,355:	22,348,000:	21,636,000:	-812,000:	+100,000



Project	1971	1972	1973	Employment	Increase or decrease
	estimate	estimate	estimate	reduction	Program change
FOREST RESEARCH -- continued					
Forest protection research:					
(20) Fire and atmospheric sciences research	3,944,719:	5,160,000:	7,206,000:	-154,000:	+2,200,000
(21) Forest insect research	4,756,486:	5,696,000:	5,898,000:	-198,000:	+400,000
(22) Forest disease research	3,248,820.5/	3,700,000:	3,565,000:	-135,000:	-
Subtotal, Forest protection research	11,950,025:	14,556,000:	16,669,000:	-487,000:	+2,600,000
Forest products and engineering research:					
(23) Forest products utilization research	8,625,407.5/	9,096,000:	8,754,000:	-342,000:	-
(24) Forest engineering research	1,055,895:	1,473,000:	1,432,000:	-41,000:	-
Subtotal, Forest products and engineering research	9,681,302:	10,569,000:	10,186,000:	-383,000:	-
Forest resource economics research:					
(25) Forest survey	3,266,806:	3,421,000:	3,293,000:	-128,000:	-
(26) Forest products marketing research	1,848,218:	2,023,000:	1,948,000:	-75,000:	-
(27) Forest economics research	1,236,638:	1,403,000:	1,353,000:	-50,000:	-
Subtotal, Forest resource economics research	6,351,662:	6,847,000:	6,594,000:	-253,000:	-
Total, Forest Research	48,751,344:	54,320,000:	55,085,000:	-1,935,000:	+2,700,000
STATE AND PRIVATE FORESTRY COOPERATION:					
(28) Cooperation in forest fire control	16,705,145:	19,994,000:	19,943,000:	-51,000:	-
(29) Cooperation in forest tree planting	292,845:	325,000:	322,000:	-3,000:	-
(30) Cooperation in forest management and processing	4,998,550:	5,000,000:	4,980,000:	-20,000:	-
(31) General forestry assistance	2,114,095:	2,422,000:	2,353,000:	-69,000:	-
Total, State and Private Forestry Cooperation	24,110,635:	27,741,000:	27,598,000:	-143,000:	-
Total obligations or estimate	364,372,933:	320,226,300:	320,831,000:	-11,502,000:	+12,106,700
Unobligated balance	6/ 669,924:	-	-	-	-
Total available or estimate	365,042,857:	320,226,300:	320,831,000:	-11,502,000:	+12,106,700
Transfer to General Services Administration for space rental					
	434,143:	518,000:	-	-	-
Transfer from other accounts					
	-10,921,000:	-	-	-	-
Total, appropriation	354,556,000:	320,744,300:	320,831,000:	-11,502,000:	+12,106,700



1/ Does not include obligations of \$160,235 incurred pursuant to fiscal year 1971 supplemental (PL 91-305, 7/6/70).

2/ Includes allocations to the Department of the Interior, Bureau of Land Management: 1971, \$270,000;
1972, \$270,000; 1973, \$270,000.

3/ Excludes proposed supplementals.

4/ Includes allocation to the Department of the Interior, Bureau of Land Management: 1971, \$918,500,
1972, \$693,000; 1973, \$655,000.

5/ Adjustment of \$250,000 made to record forest disease research properly. No change has been made in use of these funds.

6/ Excludes \$11,765 available for obligation in fiscal year 1972 -- see footnote 1/.







GEOGRAPHIC BREAKDOWN OF APPROPRIATION^{1/}

National Forest Protection and Management
(includes Projects (1) through (10) on following pages)

	1972	1973	
	<u>estimate</u>	<u>estimate</u>	<u>Change</u>
Alabama	\$1,811,000	\$1,789,000	-\$22,000
Alaska	4,751,000	4,743,000	-8,000
Arizona	9,925,000	9,806,000	-119,000
Arkansas	4,643,000	4,596,000	-47,000
California	38,859,000	38,443,000	-416,000
Colorado	10,566,300	10,459,000	-107,300
District of Columbia	9,498,000	9,448,000	-50,000
Florida	2,320,000	2,291,000	-29,000
Georgia	1,832,000	1,830,000	-2,000
Idaho	17,973,000	17,766,000	-207,000
Illinois	836,000	827,000	-9,000
Indiana	550,000	544,000	-6,000
Kansas	46,000	46,000	-
Kentucky	1,700,000	1,680,000	-20,000
Louisiana	1,817,000	1,795,000	-22,000
Maine	86,000	85,000	-1,000
Maryland	202,000	200,000	-2,000
Michigan	4,057,000	4,017,000	-40,000
Minnesota	4,330,000	4,288,000	-42,000
Mississippi	2,756,000	2,723,000	-33,000
Missouri	2,760,000	2,727,000	-33,000
Montana	13,345,000	13,204,000	-141,000
Nebraska	429,000	424,000	-5,000
Nevada	2,308,000	2,280,000	-28,000
New Hampshire	1,142,000	1,128,000	-14,000
New Mexico	8,329,000	8,228,000	-101,000
New York	59,000	58,000	-1,000
North Carolina	2,757,000	2,734,000	-23,000
North Dakota	234,000	231,000	-3,000
Ohio	453,000	447,000	-6,000
Oklahoma	384,000	380,000	-4,000
Oregon	28,350,000	28,033,000	-317,000
Pennsylvania	1,403,000	1,386,000	-17,000
Puerto Rico	84,000	84,000	-
South Carolina	1,559,000	1,540,000	-19,000
South Dakota	1,509,000	1,490,000	-19,000
Tennessee	1,721,000	1,700,000	-21,000
Texas	2,279,000	2,252,000	-27,000
Utah	7,895,000	7,800,000	-95,000
Vermont	596,000	589,000	-7,000
Virginia	2,798,000	2,764,000	-34,000
Washington	11,000,000	10,906,000	-94,000
West Virginia	3,596,000	3,563,000	-33,000
Wisconsin	2,542,000	2,512,000	-30,000
Wyoming	4,084,000	4,045,000	-39,000
Total	220,174,300	217,881,000	-2,293,300

^{1/} The 1973 budget reflects portions of the 1972 appropriations as unobligated due to employment limitations. Since the employment reductions are being met principally through attrition, it is impractical at this time to distribute these savings by geographic location.

TIMBER RESOURCE MANAGEMENT - Sales administration and management

1971	\$55,535,000
1972	63,496,000
1973	63,496,000

It is proposed to continue this program at the 1972 level.

The total program for fiscal year 1973, compared with 1971 and 1972, follows:

	<u>1971</u>	<u>1972</u>	<u>1973</u>
	(in thousands)		
<u>Regular program</u>			
Harvest	\$21,861	\$25,218	\$25,218
Sale preparation	25,356	28,756	28,756
Enforcement of Log Export Act	527	539	539
<u>Thinning and salvage program</u>			
Harvest	2,362	2,413	2,413
Sale preparation	2,552	2,608	2,608
<u>Timber inventories and management plans</u>	<u>2,877</u>	<u>3,962</u>	<u>3,962</u>
Total	55,535	63,496	63,496

The overriding concern of administrators for greater attention to environmental quality and public sensibilities is improving the quality of the timber management program. Included in this effort are such things as developing comprehensive resource inventories to obtain detailed information on soil, water, wildlife, and recreation, reviewing and updating forest management policies, strengthening multiple use planning, coordinating timber programs with other resource activities, changing harvesting methods in some areas, and revising road construction plans. This effort results in timber sales which have been designed with full consideration of multiple resource constraints, protection and enhancement of the environment, and public awareness.

This same concern is evidenced in timber harvest through increased frequency of inspections and closer administration to achieve quality performance that minimizes or eliminates adverse impacts on the environment, protects the soil, insures more complete utilization and cleanup, and promotes an improved, healthy forest cover.

To achieve a quality timber resource management program requires the assistance of specialists in soil analysis, landscape layout, geology, water management, wildlife management, and ecology as well as well-trained, competent silviculturists, sales layout foresters, logging systems engineers, and sales administrators. Based on these requirements unit costs for fiscal year 1973, tempered by these limitations, are shown in the following tabulation which reflects workload and cost information for fiscal years 1971, 1972, and 1973.

	<u>1971</u>	<u>1972</u>	<u>1973</u>
(1) <u>Regular program</u>			
(a) <u>Harvest</u>			
Million board feet (local scale)	9,852	13,100	13,100
Cost per thousand board feet	\$2.22	\$1.93	\$1.93
Total cost (in thousands)	\$21,861	\$25,218	\$25,218
(b) <u>Sale preparation</u>			
Million board feet (local scale)	10,030	11,595	11,233
Cost per thousand board feet	\$2.53	\$2.48	\$2.56
Total cost (in thousands)	\$25,356	\$28,756	\$28,756
(c) <u>Enforcement of Log Export Act</u> (in thousands)	\$527	\$539	\$539

	Project (1a)		
	<u>1971</u>	<u>1972</u>	<u>1973</u>
(2) <u>Thinning and salvage program</u>			
(a) <u>Harvest</u>			
Million board feet (local scale)	489	700	700
Cost per thousand board feet	\$4.83	\$3.45	\$3.45
Total cost (in thousands)	\$2,362	\$2,413	\$2,413
(b) <u>Sale preparation</u>			
Million board feet (local scale)	606	600	600
Cost per thousand board feet	\$4.21	\$4.35	\$4.35
Total cost (in thousands)	\$2,552	\$2,608	\$2,608
(3) <u>Timber inventories and management plans</u>			
Thousands of acres	9,600	11,764	9,000
Cost per acre	\$0.30	\$0.34	\$0.44
Total cost (in thousands)	\$2,877	\$3,962	\$3,962

The Forest Service plans to sell 11.8 billion board feet of timber and expects to administer a harvest by industry of 13.8 billion board feet of timber at a total cost of \$63,496,000. This program maintains timber harvesting at allowable cut levels wherever possible and increases the effort to improve stands through commercial harvest of excess trees and reduce loss through salvage of dead or dying trees.

The above represents the immediate measurable outputs of the timber resource program. The program that produces these outputs is shaped:

- (1) To administer the harvest of timber through current timber sale contracts to achieve:
 - (a) Protection and enhancement of the environment.
 - (b) Harmonization with indigenous ecosystems and other resource uses.
 - (c) Utilization to the fullest extent possible of all timber harvested.
 - (d) A healthy forest cover improved and structured as specified in the timber management plan and individual stand prescriptions.
- (2) To move ahead vigorously with the job of applying scientific forestry and multiple use planning to all commercial forest land including:
 - (a) Inventory and in-place delineation of timber stands by age class.
 - (b) Identification of problem areas and management opportunities.
 - (c) Preparation of silvicultural prescriptions for each stand and action programs to remedy problem areas.
 - (d) Selling of that timber volume prescribed for harvest.

Returns to the Treasury from the harvest of National Forest timber are summarized in the following tabulation:

<u>Fiscal Year</u>	<u>Receipts (in millions)</u>
1966	\$164.9
1967	172.8
1968	205.6
1969	306.8
1970	283.9
1971	217.0
1972	332.3 (estimated)
1973	349.9 (estimated)

Log export controls were extended through calendar year 1973 by the Housing and Urban Development Act of 1970 (PL 91-609, December 31, 1970). Part IV of the Foreign Assistance Act of 1968 included a section specifying that not more than 350 million board feet of unprocessed timber may be sold for export from the United States from Federal lands located west of the 100th meridian. Program costs for the enforcement of the Act on National Forest lands will be maintained at the same level for fiscal year 1973 as for fiscal year 1972.

Examples of Recent Accomplishments

The record of timber cut and sold during the past five years is compared with the annual allowable cut in the following table:

<u>Fiscal Year</u>	<u>Annual Allowable Cut</u> ^{1/}	<u>Actual Volume Cut</u>	<u>Percent of Allowable Cut Harvested</u>	<u>Actual Volume Sold</u>	<u>Percent of Allowable Cut Sold</u>
(Volumes in billion board feet)					
1967	12.2	10.9	89	11.6	95
1968	12.2	12.1	99	11.6	95
1969	12.8	11.8	92	18.9 ^{2/}	148
1970	12.9	11.5	89	13.4	104
1971	12.9	10.3	80	10.6	82

^{1/} As of January 1 preceding the fiscal year. Annual allowable cut includes only sawtimber for National Forests west of the Great Plains and in Alaska, and sawtimber and convertible products for National Forests in the eastern half of the United States.

^{2/} Includes Juneau Unit Pulp Sale in Alaska of 8.75 billion board feet.

TIMBER RESOURCE MANAGEMENT - Reforestation and stand improvement

1971	\$20,259,000
1972	32,232,000
1973	30,232,000
Decrease	-2,000,000

A decrease of \$2,000,000 for reduced employment.

The program for fiscal year 1973, compared with 1971 and 1972, follows:

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>Change</u>
		(in thousands)		
Reforestation	\$12,342	\$18,432	\$18,645	+\$213
Timber stand improvement	6,156	11,764	9,764	-2,000
Genetic tree improvement	1,464	1,473	1,484	+11
Nursery operation and development	<u>297</u>	<u>563</u>	<u>339</u>	<u>-224</u>
Total	20,259	32,232	30,232	-2,000

The proposed reforestation and stand improvement program will contribute to the long-range goal of improving the total net growth and sustainable harvest volume on the National Forests. Growth resulting from this program will not only help to offset the decrease in available yield brought about by changes in land use but will also help to raise both the short-term and long-term sustainable harvests from National Forests.

The shift of \$213,000 from the nursery development program will be used to reforest 1,180 additional acres by planting or seeding understocked or brush-covered land capable of producing high quality timber at a good rate. The average annual growth increase from this acreage is estimated at 130 thousand cubic feet (approximately 650 thousand board feet).

The \$2 million decrease in the timber stand improvement program represents savings due to employment reduction. Program reduction associated with this employment reduction amounts to 16,150 acres in fiscal year 1973 and an estimated 41,530 acres in fiscal year 1972.

The \$11,000 increase in the genetic tree improvement represents some regional shifts in program needs plus an increased emphasis on seed production areas and planting techniques.

The \$224,000 reduction in the nursery development program reflects decreased needs in fiscal year 1973 for facility improvement.

A comparison of proposed fiscal year 1973 outputs with fiscal years 1972 and 1971 follows:

	<u>1971</u>	<u>1972</u>	<u>1973</u>
		(estimate)	(estimate)
Reforestation	121,114	130,300	131,480
Timber stand improvement	<u>115,841</u>	<u>244,020</u>	<u>227,870</u>
Total	236,955	374,320	359,350

The average annual growth increase from the total 131,480 acres to be reforested is estimated at 14.4 million cubic feet (approximately 72.3 million board feet).

The average annual growth increase from the total 227,870 acres to be treated by stand improvement measures is estimated at 12.5 million cubic feet (approximately 62.7 million board feet).

It is estimated that the total program will provide 431,000 man-days of employment to semiskilled workers, generally in low-income rural areas.

An estimate of the acreage to be treated in each State is shown in Table 1 at the end of this section.

The locations and descriptions of the nursery projects are shown in Table 2.

Examples of Recent Accomplishments

Reforestation. An area of 111,909 acres of National Forest land was reforested with appropriated funds in 1971--87,964 by planting and 23,945 by seeding. In addition, 9,205 acres were artificially reforested by preparing the ground to promote regeneration from natural seed-fall. Other reforestation accomplishments in 1971 include:

- (1) Procurement of 22,233 pounds of clean tree seed. Forest Service seed extractories processed 21,656 pounds of seed and 577 pounds of seed were purchased from commercial seed companies.
- (2) Production of 98.7 million trees in 12 Forest Service nurseries.
- (3) Establishment of 21 acres of new seed production areas and 245 acres of new seed orchards. About 50 percent of the Southern pine seedlings outplanted were grown from the better quality seed produced in seed orchards or seed production areas.

In addition to reforestation done with appropriated funds, the following work was done with funds collected under the authority of the Knutson-Vandenberg Act:

	<u>Acres</u>
Tree planting	127,790
Seeding	25,511
Ground preparation to regenerate from natural seed fall	<u>27,366</u>
	180,667

An additional 5,964 acres of National Forest land were reforested by other Federal and cooperative programs.

The total area reforested where some treatment such as planting, seeding or site preparation was applied in 1971 was 307,745 acres.

Timber stand improvement. An area of 120,226 acres was treated by the following cultural measures with appropriated funds in 1971:

	<u>Acres</u>
Thinning	64,109
Release	51,153
Pruning	579
Fertilization	4,385

Timber stand improvement was also done for the same purpose with Knutson-Vandenberg funds on the following acreage in 1971:

	<u>Acres</u>
Thinning	115,957
Release	64,323
Pruning	<u>1,156</u>
	181,436

TABLE 1 - Estimate of Reforestation - Timber Stand Improvement to be Done
Fiscal Year 1973 -- Appropriated Funds

<u>State</u>	<u>Reforestation</u> (Acres)	<u>Timber Stand Improvement</u> (Acres)
Alabama	6,200	4,500
Arizona	2,500	12,600
Arkansas	7,900	5,100
California	10,600	21,400
Colorado	3,500	4,400
Florida	9,000	3,000
Georgia	1,800	2,000
Idaho	13,200	20,000
Illinois	700	200
Indiana	800	500
Kentucky	1,200	3,500
Louisiana	2,800	1,100
Maine	- -	700
Michigan	5,900	5,600
Minnesota	8,700	9,800
Mississippi	7,000	1,500
Missouri	4,000	6,000
Montana	5,000	23,000
Nevada	100	- -
New Hampshire	- -	3,700
New Mexico	1,150	9,400
North Carolina	2,600	4,400
Ohio	700	200
Oklahoma	1,000	1,700
Oregon	13,690	35,420
Pennsylvania	- -	2,700
South Carolina	1,100	200
South Dakota	400	1,400
Tennessee	900	2,200
Texas	4,500	500
Utah	1,000	3,750
Vermont	- -	1,000
Virginia	1,200	3,300
Washington	5,000	20,300
West Virginia	400	4,600
Wisconsin	3,940	4,000
Wyoming	<u>3,000</u>	<u>4,200</u>
Total	131,480	227,870

TABLE 2 - Nursery Operation and Development Projects - Fiscal Year 1973

<u>Coeur d'Alene Nursery, Coeur d'Alene, Idaho</u>		
Increase seed stock	\$15,500	
Miscellaneous minor betterment items	<u>16,000</u>	\$31,500
<u>Mt. Sopris Nursery, Basalt, Colorado</u>		
Soil amendment (with organics)	16,300	
Seedbed rock removal	7,700	
Drill irrigation well	5,300	
Purchase extractory tier frames	<u>5,300</u>	34,600
<u>Lucky Peak Nursery, Boise, Idaho</u>		
Replace portion of irrigation system	12,700	
Soil amendment (with organics)	<u>10,800</u>	23,500
<u>Placerville Nursery, Placerville, California</u>		
Miscellaneous minor betterment items	<u>13,400</u>	13,400
<u>Humboldt Nursery, Humboldt, California</u>		
Betterment of drainage system	24,000	
Construct fence extension	12,000	
Replace reservoir liner	7,200	
Purchase stock handling equipment	9,600	
Miscellaneous minor betterment items	<u>17,900</u>	70,700
<u>Bend Nursery, Bend, Oregon</u>		
Construct tree storage building	23,200	
Miscellaneous minor betterment items	<u>6,600</u>	29,800
<u>Wind River Nursery, Carson, Washington</u>		
Soil testing	2,500	
Purchase forklift	6,800	
Construct greenhouse	10,300	
Construct lathe house	5,100	
Miscellaneous minor betterment items and equipment	<u>49,900</u>	74,600
<u>W. W. Ashe Nursery, Brooklyn, Mississippi</u>		
Install irrigation valves	5,000	
Purchase seedling litter	7,600	
Purchase air compressor	4,000	
Modify kiln screens	8,000	
Miscellaneous minor betterment items	<u>3,900</u>	28,500
<u>J. W. Toumey Nursery, Watersmeet, Michigan</u>		
Construct cone storage facilities	9,500	
Miscellaneous minor betterment items	<u>8,500</u>	18,000
<u>Eveleth Nursery, Eveleth, Minnesota</u>		
Install overhead doors	5,000	
Miscellaneous minor betterment items	<u>5,300</u>	10,300
<u>Chittenden Nursery, Wellston, Michigan</u>		
Miscellaneous minor betterment items	<u>4,100</u>	<u>4,100</u>
Total		339,000

RECREATION-PUBLIC USE

1971	\$37,306,000
1972	40,137,300
1973	39,904,000
Decrease	-233,300

A net decrease of \$233,300 is proposed as follows:

(1) Increase of \$1,416,700 as follows:

- (a) \$816,700 to provide for environmental protection and enhancement through the application of an intensive landscape management program to timber harvesting.
- (b) \$400,000 to provide and maintain essential operation, including cleanup, and sanitation services for an expected 2 percent increase in recreation use.
- (c) \$200,000 to allow a more intensively administered program for concessions and recreation special use permits. This will insure proper development and operation for public safety of recreation facilities established by the private sector.

(2) Decrease of \$1,650,000 for reduced employment.

The Forest Service manages recreation use through the National Forest System. The following tabulation shows the total planned financing for fiscal year 1973 as compared with funds available in 1972.

	<u>FY 1972</u>	<u>FY 1973</u>	<u>Change</u>
	(in thousands)		
(1) Administration of concessions and recreation use permits	\$1,308	\$1,485	+\$177
(2) Operation and maintenance	31,753	31,807	+54
(3) Planning and inventories	1,238	1,220	-18
(4) Wilderness administration	2,823	2,777	-46
(5) Visitor Information Service	<u>3,015</u>	<u>2,615</u>	<u>-400</u>
Total	40,137	39,904	-233

Recreation use on the National Forests in 1973 is projected to be 194.5 million visitor-days, an increase of 2 percent over estimated use in 1972 and an increase of nearly 13 percent over use of 172.5 million in 1970.

Management of areas specially classified by Acts of Congress will emphasize the importance of and public interest in these areas. It is the responsibility of the Forest Service to effectively protect, administer, and operate these areas for public enjoyment and benefit without jeopardizing their unique esthetic and recreation attributes.

Enforcement of recreation occupancy and use regulations has traditionally been a low key Forest Service activity. National Forest officials still depend upon local law enforcement officials to handle major violations of State laws. Secretary of Agriculture regulation enforcement by the Forest Service must be stressed to insure National Forest visitors a safe and quality recreation experience.

Increased emphasis is planned for:

- (1) Maintaining health and safe standards for the continuing increase in recreation visitor use.
- (2) Preventing additional pollution.
- (3) Providing for operation, cleanup, and sanitation of developed sites and dispersed areas.

Administration of concession and recreation use permits is also identified for increased emphasis to insure safe standards in operation and construction of new facilities. Increased emphasis on training for all aspects of the recreation activity is planned in order to improve public service and increase resource protection.

Concern for protection of esthetic qualities of the National Forest environment has resulted in intensifying the landscape management program.

A more detailed explanation of financial needs is as follows:

(1) Administration of concession and recreation use permits \$1,485,000

In fiscal year 1973 approximately 28.4 million visitor-days, or 40 percent of all developed sites on the National Forests, will be accommodated by facilities built and operated under Forest Service supervision, by special use permittees and/or concessioners.

The net increase of \$177,000 reflects the relative priority of the work which is essential to insure public safety and resource protection in the operation of existing facilities and the construction of new facilities. The funding level will administer 1,777 concession and 20,000 recreation special use permits. This work is necessary to assure compliance with permit requirements that sites continue to serve the purpose for which they have been established.

(2) Operation and maintenance \$31,807,000

This item includes funding necessary to:

- (a) Operate the recreation program in developed sites and general forest areas, including those in special areas such as National Recreation Areas, archeological and other special areas, wild and scenic rivers, and the National System of Trails. Operation includes such items as regulation of use (including off-road vehicular use) where necessary, cleanup of refuse in sites and general forest areas, providing for reasonable safety of visitors, and fee collection and enforcement. It also includes operation of a landscape management program to enhance and protect the visual qualities of the National Forests.
- (b) Maintain facilities located in developed recreation sites and those in general forest areas.

The net increase of \$53,700 funds available will help to cope with the impact created by an expected increase of 3.7 million visitor-days of use. It will be used to operate developed recreation sites and the general forest areas. Increased intensity of operation, including actions such as night patrols in general forest areas and full-time attendants at developed sites will help in enforcement of regulations and reduction of the \$2 million of vandalism damage which occurs annually. The program of complying with Executive Order 11507 (Air and Water Pollution Control at Federal Facilities) will be intensified.

The total funding will provide for the cleanup and administration necessary to accommodate 600,000 visitor-days of use expected on over 2,000 miles of the recently established Appalachian, Pacific Crest, and Gabrielino National Scenic Trails and for establishment of additional trails.

It will also provide for cleanup and sanitation within the 478 miles of Wild and Scenic and Recreational Rivers System within the National Forests. It will provide for necessary operation to accommodate the 300,000 visitor-days of use these areas will receive. Cleanup costs are high due to difficult accessibility, and programs will be continued to encourage visitor self cleanup.

This funding will also allow initiating a program to comply with Executive Order 11593 in identifying key archeological and historical sites as well as developing and maintaining information on such sites. These sites, especially those endangered by vandalism or other acts, will be protected.

This level of funding will also provide for continued operation of the 181 developed sites in National Recreation Areas at the same level as in 1972.

Dispersed recreation use such as hiking, riding, hunting, fishing, and snow play on the 171 million acres of National Forest lands (outside wilderness, special areas, and developed sites) will also be accommodated. In 1973 this type use will amount to about 113 million visitor-days, or about 60 percent of all the recreation use occurring on National Forest lands. Providing for cleanup, reasonable safety of users, minimal sanitation facilities, and law and regulation enforcement is a major job that will be accomplished with this funding level.

Essential recurring maintenance and correction of unsafe conditions for all Forest Service recreation facilities in general forest areas and at developed sites will also be accomplished.

The funding requested will allow the development of procedural instructions and training programs for all National Forest land managers to insure that commodity uses, including timber harvest, which the National Forests must support are so planned and administered as to be compatible with the environmental and ecological integrity of all the landscapes involved. It will also allow a more intensively administered program for environmental protection and enhancement of National Forest lands. The availability of the scientific knowledge necessary to fully implement the intent of the Environmental Policy Act of 1969 is dependent on a continuing cadre of specially trained landscape architects to participate in inter-disciplinary multiple use planning. The funding requested will allow for a continuing cadre of landscape architects for an intensified program in developing overall multiple use, environmental resource, and landscape plans assuring that timber harvest and other commodity uses are harmonious with the natural landscape.

(3) Planning and inventories \$1,220,000

The decrease of \$18,000 will allow for maintaining the 1959 to 1961 National Forest Recreation Survey and unit management plans, and the preparation of plans for management of areas specially classified by Acts of Congress. Planning for off-road vehicular use will also be accomplished.

(4) Wilderness administration \$2,777,000

A decrease of \$46,000 due to employment limitations. The program level for an acceptable level of cleanup and sanitation on the 14.2 million acres of National Forest Wilderness and Primitive Areas.

Studies leading towards reclassification of Primitive Areas as directed by the Wilderness Act of 1964 will also remain on schedule to assure completion within the allotted time directed by the Act.

(5) Visitor Information Service \$2,615,000

The decrease of \$400,000 is due to employment limitations. The program level will allow for cleanup and sanitation at visitor information facilities to accommodate an expected increase in use and the continuance of essential activities provided at visitor centers, information stations, roadside exhibits, guided interpretative programs, activities for the blind and handicapped, auto tours, amphitheater and campfire talks. Naturalist programs which contribute

to public understanding and appreciation of natural resources and their role on the quality of the human environment will also be continued. These programs are the foundation of the Forest Service's people-to-people environmental and ecological education activities.

Research

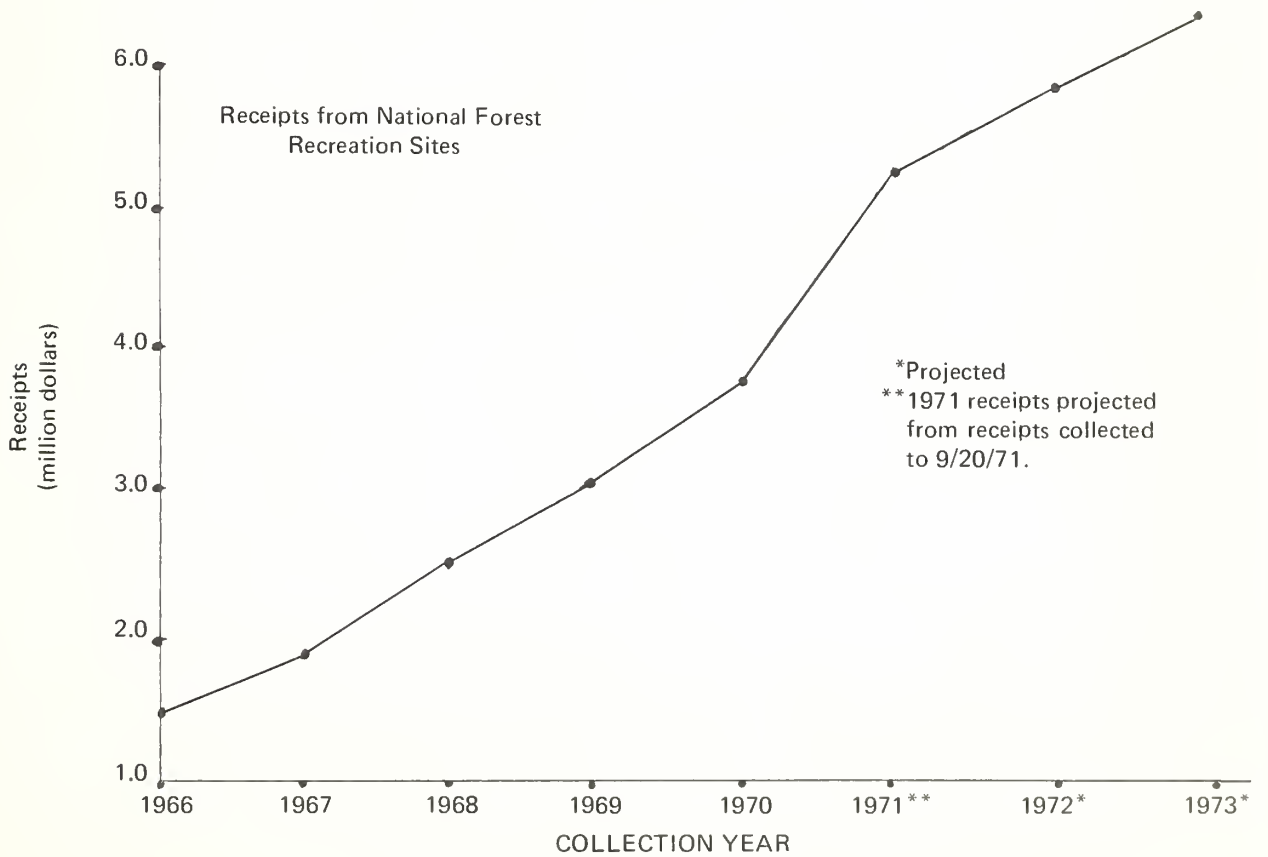
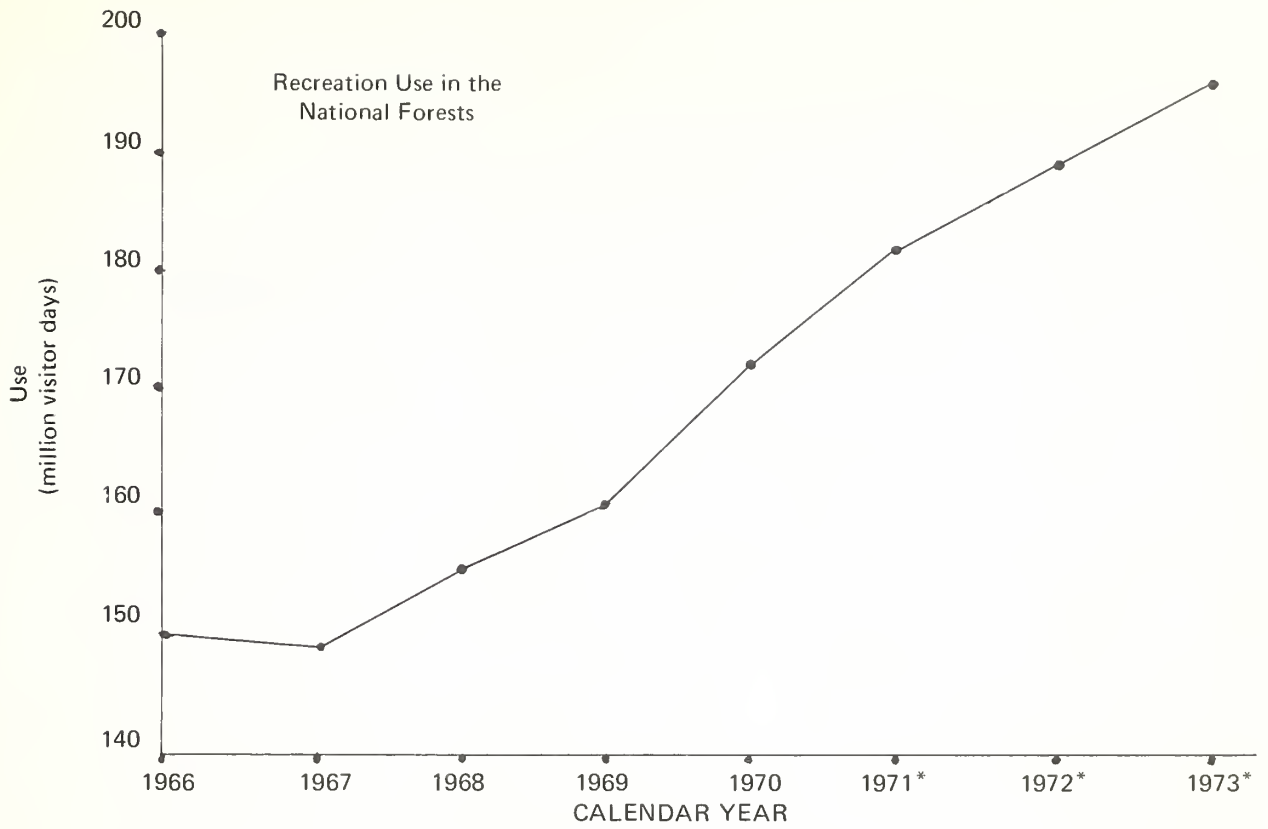


Figure 2-1



BEFORE HARVESTING



AFTER HARVESTING

Shapes and patterns of naturally occurring openings together with resource values, including soils, watershed, wildlife, and esthetics for the recreation visitor, provided the basis for blending this timber harvest into the character of the landscape.

Figure 2-2

Progress in review of National Forest Primitive Areas
for possible reclassification as wilderness
as required by the Wilderness Act

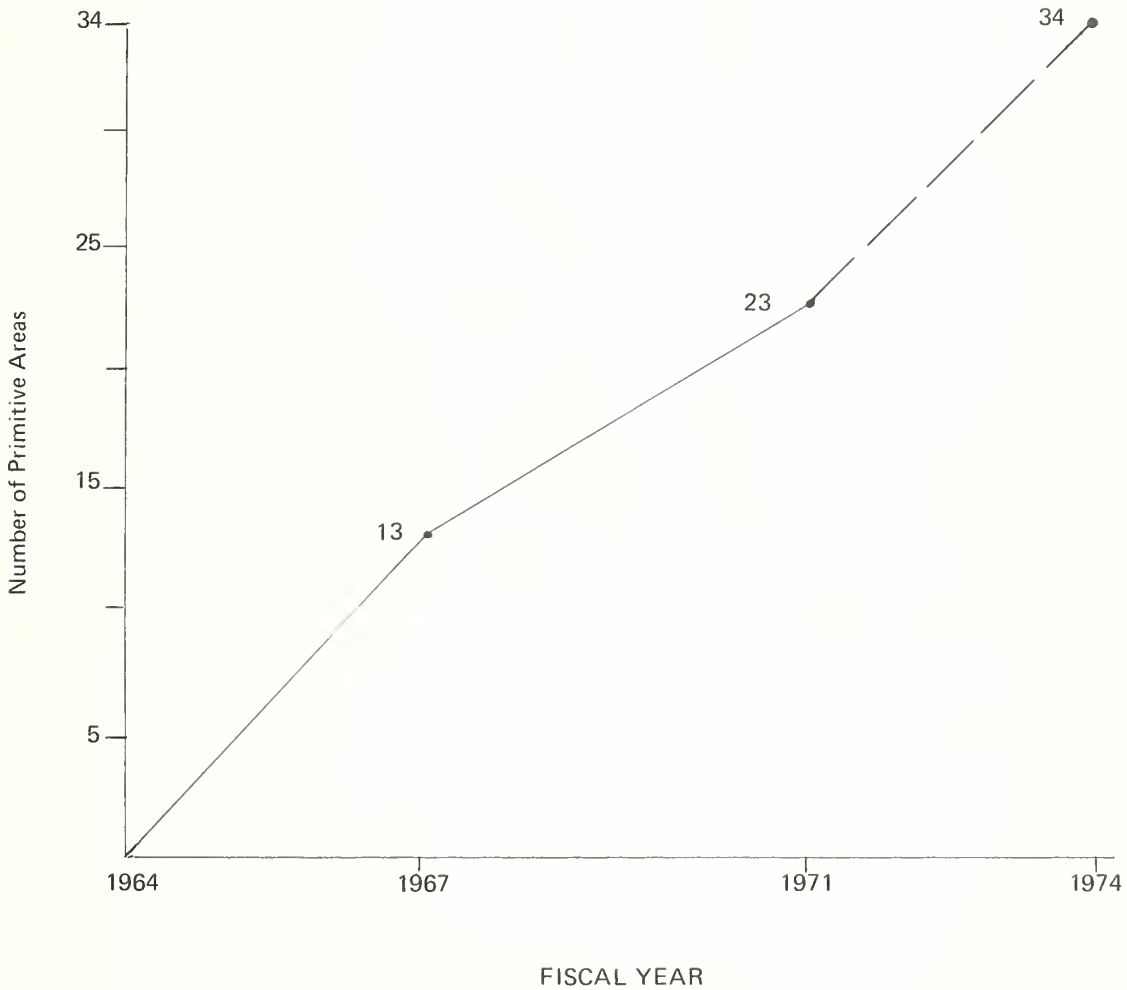


Figure 2-3

WILDLIFE HABITAT MANAGEMENT

1971	\$4,934,000
1972	6,187,000
1973	6,787,000
Increase	+600,000

A net increase of \$600,000 is proposed as follows:

- (1) \$600,000 specifically for the coordination of timber activities on National Forests with the biological needs and requirements of fish and wildlife species inhabiting the areas of work activity. Program activities such as timber harvesting, timber regeneration, timber stand improvement, recreation, road and trail construction, and reservoir construction can have adverse impacts upon wildlife and fish habitat unless development and land use activities are thoroughly coordinated with the environmental needs of the animal forms. To best accomplish this integration of resource use planning and provide adequate consideration for the fish and wildlife species, the expertise of trained biologists is required. These men, working in close harmony with professionals in other disciplines (such as, forestry and range management) are able to prescribe management measures to best meet the habitat needs of the fish and wildlife species at the most critical period, i.e., during the formulative stage of the planning process.
- (2) \$400,000 for the enhancement of fish and wildlife habitat in an effort to meet the steadily increasing public recreational demands. Special emphasis will be placed on the development, maintenance, and protection of habitat for rare and endangered species and fish stream habitat work. Fish stream habitat improvement will also have the benefit of improving water quality for other uses. Improvement projects will include seeding, permanent wildlife habitat openings, spring developments, small dams, water guzzlers, pothole construction, nest boxes, debris removal from streams, construction of fish spawning beds, and development of fish shelters. These types of projects will provide jobs for temporary laborers, increase fishing and hunting opportunities, and directly improve the quality of the forest environment.
- (3) \$200,000 for the maintenance, improvement, and protection of rare and endangered species habitat on National Forest lands. Improvements will include the development of food, cover, nesting areas, and habitat enlargement, which are basic to the continued maintenance of a quality environment.

At the present time, 28 of the 58 rare and endangered species found on lands administered by the Forest Service are receiving special management attention. During the history of North America, at least 21 species of wildlife have become extinct, a most drastic loss of a part of our national heritage. In response to this national problem, Congress passed the Endangered Species Preservation Act (PL 89-669) of October 15, 1966, and amended it in 1969. To thwart this advancing extirpation of important vertebrate species, the Forest Service programs of land management are continually being strengthened to assist in providing the quality habitat values necessary for survival.

- (4) Decrease of \$600,000 for reduced employment.

The planned level of financing for fiscal year 1973, as compared with 1971 and 1972 is as follows:

	<u>1971</u>	<u>1972</u>	<u>1973</u>
	(in thousands)		
(1) <u>Recurrent Work</u>			
(a) Coordinating wildlife needs with other resource activities	\$1,297	\$1,534	\$2,082
(b) Cooperation with State and Federal agencies	1,079	1,102	825
(c) Surveys and plans	988	1,010	780
(d) Maintenance of habitat and improvements	418	427	312
(2) <u>Habitat Restoration and Development</u>			
(a) Food and cover development	329	518	425
(b) Water developments	99	231	309
(c) Wetland developments	340	530	487
(d) Fish stream improvement	233	525	482
(e) Fish lake development	151	310	340
(3) <u>Rare and Endangered Species</u> ^{1/}			
(a) Habitat maintenance through coordination			300
(b) Plans and surveys			300
(c) Administrative studies			100
(d) Direct habitat improvement			45
Totals	4,934	6,187	6,787

^{1/} Estimated cost of rare and endangered species program in 1972 (\$545,000) was included in recurrent work and habitat restoration and development and not categorized by items.

Recurrent work is the heart of the wildlife program which involves relatively fixed annual costs in relation to other resource uses and programs.

- 1(a) Coordination. Coordinating wildlife environmental needs in all other resource uses and activities. Wildlife biologists are assigned to all regional offices and to a number of the National Forests to work on multidiscipline planning teams and give technical guidance to this activity. The intensity of coordination determines the degree to which wildlife values are protected or enhanced. The control of animal damage to other resources also requires intensive coordination.
- 1(b) Cooperation. Cooperating with State conservation departments, the agencies responsible for protecting wildlife and regulating the harvest of game populations, is an important part of the Forest Service wildlife program. Habitat management on the National Forests is essential to the success of State fish and game programs because habitat and wildlife populations cannot be managed independently of each other. The States contribute a substantial share of the cost of habitat and fishing water improvements. In 1971, the States financed 58 percent of the habitat work on the National Forests. This amounts to an expenditure of about \$2 million.
- 1(c) Surveys and plans. Evaluating wildlife, fish, and rare or endangered species habitat, preparing or revising wildlife management plans, and assisting with multiple use planning, are continuing activities which are basic to an effective wildlife program.

- 1(d) Maintenance. Maintaining habitat improvements already in place is a recurring job that generally takes precedence over new development work. The States share in this work under terms of cooperative agreements.

Habitat restoration and development include a wide variety of activities designed to increase wildlife and fish production for the use and enjoyment of the public.

- 2(a) Food and cover. Developing either food or protective cover to enhance the quality of the wildlife environment. This is a broadbased program applicable on all Forest Service administered lands.
- 2(b) Water developments. Includes several types of projects aimed at providing drinking water for wildlife. This work is particularly important in the arid regions of the West.
- 2(c) Wetland developments. About 90 percent of this work consists of marshland improvement for waterfowl in the north central States and the development of greentree reservoirs along the Mississippi drainage. This work is extremely important in the total national effort to maintain waterfowl production.
- 2(d) Fish stream improvement. Includes removal of migration barriers establishing in-stream improvement devices, mechanical gravel cleaning, streambank stabilization, streambank fencing, and construction of streamflow maintenance. Program emphasis will be directed toward the western forests and Alaska.
- 2(e) Fish lake improvement. Includes development of new fishing lakes and the improvement of existing lakes. New lake development is a cooperative program with the State conservation departments.

Rare and endangered species include several activities directed toward improvement, protection and management of the habitat for 58 wildlife and fish species found on lands administered by the Forest Service.

- 3(a) Habitat maintained through coordination. Coordination of other resource activities with programs for the protection and management of rare and endangered species. Surveys, studies, and plans form the basis for implementing the prescribed environmental needs and requirements. Activities are coordinated and integrated into the programs of other Federal and State agencies having direct responsibility for management of the populations.
- 3(b) Plans and surveys. Evaluation of rare and endangered species habitat, preparing or revising wildlife management plans to best meet the multiple resource uses while continuing to provide maximum environmental benefits for these important species of wildlife.
- 3(c) Administrative studies. To effectively identify the critical limiting factors affecting the species through evaluative studies which will provide the guidelines necessary to future management of the habitat.
- 3(d) Direct habitat improvement. Includes the development of food, protective cover, nesting areas, habitat enlargement and other enhancement measures to improve and maintain quality environment values.

Work accomplishments during 1971

A summary of habitat restoration and development accomplishments follows:

- | | |
|--------------------------------------|---------------|
| (1) Food and cover development | 224,069 acres |
| (2) Water development | 981 units |
| (3) Wetland development | 5,160 acres |

(4) Fish stream improvement:

(a) In-stream structures	3,682 units
(b) Barrier removal	668 units
(c) Spawnbed improvements	2,869 rods
(d) Channel fencing	4,921 rods
(e) Rough fish removal	45 miles

(5) Fish lake development:

(a) Spawnbeds and shelters	35 units
(b) Aquatic plant control	1,482 acres
(c) Rough fish removal	42,838 acres
(d) New fishing lakes	714 acres

Examples of Recent Accomplishment

A joint survey program with the Bureau of Sport Fisheries and Wildlife in locating eagle nest trees on National Forests in Alaska has been very successful. Approximately 950 nest trees have been located on an estimated 1,600 miles of surveyed shoreline on the North and South Tongass National Forests. Fifteen nests were found on the Chugach National Forest.

An accelerated program of project wildlife habitat work designed to expand the local economy and meet social needs commenced on the Tuskegee National Forest, Alabama, in cooperation with the Tuskegee Institute. A total of 65 acres of dove fields in which millet and sunflowers were planted, a dewatering area constructed by the Manpower Training Program of the Tuskegee Institute and a 100-acre lake were selected for development during the year.

A most significant accomplishment in 1971 was a land exchange on the Toiyabe National Forest with the Sierra Pacific Power Company. This land exchange placed 638 acres of the rare and endangered Piute trout habitat into National Forest status. The California Department of Fish and Game has also placed emphasis on the management and protection of this rare species.

Public use and enjoyment of the wildlife resources continue to grow. This use includes both hunting and fishing and appreciative uses. In calendar year 1970, the estimated public wildlife use of Forest Service administered lands amounted to:

Hunter visitor-days	14,309,000
Fisherman visitor-days	15,239,000

(The visitor-day is a unit of measure amounting to 12 hours)

In addition, there was an estimated 10.9 million days of appreciative use which includes bird and animal watching, wildlife photography, and forest visits to observe all forms of wildlife, including rare and endangered species. Wildlife activities not only provide for an outdoor recreation experience and the suitable environment for all wildlife species, but it is also important from an economic standpoint. This is especially true in rural areas and communities. Estimated user expenditures for wildlife-oriented activities on the National Forests for fiscal year 1971 are as follows:

<u>Activity</u>	<u>User</u>	
	<u>Days Use*</u>	<u>Expenditures**</u>
	(in millions)	
Appreciative (bird watching, photography) ...	10.9	\$52
Big-game hunting	24.2	231
Small-game hunting	5.6	29
Waterfowl hunting	1.4	9
Freshwater fishing	45.3	226
Saltwater fishing3	2
Commercial salmon fishing4	26

* Days use--calculated from visitor-days use reports, using the following conversions:

- (1) Each hunter averages 5 hours of hunting time per day.
- (2) Each freshwater fisherman averages 4 hours of fishing per day.
- (3) Each saltwater salmon fisherman averages 6 hours of fishing per day.
- (4) Each bird watcher/photographer is estimated to spend 4 hours per day.

** User expenditures--based on average expenditures for sport fishing and hunting as determined in the National Survey of Fishing and Hunting (1965). For commercial fishing, the output value is based on the value of the salmon catch of fish spawned in waters within National Forests but caught in off-shore saltwater.



The Endangered Species Preservation Act of October 15, 1966 directs the Secretary of Agriculture to take all reasonable steps to protect native species threatened with extinction on lands administered by the Department of Agriculture. Of the 58 rare and endangered species found on, or near, lands administered by the Forest Service, 19 are fish. The Lahontan cutthroat trout is an endangered species that is receiving special management emphasis on the Tahoe National Forest in California. The maintenance and enhancement of the habitat for rare and endangered species is a high priority job in the Forest Service.

Figure 3-1



Direct Habitat Management. Although coordination with timber programs provides the major opportunity for habitat enhancement, there are certain specific situations that require direct habitat project improvements. Enhancement of stream habitat for fish is illustrative of the type of situation where direct improvements are needed to enhance the habitat and thus provide greater fishing opportunities for forest users.

Coordination of wildlife habitat needs into timber programs is a high priority job. Timber programs have the potential of enhancing or adversely affecting wildlife habitat, depending on the coordinated planning that goes into the programs and how they are carried out on the ground. Maintenance of fruit producing species, such as the persimmon is illustrative of the habitat needs that must be considered and planned for in all timber management programs.

Figure 3-2

RANGE RESOURCE MANAGEMENT

1971	\$7,105,000
1972	7,290,000
1973	6,723,000
Decrease	-567,000

A decrease of \$567,000 for reduced employment.

The program consists of the fundamental job of managing the range environment of the National Forest System and promoting sound conservation practices on private lands in the general areas surrounding and associated with the National Grasslands. It is carried out by some 600 professional resource managers and specialists.

Tasks include:

- (1) Inventory and analysis of the range resource.
- (2) Formulating and implementing plans for development, management and use of range resource in coordination with other resource values and uses.
- (3) Allocating and administering the use of the grazing resource.

The on-the-ground management job is accomplished largely through the cooperative efforts of the grazing permittees. Through consultation with interested individuals and organizations, the public is also involved in setting general management direction.

There are 105.5 million acres of National Forest System lands included in some 12,000 management units (range allotments) within which livestock grazing is allowed. Closely associated with these public lands are some 66 million acres of private land used for livestock grazing or production of livestock feed. Together these public and private lands form the land base for some 18,000 livestock operations. Most of these are small family-type enterprises. Some 1,100 of them are owned and operated by members of a minority group.

National Forest System lands provide grazing for some 2.6 million cattle and 4.2 million sheep under paid permit. Grazing is also provided for some 170,000 head of livestock free of charge. These consist of milk cows and work horses used by local farmer-ranchers and transportation stock used by recreationists and incidental forest travelers. Over 80,000 free grazing permits were issued in 1971.

Management of the range ecosystem aims at maintenance of a quality environment and optimum production of forage for livestock and game. The program is strongly dedicated to economic revitalization of rural communities and improvement of social and economic conditions for disadvantaged groups and individuals.

A rapidly growing environmental problem indirectly associated with range resource management is the infestation of the forest and range environment with noxious farm weeds. A 1968 inventory showed that some 350,000 acres of National Forest System lands were heavily infested with these weeds. The weeds are introduced and spread by such activities as fire suppression, logging, road construction, hunting and recreation use, the movement of livestock and wildlife, and by the natural agents of wind and water.

Since many of the major drainages and their tributaries have their source on the National Forests, infested National Forest lands are a potential source of infestation for large areas of agricultural lands downstream.

Recent and Planned Accomplishments

	<u>1971</u> (accomplished)	<u>1972</u> (estimated)	<u>1973</u> (planned)
Allotments under prescription management <u>1</u> /	5,400	5,650	5,850
Noxious farm weed control (acres) ...	4,500	4,500	4,500

1/ Managed under a prescribed and approved plan based upon inventory and analysis of the range resource. The annual target is to get 250 additional allotments under prescription management each year. In fiscal year 1973 only 200 additional will be placed under management due to reduction in employment.

RANGE REVEGETATION

1971	\$3,384,000
1972	3,419,000
1973	3,419,000

It is proposed to continue this program at the 1972 level.

Range revegetation establishes by cultural means a vegetation cover which builds up and protects the soil and provides desirable forage for livestock and game. First priority for treatment is given to badly deteriorated forage-producing areas which need to be expeditiously restored to protect the soil resource. Second priority is given to cover manipulation to restore range values and increase forage production. In either case, the program is carried out with the multiple objectives of environmental improvement, increased production, and betterment of social and economic conditions for rural residents and communities.

Recent and Planned Accomplishments

	<u>1971</u> (accomplished)	<u>1972</u> (estimated)	<u>1973</u> (planned)
Acres revegetated:			
With appropriated funds	140,000	156,000	156,000
With permittee funds	<u>18,000</u>	<u>18,000</u>	<u>18,000</u>
Total	158,000	174,000	174,000

RANGE IMPROVEMENTS

1971	\$4,583,000
1972	4,641,000
1973	4,531,000
Decrease	-110,000

A decrease of \$110,000 for reduced employment.

The program consists of the construction and maintenance of the structural improvements needed to manage the livestock in coordination with other resource uses and values of the range ecosystem.

Range fences provide control over distribution of livestock. They make possible periodic resting of portions of the range to allow for regeneration and vigor recovery of range plants. Water developments make available for grazing use areas which otherwise would remain unused due to lack of drinking water for livestock and game.

Construction and maintenance of structural range improvements go hand in hand with revegetation and management as an integral part of the management strategy for each range allotment. Cultural treatment of the range must be followed by proper management in order for it to be effective. Management of the range is dependent upon the fences, water developments and other facilities required for control and distribution of the livestock.

Recent and Planned Accomplishments

	<u>1971</u>	<u>1972</u>	<u>1973</u>
	(accomplished)	(estimated)	(planned)
Miles of fence constructed:			
With appropriated funds	1,062	1,070	1,040
With permittee funds	604	600	600
Water developments:			
With appropriated funds	1,253	1,250	1,220
With permittee funds	509	500	500

SOIL AND WATER MANAGEMENT

1971	\$6,721,000
1972	9,422,000
1973	9,422,000

The changes within the total appropriation are proposed as follows:

- (1) Increase of \$400,000 to provide higher quality land and **timber resource management** on National Forest System lands.
- (2) Decrease of \$400,000 for reduced employment.

Benefits to the Nation will accrue through:

- (a) Increased resource production supported by scientific soil, geology, and hydrology inputs.
- (b) Higher level of environmental quality through additional surveillance of management activities.
- (1) Resource protection requirements and design services (\$2,344,000, a net increase of \$165,000)

This increase will permit providing essential management services on an additional 290 projects over the fiscal year 1972 plan of 1,250 projects. Included are a wide variety of projects relating to timber management, range management, recreation, and road construction. The principal objectives of the soil and water management services are three-fold:

- (a) Development of standards, criteria, and methods for evaluating degrees of impact to, or the enhancement of, the soil and water resources.
- (b) Development of prescriptions to assure that resource programs are designed and implemented in a manner that protects the soil, water, and other environmental values.
- (c) Appraisal of the effects of appropriate management alternatives and uses on the soil and water resources.

The overall goal is the avoidance of costly mistakes in terms of soil, water, and environmental damage for both long-term and short-term project proposals. Among other things, this activity is needed to keep water clean and soils productive.

This program segment includes obtaining resource facts in the acceleration of developing local soil and water protection standards for the 1,100 municipal water supply watersheds that occupy 40 million acres of valuable timberlands. Especially important are the 700 watersheds which supply municipal and domestic water to small, rural communities where the water is not adequately treated and where, under the timber harvest program, increased logging activity will occur.

Examples of Recent Accomplishments

Increasing emphasis is being placed on getting soils, geologic, and hydrologic information into project design.

On the Sitgreaves National Forest in Arizona, the foresters and the soil scientists are now intensively correlating their timber and soil resources. On all areas in need of regeneration, the basic soil problems associated with each have been identified, thus giving the opportunity to treat the causes (rather than the effects) through appropriate timber cultural practices.

The Northern Region is reevaluating some of its older timber sales. Modifications in design are being made on the basis of new geologic, soil, and hydrologic survey data and existing environmental protection standards.

The problem of waste disposal is greatly expanding and many communities, both large and small, are looking to rural lands for the ultimate disposal. To help bridge the existing gap between water quality standards and soil quality standards, scientists in the Eastern Region developed environmental protection criteria guides for disposal of treated sewage on forested lands. Management recommendations leading to individual project designs tailored to local conditions are provided for specific soil and landscape characteristics. This region is also developing modifications of standard criteria and design layout for landfills (solid waste disposal) in an attempt to secure a greater number of usable sites. Trial landfill projects utilizing sites identified by the modified criteria will be examined periodically to determine if they are having any adverse effect on the watershed and surrounding area.

The watershed scientist on the Teton National Forest in northwest Wyoming has identified landslide hazards that present definite built-in limitations to management practices, particularly in the fields of road construction and timber harvest. Standards have been developed that specifically relate to landslides and earthflows in response to timber harvest.

A geologic survey of the location line, on a road near Cle Elum, Washington, identified 2-1/2 miles of unstable terrain. Redesign of the road increased travel safety, reduced construction, and maintenance costs, and prevented potential damage to the environment.

The geologist on the Monongahela National Forest pinpointed areas to be grouted at the Summit Lake damsite in West Virginia. The project was to strengthen dam safety and reduce water leakage. Geologic investigations identified better location for grout holes that reduced estimated repair costs by 60 percent.

The San Fernando earthquake of February 9, 1971 severely damaged Forest Service roads and a barracks. Forest Service geologists, located and analyzed the landslides to aid in the repair and increase the safety of the damaged structures.

High spring runoff severely damaged the natural dam of Earthquake Lake in Montana. Geologists were an important part of the committee formed to determine future actions to safeguard the dam and provide for the safety of downstream residents.

Resource protection requirements and design services were provided on over 2,000 projects in fiscal year 1971.

(2) Reconnaissance surveys: soil, water, geology, and hydrology (\$1,522,000)

These inventories conducted by scientists provide selected basic information interpreted for both short and long-term planning efforts in such areas as timber management, transportation systems, and the Wild and Scenic Rivers program.

As management and development activities move increasingly into the remote, more difficult, and more fragile areas, the need for at least minimal levels of basic information about the watersheds becomes more critical. Such information is essential in the support of multiple use planning on a broad-scale basis in the nonmetropolitan areas of the Nation. Information provided by these reconnaissance resource surveys and inventories has and is being used in the development of many resource plans that directly aid local employment by sustaining or increasing economic activities such as timber harvest, reforestation, range improvement, wildlife habitat improvement, and recreation.

Examples of Recent Accomplishments

In fiscal year 1971, reconnaissance surveys and inventories were conducted on over 11 million acres.

(3) Surveillance of management activities (\$1,015,000, an increase of \$100,000)

This increase will be used for monitoring the effects of timber management activities. The stations would be located in Alaska, California, Idaho, Montana, Oregon, and Washington. Soil and water condition and trend studies are to be started at 25 additional locations, making a total of 80 locations receiving this service. This program is necessary to:

- (a) Provide surveillance that assures National Forest uses and programs are compatible with the protection of man's environment, especially enhancement of water quality.
- (b) Identify areas with existing or emerging soil and water quality problems so that corrective action can be formulated and implemented.
- (c) Meet constantly increasing demands for documenting the effects of activities on the quality of soil and water in relation to existing State and Federal standards.

There are approximately 4,000 designated watersheds on National Forest System lands including 1,100 which are the principal source of community water supplies.

The program is guided by scientists and provides opportunities for the employment, development, and training of area residents to carry out development, maintenance, and data collecting aspects of the surveillance system.

This surveillance program includes:

- (a) General evaluation on the effect of land, vegetation, and soil management practices on the soil and water resource.
- (b) The effect of increasing public uses of water discharging from National Forest System lands.
- (c) Determination of the quality of water leaving the National Forest.

The purpose of this continuing program is to:

- (a) Provide improved watershed protection through early identification of potential changes and trends in soil or water quality that may occur in accommodating increasing use and development of resources associated with existing and accelerated programs, and new projects so that prompt adjustments or corrective action can be undertaken.
- (b) Provide a sound management basis for evaluation and interpretation of technical data on the effect of land use activities upon the soil and water resource.
- (c) Provide methods and procedures for predicting effects of land management activities on water behavior and quality of the soil and water resource in rural areas.

The continued work involves 55 surveillance stations in 19 States, and a reconnaissance survey involving selected water quality criteria for surface waters in Arizona and New Mexico. The sampling covers such diverse activities and areas as timber harvest in fragile areas, mineral developments, Boundary Waters Canoe Area, and suspected pollution problem sites where people physically use the water resource.

The 390.4 million acre-feet of high quality water produced from National Forests is an example of the importance of water in the multiple use law. In 1970, the dependent gross product for all water uses from National Forests averaged \$992 per acre-foot of water produced or a total of \$141 billion. The economic implications and intangible benefits for protecting the clean water resource will result in substantial and varied benefits to all our citizens.

(4) Watershed restoration (\$1,148,000, a decrease of \$100,000 for reduced employment)

This element is for the restoration and maintenance of surface disturbed areas to enhance the quality of the environment and restore productive capacity of renewable resources. High priority projects include:

- (a) The South Fork Salmon River Project (Idaho) where sedimentation has severely damaged anadromous and resident fisheries of regional and possibly national importance.
- (b) The Palzo tract project (Illinois) where chemicals and sediment from old surface coal mining operations have seriously degraded water quality and caused the United States to be cited in court by State water quality authorities.
- (c) South Fork Holston River and New River Watershed (Virginia) where sedimentation from old manganese mining operations affect stock water, wildlife and resident fisheries.

Restoring the hydrologic functioning of rural lands damaged beyond the point of natural recovery is essential to protecting the beauty and quality of the rural environment. This is a continuing program to:

- (a) Meet soil stability and water quality requirements.
- (b) Encourage the orderly development of watershed resources.
- (c) Repair degraded watersheds.
- (d) Provide continuing maintenance to projects completed to keep them effective.

These funds will be used to provide some opportunities for utilizing the skills, and to furnish jobs and timely income for local people in rural areas of low income and critical underemployment. Illustrative of some of the specific activities are:

- (a) Emergency treatment and maintenance for the highest priority areas in the 184,000 acres of National Forest System lands burned annually by wildfires.
- (b) Being responsive to treatment and maintenance needs on thousands of miles of abandoned roads and trails that are the greatest contributors of sediment, uncontrolled runoff, and local problems of flooding and inability of the water supply to serve agricultural, domestic, or recreational needs.
- (c) Maintenance and reinforcement on the highest priority areas of eroding and gullied lands treated during the last 5 years.
- (d) Removal of debris in stream channels above reservoirs and in anadromous fish streams.

Examples of Recent Accomplishments

Restoring damaged watersheds. Rehabilitation of damaged areas is progressing in all parts of the country, but much of this work still needs to be done.

Rehabilitation work is coordinated with other resource and service divisions to accomplish an integrated program of management under multiple use.

In fiscal year 1971, Forest Service crews treated and stabilized:

Acres of sheet eroded and deteriorated areas	16,000
Miles of gullies	300
Miles of streambanks	150
Miles of shorelines	2
Miles of roads and trails	1,000
Acres of lands disturbed by surface mining and prospecting ...	100

Treatments to aid in restoring favorable watershed conditions on lands damaged by wildfire continued. Emergency measures (initial treatment on new burns and maintenance on older burns) were applied to 25 fires on 375,000 acres that required onsite protection and posed threats to life, property, public health, and watershed functioning.

Priority attention was given to areas damaged in Upper Tonto Creek, Arizona, by unprecedented amounts of rainfall. There were 10 miles of clearing channels of debris and numerous stream improvement structures to halt channel deterioration and to prevent subsequent surges of runoff with localized flood and sediment potential. The Forest Service worked effectively with the Arizona fish and game department to protect and improve fisheries habitat. The work provided a significant amount of temporary employment for residents of this disaster area.

(5) Wild and scenic river studies (\$678,000, a decrease of \$65,000 for reduced employment)

These funds will be used to carry out continuing studies on eight of the nine study rivers for which the Secretary of Agriculture has responsibility under the Wild and Scenic Rivers Act (PL 90-542). This Act requires that studies be made and reports prepared by the Secretaries of the Interior and Agriculture for 27 rivers as potential additions to the National Wild and Scenic Rivers System. All studies are cooperative endeavors with States, Federal agencies, and other interested parties participating.

The Forest Service is the lead agency for Agriculture's river study work. The nine rivers for which Agriculture has study leadership responsibility are: Chattooga in North Carolina, South Carolina, and Georgia; Flathead in Montana; Illinois in Oregon; Moyie in Idaho; Pere Marquette in Michigan; Priest, St. Joe and Salmon (Main Stem) in Idaho; and the Skagit in Washington.

The funding for fiscal year 1973 will complete the Pere Marquette River study and permit work to continue on the remaining Agriculture-led river studies. It also provides recognition for employment of local people in obtaining data on resource uses and in measuring and evaluating productive capability of soil and water resources.

Examples of Recent Accomplishments

The fiscal year 1971 study efforts were completed on the Chattooga River and essentially completed for the Pere Marquette. Substantial work was accomplished on the Flathead, St. Joe, Skagit and Salmon with lesser efforts on the remainder. Also, a National Forest contribution was made to the Interior-led Suwannee, Upper Iowa, Little Miami and St. Croix Rivers studies.

(6) Soil and water resource analysis, planning, predictions, and evaluation (\$1,282,000)

Priority will be given to areas with critical underemployment by providing temporary job opportunities and training of local technicians in strengthening, at the forest level, the base upon which resource and management projects are planned, implemented, and evaluated in protecting the environment.

This involves the skills and knowledge of scientists, aided by technicians recruited from students and local residents, in determining the response of forest lands to the multiple activities and uses that may be applied to them. It includes an analysis of interrelations between various factors of the environment, and predictions regarding the soil and water outputs that will probably be associated with given management alternatives. It provides guidance for:

- (a) Maintaining soil stability and productivity.
- (b) Avoiding watershed damage.
- (c) Managing floodflows.
- (d) Avoiding flood-prone areas.
- (e) Reducing sediment loads.
- (f) Increasing the yields or improving the timing and quality of waterflows as the various resource development and management operations take place.

This program provides information essential to:

- (a) Development of the detailed environment statement required by the National Environmental Policy Act of 1969 (PL 91-190).
- (b) Comprehensive management planning.
- (c) Meet the President's request for an increased effort in evaluating areas to determine their potential for wilderness.

This program will encompass 43 watersheds in fiscal year 1973. It will include work for intermittently employed technicians in such key areas as the Idaho Batholith where sediment problems pose a major threat to the Salmon fishery, the Lake Tahoe Basin, the Appalachia Region, the Boundary Waters Canoe Area in Minnesota, the major timber management and road activities in Alaska, California, Montana, Oregon, and Washington, and the important range, wildlife, and multiple-purpose activities in Arizona and New Mexico.

Examples of Recent Accomplishments

Soil and water resource analysis, planning, predictions, and evaluations on the Mark Twain and the Clark National Forests in Missouri have led to a better understanding of water movement in Karst areas. They have shown that much of the rainfall that falls on such areas moves rapidly into and through underground caverns in the underlying geologic formations and that the effects of herbicides and management activities on the water resource often appear in areas well outside the area to which the activity is applied. Through this work, watershed planners have become aware of dam feasibility problems not previously recognized and the dangers associated with using natural depressions or "sinks" on the ground surface for the dumping of refuse.

Soil and water resource analyses, planning, predictions, and evaluations were made on 50 watersheds during fiscal year 1971.

(7) Detailed surveys (\$500,000)

These are intensive surveys designed to provide the technical information and scientific interpretations needed to aid in the design of projects or programs for a specific unit of land in nonmetropolitan areas.

The sound and efficient use of National Forest System lands must be in accord with the capabilities of the soil and geologic resources and satisfactory hydrologic conditions in the watersheds. As overall use of the land base expands and becomes more intensive, the need for detailed technical (physical, chemical, biological) information about the basic resources and their functioning likewise becomes more critical.

Because the less intensive, reconnaissance-type resource information on a Forest-wide basis is needed for the development of future program plans, new starts of the more time-consuming detailed surveys will, in fiscal year 1973, be selected from those areas that (a) are relatively small and within which the expenditures of monies will be relatively large, (b) are high priority because of the cooperative aspects involved, such as rural development and economically depressed areas, and (c) involve or represent extremely difficult management situations or are otherwise unique from a management or environmental needs standpoint. To provide detailed soil, geology, and hydrology survey information for the highest priority watershed areas, it is planned to survey one million acres in fiscal year 1973.

Example of Recent Accomplishments

Accomplishments in fiscal year 1971 amounted to more than 1.8 million acres.

(8) Water yield improvement (\$712,000, a decrease of \$100,000 for reduced employment)

This program, which helps individuals and communities in rural areas improve their quality of life, is an integral part of multiple use management. Specific water resource related outputs of the program include:

- (a) Augmentation of existing water supplies.
- (b) Reduction in sediment yields and floodflows.
- (c) Protection and enhancement of water quality.
- (d) Better timing of waterflows.

However, additional outputs achieved through the program include:

- (a) Improved carrying capacity for livestock.
- (b) Improved fish and wildlife habitat.
- (c) Reduction in hazard from wildfire.
- (d) Maintenance of soil productivity.
- (e) Reduction of soil movement and/or loss.
- (f) Improved water oriented recreation environment.

In response to public demands, the water yield improvement activity for fiscal year 1973 will consist primarily of:

- (a) Application of special treatments to capitalize on opportunities to improve water yield through regular ongoing activities such as timber harvesting, range revegetation, timber stand improvement, and fire control in water-short areas.
- (b) Maintenance of existing water yield improvement projects to insure continuing effectiveness of work done to date.
- (c) Continuation of programs under cooperative agreement with Anaconda Company in Montana and with the Salt River Valley Water Users Association in Arizona.

- (d) Cooperation in the joint administrative-research Beaver Creek project, Arizona; Sturgis project, South Dakota; Pole Mountain project, Wyoming; and at other locations.
- (e) Maintenance work on operational barometer watersheds.

Examples of Recent Accomplishments

Water yield improvement accomplishments on National Forest System lands during fiscal year 1971 included:

- (a) Application of management practices which incorporated hydrologic design features on over 5,900 acres of brushland in water-short areas of the Southwest and on 10,000 acres of commercial timber lands in the snowpack zone to produce about 3,500 acre-feet of additional water annually. Maintenance was continued on lands where water yield improvement measures were applied in previous years. It is estimated that through this program element, average annual water yields have been increased by 25,000 acre-feet over the past 5 years.
- (b) Initiation of a pilot water quality improvement project on the Dogway Fork of the Cranberry River, Monongahela National Forest, in West Virginia. A water powered facility was installed this spring in an attempt to neutralize acid mine drainage by feeding ground limestone into the polluted stream. Although the effects on water quality in Dogway Fork have not yet been dramatic, some improvement has been noted and there are indications that the benefits will be long-term and far-reaching.
- (c) Improvement in the quality of some 29 million acre-feet of water flowing from National Forest System lands through the reduction of 5.4 million tons of sediment and attendant turbidity.

(9) Water uses and needs (\$221,000)

In the West, particularly, more and more demands are being made upon available water supplies. The Congress and the Courts have determined that the United States has a right to reasonable use of water on National Forests reserved from the public domain except those waters appropriated before the National Forests were created. The objective is to obtain sufficient quantities of water in accordance with legal authority for the administration and development of the National Forest System. This project on a watershed basis includes:

- (a) An inventory of present and foreseeable needs.
- (b) A determination of water availability.
- (c) The potential for increasing yields in water-short areas.
- (d) Action to secure the water needed for National Forest purposes.

The western States have indicated their interest in having the Forest Service complete this program as rapidly as possible. During fiscal year 1971 the field inventory of Forest Service water uses was about 75 percent completed. A major part of this project is expected to be completed by 1975.

Additional work is developing because of concerted adjudication proceedings in some western States. Increasing judicial and administrative action is anticipated, both on lands reserved from the public domain and on acquired lands, over the next several years.

GEOGRAPHIC BREAKDOWN OF APPROPRIATION ^{1/}

Soil and Water Management

<u>State</u>	<u>FY 1972 estimate</u>	<u>FY 1973 estimate</u>
Alabama	\$50,000	\$50,000
Alaska	448,000	448,000
Arizona	795,000	795,000
Arkansas	120,000	120,000
California	1,272,000	1,272,000
Colorado	615,000	615,000
Florida	40,000	40,000
Georgia	278,000	278,000
Idaho	970,000	970,000
Illinois	150,000	150,000
Indiana	20,000	20,000
Kentucky	100,000	100,000
Louisiana	30,000	30,000
Michigan	60,000	60,000
Minnesota	290,000	290,000
Mississippi	40,000	40,000
Missouri	150,000	150,000
Montana	689,000	689,000
Nevada	90,000	90,000
New Hampshire	40,000	40,000
New Mexico	462,000	462,000
North Carolina	110,000	110,000
North Dakota	20,000	20,000
Ohio	20,000	20,000
Oregon	460,000	460,000
Pennsylvania	50,000	50,000
South Carolina	60,000	60,000
South Dakota	100,000	100,000
Tennessee	40,000	40,000
Texas	50,000	50,000
Utah	427,000	427,000
Virginia	140,000	140,000
Washington	713,000	713,000
West Virginia	80,000	80,000
Wisconsin	140,000	140,000
Wyoming	<u>303,000</u>	<u>303,000</u>
Total	9,422,000	9,422,000

^{1/} The 1973 budget reflects portions of the 1972 appropriations as unobligated due to employment limitations. Since the employment reductions are being met principally through attrition, it is impractical at this time to distribute these savings by geographic location.



Before: Soils found throughout fire areas erode, since water holding capacity is reduced.

After: The same area 5 months later. Potential flood runoff and mudslides have been reduced.

This is an example of how prompt rehabilitation pays off when sudden destruction of watershed cover by wildfire creates conditions adversely affecting on-site productivity, land stability, water quality and surface runoff control. Quickly reestablishing an emergency protective cover to critically fire-damaged areas has materially reduced siltation, protected water quality, vegetation is restored for wildlife, landscape beauty is starting to heal, and the natural environment is returning.

Figure 5



MINERAL CLAIMS, LEASES AND SPECIAL USES

1971	\$5,149,000
1972	5,428,000
1973	5,428,000

The changes within the total appropriation are proposed as follows:

- (1) An increase of \$400,000 to provide early on-the-ground contacts and supervision of mining operations to prevent or reduce environmental damage.
- (2) A decrease of \$400,000 for reduced employment.

Mineral claims, leases and permits (\$2,721,000, a net increase of \$10,000)

Mineral operations conducted under the 1872 mining laws are generally subject to minimal State or Federal legislative restraints. Safeguarding other resource values from serious and lasting damage is therefore dependent upon timely--often daily--contact with miners. Particularly during prospecting, miners build poorly designed and improperly located access roads. Bulldozer trenches are excavated only to comply with annual assessment work requirements. Timely supervision can avoid much damage to other resources.

Heretofore, cooperation has been on a voluntary basis. Promulgation of regulations for the occupancy and use of National Forest lands in connection with mining claims will require the filing of operating plans for land use which will be approved contingent upon safeguarding other resources and restoring disturbed areas. While the number of claims managed is not expected to increase, the intensity of management will have to be increased. This will be accomplished by on-the-ground supervision on a continuing basis to insure compliance with the regulations and the intent of the National Environmental Policy Act of 1969.

At the same time mineral production is essential to the national economy and security. Mineral production generally contributes significantly to the rural economy by virtue of the locale of mineral-producing properties. In addition to the payrolls of operating mines, the performance of annual assessment work in the statutory minimum amount of \$100 per claim contributes several million dollars to rural area economy each year. Timely action on applications filed pursuant to the new regulations must be taken so as not to adversely affect the rural economy or unnecessarily delay the development of critical mineral needs.

Examination of mining claims is a time-consuming job for qualified mining engineers and geologists. To protect the public interest and encourage bona fide development, it is necessary to examine and report on claims:

- (1) For which patent applications have been filed.
- (2) Of doubtful validity that are being misused or that conflict with Forest Service programs.
- (3) Located in wilderness where applications for prospecting or mineral development permits have been filed.

The mineral leasing job requires:

- (1) Review of applications for prospecting permits and leases to determine if mineral activities are compatible with other uses.
- (2) The preparation of stipulations and operating plans to protect the environment.
- (3) The preparation of mineral title reports on all acquired lands.
- (4) On-the-ground administration to ascertain that terms of leases, permits, stipulations and operating plans are understood and followed.

Examples of Recent Accomplishments

Mining claims. New reserves of uranium, copper, silver, gold, lead, zinc and molybdenum are in great demand by mining companies. Management of surface resources on mining claims was accomplished on 21,010 claims during fiscal year 1971. A total of 3,966 mining claims were examined for compliance with the mining laws during the year. There were 83 mineral patent applications, involving 450 claims, pending at the close of calendar year 1970. Actions on 243 claims were completed during this period; 71 claims (12 applications) aggregating 1,283 acres were patented during the calendar year.

Only 13 applications under the Church-Johnson Mining Claims Occupancy Act were received and action was completed on 15 cases.

A total of 440 Occupancy Act applications have been received as of July 1, 1971. As of that date, 361 cases had been completed with fee title offered in 64, a lease offered in 130, and a Forest Service special-use permit granted in 11. Because applicants were not qualified under the law, 138 cases have been rejected.

Mineral leases and permits. Demand for low-sulphur coal that will reduce air pollution in urban areas is very high. Exploration for oil and gas and phosphates continues at a high level. Some 11,342 leases and permits were active during fiscal year 1971, thus requiring Forest Service administration to protect the environment and coordinate uses. Nearly 3,381 sales and free use permits were granted involving disposal of common varieties of mineral materials. More than 997 mineral operations were active on acquired lands as a result of reserved or outstanding mineral rights. These too, require action to avoid or reduce environmental degradation.

Total revenue from leases and permits on acquired lands amounted to \$6,804,405 during fiscal year 1971. This was nearly a 10 percent increase over the previous year. In addition, an estimated \$24 million was received from leases and permits on public domain lands. Mine or well-head value of minerals from National Forest System lands during fiscal year 1971 is estimated to exceed \$100 million.

Special uses - non-recreation (\$2,707,000, a decrease of \$10,000 for reduced employment)

Occupancy and use permits, easements and memoranda of understanding authorized 46,500 special land uses on 5.3 million acres of the National Forests in 1971. There is a constant turnover of these authorized uses of about 5 percent each year. The number of new permits issued has increased about 3 percent each year. It is estimated in fiscal year 1973 that the number will increase to around 48,950, covering a total of 5.8 million acres.

Users include public and private enterprise representing individuals, corporations and city, county, State and Federal government agencies. The special land uses are grouped in eight broad categories consisting of about 60 kinds of use excluding recreation. They are:

- (1) Agriculture.
- (2) Community improvement.
- (3) Industrial.
- (4) Public information.
- (5) Research, study, and training.
- (6) Transportation.
- (7) Utilities and communications.
- (8) Water.

Areas of particular interest are antiquities, electronic installations, fences, pastures, powerlines, reservoirs, roads, telephone lines, and water transmission facilities.

Special land uses assist economic development of rural areas by making suitable land available to farmers, ranchers, and local communities. The Federal Government is the major landowner in many localities. Denial of the use of National Forest System land would create hardships on the local communities, deter further business development, and materially affect on-going Federal programs.

More than 25,000 new applications, applications for amendment, applications for transfer, and inquiries were received in fiscal year 1969 from individuals, companies, corporations, and city, county, and State governments, as well as Federal agencies, to fill their needs. It is estimated that this same number was received in each of the subsequent years. Of this total number, approximately 6,500 are new applications.

Based on past experience, less than a third of the new applications can be approved as being compatible with resource and environmental factors and the needs of the general public. Each new application requires an impact survey, multiple use report or comparison with multiple use plan. Investigations identify conflicts with management plans and existing uses. Recommendations attempt to assure conformance with multiple use and individual resource plans and programs and actions to protect the quality of the environment. A permitted use must be activated with improvements designed and installed or constructed in compliance with all existing laws, regulations, and local codes under a carefully drawn special-use document embodying all recommended protection measures. Of particular importance are the National Environmental Policy Act of 1969 (PL 91-190) and the Water Quality Improvement Act of 1970 (PL 91-224).

After permits are issued, periodic compliance inspections are made to determine whether the authorized conditions, responsibilities, and duties are met according to acceptable standards.

These standards are those which:

- (1) Maintain acceptable levels of water and air quality.
- (2) Protect the natural resources from excessive soil erosion.
- (3) Prevent unnecessary damage to natural beauty and esthetics of the environment.
- (4) Protect renewable resources such as timber, forage, and wildlife from careless or wanton damage.
- (5) Do not unnecessarily increase fire hazard.
- (6) Protect the public and other users from physical hazards.
- (7) Maintain fees or rentals equal to the value of the use authorized comparable with fair market value.

Of the total funds available, about \$65,000 would be used to develop and maintain information on National Forest archaeological sites and to protect such sites and artifacts from vandalism or other damage by unauthorized persons, including, if necessary, excavation of endangered sites on an emergency basis.

Under special authorities almost two-thirds of all permitted uses are allowed without charge. The remaining one-third pay fees for the privilege of occupying National Forest land. Fiscal year 1971 receipts from special land uses were \$1,173,043, an increase of \$123,072 over the previous year. In addition, to the actual receipts collected by the Forest Service, at least \$2 million of assistance, through free permits, should be recognized. The total direct monetary value of receipts and benefits is over \$3 million. However, many of these free permits no longer qualify, and they will be converted to charge permits. There will be a proportionate increase in receipts to the Treasury.



Abandoned mine shaft on Sequoia National Forest, California. Mining regulations will provide for cleaning up mine sites and fencing hazards.

Figure 6

LAND CLASSIFICATION, ADJUSTMENTS, AND SURVEYS

1971	\$7,231,000
1972	7,390,000
1973	7,731,000
Increase	+341,000

A net increase of \$341,000 is proposed as follows:

- (1) Increase of \$491,000 will be used for landline location to permit marking of landlines and monuments in support of timber management activities.
- (2) Decrease of \$150,000 for reduced employment.

Subactivities of this program are identified below:

- (1) Land Classification (\$435,000, decrease of \$2,000 due to reduced employment)

The function is to structure and recommend programs concerning the extent, location and composition of the National Forest System that will most effectively further national objectives. Purposes and activities are to:

- (a) Improve the land base to provide for current and prospective public needs for outdoor recreation space.
- (b) Improve the landownership pattern to facilitate development and use of recreation, timber, range forage, water, and wildlife resources which can contribute to growth of rural economies.
- (c) Encourage land adjustment for protection and improvement of watersheds.
- (d) Promote stability and encourage economic growth of communities in and near areas in the National Forest System.
- (e) Improve efficiency in the administration of natural resource programs.
- (f) Improve land use patterns to promote the preservation and enhancement of the environment.
- (g) Survey the degree of utilization of public lands pursuant to Executive Order 11508.

Financing at the level indicated will enable Forest Service to meet pressing needs for:

- (a) Identification and detailed analyses of areas within the National Forests and National Grasslands to determine the land exchange and land consolidation which should be made to best accomplish national objectives.
- (b) Determination of the merits of opportunities to transfer Federal lands to or from the National Forest System, including consideration of lands claimed by Indians, and jurisdictional transfers at numerous Federal water control projects important for outdoor recreation. Recent legislation and revised interdepartmental agreements are resulting in an increasing number of such cases.
- (c) Analysis and classification of lands with potential for national recreation areas, monuments, wildlife preserves or other special status.
- (d) Extensive action on Alaska native selections of land and other activities required as a result of the passage of the Alaska Native Claim Settlement Act.
- (e) Consideration of applications made by the State of Alaska for State land selections. Passage of the Alaska Native Claims Settlement Act releases the State to intensify its selections.
- (f) Further action based upon the survey of public land utilization made pursuant to Executive Order 11508.

Continual review of the location and extent of the National Forest System components is desirable to determine the direction land use and ownership patterns should take in relation to new developments and needs. The 154

National Forests and 19 National Grasslands located in 44 States and Puerto Rico include more than 40 million acres of non-Federal land. Programs for consolidations of landownership within existing boundaries of these units need to be based upon sound consideration of their short and long-range effects.

Water-oriented recreational use of land at or near Federal reservoirs has assumed large proportions and often is a significant economic factor in the locality. An interdepartmental agreement exists on management of land at Department of the Army reservoir projects. Also the law provides for transfers of certain Tennessee Valley Authority reservoir-oriented lands and land at Bureau of Reclamation projects where such projects are located within or adjacent to National Forests. Accelerated action on adjustment of land jurisdiction at numerous reservoirs in and near National Forests is necessary to:

- (a) Avoid duplication of plans and programs.
- (b) Utilize existing National Forest organizations for most efficient management.
- (c) Assure timely and economical development of recreation and land use facilities.

Elsewhere, expanded activity in transfers of public land jurisdiction based upon joint studies with the National Park Service or Bureau of Land Management is needed in the interest of more economical or effective service to the public.

Examples of Recent Accomplishments

Sixteen interdepartmental transfers were completed in fiscal year 1971 involving over 36,000 acres which will facilitate the administration of public land programs. Examples:

- (1) 21,863 acres were transferred to the Bureau of Land Management for administration along with other lands under its jurisdiction in the Castle Peak area in Colorado.
- (2) 1,559 acres were transferred from the Bureau of Reclamation to the Forest Service at Arrow Rock Reservoir, Idaho.

An intensive land classification plan for the 20,000 acre Snoqualmie Pass area in Washington was completed, including broad public and local government involvement.

Three Alaska State selections totaling over 10,000 acres were processed and approved.

12,920 acres were added to the Toiyabe National Forest adjacent to Lake Tahoe.

- (2) Land Exchange (\$3,251,000, a decrease of \$128,000 due to reduced employment)

Properly conceived land exchanges result in alleviating the need to construct certain road segments, the location and marking of property lines, the issuance of certain special-use permits, and other management costs. The consolidation of ownership through land exchanges results in a 10-year cost avoidance for every dollar spent in accomplishing the program. Selected examples of estimated cost avoidance which will result during the next 10 years, from the fiscal year 1973 exchange program, are:

<u>Reductions</u>	<u>Units</u>	<u>Amount</u> (in thousands)
(a) Property lines and corners	1,900 miles	\$2,000
(b) Road construction and maintenance	200 miles	600
(c) Use permits and occupancy trespass	500 cases	2,000
(d) Road right-of-way needs	290 cases	203
Total		4,803

Material revenue increases to the United States Treasury can also result through well planned exchanges. Access road problems can be eliminated and make heretofore inaccessible mature timber stands available for harvest to the mutual benefit of the United States and timber companies in need of timber supplies. The rural economy is also benefited. Significant benefits can be realized for both the United States and private owners engaged in livestock operations through the consolidation of ownerships, thus reducing costs and improving management of the ranges.

Carefully designed land exchanges can make material contributions in bettering rural America and the communities located within or near the boundaries of the National Forest System. Farmers and ranchers operating marginal operations can frequently acquire the adjoining National Forest System lands suitable for grazing, thus permitting development of an economic unit. Communities are frequently aided through exchanges that provide lands for expansion and development.

The fiscal year 1973 land exchange program will involve the examination and appraisal of 360,000 acres involving an estimated 250 proposed exchanges. The land the Government gives and receives in exchanges must be examined and appraised. Following examination and appraisal, negotiations are expected to be completed and 125 cases approved during the fiscal year involving a total of 165,000 acres.

Examples of Recent Accomplishments

In fiscal year 1971, 120 land exchanges were approved. In these exchanges, the United States will acquire 69,231 acres valued at \$18,471,240 and will grant 61,066 acres valued at \$17,115,560. A total of 182 land exchanges were fully completed with title to 88,397 acres passing to the United States and 62,302 acres passing to the other landowners. The net increase in National Forest acreage was 26,095 acres.

(3) Land Status Records and Land Line Location (\$2,966,000, a net program increase of \$477,000)

The increase will be used for the corner search and monumentation project which will permit additional boundary and monument marking in advance of timber sale preparation. Time is acting to obliterate the remaining on-the-ground evidence of corner location. Where this evidence can be used for corner location it avoids costly cadastral surveys. For example, during the period 1958 to 1971, nearly 115,000 corners have been saved from obliteration and loss by timely search and remonumentation. This would have cost an estimated \$69 million had cadastral surveys been required. The increase to be applied to this work will result in further substantial savings.

- (a) Land status records. This is a systematic search of records and the presentation in plat, tabular record, and supplementary form of all ownership interests, and Congressional and administrative actions which limit or otherwise affect administration of the National Forest System or the use of adjoining lands by the owners thereof. It is the record of what land interests the Forest Service must administer. Significant progress is necessary to meet the expanding need for correct currently available records of Forest Service landownership, use, and encumbrances.

The National Forest System was created and altered to meet changing needs by many Acts of Congress and administrative actions in accordance therewith. Some 160 million acres were reserved from the public domain.

Over 27 million acres were acquired by several agencies of Government. Over the years many exchange, acquisition, and disposal actions have occurred. The great number of records of the status of such lands as to ownership, encumbrances, and restrictions on use were never satisfactorily assembled, checked, and placed in a system readily used and currently maintained as changes occurred. As a result, the Forest Service has been handicapped in meeting the impact of the vast increase in resource use in recent years.

A system has been developed to assure that accurate status information is assembled and records kept current at a central point and supplied to all field offices of the Forest Service. In converting to this system, all public records are reviewed and entered. Maintenance of records is done in the nine regional offices and supplied currently to some one thousand field offices. The project is about 80 percent completed. The conversion job is scheduled for completion by the end of fiscal year 1974.

The systematic search and review of records in the conversion project continues to reveal, and identify more clearly, many parcels and general areas which have previously been misunderstood, identified inaccurately, or overlooked in administration due to inadequate records and poor identifying ties between records and ground location.

Users of these system records (Forest Service and other Government agencies, adjoining, and other public users) are enthusiastic about these records. They give confidence in administration and reduce areas of potential ill-will with adjoining and users of public and private resources.

Work Proposed for 1973

	<u>1971</u> <u>Actual</u>	<u>1972</u> <u>Planned</u>	<u>1973</u> <u>Estimated</u>
Townships completed	1,350	1,350	1,350

(Total program 17,000. Accomplished through 1970 - 14,010)

- (b) Land line location (cadastral program). Accurate plainly marked property lines are essential to effective management of lands and land based resources. Significant progress in this activity must be made so that National Forest lands can be managed to meet Forest Service multiple use-sustained yield policy and contribute to the stability and growth of the rural economy.

An inventory of property corners and miles of property line to determine the ownership of boundaries between lands of the United States administered by the Forest Service and those of all adjoining ownerships follows:

1,160,472 corners on property lines
210,924 additional corners needed for control
272,487 miles of property lines



Many of the corners were established 50 to 200 or more years ago. Over 30 percent of these corners have disappeared because of decay and neglect. Skillful search for corners in recent years indicates that some of these corners were never established even though the official survey record indicates otherwise.

In public land States, surveys by the United States were mainly of township and section exteriors as a basis for sales and grants of the public lands. Subdivision of sections by cadastral survey was not required to issue patents based on aliquot parts of sections. Sales and grants from the sovereign were expected to continue; therefore, the need for the United States to maintain corners and lines on the remaining Government lands was not present. This situation was changed by the first large scale reservation of public lands authorized by the Forest Reserve Act of March 3, 1891 (26 Stat. 1103). Over 160 million acres were reserved from the public domain for the National Forests. In addition, the United States has purchased some 27 million acres since 1911 and placed them in the National Forest System. This created the need for the United States to know the legal boundaries of its lands in order to develop their full public use under permanent management. However, there was little provision for this work until 1958, when the first modest land line location appropriation was made to the Department of Agriculture. Since then annual appropriations for this program have been made. These are being used primarily to search for corners to determine the true situation and to prevent further loss. The search thus far has revealed that about 32 percent of the previously established corners are missing and must be restored through relatively expensive cadastral surveys. The search phase is also revealing that many corners are in such poor condition that their loss is imminent. Those recovered under this program are being remonumented currently, or within a year or two.

The following has been accomplished since the program was initiated in 1958:

Fiscal Year 1958 - 1971

Corners:

1. Searched	254,422
2. Found acceptable evidence of corner	176,921
(a) Do not need remonumentation	42,712
(b) Need remonumentation	134,202
(1) Remonumented by Forest Service	72,553
(2) Remonumented by Bureau of Land Management/Forest Service cooperation	42,240
3. No acceptable evidence of corners found, cadastral surveys needed to establish corners	77,508
(a) Corners established by Forest Service cadastral surveys	28,696
(b) Corners established by Bureau of Land Management cadastral surveys	13,119
4. Miles of cadastral surveys run to reestablish missing corners and establish new corners required:	
(a) By Forest Service	10,920
(b) By Bureau of Land Management	6,780

Property Lines:

Miles marked to standard	14,883
Miles marked to interim standard	9,440
Miles inspected and maintained	3,438



The search and remonumentation of "thread hanging" corners have been carried out based on most urgent needs, and to the extent possible, on cooperative opportunities with adjoiningers. The average cost to search out and permanently preserve a corner by remonumentation is \$60. For every corner searched in time and preserved a future expenditure of nearly \$600 is saved. This is why most of the appropriation has been used in the "search and rescue" phase. Most of the expensive job of restoring missing corners has been postponed.

Since 1966 an annual transfer of part of the land line location appropriation has been made to the Department of the Interior for use by the Bureau of Land Management. This is to obtain urgent cadastral surveys to reestablish corners on public domain lands administered by the Forest Service, that were found to be missing during Forest Service corner search activities. The Bureau of Land Management has the authority for cadastral surveys of such lands. In fiscal year 1972, \$270,000 was transferred. The same amount is planned for transfer in 1973. Most of these funds are used in the States west of the Mississippi River, since this is the area of public domain lands. The Forest Service makes careful search for corners in critical areas where property lines are an issue with adjoiningers, or where such lines must be established before timber sales or other public uses may be undertaken. Cadastral surveys to reestablish missing corners are then programmed jointly by Bureau of Land Management and the Forest Service.

The work to be done under this program is shown in the following table. This work is carried on in every State in which the Forest Service administers lands:

Work Proposed for 1973 as Compared with 1972 and 1971

	<u>FY 1971 Accomplished</u>	<u>Planned FY 1972</u>	<u>Planned FY 1973</u>
<u>Corners</u>			
Search	24,423	27,000	29,500
Remonument	12,929	12,000	13,500
Establish	8,697	6,500	3,500
Maintenance	3,497	2,500	2,500
<u>Miles</u>			
Locate and mark:			
To full standard	2,293	1,500	1,500
To partial standard	387	1,000	1,000
Maintenance	294	1,000	1,000

Examples of Accomplishment

The accomplishment since 1958 in comparison to the total inventory of property corners and lines is as follows:

Corners searched	19 percent of total
Property lines marked	9 percent of total

Work has been programmed in areas of most urgent need, thus obtaining maximum immediate benefits.

One-third of the corners revealed as missing by the corner search phase to date has been reestablished by cadastral surveys. This work is also done where most urgently needed, thus obtaining maximum immediate benefits.



(4) Geometronics (\$1,079,000, a decrease of \$6,000 due to reduced employment)

Multiple use planning requires a particular knowledge of the terrain, the extent and location of the natural resources and how these resources are related and tied in with existing and planned transportation and recreational facilities. Elevational information is essential in the planning of transportation systems, timber sales and recreational facilities.

Technological advancements have provided new means of improving and extending management of National Forest resources and related facilities. The adaptation and development of such techniques as the analytical approach to control extension for the essential control of remote sensing is being developed and implemented. This promises significant reductions in field-going operations.

Investigations are underway to provide more comprehensive and efficient methods for recording, interpreting, storing, retrieving and displaying interrelated terrain and resource data. Digitizing various forms of data for computer handling is an essential element in the process. Displays are in various forms--tabular data, sean area plots, slope and aspect maps, orthophoto maps and engineering data.

These developmental operations are supplemental to and coexistent with the acquisition of conventional line mapping in the quadrangle format for the national mapping program. The data are needed on some 640,000 square miles of area within the National Forests for a wide range of engineering planning, timber, range, wildlife control, recreation facilities, and watershed management activities. Approximately 60 percent of this area is adequately covered in national accuracy line mapping. The scale, format, and accuracy of this material would be such that it can be released to the U. S. Geological Survey and form an integral part of the standard topographic mapping program of the United States. Thus, duplication of effort is avoided, costs are reduced, and the availability of standard topographic maps is speeded up.

The quadrangle data are converted to various bases for the display of resource inventory data. Thus the interrelationship of all National Forest resources can be observed and analyzed in the process of multiple use planning. The resource inventory data are transferred to the bases by photogrammetric means.

Utilizing the terrain data and resource data procured through photogrammetric procedures, it is proposed to prepare several management bases on an adequate scale and format for approximately 12 National Forests.

		<u>1971</u>	<u>1972</u>	<u>1973</u>
Terrain Data (topographic)	thousands of acres ..	791	791	791
	square miles	1,080	1,080	1,080
Resource inventory data (planimetric)	thousands of acres ..	3,200	1,920	1,920
	square miles	5,000	3,000	3,000
General management	forests	10	8	12

The funds for fiscal year 1973 will be used to produce the above conventional line map information and develop new geometronic process and display techniques.



FOREST FIRE PROTECTION

1971	\$30,925,000
1972	31,378,000
1973	30,545,000
Decrease	-833,000

A net decrease of \$833,000 is proposed as follows:

- (1) Increase of \$200,000 to support continued fire protection through improved initial attack forces.
- (2) Decrease of \$1,033,000 for reduced employment.

The objectives of the National Forest Fire Protection Program are to:

- (1) Hold fire losses to a level consistent with immediate long-range land management objectives.
- (2) Use fire to increase productivity of National Forest lands.
- (3) Reduce to tolerable limits the fire threat to life and resources in rural areas in case of enemy attack.
- (4) Accomplish the above objectives economically and with a high degree of personal safety.

This program is designed to protect all forest resources. It directly affects the quality of the environment by saving timber, protecting watersheds, scenic areas, wildlife, grasslands, and other land resources. It aims to prevent fires that smoke up recreation areas during the summer use period. Damage from uncontrolled fires becomes less tolerable each year as resource values steadily increase.

Land and resources protected by the Forest Service are subjected to more use by recreationists, travelers and others for special purposes, collectively increasing the risk from man-caused fires. Paradoxically, response of the land to good management practice often creates combustible fuels where few existed before. The challenge is to meet the burgeoning problem of increased hazard and risk. Wherever possible, effort has been made to make improvements in fire prevention, preparedness, suppression, and modification of fuels to reduce fire spread potential.

The proposed budget will be used to finance protection measures approximately as follows:

<u>Protection Measures</u>	<u>FY 1971</u>	<u>FY 1972</u>	<u>FY 1973</u>
	(In thousands)		
Fire prevention	\$4,231	\$4,315	\$4,207
Fire detection	4,004	4,083	3,981
Fire attack forces	17,268	17,645	17,155
Air operations	3,775	3,851	3,755
Fuel modification	360	367	358
Equipment development and testing	710	558	544
Studies, surveys, plans, and training	577	559	545
Total	30,925	31,378	30,545

Examples of Recent Accomplishment

Mobilization. During 1971 severe drought and large fires were experienced in Arizona, New Mexico, and Southern California. The Boise Interagency Fire Center played a vital role in dispatching firefighters and overhead to combat these wild-fires. Firefighting equipment, communication systems, infrared mapping units, and transport aircraft were furnished as logistical support by the Center.

Improved efficiency and effectiveness. New national instructions are being distributed for use in planning all phases of the fire control job. The new planning is based on historical fire data and loss in dollars and resources. Action plans prepared will be uniform nationwide, will show cost/benefit, and will be effective in meeting prevention, detection, and suppression objectives.

Fire prevention and law enforcement. Man-caused fires were analyzed on the basis of occurrence, trends, and values lost by National Forests to select twelve forests with the comparatively worst man-caused fire problem. These forests accounted for 31 percent of man-caused fires and 36 percent of resource losses during the 1961-1970 period. The analysis will assist in achieving optimum cost/benefit relationships for available prevention funding.

Action on fire trespass cases during fiscal year 1971 resulted in collections of \$209,700.

Fire training and safety. As part of a national fire control training program, 56 fire managers successfully completed training in advanced fire management designed to improve performance of fire control staff officers on National Forests.

Fuel treatment. Work in this program consists of constructing new fuelbreaks, maintaining existing fuelbreaks, and making vegetative type conversions in highly hazardous fuel areas. The Carpinteria Fuelbreak provided refuge for 200 firefighters on a fire in the Los Padres National Forest, California, October 1971, during a sudden weather change. On this fire, 13.8 miles of fuelbreaks were used as fire control lines.

Air operations. A group of representatives from commercial interests and various Federal agencies has developed new criteria for selection of aircraft to use as air tankers. Use of helicopters in all phases of fire control activities is increasing rapidly, with larger, more efficient aircraft becoming more readily available.

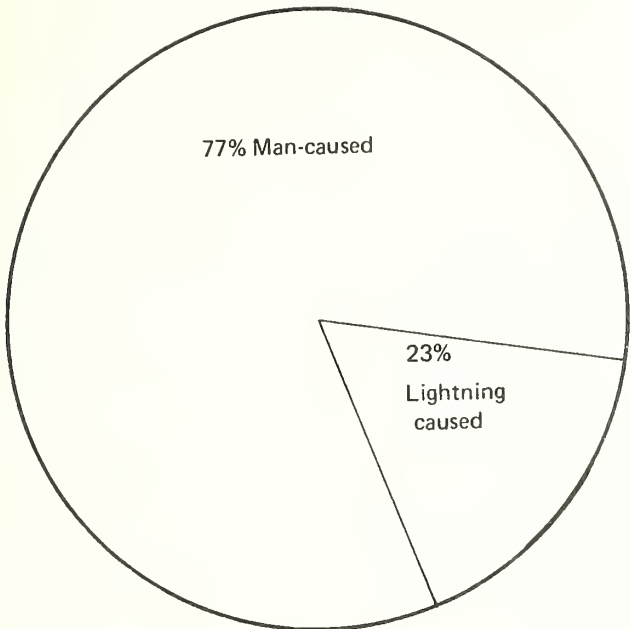
Paracargo and smokejumper activity was enhanced by the first use in the Forest Service of the military Caribou. Modern, rear-exit aircraft appear to improve these activities.

An airborne infrared detection unit was made operational in the Northern Region, replacing 24 lookout towers. This unit can also map large fires and thereby provide valuable information for planning suppression operations.

Equipment development. Noteworthy projects include:

- (1) Evaluation of the Caribou and Shorts Skyvan for smokejumper and paracargo work and the S2-A and CL-215 for retardant aircraft.
- (2) Technical assistance to the U.S. Air Force in developing a modular retardant dropping system for use in the C-130.
- (3) Development of an early warning system to protect high value seed orchards, historic sites and recreation areas from disastrous fires.
- (4) Completion of the portable fire simulator development with distribution of 75 units to the field.
- (5) Adaptation of a radio controlled paracargo delivery system to meet fire logistical requirements.



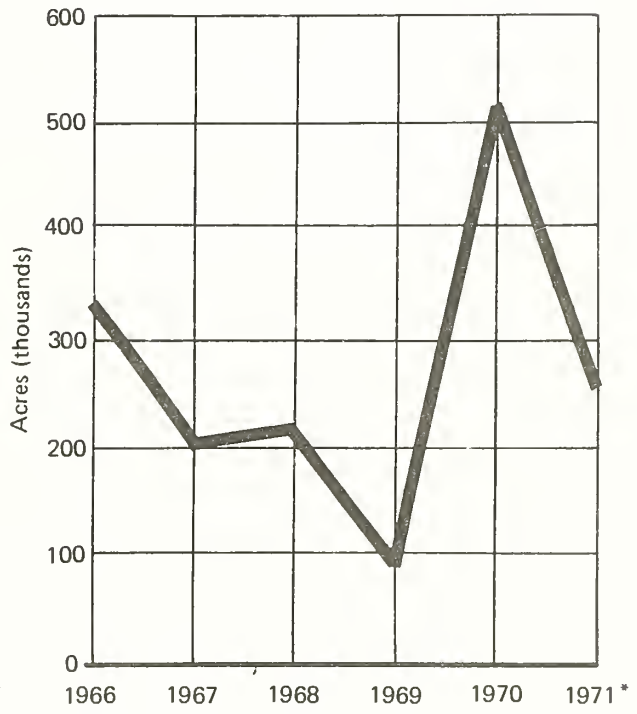
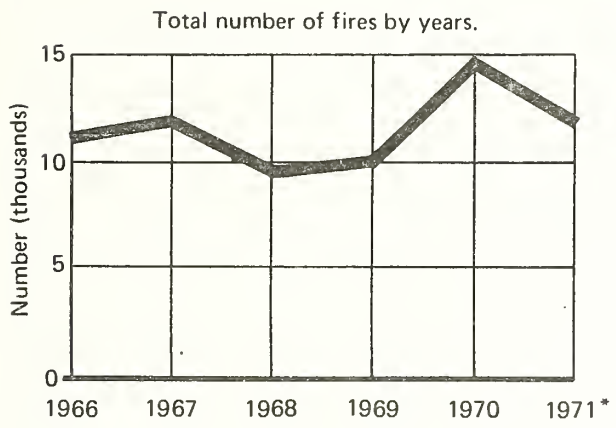


Number of Fires

	<u>Man-caused</u>	<u>Lightning</u>
1966	5,387	5,858
1967	4,981	6,790
1968	4,923	4,808
1969	5,308	4,726
1970	7,172	7,804
1971*	5,889	6,002

CY 1970 resource damages from fire by cause.

National Forest protected acres burned.



*Through 10/31/71

Figure 8



MAINTENANCE OF IMPROVEMENTS FOR FIRE AND GENERAL PURPOSES
(INCLUDING COMMUNICATIONS)

1971	\$7,389,000
1972	7,532,000
1973	7,532,000

It is proposed to continue this program at the 1972 level.

The program provides for the maintenance to acceptable standards of buildings, utilities, pollution abatement facilities, airfields, communications systems, and related facilities throughout the National Forests and National Grasslands. The replacement value of these improvements exceeds \$300 million. It is essential that the physical plant upon which Forest Service land management activities depend, be adequately maintained. These funds will be used to maintain the following:

Type of facility

Fire lookouts, towers, and observatories	1,500
Dwellings, cabins, barracks, and trailers	5,400
Field offices	800
Storage and service buildings	7,000
Water and sewer systems	5,000
Radio units	22,100
Landing fields and heliports	500
Miles of telephone lines	7,500
Miles of administrative fences	1,200

Maintenance funds are distributed to field units based upon number of improvements by classes currently justified by program use and an analysis of unit maintenance cost.



PAYMENTS TO EMPLOYEES' COMPENSATION FUND

1971	\$1,458,772
1972	1,622,000
1973	2,131,000
Increase	+509,000

An increase of \$509,000 is proposed to reimburse the Employees' Compensation Fund, Department of Labor, in accordance with PL 86-767 (5 USC 785), which was enacted September 13, 1960, for benefit payments made from that fund to employees of the Forest Service who are injured while in the performance of duty. The 1972 payment was \$1,622,187. The payment for 1973 will be \$2,131,010.



WATER RESOURCE DEVELOPMENT RELATED ACTIVITIES

1971	\$3,775,000
1972	3,861,000
1973	3,861,000

The changes within the total appropriation are proposed as follows:

- (1) Increase of \$200,000 to cover Departmental responsibilities for wild and scenic river studies on State and private lands.
- (2) Decrease of \$200,000 for reduced employment.

This level of funding will help avoid misuse of resources in the most sensitive situations, in connection with water development projects of other agencies.

The construction agencies, frequently through separate Congressional authorization, initiate the projects and schedule the performance. The Forest Service cooperates in the planning, development, and management of the water and related resource development associated with National Forest System lands.

Each water development project poses resource problems and opportunities peculiar to the individual site under consideration, to adjacent and tributary lands, and to the associated rural area environment. This requires a comprehensive environmental impact survey by the Forest Service to determine the effect of each water resource development proposal on all the resources, facilities, and the rural areas affected by the project. These surveys determine the best pattern for multiple use management of project associated land, prescribe the resource management adjustments needed to assure a maximum National Forest contribution to the water project, and identify Department-wide opportunities for utilizing project potential for the enhancement of rural America.

In addition to impact surveys, the work performed under this program includes:

- (1) Liaison with the construction agency to assure the benefits of a combined and harmonious interagency effort.
- (2) Treatment of lands, tributary to or within the project area to provide improved water yields and reduced sedimentation which will better serve operating requirements of reservoirs, maintain or increase the useful life of the project, and provide for public safety and enjoyment.
- (3) Participation in wild and scenic river studies on State and private lands.

Work and financing planned for fiscal year 1973 is compared with fiscal year 1972:

	<u>Fiscal Year 1972</u>		<u>Fiscal Year 1973</u>	
	<u>No. of Units</u>	<u>Cost</u>	<u>No. of Units</u>	<u>Cost</u>
(1) Impact surveys and construction liaison	458	\$2,765,000	393	\$2,830,000
Wild and scenic rivers studies included above			(18)	(200,000)
(2) Land treatment, soil stabilization, and cover improvement	<u>93</u>	<u>1,096,000</u>	<u>1/ 65</u>	<u>1,031,000</u>
Totals	551	3,861,000	458	3,861,000



1/ Six of these projects (\$220,000) represent Forest Service obligation to finance land treatments on National Forest lands at those PL-566 projects where work plans have been approved since March 21, 1966.

- (1) Impact surveys and construction liaison (\$2,830,000, a net increase of \$65,000).

The Forest Service has lead responsibility for the Department of Agriculture relating to rivers under the Wild and Scenic Rivers Act of 1968. The Department of Agriculture input to the studies of the 18 rivers on non-Federal land is also the responsibility of the Forest Service. There is a need for \$200,000 to augment the States capability to provide specialist assistance in wild and scenic rivers. These activities are needed to fulfill the Nation's demand for a quality environment.

Impact surveys delineate the effect, define necessary mitigating measures, and identify enhancement opportunities relative to proposed water resource developments associated with National Forests and National Grasslands. Reports resulting from such surveys document measures which are essential to the attainment of National Forest multiple use objectives and identify how National Forest management can contribute to project purposes to optimize their economic and social contribution to rural America. To be effective, the surveys and reports must be concurrent with the construction agency's preliminary planning to permit their findings to be incorporated in the licensing or authorizing document.

Liaison with the construction agency during the construction period is necessary to facilitate coordination between the construction agency and the Forest Service. Protection of the land and resources, minimizing interference with regular protection and management activities, and facilitating construction agency operations are direct economic dividends derived from this program.

Experience has shown that without adequate analysis and liaison effort such as is provided by this activity, natural resources often suffer from enormous waste and misuse and the project works fail to make their maximum contribution. Natural beauty and high quality water are among those resources most susceptible to loss. The rising value of forest resources and constant increase in demands against the declining resource base requires increased perception, imagination, and thoroughness in the preparation of impact surveys. The impact survey effort and construction liaison work reflects an involvement at 375 projects. Based on an average project construction cost of \$40 million these 375 projects represent a total construction cost of about \$15 billion.

The enormous cost of this construction program associated with the National Forests provides some indication of extent of activity going on. A fiscal year 1973 investment of \$2,680,000 by the Forest Service (.018 of 1 percent of construction costs) will help assure that projects are constructed in maximum harmony and minimum conflict with associated land, resource, and human values. Forest Service impact survey and construction liaison work will continue on all projects as a sustained level of effort.

Fiscal year 1971 accomplishment included preparation of environmental impact survey reports for: Kindred Dam, Central Utah Project, Days Creek Dam, English Ridge Dam and Northfield Reservoir, Kaibab Reservoir, Cataract Lake, Mystic Lake, Island Park Reservoir, and Cochino Bayou Reservoir.

- (2) Land treatment, soil stabilization, and cover improvement (\$1,031,000, a decrease of \$65,000).

Treatment of lands tributary to water resource development projects to reduce sediment yield or to modify the pattern of runoff lengthens the life and increases the utility of the water control structures. This work is done on National Forest System lands tributary to the project, only where hydrologic



analysis and other elements of the impact survey determine that such work is needed and that benefits to the project purpose are clearly established.

Treatment programs include the following:

- (a) Modifying the vegetation to decrease erosion, to reduce flood peaks, and to increase the annual quantity and improve the timing of water yielded from the tributary lands.
- (b) Clearing reservoir areas, where not done as part of construction, and keeping the reservoir free of debris to make the area safe for public use and to maintain scenic beauty.
- (c) Land treatment measures such as contour terracing, gully plugs, headwaters debris and flow retarding structures, and streambank and shoreline stabilization measures.

Essential land treatment and related measures are planned at 65 projects, including six PL-566 small watershed projects approved after March 21, 1966. Reservoir sweeping, debris and stump removal, and vector and aquatic weed control will be accomplished on about 54,000 acres at 52 projects in order to provide for public safety and user enjoyment of the reservoir area. At the remaining projects a combination of treatment measures, including some of the above, will be performed to improve water quality and quantity.

Fiscal year 1971 accomplishments included the application of land treatment measures at Trail Creek, Carpinteria, Cottonwood, Vernon, Georgetown Creek, Main Street Canyon, and Upper Leaf River PL-566 projects. About 660 acres of stumps were removed at three projects for protection of the reservoir users and for esthetic reasons. Reservoir sweeping and debris removal was accomplished on approximately 60,000 surface acres at 15 reservoir projects. In addition, measures such as gully stabilization, sheet erosion control, lake-shore stabilization, and contour trenching aimed at improving water quality and quantity were done at 35 projects.



FIGHTING FOREST FIRES

1971	\$74,275,000
1972	4,275,000
1973	4,275,000

This program provides an initial amount for suppressing forest fires on or threatening National Forests and Grasslands which cannot be handled by the regular forest fire protection program. This initial appropriation is supplemented each year to the extent necessary to cover all emergency forest firefighting costs.

Included are expenditures for men and equipment to control large fires. In addition, when critical conditions present an unusual threat, men are engaged in special efforts to prevent fires and temporary forces are used at strategic locations to be available to attack fast-spreading fires.

The volume and scope of emergency forest firefighting varies annually according to severity of burning conditions and the extent of the forest fire protection program. This program and the forest fire protection program are directly related. The cost of protecting the National Forests and Grasslands is the sum of the two programs.

Calendar Year 1971 Fire Season

Extreme burning conditions continued in the Southwest from 1970. The first project fire of this region began on January 30 at an elevation of 8,800 feet. Normally, snow covers this elevation during January. The first of a series of fire restriction was placed into effect in February. This early beginning resulted in the Southwest having the greatest number of fires in the last 10 years.

Critical fire weather and erratic fire behavior on the Los Padres National Forest in California resulted in the death of four firefighters and serious injury to three others. Nine dwellings were lost in the same fire which burned 16,100 acres of prime watershed.

Through November 30, 1971, 12,193 fires burned 237,330 acres of Forest Service protected area. Of these fires, 6,285 were man-caused. The total number of fires and the number of man-caused fires exceed the five-year average. The Southern States continue to show increases in the number of man-caused fires. The total acres burned about equaled the five-year average; however, more than twice as many acres were burned in the Eastern Region.

Geographic Breakdown of Obligations--Fiscal Year 1971

Alabama	\$32,950	Michigan	62,387	Pennsylvania ..	1,336
Alaska	25,231	Minnesota	537,507	South Carolina	63,885
Arizona	6,021,602	Mississippi ...	148,427	South Dakota ..	189,387
Arkansas	495,863	Missouri	234,638	Tennessee	351,468
California ..	20,091,996	Montana	3,817,843	Texas	75,674
Colorado	344,762	Nebraska	23,837	Utah	404,667
Florida	350,762	Nevada	157,975	Vermont	149
Georgia	75,473	New Hampshire .	1,240	Virginia	406,283
Idaho	5,568,770	New Mexico	5,743,597	Washington	31,159,446
Illinois	57,242	North Carolina	393,318	West Virginia .	32,733
Indiana	34,975	North Dakota ..	103	Wisconsin	23,184
Kentucky	120,414	Ohio	17,487	Wyoming	<u>1,514,620</u>
Louisiana ...	92,603	Oklahoma	27,307	Total	81,729,089
Maine	137	Oregon	3,027,811		

The amounts for 1972 and 1973 have not been distributed by States. Locations of emergency firefighting funds cannot be forecast with any degree of accuracy.



INSECT AND DISEASE CONTROL

1971	\$11,752,000
1972	10,555,000
1973	10,331,000
Decrease	-224,000

A decrease of \$224,000 for reduced employment.

The Forest Pest Control program involves protection of the forest resource from depredation by insects and diseases on lands of all ownerships. Activities include:

- (1) The prevention, detection, evaluation, and suppression of pests on all Federal lands.
- (2) Coordination of the program on lands of all ownerships.
- (3) Federal financial assistance to States for a similar program on State and private lands.

The program for fiscal year 1973 will include a strong effort to hold losses caused by bark beetles to tolerable levels. It is not possible to predict this far in advance the exact locale or scope of control operations, but present beetle activity indicates a need for:

- (1) Mountain pine beetle control projects in Montana, South Dakota, Wyoming, and Washington.
- (2) Douglas-fir beetle, fir engravers, and western pine beetle control projects in California, Oregon, and Washington.
- (3) Spruce beetle control projects in Alaska, Arizona, Colorado, New Mexico, Oregon, and Washington.
- (4) Southern pine beetle control projects in Alabama, Delaware, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Texas, and Virginia.

Defoliating insects--such as the gypsy moth, spruce budworm, Jack pine budworm, tussock moths, and sawflies--will be controlled where resource values are seriously threatened by them and cost/benefit ratios are favorable. Current reports indicate that suppression projects may be required to control:

- (1) Gypsy moth in New Jersey, New York, and Pennsylvania.
- (2) Spruce budworm in Maine, Minnesota, and Montana.
- (3) Jack pine budworm in Michigan and Wisconsin.
- (4) Tussock moth in California and Oregon.
- (5) Sawflies in Michigan, Minnesota, and Wisconsin.
- (6) Cankerworms and leaf tiers in New Jersey, New York, and Pennsylvania.
- (7) Elm spanworm in Connecticut, Massachusetts, New York, and Rhode Island.

Current efforts will be continued on control of the dwarfmistletoes in the Western regions in 1973. These parasitic plants are responsible for reductions of tree growth amounting to estimated losses of \$40 million annually in lumber production from western conifers. Integrating control into planned silvicultural work provides a high rate of return (10-15 percent) by eliminating losses caused by dwarfmistletoe.



White pine blister rust control will be continued in the East, the Lake States, and in selected stands in California and Oregon. The program in the East is primarily a cooperative one, financed by the States with Federal financial assistance. Careful evaluation of rust conditions and hazard has reduced the area requiring control materially in recent years.

Pest outbreaks fluctuate greatly. The cost to check and contain outbreaks cannot be accurately predicted. Using past experience as a guide, along with the knowledge of developing situations, Federal fund needs for fiscal year 1973, as compared with 1971 and 1972, are as follows:

<u>Item</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
	(in thousands)		
Administration, detection, and evaluation	\$5,037	\$5,365	\$5,310
Methods improvement	730	720	720
Purchase Zectran	1,500	- -	- -
Bark beetle control	2,475	1,542	1,389
Defoliator control	390	1,200	1,200
Other insect control	125	129	129
Blister rust control	870	807	807
Oak wilt control	68	70	54
Dwarfmistletoe control	532	696	696
Other disease control	25	26	26
 Total	 11,752	 10,555	 10,331

Impact data for most forest insects and diseases are sketchy or lacking. Good data are essential to properly analyze and evaluate outbreaks and make suppression recommendations. Studies to develop standards and implement collection of impact data for forest pests of high economic importance are on the priority job list for 1973.

Pest control scientists help to protect the environment by carefully weighing and determining the adverse effects of unchecked pest outbreaks and those which might result from prescribed control treatments with the benefits to be derived. As part of their overall responsibilities pest control scientists will keep all environmental impacts, both beneficial and adverse, in proper perspective and recommend those courses of action that will provide the greatest benefits.

Examples of Recent Accomplishments

Bark beetle control. Suppression of bark beetle outbreaks involved treatment of 452,340 trees on both National Forest and non-Federal lands. In addition to this direct treatment, many thousands of board feet were removed by salvage logging to remove infested trees supporting heavy beetle populations in accessible areas.

Disease control. Oak wilt suppression surveys were conducted on 24,418,000 acres in Pennsylvania, North Carolina, Virginia, and West Virginia. All infected trees found were treated to prevent spread of the disease. Blister rust control work was performed on those acres where it was determined to be biologically and economically sound. Approximately 50,700 acres were sanitized to prevent spread of dwarfmistletoe on western conifers.

Cooperative gypsy moth control. Aerial treatment for control of gypsy moth, using the insecticide Sevin, was carried out on State, municipal, and private lands by the States of Pennsylvania (20,000 acres), New Jersey (80,000 acres), and New York (243,000 acres). Areas treated varied from 80 to 9,800 acres in size. Post control evaluations to measure the effectiveness of the treatments as well as the environmental impacts in both treated and non-treated areas are being made.



Air pollution injury to forest vegetation. A two-year study of the effects of fluoride on forest vegetation on the Flathead National Forest, Glacier National Park, and State and private lands near Columbia Falls, Montana, was completed. The study concludes that accumulations of fluoride have been severe enough in trees and shrubs to kill some trees, seriously stunt the growth of other trees, and cause dieback to the shrubs. Varying degrees of visible fluoride injury were found on vegetation on more than 69,120 acres. Elevated fluorides were found in vegetation on nearly 214,000 acres of forested lands of mixed ownerships.

Impact evaluation. Field teams have been selected and work started to determine as precisely as possible the net impact of several selected, economically important forest pests on people, the economy, and the environment.

GEOGRAPHIC BREAKDOWN OF APPROPRIATION ^{1/}
Insect and Disease Control

	1972 <u>estimate</u>	1973 <u>estimate</u>
Alabama	\$60,000	\$60,000
Alaska	108,000	108,000
Arizona	160,000	160,000
Arkansas	100,000	100,000
California	1,200,000	1,011,000
Colorado	360,000	360,000
Connecticut	20,000	20,000
Delaware	6,000	6,000
District of Columbia	360,000	360,000
Florida	40,000	45,000
Georgia	72,000	82,000
Hawaii	20,000	20,000
Idaho	800,000	765,000
Illinois	8,000	8,000
Indiana	8,000	8,000
Iowa	7,000	7,000
Kansas	6,000	6,000
Kentucky	50,000	55,000
Louisiana	120,000	135,000
Maine	500,000	600,000
Maryland	160,000	160,000
Massachusetts	20,000	20,000
Michigan	150,000	160,000
Minnesota	100,000	115,000
Mississippi	120,000	135,000
Missouri	90,000	100,000
Montana	1,150,000	800,000
Nebraska	8,000	8,000
Nevada	30,000	30,000
New Hampshire	110,000	110,000
New Jersey	170,000	170,000
New Mexico	250,000	250,000
New York	600,000	610,000
North Carolina	260,000	275,000
Ohio	60,000	60,000
Oklahoma	7,000	7,000
Oregon	800,000	800,000
Pennsylvania	180,000	205,000
Rhode Island	25,000	25,000
South Carolina	120,000	135,000
South Dakota	300,000	300,000
Tennessee	140,000	150,000
Texas	180,000	200,000



	1972 <u>estimate</u>	1973 <u>estimate</u>
Utah	70,000	70,000
Vermont	90,000	90,000
Virginia	300,000	320,000
Washington	450,000	470,000
West Virginia	140,000	150,000
Wisconsin	170,000	190,000
Wyoming	<u>300,000</u>	<u>300,000</u>
 Total	 10,555,000	 10,331,000

^{1/} The 1973 budget reflects portions of the 1972 appropriations as unobligated due to employment limitations. Since the employment reductions are being met principally through attrition, it is impractical at this time to distribute these savings by geographic location.



COOPERATIVE LAW ENFORCEMENT PROGRAM

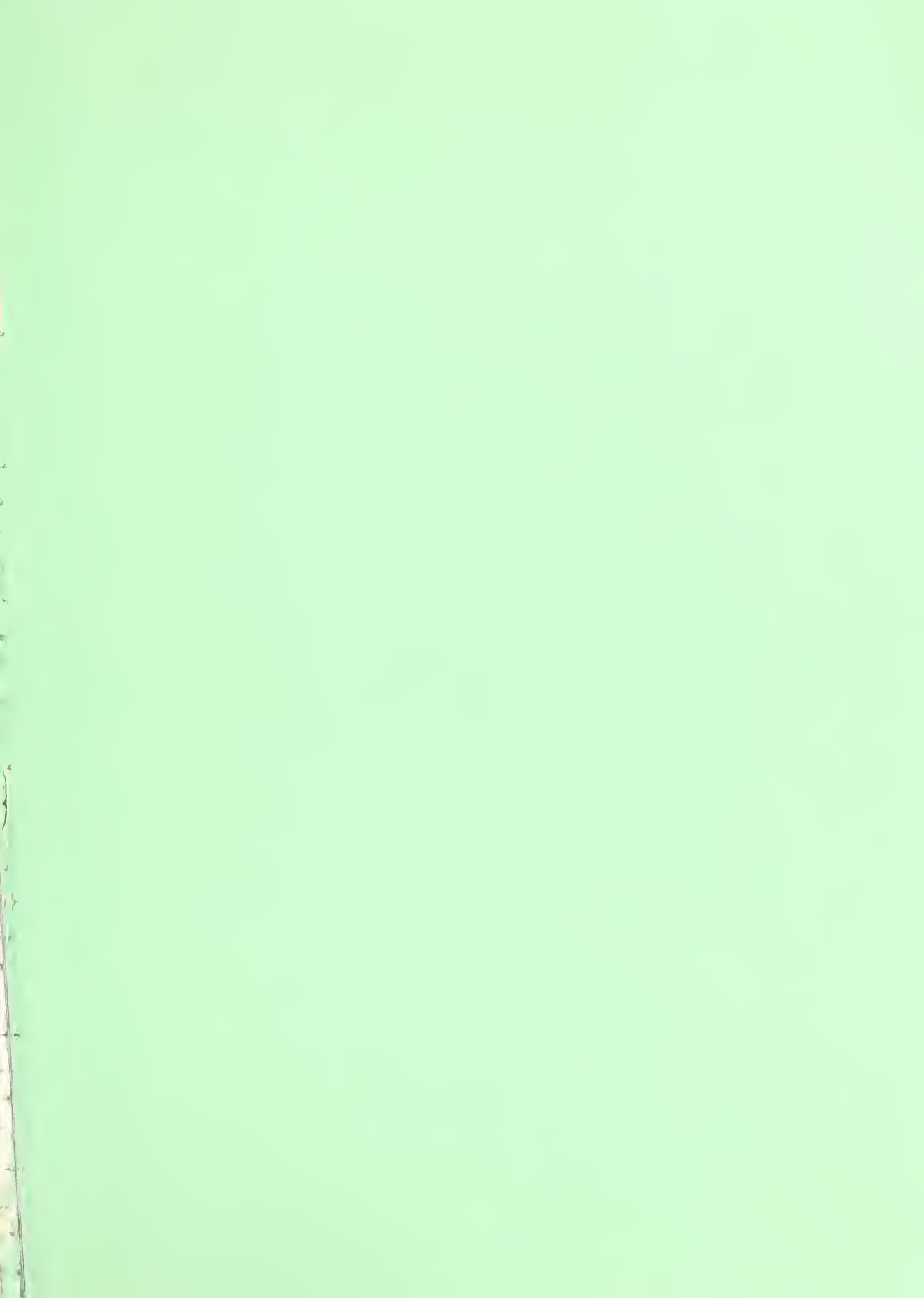
1972 (proposed supplemental)	\$2,500,000
1973	2,500,000

This program would provide funds to carry out the authority in Public Law 92-82, August 10, 1971.

Public Law 92-82 authorizes the Secretary of Agriculture to cooperate with any State or political subdivision thereof in the enforcement of State or local laws on lands of the National Forest System. Such cooperation includes reimbursement to a State or its subdivision for expenditures incurred in connection with activities on National Forest System lands.

State and local laws and ordinances are applicable on National Forest System lands with few exceptions. The Forest Service must look to State and local law enforcement officials to enforce these laws and ordinances on the National Forests. State and local law enforcement agencies will continue to perform, on a nonreimbursable basis, their normal law enforcement duties without cost to the Federal Government. This program provides for the negotiation of law enforcement agreements between the local law enforcement agencies and the Forest Service to handle abnormal impacts caused by public use of the National Forest.







GEOGRAPHIC BREAKDOWN OF APPROPRIATION ^{1/}

Forest Research
(includes Projects (15) through (27) on following pages)

<u>State</u>	<u>Headquarters or Project Location</u>	<u>FY 1972</u> <u>estimate</u>	<u>FY 1973</u> <u>estimate</u>	<u>Change</u>
		(in thousands)		
Alabama	Auburn	\$370	\$358	-\$12
	Tuskegee	34	34	-
		<u>404</u>	<u>392</u>	-12
Alaska	College	401	385	-16
	Juneau	546	527	-19
		<u>947</u>	<u>912</u>	-35
Arizona	Flagstaff	949	916	-33
	Tempe	583	562	-21
	Tucson	259	249	-10
		<u>1,791</u>	<u>1,727</u>	-64
Arkansas	Fayetteville	254	245	-9
California	Arcata	262	251	-11
	Berkeley	2,253	2,428	+175
	Fresno	312	299	-13
	Redding	155	149	-6
	Riverside	<u>1,734</u>	<u>2,583</u>	+849
		<u>4,716</u>	<u>5,710</u>	+994
Colorado	Fort Collins	1,676	1,814	+138
Connecticut	Hamden	1,061	1,023	-38
District of Columbia	Washington	355	343	-12
Florida	Lehigh Acres	112	111	-1
	Marianna	185	179	-6
	Olustee	638	612	-26
		<u>935</u>	<u>902</u>	-33
Georgia	Athens (including Atlanta).....	1,494	1,438	-56
	Macon	839	908	+69
		<u>2,333</u>	<u>2,346</u>	+13
Hawaii	Honolulu	416	399	-17
Idaho	Boise	340	326	-14
	Moscow	880	848	-32
		<u>1,220</u>	<u>1,174</u>	-46
Illinois	Carbondale	702	675	-27
Iowa	Ames	39	37	-2
Kentucky	Berea	379	364	-15
Louisiana	Pineville	1,786	1,868	+82
	New Orleans	869	837	-32
		<u>2,655</u>	<u>2,705</u>	+50
Maine	Orono	178	172	-6



GEOGRAPHIC BREAKDOWN OF APPROPRIATION ^{1/}

Forest Research -- continued
(includes Projects (15) through (27) on following pages)

<u>State</u>	<u>Headquarters or Project Location</u>	<u>FY 1972</u> <u>estimate</u>	<u>FY 1973</u> <u>estimate</u>	<u>Change</u>
		(in thousands)		
Maryland	Beltsville	\$230	\$220	-\$10
Massachusetts	Amherst	304	296	-8
Michigan	East Lansing (including Cadillac)	497	581	+84
	Houghton	416	404	-12
	Marquette	237	227	-10
		<u>1,150</u>	<u>1,212</u>	<u>+62</u>
Minnesota	Duluth	287	277	-10
	Grand Rapids	305	292	-13
	St. Paul	<u>1,251</u>	<u>1,214</u>	<u>-37</u>
		1,843	1,783	-60
Mississippi	Gulfport	1,455	1,401	-54
	Oxford	288	277	-11
	State College	203	197	-6
	Stoneville	<u>675</u>	<u>649</u>	<u>-26</u>
		2,621	2,524	-97
Missouri	Columbia	246	236	-10
Montana	Bozeman	521	504	-17
	Missoula	<u>2,417</u>	<u>3,249</u>	<u>+832</u>
		2,938	3,753	+815
Nebraska	Lincoln	160	154	-6
Nevada	Reno	85	83	-2
New Hampshire	Durham	684	662	-22
New Jersey	Pennington	380	367	-13
New Mexico	Albuquerque	279	269	-10
New York	Syracuse	72	72	- -
North Carolina	Asheville	830	801	-29
	Franklin	224	214	-10
	Research Triangle (Raleigh-Durham)	<u>860</u>	<u>829</u>	<u>-31</u>
		1,914	1,844	-70
North Dakota	Bottineau	236	227	-9
Ohio	Delaware (including Columbus) ..	1,397	1,346	-51
Oregon	Bend	208	200	-8
	Corvallis	2,413	2,326	-87
	LaGrande	449	435	-14
	Portland	<u>1,239</u>	<u>1,190</u>	<u>-49</u>
		4,309	4,151	-158



GEOGRAPHIC BREAKDOWN OF APPROPRIATION^{1/}

Forest Research -- continued
(includes Projects (15) through (27) on following pages)

<u>State</u>	<u>Headquarters or Project Location</u>	<u>FY 1972</u> <u>estimate</u>	<u>FY 1973</u> <u>estimate</u>	<u>Change</u>
		(in thousands)		
Pennsylvania	Upper Darby	\$668	\$ 643	-\$25
	Warren	<u>335</u>	<u>322</u>	<u>-13</u>
		1,003	965	-38
Puerto Rico	Rio Piedras	345	331	-14
South Carolina	Charleston	241	230	-11
South Dakota	Rapid City	310	300	-10
Tennessee	Sewanee	174	167	-7
Texas	Nacogdoches	305	295	-10
	Houston	<u>36</u>	<u>36</u>	<u>- -</u>
		341	331	-10
Utah	Logan	598	578	-20
	Ogden	650	626	-24
	Provo	<u>211</u>	<u>202</u>	<u>-9</u>
		1,459	1,406	-53
Vermont	Burlington	470	451	-19
Virginia	Blacksburg	132	128	-4
Washington	Olympia	361	347	-14
	Seattle	693	777	+84
	Wenatchee	<u>309</u>	<u>296</u>	<u>-13</u>
		1,363	1,420	+57
West Virginia	Morgantown	355	345	-10
	Parsons	341	328	-13
	Princeton	<u>1,080</u>	<u>1,041</u>	<u>-39</u>
		1,776	1,714	-62
Wisconsin	LaCrosse	100	97	-3
	Madison	6,817	6,562	-255
	Rhineland	<u>657</u>	<u>630</u>	<u>-27</u>
		7,574	7,289	-285
Wyoming	Laramie	<u>223</u>	<u>214</u>	<u>-9</u>
Total		54,320	55,085	+765

^{1/} The 1973 budget reflects portions of the 1972 appropriations as unobligated due to employment limitations. Since the employment reductions are being met principally through attrition, it is impractical at this time to distribute these savings by geographic location.



TIMBER MANAGEMENT RESEARCH

1971	\$11,232,000
1972	11,697,000
1973	11,232,000
Decrease	-465,000

A decrease of \$465,000 for reduced employment.

Timber management research develops scientific knowledge of forest ecosystems with trees as a principal component, and develops methods for culture of trees and management of forests for production of timber and for modification and improvement of man's environment. This includes:

- (1) Development of cultural methods for timber and timber-related crops.
- (2) Techniques of timber measurement.
- (3) Techniques of forest management planning.
- (4) Techniques for environmental tree culture.
- (5) Research in forest genetics.

The core of this research is determining the proper culture for over a hundred different commercial timber species based on a thorough knowledge of their ecology and growth requirements. This research determines how the nation's needs for timber and other forest benefits can be met on Federal, State, and private lands through measures such as brush control, forest establishment, protection from animals, stand culture, soil and site improvement, and reestablishment of tree species valuable for timber or environmental purposes.

Timber management research also provides forest managers with reliable information on growth and yield of forests and on the influence of cultural practices on yield and quality of the stand.

This program includes research on methods of producing timber-related forest crops such as gum naval stores, maple sap, Christmas trees, and other income-producing natural products from forests.

Forest genetics research includes scientific study of variation and inheritance in trees, and development of techniques for producing strains or hybrids having superior growth rate, wood quality, resistance to insects, diseases, and other damaging factors, or special value for use in environmental improvement.

Examples of Recent Accomplishments

Strip thinning in red pine has multiple benefits. About 200 thousand acres of red pine stands in northern Minnesota, which will be ready for thinning in the next 10 years, can be thinned economically and with probable enhancement of their high recreation and esthetic values. A strip thinning technique was developed which provided ready access by efficient rubber-tired timber harvesters. This technique can be used late in a sawtimber rotation with minimal effects on the forest--only seven residual trees were visibly injured in a 20-acre stand after 100 thousand board feet had been harvested. The resulting strips and the patches made for slash disposal are usable for wildlife openings, overflow campgrounds, and hunting sites.

Controlled environments boost ponderosa pine and blue spruce seedling growth. Growing seedlings in controlled environments may reduce the time from seeding to outplanting by two-thirds. Ponderosa pine and blue spruce grown for 10 months in



the greenhouse were comparable in size to 3-year-old nursery-grown seedlings in North Dakota. Greenhouse culture offers such advantages as faster growth, year-round operation, and location of physical plant near planting sites; however, production problems such as cost of enclosures on a large scale, optimum environment for each species, and shipping costs for potted trees, need to be resolved.

Prediction system for root growth aids in forest planting. Nursery stock grades have not usually been based directly on seedling survival in the field. A new system for grading seedlings based on their expected root growth following planting has been developed. Monthly tests of root growth capacity of seedlings lifted prior to and during the shipping season along with data on air temperature in the nursery enable the prediction of root growth for specific planting dates, and should eliminate planting failures caused by the use of stock whose seasonal growth is not adapted to the planting site environment.

Cultural systems determine future make-up of Appalachian hardwood forests. Choice of management practices to achieve multiple-use objectives requires knowledge of successional trends and other ecological responses under different silvicultural systems. A study of single-tree selection cutting in West Virginia shows the percentage of pole-sized yellow-poplar, northern red oak, blackcherry, and other cove hardwoods decreased from about 60 percent to less than 40 percent in 20 years. During the same period, pole-sized sugar maple, red maple, sweet birch, and beech increased from less than 30 percent to more than 50 percent. As species composition changes, growth rates and potential uses may be expected to change also, and such changes must be considered in determining management methods and long-range uses.

Model shows need for stand culture to prevent loss of species from Northern hardwood stands. Species composition is an important ecological factor affecting timber, water, wildlife, recreational, esthetic, and other forest values, but changes of composition with time are extremely difficult to predict. Two simulation models developed in New Hampshire (one based on species birth and death rates and the other on rates related to population density) indicate that in the absence of management, species variety in Northern hardwood stands will be reduced ultimately to beech-maple-hemlock, with the loss of birches, ash, spruce, and other species. This method of simulation provides a means for analyzing successional change and shows the need for directing these changes through stand culture.

Charts show relative productivity of land for different Southern hardwoods. Establishing or favoring the species best adapted to a particular site will promote healthier forests and increase timber yields, but little information is available by which species performance can be compared. A study of site index comparisons in the mid-South provides this information for a number of species: sweetgum, cottonwood, green ash, and cherrybark, nuttall, water, and willow oaks. If the site index for any of these species is known or can be measured on a site, the site index for the others can be determined from graphs.

Selected Chinese chestnut shows promise as blight-resistant timber tree. Much emphasis has been placed on Chinese chestnut alone or hybridized with American chestnut for amenity uses, but little work has been done to evaluate the species as a potential timber tree. After 17 years, a planting comprised of four seedlots averages almost 40 feet (12.2m) in height and 4 inches (10.2cm) in diameter. Several trees have good timber form and nearly all are free of disease despite severe chestnut blight on nearby native chestnut plantings. This species probably deserves to be planted more extensively if additional seedlots can be obtained.

Southwest conifer sources make superior Christmas trees in North Central region. Growth rate and foliage characteristics, especially color, are important factors in selecting Christmas trees. Nine-year studies in Michigan and Nebraska of 50 sources of Mexican white and limber pines and of 128 sources of Douglas-fir

indicate that Arizona and New Mexico sources of all three species were fastest growing and have the "bluish" foliage preferred by most growers. Where winters are particularly severe, growers may find some lack of frost hardiness with the southern sources of Douglas-fir, but otherwise the Arizona and New Mexico sources should produce highly desirable Christmas trees in the North Central region.

Distribution of important trees documented in the "Atlas of United States Trees." Information on geographic distribution of tree species is critical to many kinds of ecological research, and is important in programs to preserve native species for scientific study and for germ plasma exchange. The first volume of a new Atlas of United States Trees contains about 300 large maps showing the natural range of 200 native tree species of continental United States, scale 1:10,000,000, with county boundaries. For correlation of occurrence with the environment, there are nine transparent overlays that provide information on the climatic and physical characteristics of the habitat.

Pulping genetically improved trees produces more tall oil. Manufacturers have become increasingly involved with the recovery of tall oil, a mixture of fatty acids and resin acids, as a byproduct of the wood pulping process. Because of high correlations between oleoresin production, wood extractives, and tall oil yields of slash pine, genetic selection for increased oleoresin production of living trees has been accompanied by a 12 percent increase in tall oil recovery from the wood. This increases the overall value of selected strains because it increases the multiple-product potential.





Plastic covered green houses provided an inexpensive form of controlled environment required for rapid production of healthy seedlings for planting. Further research on improved techniques to provide prompt production of seedlings is needed to meet the urgency of quickly reforesting harvested areas.

Figure 15



WATERSHED MANAGEMENT RESEARCH

1971	\$4,832,000
1972	6,136,000
1973	6,010,000
Decrease	-126,000

A net decrease of \$126,000 is proposed as follows:

- (1) Increase of \$100,000 for research on the environmental impacts of applying sewage sludge and effluent to forest lands in the Lake States. Opportunities exist for recycling nutrients and other waste products to improve forest productivity and to provide an environmentally safe and economical means of waste disposal. Research is needed to determine the role forest lands might play in helping solve this major national environmental problem.
- (2) Decrease of \$226,000 for reduced employment.

Watershed management research develops scientific knowledge of the interaction of soil-water-vegetation and atmospheric systems as they affect the quantity and quality of water produced from forested watershed lands--the source of two-thirds of available water in the United States.

Watershed management research seeks to:

- (1) Develop methods and techniques for managing forest and forest-related watershed to protect and improve soil and water quality, improve the yield and timing of water flows, and restore and rehabilitate degraded landscapes.
- (2) Develop adequate means of protecting soil and water resources, especially on fragile or unstable soils, while forest and forest-related lands are being managed for other products and services.
- (3) Provide basic knowledge of vegetation, soil, water, and atmospheric relationships in wildland and related forest areas.

During fiscal year 1973, research will be expanded on alleviating water quality problems associated with forest land management activities. This will include work on maintaining soil stability, preventing erosion and sedimentation, and rapidly rehabilitating damaged watersheds. More emphasis will be placed on protecting and enhancing habitat for anadromous fish. Particular attention will be given to determining impacts of forest activities on nutrient cycling and the eutrophication of streams and lakes. New research will be started to determine the possibilities of multiple use management of municipal watersheds without impairment of water quality.

Examples of Recent Accomplishments

Renovation of sewage wastes tested on forest land. Municipalities throughout the Nation are seeking sound, economical, and environmentally safe methods for disposal of sewage wastes to meet State and Federal standards and satisfy the demands of a concerned public. Communities in Michigan and neighboring States are increasingly considering land systems for providing ultimate treatment and economical disposal of sewage wastes. A study on the effectiveness of a forest ecosystem in renovating sewage effluent and recycling nutrients is now underway in the Huron-Manistee National Forest near Cadillac, Michigan. Three inches of treated effluent are being applied to test plots. Early results from tests for nitrogen and phosphorus in ground water only eight feet below the treatment site reveal no ground water contamination. Thus, in the short run, the sandy soil and Jack Pine forest ecosystem provide effective waste renovation and retention of major nutrients. Long-time interactions are yet to be evaluated.



Logging methods influence stream temperatures. High quality water from forest lands is subject to rapidly increasing demand. Attention has recently been drawn to the potential impact of timber harvest on water temperature, a key determinant of how a given fish species will survive in a stream. Logging operations typical of much of the commercial forests on west slopes of the Oregon Cascades were observed to affect stream temperatures by regulating shade from streamside forest vegetation.

A simplified equation was developed to predict water temperature changes of tributary streams by various degrees of exposure that could result from logging.

Sediment regime of a Michigan trout stream evaluated. Fish and fish habitat may be adversely affected by stream sediment concentrations. In the sandy glacial drift area of the Lake States, there has been very little quantitative information on the sediment regime of the streams or of the effects of bank erosion on sediment load. A study of the source and movement of sediment in a Michigan trout stream revealed a five-fold increase in sediment load along 26 miles of stream channel. The sediment is predominantly sand-size material and most of the load came from erosion prone large banks of wet sand and clay. Stabilization of these areas which represent only 40 percent of the eroding waterline could produce a three-quarter reduction in eroding bank sediments and a substantial reduction in stream sediment load.

Zectran insecticide harmless to soil microbes. An effective but environmentally safe insecticide is needed to control tree damaging insects such as the western budworm and western hemlock looper. Zectran is a promising chemical for use against these tree defoliators. It also appears much less persistent in the forest ecosystem than DDT. Zectran produced no adverse effects on soil microbial activity when applied to an Oregon forest soil in concentrations far greater than dosage levels called for under registration. Low-volume applications of this insecticide for forest use thus should pose no hazard to soil microbes.

Conversion of chaparral to grass increases streamflow. Water supplies can be augmented by managing native plant cover to reduce evapotranspiration. A substantial increase in water yield was achieved in central Arizona on two small chaparral watersheds following brush control and conversion to grass. The efficiency of this conversion is dependent on the annual amount and seasonal distribution of precipitation. Winter precipitation is the major seasonal source of water yield because of lower evaporative losses during this period. However, when annual precipitation is less than 16 inches, research has shown the increase in water yield from conversion may be less than two inches, whereas from an annual precipitation of about 34 inches, the increase in flow may reach 12 inches or more.

Snow fences induce snow accumulation, reduce water loss, and redistribute precipitation. Drifting snow is an intrinsic feature of the winter landscape throughout the High Plains. A promising technique to accumulate precipitation for replenishing soil moisture and recharging surface water supplies during summer months is fencing to trap and concentrate blowing snow. In Wyoming, following a nine-year watershed calibration period, a fence 12-1/2 feet high and 1,300 feet long was constructed to increase snow accumulation along a channel reach. During the following winter, peak snowpack water-equivalent was increased about 70 percent or about 6.5 acre-feet. Much of the snow accumulated on the watershed was stored in one large drift; evaporation was reduced, the melt period prolonged, and on-site water yield increased.



REDUCING POLLUTION



Renovation of sewage wastes tested on forest land. Sewage effluent being applied to 35-year old Jack pine plantation. 73 inches of effluent was applied during the 1971 growing season on the Manistee National Forest, Cadillac, Michigan. Early results indicate that in the short run this sandy soil and Jack pine forest ecosystem can provide effective waste renovation and retention of major nutrients. Long-range interactions are yet to be evaluated.

Figure 16



RANGE MANAGEMENT RESEARCH

1971	\$1,534,000
1972	1,576,000
1973	1,512,000
Decrease	-64,000

A decrease of \$64,000 for reduced employment.

One billion acres of rangeland represents about 45 percent of the Nation's total land area. This complex, natural system produces a wide variety of goods and services for man--water, clean air, habitat for livestock and wildlife, recreation, open space, and other products. In some instances, two or more products of the range ecosystem can be produced at high levels with complete harmony. More often, the uses and products are competitive.

Range research seeks to:

- (1) Understand the complex ecology of range systems.
- (2) Identify the relationships among products and uses of the range.
- (3) Develop management strategies that ameliorate competitive relationships.
- (4) Develop management alternatives that increase the production of forage for livestock and wildlife.

These objectives are pursued through research on such diverse natural systems as the subtropics of Florida, the alpine tundra of Wyoming, and the Sonoran desert of Arizona.

Examples of Recent Accomplishments

Range livestock management practices enhance quail habitat. Quail populations on annual grasslands in California can be favored by cattle grazing. Production of turkey mullein seed, a highly preferred quail and dove food, can be increased on low lying areas even with moderate stocking rates by heavy grazing. Sulfur fertilization also improves the habitat for quail because it increases the production of legume seed, another preferred quail food. Conversely, nitrogen fertilization reduces the production of legume seed. Ranchers in this area can use this information to improve game populations and supplement income by granting hunting rights.

More beef with yearlong grazing and fertilization. Yearlong grazing of California's annual grasslands consistently produces more beef than seasonal or rotation grazing. After eight years in differential grazing systems, cows in a yearlong system were about 100 pounds heavier than those in seasonal or rotation systems. The average weight of calves in the yearlong system was 50 pounds greater at weaning time. Sulfur fertilization failed to increase the weaning weight of calves in the yearlong system. However, it did materially increase the grazing capacity of the range, and thus the number of calves produced.

New remote sensing procedures developed for multi-resource inventories of rangeland. Cooperative research with NASA in the Southwest is developing new remote sensing procedures for an economical and reliable inventory of the Nation's vast rangeland resource. Improved color films, used in high speed aerial cameras, permit accurate identification of plant species and assessment of their relative abundance. Big game animals can be detected as well as the disturbances associated with some insects and rodents. On the horizon are automated photo interpretation techniques to form the first practical rapid method of inventorying the multiple rangeland resources.

WILDLIFE HABITAT RESEARCH

1971	\$1,431,000
1972	1,880,000
1973	1,823,000
Decrease	-57,000

A decrease of \$57,000 for reduced employment.

Wildlife habitat research is directly concerned with the quality of most of the Nation's terrestrial environment in terms of wildlife and their enjoyment by man. The Nation's forest, range, and associated waters provide a home for millions of big-game animals and countless other wildlife, including song birds, small game, and waterfowl. These wildlife resources provide recreation, income, and beauty for a broad spectrum of the Nation's population. Urban and rural residents generate mounting demands on both public and private land for increased wildlife resources. In addition, rare, endangered and unique wildlife species pose special research and management problems. Thirty-three endangered, 25 rare species, and 90 unique species alone occur on or adjacent to Forest Service administered land. Wildlife habitat research develops the scientific knowledge of the interaction of plant and animal communities as they affect enhancement for wildlife species.

Through basic and applied investigations, wildlife habitat research seeks to:

- (1) Define the habitat requirements of forest wildlife.
- (2) Identify the relationship of forest management practices to size and diversity of wildlife and fish populations.
- (3) Develop alternative management practices that ameliorate competitive relationships.
- (4) Generate strategies of managing forest and aquatic habitats for optimum wildlife benefits. The research program is conducted in close cooperation with State and other Federal agencies.

Examples of Recent Accomplishments

Timber thinning improves forage and browse production. Pine forests of the Pacific Northwest can be an important source of food and shelter for wildlife and domestic animals. Eight years after thinning, pine stands were producing up to 350 pounds per acre more forage and browse than unthinned stands, a more than four-fold increase. Thinning is generally impractical solely for livestock forage production, even where slash can be disposed of economically. However, forage and browse production as a complementary adjunct of thinning for timber production, benefiting livestock and wildlife as well, is a distinctly practical operation.

Stock ponds provide key waterfowl habitat. Livestock ponds also provide waterfowl habitat and thus supplement the diminishing wetlands of the Northern Great Plains. Over a five-year period, 53 species of waterfowl and shorebirds and 57 other species of birds were found to have used 12 ponds in western South Dakota. The average pond produced 35 young puddle ducks. Extending the sample data to the 90,000 ponds in western South Dakota, a potential production of over 300,000 puddle ducks a year can be projected for this area alone.

Many food sources utilized by white-tailed deer. The importance of woody twigs in the diet of white-tailed deer has been overemphasized. Mushrooms, herbaceous plants, and the leaves, mast, and fruits of woody plants are all important foods throughout the year. Woody twigs are an important component of the diet only in the spring, when they are soft and succulent. During the fall-winter months twigs compose less than one percent of the diet. This new information suggests



revision of deer habitat management prescriptions in the South, and perhaps elsewhere.

Prescribed burning enhances habitat for quail nesting. Bobwhite quail utilize a wide variety of nesting sites in southern Georgia, but most nests occur at the interface of contrasting plant communities. Herbaceous plants growing in medium-sized isolated clumps provide good nesting habitat. This type of herbaceous cover provides adequate passageways for quail movement and good screening for the nest. The careful use of prescribed fire promotes these conditions.

FOREST RECREATION RESEARCH

1971	\$1,038,000
1972	1,059,000
1973	1,059,000

It is proposed to continue this program at the 1972 level.

Forest recreation research through studies of man's interactions with his forest environment contributes to formulation and implementation of environmental resource policies.

Recreation research seeks to:

- (1) Develop new and better resource management practices which enhance amenity values.
- (2) Understand man's need for and use of forests, open space, and parks as environments for living, working and recreation.
- (3) Analyze and understand the interactions between people and forests, social and economic factors underlying outdoor leisure activities, esthetic quality of forest landscapes and environmental situations, trends in recreation uses, use and management of wilderness areas, and alternative management strategies for meeting the public demands.
- (4) Identify interrelations among recreation, environmental amenities, and other uses of forests and open spaces--and to find better ways of coordinating these uses.

Examples of Recent Accomplishments

Potential changes in forest scenery resulting from proposed developments can be analyzed in advance. Esthetic values of forest and mountain landscapes are important to the American people. They often judge the forest and its managers by the appearance of the landscape. Many proposed developments and actions can affect the character of the landscape. For example, changes in highways, installation of utility lines, building of ski areas, and timber harvesting, have severe impacts on the visual resource. Through use of computers, rapid simulation of these complex systems is now possible. A method for simulating and analyzing visual impacts of alternative actions before a decision is made has been developed, pilot tested, and successfully applied by research. This new method has been used to help analyze a proposed scenic tramway in the Black Hills National Forest, South Dakota.

Planning for new ski areas facilitated through development of simulation techniques.

Winter sports continue to grow in popularity, and many of the potential ski area sites are on the National Forests. Decisions on development of new ski areas are important because of the possible environmental effects and because they require large amounts of investment capital. A method for finding out how a proposed new ski development will fit into the overall regional ski business has been developed by research. Data for the basic model came from observations at the 36 resorts that provide 90 percent of the skiing in California. The method now being used in California takes advantage of simulation techniques on high-speed computers. A number of complex alternatives can be analyzed in a short time. It is possible to estimate how much use a proposed area would get and how it would affect use at existing areas.

New methods can cut costs of cleanup and reduce littering in campgrounds. A new approach to managing campground littering problems has been developed and pilot-tested by research. Children from camping families are invited to help and are rewarded with items such as the Smokey Bear patch or the Junior Forest Ranger badge. With this incentive method, 95 percent of the litter in a campground was collected

and properly disposed. The cost was \$3 for the incentive items and 2 man-hours of supervision. To do the same job with regular cleanup crews would have cost \$60 and 20 man-hours. Furthermore, littering in the campground dropped to one-fifth the usual level during the week following. During recent years about 75 percent of the money available for operating developed recreation sites on National Forests has gone for cleaning up after the visiting public. Thus, even a small improvement in reducing people's tendency to litter or in cutting cleanup costs would pay off handsomely.

Service to forest visitors improved through more effective communication. There are 180 million visitor-days of use in the National Forests. Many of these visitors want to learn about nature in the forests. However, methods of presenting information are not effective with a large share of visitors. Public understanding of and support for use regulations are essential to public resource stewardship. Studies show that many who violate rules or damage facilities in campgrounds do so because they are uninformed about rules. Researchers are developing more effective ways of communicating with forest visitors. The most promising methods so far involve dynamic techniques rather than static "displays," permit participation, reward learning, and are tailored to people's interests. A test of a specially designed nature trail showed that learning about the environment by grade school children was raised by 20 percent in test scores. Pilot tests of tape recorded guided tours have also proven to be very popular and effective.

Forest campgrounds can be intensively managed. Campers prefer clean campgrounds that are green; however, heavy use of campgrounds nearly always results in loss of ground cover vegetation and in dust and mud problems. Where sites are not too shady, research in the Intermountain West demonstrated use of seed, fertilizer, and water can keep many heavily used campgrounds in good shape. In one test area it cost only about 25¢ per visitor-day for seed, fertilizer, and water to keep the area green and free of dust and mud. These studies also have resulted in the development of guidelines for good design and construction to provide for planned traffic patterns and hardening (paving) of heavy use areas, such as around stoves and tables.

FIRE AND ATMOSPHERIC SCIENCES RESEARCH

1971	\$4,069,000
1972	5,160,000
1973	7,206,000
Increase	+2,046,000

A net increase of \$2,046,000 is proposed as follows:

- (1) \$200,000 to strengthen fire hazard reduction research at Seattle, Washington, and Macon, Georgia. Research at Seattle will aim to reduce the quantity of forest residues produced. These buildups of residues provide the dangerous fuel conditions that result in costly forest conflagrations. At Macon, research will concentrate on nonpolluting smoke management techniques for prescribed fires, which will reduce understory forest fuels and reduce the chance of large wildfires.
- (2) \$1,100,000 to strengthen fire attack system research at Missoula, Montana, and Riverside, California. At Missoula, research will aim to develop improved fire retardant delivery systems for fixed wing aircraft and for helicopters that will permit safe and effective operation in smoke and during night or day firefighting. Research at Riverside will focus on performing systems analysis to determine the most effective utilization of fixed wing aircraft and helicopters in fire control.
- (3) \$900,000 to strengthen fire command and control systems research at Riverside, California, and Fort Collins, Colorado. At Riverside, research will concentrate on developing advanced airborne fire intelligence methods for detecting and mapping fires, including real time telemetry of information and display at fire command control centers. Research at Fort Collins will be directed toward development of automatic techniques for measuring fire danger rating factors required at fire command control centers.
- (4) Decrease of \$154,000 for reduced employment.

The fire research program develops knowledge and technology to reduce forest fire costs and to protect the quality and productivity of American forests. This research is the sole Federal forest fire research effort and is designed to aid all private, State and Federal agencies in protecting 1.2 billion acres of forest and watershed lands. This research has aided in bringing about a 50 percent reduction in total forest fire losses between 1951 and 1965. Increasing risks and hazards in today's more intensive use of forest lands makes the forest fire control job more difficult. During the five years, 1966 through 1970, the average annual area burned increased to nearly 4.7 million acres and reached 6.7 million acres in 1969. The devastating fires of 1970 in the Northwest and California add further evidence to the increasing severity of forest fire problems.

Forest fire losses are at unacceptable levels. There are opportunities to make substantial savings through full development of new technology for fire prevention and control. The fire research program has high potential to reduce the timber supply impacts from fire loss now averaging 1,515,598 acres of commercial forest land burned per year on protected forests, and environmental quality degradation from annual burning of some five million acres on all classes of lands. The current fire research program is focused on:

- (1) Fire prevention.
- (2) Fire hazard reduction.
- (3) Fire control systems.

Examples of Recent Accomplishments

Aerial fire suppression techniques research being accelerated. In fiscal year 1972 research on aerial fire suppression techniques was accelerated. Building on prior research, the new program is currently focused on fire control systems utilizing fixed wing aircraft and helicopters, a fire command and control system, and cost-benefit studies of fire control alternatives.

Theoretical analyses have established the aerodynamic factors responsible for loss of 40 percent of retardant materials dropped by conventional air tankers. In tests performed in cooperation with the Air Force a pressurized tank system with very large nozzles for ejection of retardants has shown good promise for effective coverage of fire targets from large aircraft flying at higher and safer altitudes.

Field trials of the National Fire Danger Rating System initiated. The first version of the National Fire Danger Rating System for use by all wildland fire protection agencies has been completed, and field trials were started in 1971. Forest managers were given training in system theory and operation. The new system appears to provide a vastly improved method for specifying and predicting fire danger and can be used for implementing fire prevention programs, the allocation of fire suppression crews and equipment, and a definition of fire weather measurement needs. Parts of the system will provide valuable guidance to fire suppression crews in predicting fire behavior. Risk assessment components are yet to be added to the system.

Inexpensive Airborne Infrared Fire Detection System (Fire Spotter) placed in operation. A simple infrared fire detection device for installation on small, light aircraft has been developed by project Fire Scan and placed in operation by a number of the fire protection agencies using air patrol for fire detection. The device provides an alarm when a fire is spotted, supplies directional information for location of the fire, and enables air patrol crews to detect and locate forest fires long before they can be identified visually by a smoke column or other characteristics.

Fuel model concepts developed and being tested. Scientists at the Northern Forest Fire Laboratory in Montana have developed and introduced the concept of the fuel models for use in the appraisal and classification of wildland fuels. Eleven models with precisely defined burning and fire behavior characteristics have been formulated for use throughout the 50 States. These models are being evaluated and tested. If successful, the models will provide invaluable guidance to fire protection agencies in identifying areas with critical fire problems arising from hazardous fuels situations.

Cooperative smoke management program implemented. Prescribed burning to reduce fire hazard and to clear forest land is standard practice in many parts of the United States and Canada. Field and laboratory studies have now described specific emissions from such fires, their output, and distribution over time. Particulate emissions, other chemical emissions associated with damage to forest stands, and carbon monoxide at toxic levels over short periods of time were identified close to the edge of fires in areas where mixing was minimal.

A new cooperative smoke management program was developed in the Pacific Northwest by the Forest Service, Bureau of Land Management, National Oceanographic and Atmospheric Administration, the States of Oregon and Washington, and private industry. During 1971, implementation was facilitated by a series of orientation and training programs within and between cooperating agencies. Program emphasis is placed upon keeping smoke away from previously defined "sensitive" areas and minimization of smoke "overload" in given air masses. Prescribed fire schedules are regulated according to predicted atmospheric conditions and frequency of burns in localized areas.



Prescribed burning symposium reports latest research and field findings on effects of fire on the ecosystem. The Southeastern Forest Experiment Station in North Carolina, in cooperation with Duke University, Clemson University, and Baruch Research Institute, conducted a symposium on prescribed burning at Atlanta, Georgia. Primary objective of the seminar was to communicate the most recent information about the effects of fire on the ecosystem and methods of reducing ecosystem impairment to practicing foresters in both the public and private sectors, to researchers, and others concerned with the use of fire in forest land management.



FOREST INSECT RESEARCH

1971	\$5,111,000
1972	5,696,000
1973	5,898,000
Increase	+202,000

A net increase of \$202,000 is proposed as follows:

- (1) Increase of \$400,000 will be used to advance research on management of bark beetles at Berkeley, California, and Pineville, Louisiana. Research at Berkeley will include expansion of field testing for new control and detection techniques to provide data on both effectiveness and safety of attractant compounds. This is a new approach to managing destructive bark beetles by natural selective means rather than by the use of toxic broad spectrum pesticides. This increase will shorten the time to registration of attractants for managing the western pine beetles and accelerate the pace of research to develop attractants for use against the mountain pine beetle. At Pineville, research will concentrate on expansion of field testing for new control and detection techniques to develop procedures for integrating attractants into an overall management strategy for the Southern pine bark beetle.
- (2) Decrease of \$198,000 for reduced employment.

Forest insect research develops knowledge and technologies required to:

- (1) Understand impacts and the ecological role of destructive insects in forests and forest-related environments.
- (2) Develop integrated strategies for managing pests which fit into forest resource planning and operations.

Special emphasis is being given to:

- (1) Isolation, identification, and synthesis of insect- and host-produced attractants, antiattractants, feeding and oviposition stimulants, repellents and other nontoxic chemicals that influence behavior of insects.
- (2) Microbial pathogens of insects for use in suppression of destructive insects, such as sawflies, tussock moths, gypsy moth, and loopers.
- (3) Pesticides having great specificity and little hazard to nontarget organisms and of improved techniques for applying them safely and effectively from the air.

Specific pest insects under study include:

- (1) Gypsy moth and associated hardwood defoliators in the northeastern States.
- (2) Larch casebearer and western spruce budworm that defoliate western conifers.
- (3) Dendroctonus bark beetles that kill pines and firs in the West and South.
- (4) Forest tent caterpillar that defoliates northern hardwoods.

- (5) Trunk borers that affect the quality of high value oaks in the eastern States.
- (6) Elm bark beetles that vector the Dutch elm disease.
- (7) Subterranean termites and powder post beetles that infest housing and wood in use.
- (8) Cone and seed insects that reduce yields from superior trees in seed orchards.

Solution of these pest problems will help to maintain the esthetic values of forests, to meet increasing demands for wood, and to extend the life of wood in use.

Examples of Recent Accomplishments

Synthetic attractant used for surveys and suppression of western pine beetle.

An attractant mixture of exo-brevicomin, frontalin and myrcene has been effectively used to survey for and suppress the western pine beetle in California. Pilot control studies completed in 1970 and 1971, covered a 35 square-mile area and a 50 square-mile area. The results of this research have demonstrated the practical utility of attractants for detecting and assessing bark beetle populations and their potential usefulness for control purposes.

Attraction of male to female shoot moths foiled. Three synthetic compounds have been developed which mask or block perception by male European pine shoot moth of the female's attractive scent. Disrupting the normal communication system between the sexes may disrupt the reproductive cycle and be useful in managing this introduced pest.

Virus disease stops tussock moth outbreak. An outbreak of the Douglas-fir tussock moth was halted in northern California by natural causes. Detailed study of the population decline revealed that the primary controlling factor was the natural occurrence of a virus disease. The disease was most prevalent in heavy populations. This virus has been isolated and cultured, and it is being used in field experiments to control outbreaks of this tussock moth.

Systems developed for aerial applications of microbial insecticides. New equipment has been perfected for safely and efficiently applying microbial insecticides from helicopters for control of destructive forest defoliators. The spray system features spinning nozzles which produce a fine spray and a low application rate of 0.2 gallon per acre. Another spray system with conventional nozzles produces coarse sprays and application rates of 1 to 2 gallons per acre. This technology is basic to fabrication of equipment for applying different microbial formulations.

Formosan termite well-adapted to southern United States environment. The rate of feeding, size of foraging area, and brood survival for the Formosan termite are significantly greater than for native subterranean termites in the southern United States. Both the rapid adaptation of this foreign pest to southern environments and the fact that it feeds on both living and dead plant material is of increasing concern. Hopefully, low temperatures may limit extension of its range into the more northerly States.

Tree condition affects aphid survival. A two-year study of balsam woolly aphids in national park and scenic areas in North Carolina revealed that condition of

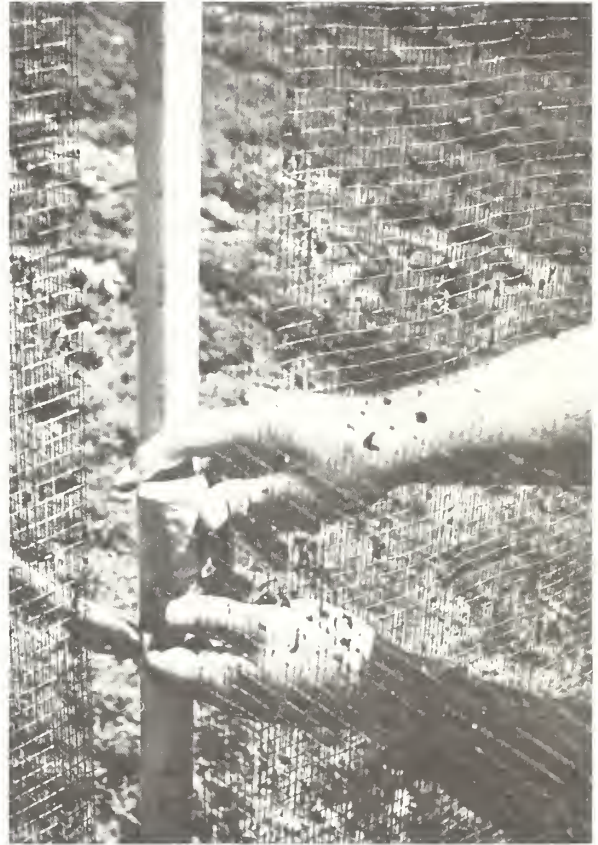
host fir trees was the most important factor in limiting aphid numbers. Weather and predators killed many eggs, but their loss was of little consequence in determining trends of populations. Rate of radial growth, as an indicator of tree condition, was effectively used to predict population potential of the aphids in advance of infestation.

Breakthrough on transport of systemic insecticides in plants. One of the Forest Service scientists has discovered that a free ionizable carboxyl group is essential for the successful translocation of insecticides in plants. This breakthrough has rapidly led to the synthesis and listing of three new insecticides and several model compounds. Results have opened the way for future research and development on a completely new spectrum of systemic insecticides. These could be applied to foliage for rapid absorption and translocation throughout large trees.

Early basal pruning reduces insect and disease problems. Early basal pruning of the lower 1 to 1-1/2 feet of the stem of planted red pine will significantly reduce the damage caused by European pine shoot moth, pine root collar weevil and Scleroderris canker, in the Lake States. The cost of such an operation compares favorably with costs for spraying insecticides. This discovery provides an economic alternative to the use of chemicals.

Methoxychlor curtails Dutch elm disease spread. Two consecutive years of spraying with methoxychlor, applied by helicopter or mist blower, curtailed the spread of Dutch elm disease. Incidence of diseases decreased by one-third on treated plots and increased by 94 percent on untreated plots. Continuing investigations will explore the feasibility of preventive spraying to protect elms feeding by elm bark beetles that inoculate the disease into the trees.

BARK BEETLE ATTRACTANTS



Screen trap baited with the attractants and coated with a sticky material to catch the western pine beetles in an infested ponderosa pine stand. The attractant is placed in the small container fastened to the mid-pole at the center of the trap.

Close-up of attractant container. The attractant is released into the air at a controlled rate from a wick arrangement. A very small amount of attractant will last 4-6 weeks. We are now learning how to best deploy these traps in the field for both detection and suppression of bark beetle populations.

Figure 21

FOREST DISEASE RESEARCH

1971	\$3,273,000
1972	3,700,000
1973	3,565,000
Decrease	-135,000

A decrease of \$135,000 for reduced employment.

Forest disease research generates the technology for reducing the economic and social impacts of diseases on the Nation's forests and related vegetation in urban and rural environments. Organisms and other factors causing disease and their host trees are studied to find control methods that are biologically and environmentally sound and economically feasible.

Included among the diseases currently under study are:

- (1) Dwarfmistletoes that significantly reduce growth and increase mortality of conifers.
- (2) Several root rots causing mortality and growth losses in nurseries and forests across the Nation.
- (3) Diseases that kill the foliage of nursery seedlings and newly planted trees.
- (4) Rust fungi and canker diseases that reduce growth, disfigure stems, reduce product values, kill trees, and threaten the extinction of several species of trees.
- (5) Air pollutants that injure trees and reduce their qualities for esthetics and for environmental amelioration in both forest and urban areas.
- (6) Rots and decays that deteriorate wood in use thereby reducing its service life and increasing costs for maintenance and repair.

Examples of Recent Accomplishments

Moon soil not harmful to pine trees. A Forest Service scientist is responsible for NASA's study to evaluate the hazards of lunar material to plant life on earth. At the Lunar Receiving Laboratory in Houston, special chambers were used to prevent the escape of potentially dangerous lunar entities into the earth's biosphere. None of the lunar materials collected by the crews of Apollo XI and XII contained anything harmful to 35 representative species of plants, including three pines.

Air pollutants may determine what trees are planted. Air pollution poses an ever-increasing hazard to trees in the United States. Ozone, sulfur dioxide, and fluoride are of special significance. Fumigation experiments proved that ozone and sulfur dioxide are injurious to jack, red, and white pines. Jack pine was the most sensitive to ozone, and red pine was relatively tolerant to sulfur dioxide. Relative sensitivity to pollutants is the major factor to be considered when choosing the species of trees to be planted where air pollution causes damage.

Annosus root rot can be managed. Annosus root rot, causing serious mortality in Southern pines, can be managed by cultural and chemical means. A long-term, comprehensive study shows that losses can be reduced through integrated management. Thinning of pine stands should be restricted to hot, summer months. During fall and winter months, freshly cut stumps can be treated with powdered borax. Prevention of infection by this tree killer can help to sustain the high productivity of Southern pine forests.

Management of mistletoe-infected lodgepole pine. After decades of research, a computer program has been developed to predict yields in mistletoe-infected stands. This provides forest managers with a tool for deciding whether to (a) sanitize a stand, (b) let it grow until it becomes merchantable, or (c) destroy and regenerate it.

New knowledge of dwarfmistletoes. A review of the world's literature on the biology and taxonomy of dwarfmistletoes pointed out the problems in nomenclature, host ranges, and theories of evolution. A new system of classification was developed to solve these problems and to standardize worldwide concepts of the dwarfmistletoes.

Research has identified some insects that pollinate dwarfmistletoes and others that feed on the aerial shoots. By manipulating populations of these insects, it may be possible to develop biological controls for these parasitic plants.

Blister rust resistance mechanisms in white pine. New knowledge on the mechanism of resistance to blister rust and its associated genetic control is an important breakthrough in the program to save forests of Western white pine valued for their timber and recreational values. One important resistance mechanism involves premature shedding of infected needles. Others occur within needles or bark of resistant trees. Breeding, based upon the genetically stable resistance reactions, should result in white pines with long-lived resistance.

Precise inoculation technique for fusiform rust. A new means of inoculating pines at precise points was developed using stored basidiospores of the fusiform rust fungus. Spores now can be concentrated on filters and stored for eight weeks with little loss in infectivity. Pines can be inoculated with these stored spores as a uniform source of inoculum over a period of weeks. This new technique furthers the understanding of tree rust fungi. Most important, it enables scientists to standardize inoculations to screen pedigreed pines for resistance to this killer of Southern pines.

Mycorrhizae protect roots. Experiments demonstrated that mycorrhizae protect roots from attack by the pathogen that causes the littleleaf disease of shortleaf pine. Mycorrhizae create an antagonistic barrier that stops infection by the pathogen. This discovery opens new avenues to biological control of root diseases.

FOREST PRODUCTS UTILIZATION RESEARCH

1971	\$8,511,000
1972	9,096,000
1973	8,754,000
Decrease	-342,000

A decrease of \$342,000 for reduced employment.

More wood is used annually, primarily as a material for building construction, than the combined total of steel, plastics, and concrete. More than 85 percent of single family housing is of wood frame construction. Newspapers such as the Washington Post require 625 tons of paper for each Sunday issue. The suitability of wood for uses such as these, when compared with nonrenewable and higher-polluting materials, dictates an urgent need for adequate supplies of wood at a competitive price in the future.

By enabling the more effective use of wood, forest products utilization research will permit important savings in the number of trees which must be harvested to meet timber supply requirements and, at the same time, reduce adverse environmental impacts. More efficient utilization will be achieved through research in problem areas such as:

- (1) Recycling and reuse of discarded wood fiber.
- (2) Advanced engineering design procedures for more efficient use of wood products in building construction.
- (3) More precise evaluation of the strength properties of wood for structural uses.
- (4) Reduction of waste associated with wood processing.
- (5) Methods for manufacturing commercial products from low-grade logs and residues.
- (6) Development of high-yield nonpolluting pulping processes.
- (7) Development of better methods for protection of wood in use to enhance its durability in situations where it is subject to fire and attack from insects and disease.

Examples of Recent Accomplishments

Laser machining of lumber will have important advantages when it becomes economically feasible. Southern pine boards up to one inch in thickness were cut successfully with an experimental air-jet-assisted carbon-dioxide laser beam. The efficiency of this cutting system does not yet approach sawing, but great strides in laser technology have been made in the last decade. When laser cutting becomes economically feasible, it will have important advantages. No sawdust is created, the kerf is narrow, complicated profiles can be cut easily, cut surfaces are smooth, no reaction forces are exerted on the workpiece, there is no tool wear, and noise is minimal.

Best opening face cutting increases lumber yield from small sawlogs. Lumber yield from small softwood sawlogs depends heavily upon the way the first saw cut is made. A new system utilizes electronic scanners and advanced computer technology to position each log for the critical first cut. For any given log, the yield difference between best and poorest opening face can be 20 percent or more. On the average, mill output should be improved at least 10 percent. Mill-scale trials are being made.

Modified double diffusion treatment process will greatly extend the utility of wood species. The Forest Products Laboratory at Madison, Wisconsin, has developed an important modification of its double-diffusion process for implanting preservative chemicals in wood. This method permits soaking wood successively in two preservative chemical solutions without need for expensive pressure treating equipment. This process will greatly extend the utility of wood species such as Engelmann spruce, lodgepole pine, and inland Douglas-fir. It will also augment the timber supply by opening up new sources of raw material for timber products uses requiring preservative treatment.

Forest Service house plans widely used. Forest Service designs for low-cost wood homes have widespread appeal. About 70,000 sets of these plans have been sold by the Government Printing Office. A brochure describing the 11 plans has had even wider distribution. Questionnaire responses from 1,125 persons who had requested plans from the Forest Products Laboratory showed that 225 houses have been built in general accord with these plans. More than 300 additional builders indicated intent to use the plans later.

HUD's Operation Breakthrough housing systems make extensive use of wood and wood-base materials. The technical expertise provided by the Forest Products Laboratory for HUD's Operation Breakthrough is an example of payoff from past research accomplishments. There is extensive use of wood and wood-base materials and/or glued systems in 16 of 24 contract housing systems. The Laboratory provides the needed in-depth review on structural engineering, glue technology, and over-the-road transport stressing of these systems. This expertise is not available elsewhere in Government.

Utilization of urban waste fiber resources being evaluated for use in dry-formed hardboard. In October 1971, the Forest Products Laboratory recycling research reached the pilot stage. A 25-ton-per-day separation facility has been constructed at the refuse reduction plant operated by the City of Madison, Wisconsin, to separate wastepaper and solid wood waste from municipal trash. Separated cellulosic wastes are being tested in structural materials, with emphasis on dry-formed hardboard. Wastes being studied include mixed wastepaper from household trash, discarded pallets and other dunnage, demolition wastes, and trees killed by Dutch elm disease.

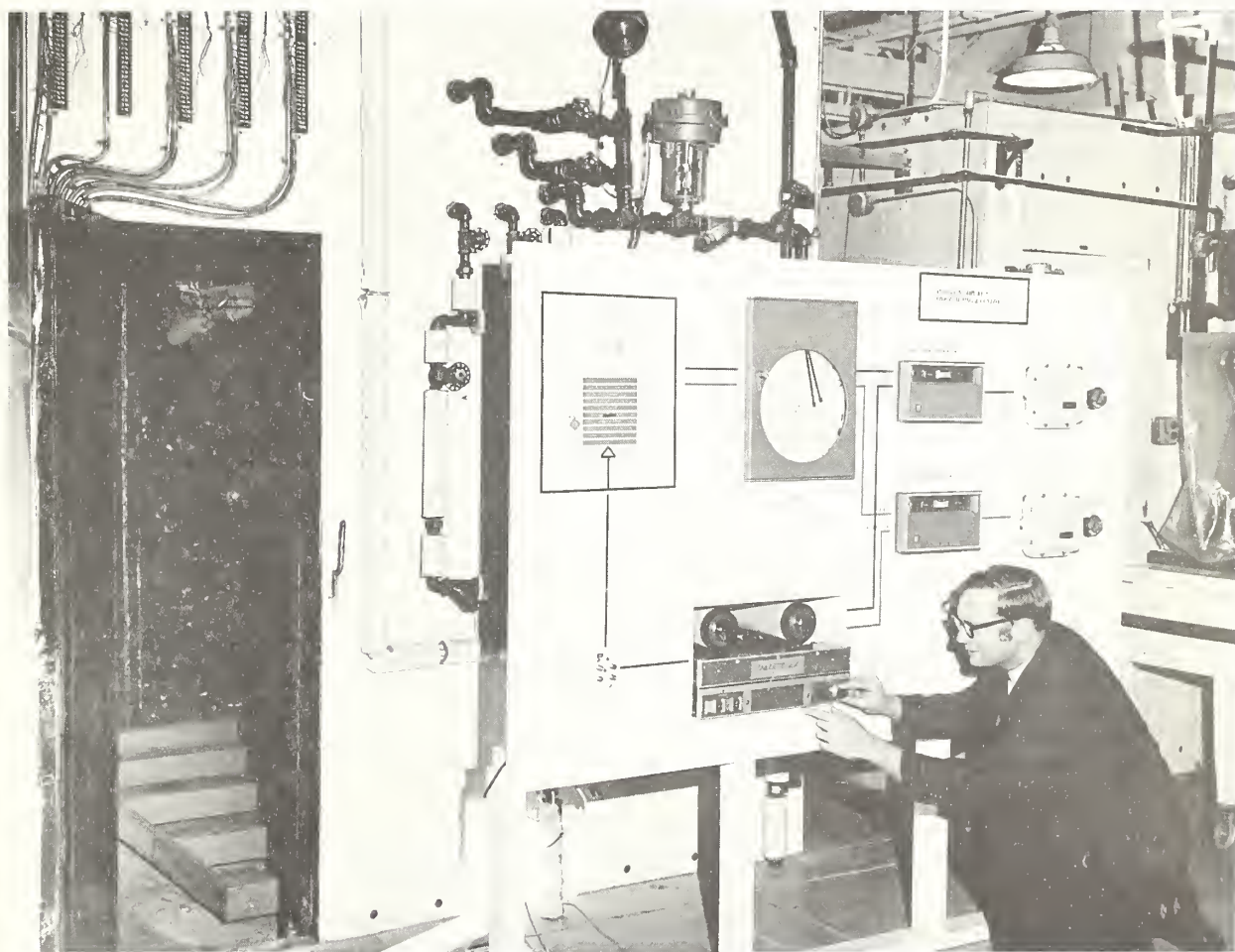
Automated kiln drying system cuts labor costs and gives faster drying. Two-thirds to three-fourths of the harvested wood resource is dried before it is put into use. Research aimed at reducing drying costs has led to development of a unit that enables automatic operation of lumber dry kilns. This improved kiln system cuts labor costs and gives faster drying. The unit was designed so that almost any company, large or small, can install it on its kilns. The first commercial unit is to go into operation early in 1972.

Leach resistant fire-retardant treatments for wood shingles developed. Most fire-retardant treatments for wood have poor resistance to water leaching and cannot be used for wood exposed to the weather. An extensive investigation of possible fire-retardant systems for outside application has been completed by the Forest Products Laboratory. Of the 35 treatments studied, four showed excellent performance, both in leach resistance and in fire retardant performance after leaching exposure, and are suitable for use on wood shingles and shakes. All acceptable treatments involve pressure impregnation of the chemical solutions into the wood, and must be done prior to installation of the shingles and shakes.

Pulping residues (wastes) highly digestible as a component in ruminant feeds. The disposal of pulping residues from production of chemical pulps is becoming increasingly difficult. Laboratory studies show that three to four percent of production is highly digestible by rumen fluids. A recently completed 90-day test with 30 ewes showed that good maintenance is obtained on a diet consisting

of 77 percent pulp residue from a tissue pulpmill. This information is applicable to all ruminants, including beef and dairy cattle.

High yield of laminated structural products from trees at reasonable cost now a technical reality. A new process that markedly improves the yield of structural products from trees at reasonable cost is now a technical reality. The process consists of rotary cutting of up to 1/2-inch-thick veneer from logs, press-drying the thick veneer in less than 13 minutes, applying glue to the hot sheets, and laminating the sheets into thick structural material. The new process averaged 90 percent yield of dry product from Southern pine logs while present sawing practice yields about 40 percent. Several plies vertically laminated together produce structural beams of desired width, thickness, and length, that have greater uniformity and superior strength than solid-sawn lumber, and equivalent stiffness.



Automatic dry kiln programming and control panel.
Development of this unit enables automatic operation of lumber dry kilns, cuts labor costs, reduces drying time and drying degrade.

Figure 23

FOREST ENGINEERING RESEARCH

1971	\$1,154,000
1972	1,473,000
1973	1,432,000
Decrease	-41,000

A decrease of \$41,000 for reduced employment.

Forest engineering research provides direct support to resource managers and planners through development of essential new forest management technologies. Problems in timber harvesting, transportation planning, mechanization, and utilization have engineering components that require systematic study. Solutions have far-reaching implications affecting many forest management practices. These include:

- (1) Extending the timber supply by facilitating the utilization of trees or parts of trees that might otherwise be inaccessible.
- (2) Maintaining price stability of wood products by bringing least-cost technologies to bear.
- (3) Providing expanded rural employment under safe working conditions.
- (4) Supporting environmental stewardship goals.

Examples of Recent Accomplishments

Advanced logging systems allow significant reduction in logging road mileage and permit partial cutting. Present logging systems fail to satisfy environmental stewardship goals in many situations. This is especially true in the West. To meet these new goals, long-line skylines with appropriate carriages and winching systems have been designed, fabricated in cooperation with industry, and prototype tested for performance. These new systems allow significant reductions in logging road mileage and permit partial cutting. In addition, scientists are monitoring and evaluating balloon and helicopter logging under commercial situations to better integrate these new technologies into forest management system alternatives.

Engineering intern training integrating new logging technology with environmental stewardship goals now available. Before new logging technologies can be properly deployed, engineers with specialized training in long-line skyline layouts, balloons, and helicopter use, and the integration of these tools with environmental stewardship goals must be made available to action agencies. Such training is being provided through an intern program in cooperation with the University of Washington.

Field chipped material containing bark and wood can be separated and segregated to meet pulpmaking standards. Close utilization of cut timber is an important resource management objective. Generally, half the physical volume of standing trees remains in the woods as tops, limbs, culls, and broken pieces. Field chipping of these residues without prior debarking is now possible. A bark removal process using steaming, compression, and abrading has been demonstrated under laboratory conditions using two hardwood species. With this process, field chipped material containing bark and wood can be separated and segregated to meet commercial pulpmaking standards. Work is underway to characterize a system of commercial size for industrial application.

New criteria for road location and construction in the erodible soils of the Idaho Batholith developed. The 15,000 square mile Idaho Batholith contains some of the most erodible soils in North America. It is a region with tremendous forest resource potential. Logging and associated road building produce the most aggravated and damaging impact. As part of a multidiscipline research

effort, engineering research has analyzed and evaluated logging road failures. From this analysis some new criteria for road location and construction standards have been developed. Cooperative studies with industry to demonstrate balloon logging, requiring fewer mid-slope roads, will determine the feasibility of this system.

FOREST SURVEY

1971	\$3,344,000
1972	3,421,000
1973	3,293,000
Decrease	-128,000

A decrease of \$128,000 for reduced employment.

The forest land in the United States (756 million acres) varies greatly in productivity, ownership patterns, availability for industrial use, and opportunities for management intensification. Accelerating changes in forest conditions result from changing land uses, timber growth, cutting, and losses to destructive agents. Demands on forest lands for nontimber uses are also increasing. Up-to-date inventories of forest land and timber resources consequently are essential to guide programs for production of timber and other forest products and services, and to increase environmental compatibility with quality concern.

Forest survey seeks to:

- (1) Determine current trends in the timber resource situation.
- (2) Determine the outlook for timber growth and supplies available for future harvests.
- (3) Identify prospective problems in timber and nontimber resource management.
- (4) Analyze the effects of alternative programs for meeting prospective forest resources demands.
- (5) Identify opportunities for economic development based on forest resource.

Examples of Recent Accomplishments

Field forest surveys conducted in 8 States during past year. Approximately 46 million acres of commercial forest land were reinventoried during the past year. The resurvey cycle now averages about 11 years. Field surveys were conducted in Alaska, California, Georgia, Hawaii, Maine, Missouri, New Mexico, and Tennessee. Comparable inventories are in process on 20 National Forests, designed to provide the basis for timber management planning as well as basic data for timber supply evaluation by the forest survey.

Fourth forest survey of Arkansas completed. Forests continue to be the dominant land use in Arkansas, covering 55 percent of the land in the State. Between 1959 and 1969 one-eighth of the forest land in Arkansas was shifted to other land uses. Hardwood inventory volume declined seven percent during this same period, largely as a result of clearing for cropland in the Delta. A 16 percent increase in softwood inventory volume offset the decline in hardwoods. In 1968 net growth of softwood growing stock of 390 million cubic feet exceeded removals by 101 million cubic feet. Similarly, hardwood net growth of 366 million cubic feet exceeded removals by 79 million cubic feet.

Annual growth averages 412 board feet per acre in Puget Sound Area. In 1967 the eight county Puget Sound Area contained 3.3 million acres of commercial forest land and 74.6 billion board feet of sawtimber, nearly one-third of the total volume in Western Washington. Since 1953, 260 thousand acres of commercial forest land in this area have been converted to homesites, business sites,

recreation developments and other nontimber uses. Annual removals of 429 board feet per acre exceed net growth by about four percent. Annual mortality exceeds 130 board feet per acre; equivalent to 24 percent of gross growth. About one-third of this loss occurs in old-growth hemlock.

Ohio's commercial forest land area shows increase. Between 1952 and 1968 commercial forest land in Ohio increased from 5.4 to 6.3 million acres. Volume of growing stock increased 31 percent from 3.2 billion cubic feet to 4.2 billion. Net growth of sawtimber in 1968 of 422 million board feet exceeded removals by 212 million board feet.

Projections of timber harvest for California suggest harvest will decline. Projections of the timber industry and forest resource situations of California indicate the timber harvest may decline nearly 20 percent by 2020. This study also concludes that although the lumber and plywood industries will be smaller, the pulp, paper, and board industries will expand. Projected lower employment in primary manufacturing is likely to be more than offset by increases in secondary manufacturing activities such as millwork and paper product fabrication.

New York's commercial forest area increased 14 percent in the last 18 years. Commercial forest area in New York now totals 14.3 million acres. Since 1950 volume of growing stock increased one-fifth to 12.2 billion cubic feet. Three-quarters of this timber volume is in hardwood species. Timber removals in 1967 amounted to 464 million feet, equivalent to about 70 percent of net growth for that year.

The South produces two-thirds of the Nation's pulpwood output. Pulpwood production in the South increased 10 percent in 1969 to a new high of nearly 41 million cords. The South's forests now supply pulpwood for 105 regional pulp-mills, and another 16 located outside the South. Five additional mills with planned daily capacity of 1780 tons were under construction in 1970.

Timber resource inventory updating computer program improves forest survey national resource appraisal capability. A computer system called TRAS was developed to update forest survey inventories to a common base for periodic national and regional compilations of timber resource statistics, to help analyze and interpret changes in timber resources between inventories and to project timber supplies under alternative management assumptions.

New technique improves forest survey data handling in the Southeast. A new forest survey Data Retrieval System was developed and implemented by the Southeastern Forest Experiment Station in North Carolina during the year. Use of this system makes it possible to rapidly retrieve and compile various combinations of timber resource statistics for any specific zone in the Southeast.

FOREST PRODUCTS MARKETING RESEARCH

1971	\$1,981,000
1972	2,023,000
1973	1,948,000
Decrease	-75,000

A decrease of \$75,000 for reduced employment.

Forest products marketing research seeks to improve the use of the Nation's timber resources through more effective harvesting, processing, distribution, and consumer use of forest products. Studies of factors influencing use of wood and competing materials in construction, manufacturing, shipping, or other end uses indicate potential demands for timber products, and thus serve to guide forestry programs. Research on ways to reduce costs in timber harvesting and processing helps achieve more efficient use and wider markets for available timber resources. Evaluation of opportunities to expand wood-based industries provides guidelines for local development of forest resources and improvement of the rural economy of the Nation.

Examples of Recent Accomplishments

Use of wood pallets improves efficiency and quality control in handling of frozen food. A pilot study of palletized, unit-load handling in the frozen food industry showed that handling costs and control of product quality could be improved--compared to the conventional system of handling cases--through a nationwide wood pallet exchange program involving shippers, carriers, and receivers. Handling costs were reduced by 2.1 cents per case. Use of this system also maintained product temperatures at 0° F because the time products are out of freezers on both the shipping and receiving ends is minimized. Widespread adoption of this pallet exchange system by the food and other industries could greatly increase market opportunities for hardwood lumber.

Construction-grade plywood produced from low-grade Appalachian oak. C-D construction-grade plywood was produced from grade 3 mixed oak logs using the same machinery and production process as for making Southern pine plywood. Preliminary tests indicate this oak plywood can be used for sheathing, subflooring, and pallet decks. Commercial production would provide an outlet for abundant low-grade oak resources and bring new rural employment opportunities in Appalachia.

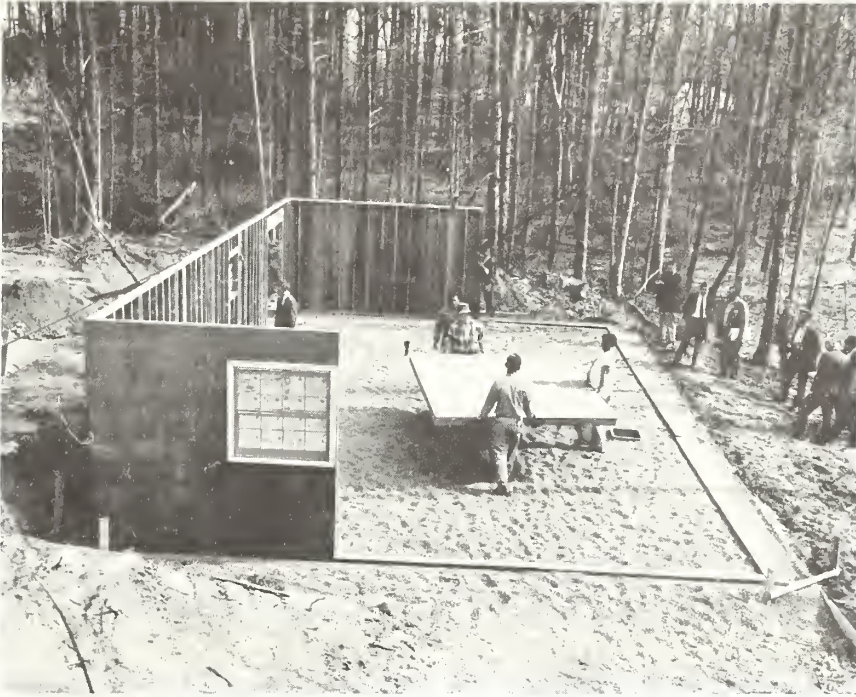
Management aid for hardwood sawmill operators developed. Failure to assess accurately the relationships between log costs, lumber yields, and in-plant processing costs have contributed to the financial failure of many small sawmills. A computer program called SOLVE computes the maximum price that can be paid for delivered logs of different hardwood species and sizes under specified conditions. An informational packet is available to assist interested mill-owners in using this management guidance system.

Wood use in single-family residential construction increasing. Wood use per average new single-family house inspected by the Federal Housing Administration in 1968 was higher than in 1962 for all products except lumber which declined four percent and insulation board which stayed about the same. The average new unit in 1968 contained 10,271 board feet of lumber, 4,158 square feet (3/8 inch) plywood, 1,062 square feet (1/8 inch) of hardboard, 742 square feet (1/2 inch) of insulation board, 180 square feet (3/4 inch) of particleboard, and 3.7 squares of wood shingles and shakes. Most of this higher wood use is attributable to the larger average size house inspected. Some increased use of plywood and particleboard results from their substitution for lumber.

Building upkeep and improvement, a growing market for wood. In recent years expenditures for upkeep and improvement of residential and nonresidential buildings have amounted to about one-fourth of all building construction. A recent study in the South showed that substantial amounts of wood products were used in these projects. Moreover, building owners exercised dominant control over products used in virtually all residential jobs, and to a lesser extent in nonresidential projects. Consequently, building materials sales efforts could best be directed at owners.

Innovative wood foundations being used by builders. A recent joint study between the National Forest Products Association, the American Wood Preservers Institute, and the Forest Service resulted in the development of an innovative concept in residential home construction--the All-Weather Wood Foundation. This foundation system is factory fabricated of pressure treated lumber and plywood. It provides cost savings over conventional masonry or block foundations, and also permits reduction in construction delays caused by inclement weather. Since the limited initial installations, builder interest has grown and increasing numbers of housing units are being built using this foundation system.

ALL-WEATHER WOOD FOUNDATION



Panels fabricated off site permit installation on the All-Weather Wood Foundation without regard to weather conditions.



A completed house using the All-Weather Wood Foundation. This system allows faster construction at lower cost than poured concrete or block foundations.

Figure 26

FOREST ECONOMICS RESEARCH

1971	\$1,367,000
1972	1,403,000
1973	1,353,000
Decrease	-50,000

A decrease of \$50,000 for reduced employment.

Research in forest economics develops methods to evaluate alternative land management techniques and programs involving the determination of costs and benefits of managing forest lands for timber and other uses, including water, recreation, range, and wildlife. This research includes:

- (1) Development and testing of analytical techniques to integrate and balance multiple uses of forest lands, to aid in policy planning and program formulation for public and private forests, and to provide full technological assessment of the impacts of land management programs on environmental quality.
- (2) Evaluation of timber management and other policies in respect to alternative cultural treatments, protection, levels of stocking, and harvesting methods to achieve optimum investment in forest activities and to aid in allocation of the hundreds of millions of dollars spent for forestry programs throughout the Nation.
- (3) Analysis of forestry program alternatives to aid in identifying effective means of stimulating the millions of owners of private lands to adopt more productive forestry practices.

Examples of Recent Accomplishments

Cottonwood plantation evaluation shows financial returns up to 16 percent from planting and cultural investments. Cottonwood plantations offer a promising alternative for reversing the decline in forest resources in the Mississippi Delta. This species yields high annual outputs of all classes of timber products, with financial returns from planting and cultural investments ranging up to 16 percent. Cottonwood combined with soybean or corn production promises even greater financial rewards. However, large capital investments are required and only the better soils, which are also highly valued for agricultural production, can grow cottonwood economically.

Precommercial thinning of natural Southern pine stands is an economic method for obtaining desirable stocking. Natural regeneration with precommercial thinning is often an economic method for obtaining desirable stocking in Southern pine stands. Precommercial thinning preferably should be done by mowing seedlings at age two or three. At these ages fire hazard problems are minimal and costs are low. Many present stands are too old to thin precommercially because costs will be high and growth response relatively small.

Evaluation of cooperative forest management provides economic guides for priority ranking of management activities. An analysis of the cooperative forest management program in Pennsylvania has provided some economic guides for priority ranking of timber production program activities. These included programs of planting, timber stand improvement, and harvesting and marketing assistance. Calculated rates of return provide financial ratings for a variety of investment possibilities.

Evaluation methods developed to measure and illustrate the impact of timber management activities on present net worth of investments. Variation in estimates of costs and returns, timing of harvests, and interest rates can greatly affect attractiveness of investments in timber production. Partial derivatives and graphs have been developed to measure and illustrate the impact of such variations on

present net worth of potential investments. A computer routine to perform the necessary computations is included.

Federal Land Bank timber loans evaluated. A typical timber loan client of the New Orleans Federal Land Bank farms, either full or part-time, owns an average of about 750 acres of woodland, and has borrowed almost \$20,000 from the Land Bank. Half of the borrowers used part or all of their loans for forestry purposes. One-fourth planned to use more credit to expand their timber operations.

Labor productivity in production of lumber shows gains. Studies of labor productivity in production of lumber show major gains over the past 20 years. The number of sawmills in the United States has been drastically reduced but productivity per surviving mill has greatly increased. Most mills have been modernized with improved equipment and technology.





GEOGRAPHIC BREAKDOWN OF APPROPRIATIONS^{1/}

State and Private Forestry Cooperation
(includes Projects (28) through (31) on following pages)

	1972 <u>estimate</u>	1973 <u>estimate</u>	<u>Change</u>
Alabama	\$750,000	\$750,000	
Alaska	420,000	420,000	
Arizona	145,000	145,000	
Arkansas	680,000	680,000	
California	1,765,000	1,765,000	
Colorado	370,000	370,000	
Connecticut	220,000	220,000	
Delaware	105,000	105,000	
District of Columbia	1,172,000	1,029,000	-\$143,000
Florida	985,000	985,000	
Georgia	1,054,000	1,054,000	
Hawaii	110,000	110,000	
Idaho	560,000	560,000	
Illinois	260,000	260,000	
Indiana	225,000	225,000	
Iowa	170,000	170,000	
Kansas	290,000	290,000	
Kentucky	610,000	610,000	
Louisiana	790,000	790,000	
Maine	710,000	710,000	
Maryland	410,000	410,000	
Massachusetts	345,000	345,000	
Michigan	965,000	965,000	
Minnesota	590,000	590,000	
Mississippi	780,000	780,000	
Missouri	780,000	780,000	
Montana	375,000	375,000	
Nebraska	250,000	250,000	
Nevada	350,000	350,000	
New Hampshire	250,000	250,000	
New Jersey	400,000	400,000	
New Mexico	215,000	215,000	
New York	810,000	810,000	
North Carolina	970,000	970,000	
North Dakota	95,000	95,000	
Ohio	405,000	405,000	
Oklahoma	320,000	320,000	
Oregon	945,000	945,000	
Pennsylvania	760,000	760,000	
Puerto Rico	85,000	85,000	
Rhode Island	145,000	145,000	
South Carolina	780,000	780,000	
South Dakota	140,000	140,000	
Tennessee	750,000	750,000	
Texas	565,000	565,000	
Utah	285,000	285,000	
Vermont	220,000	220,000	
Virginia	800,000	800,000	
Washington	960,000	960,000	
West Virginia	400,000	400,000	
Wisconsin	975,000	975,000	
Wyoming	170,000	170,000	
Virgin Islands	60,000	60,000	
Total	27,741,000	27,598,000	-143,000

^{1/} The 1973 budget reflects portions of the 1972 appropriations as unobligated due to employment limitations. Since the employment reductions are being met principally through attrition, it is impractical at this time to distribute these savings by geographic location.



COOPERATION IN FOREST FIRE CONTROL

1971	\$16,530,000
1972	19,994,000
1973	19,943,000
Decrease	-51,000

A decrease of \$51,000 for reduced employment.

The Cooperative Forest Fire Control program provides for Federal cooperation in the form of technical and financial assistance to help State and private interests improve the level of fire control on their forest and watershed lands. All 50 States participate and provide protection to nearly 521 million acres of forest and watershed land. In providing this protection, the State forestry organizations employ thousands of people mainly from rural America. The income from this source is very important to these employees, since many of them are from low income families and opportunities for other jobs are often limited.

Protection from fire is fundamental to the development and use of all forest resources. Additional investments in these areas would not be a prudent venture without considering the adequacy of protection. As demands for the multiple forest resources increase, the pressures to protect and maintain them against the destructive forces of wildfires also increase. Crowd weary and pollution conscious people are building homes and communities in areas considered remote only a few years ago. With increasing population, city living is advancing into the hinterland and expanding the urban-rural interface and its demands on the multiple forest resources of rural areas. This is where the greatest effort must be made to control the increased potential for disastrous wildfires.

Fire detection has been provided for many years by both fixed lookout stations and aerial patrol. More intensive fire prevention will reduce burned area, losses will be kept small, and excessive damage to our environment prevented. Although use of modern aircraft in aerial detection is costly, this early detection aids significantly in reducing fire size. If private timberland is to produce the increased timber products needed for the economic growth of the Nation, wildfire must be controlled. Productive, unburned forests mean increased income for dependent landowners and operators, better living conditions for rural residents, and stronger local communities.

Large fires (over 300 acres) are a very difficult problem. They represent only a small fraction of the number of fires yet burn large acreages. Studies which will lead to the reduction of the number of large fires are currently being carried on cooperatively by fire organizations. Fast initial attack forces are being trained and dispersed at strategic locations to hit the fires while still small. Attack is made using the time honored, expert fire suppression crews equipped with hand tools. Added to this is use of the converted bomber to drop fire retardant directly on the hot spots. Combination of these methods has helped greatly to reduce fire losses. Studies of climatic factors which lead to disaster fires are being undertaken to better plan prevention efforts. Management of the fuels through prescribed fire and other modification measures is receiving increased attention and shows promise in reducing the number of large damaging fires.

The incendiary fire problem especially in the South and debris fires in the North are being given special attention through increased law enforcement and mass fire prevention education efforts. The increased incidence of railroad fires has resulted in strengthened law enforcement, more research into better locomotive fuels and equipment and better right-of-way maintenance. Fire organizations are coordinating their efforts to reduce wildfires caused by railroad operations.

Funds are distributed to States by use of a complex formula. The formula was devised so it could be applied uniformly to all States. It recognizes the two factors most directly related to fire control:

- (1) Extent of the protection job.
- (2) State and local performance as represented by expenditures.

At the present time, each of these factors is given equal weight. The half based upon need is termed the "regular allotment" and is determined by a periodic fire protection analysis. The most recent analysis was made in 1965. The half based upon expenditures uses the average of the most current three-year State and private expenditures and is termed the "extra allotment." These two parts added together become the Federal allotment to each State. The total allotment is thus reduced under a sliding scale to bring total payments to funds available.

The table following this section shows proposed financing in fiscal year 1973 compared with fiscal years 1971 and 1972.

Examples of Recent Accomplishments

Prevention. Louisiana's fire contactor program started in 1968 to reduce man-caused fires in a very high fire incidence area has proved to be quite successful. The number of fires has dropped from 160 in 1968 to 35 in 1970 for the contactor program area. Several other States have started contactor programs as one means of reducing the large number of man-caused fires. Texas and Kentucky are among those States reporting success in their contactor programs.

Training. Intensified efforts have been reported by several States. California has made a teacher-training packet on fire prevention available to all State teachers. Nebraska continues to train rural fire personnel and has conducted 51 training sessions for 1,031 trainees during 1970. Kansas has provided basic firemanship training for 320 firemen and given refresher training to 91 others. The fire simulator was used to provide more realistic fire training to 352 trainees. Idaho, Montana, Arizona, Alaska, and North Carolina were among the States which have intensified employment and training of specialized fire investigators and increased the use of law enforcement to reduce the incidence of man-caused fires.

Aircraft use. The severe Spring fire season in the South brought increased use of aircraft. Florida used air tankers which dropped over 100 thousand gallons of retardant and 35 thousand gallons of water. Tankers used were State-owned, Forest Service contract planes, and a Canadian water bomber. North Carolina used three contract B-17 air tankers as well as three State-owned Snow air tankers. In all, over 457 thousand gallons of retardant were dropped. Oklahoma used a Canadian air tanker which dropped over 300 thousand gallons and had as many as ten State aircraft on fire patrol at one time. A helicopter was used for the first time in North Carolina to transport men to going fires. The use of aircraft has contributed to a reduction of large fires and aids in reducing incendiary fires through constant surveillance. Over half of the States have increased the use of aircraft both for suppression as well as detection.



COOPERATIVE FOREST FIRE CONTROL

	State and Private Funds Expended FY 1971	Federal Allotments FY 1971	Federal Allotments FY 1972 (estimate)	Federal Allotments FY 1973 (estimate)	<u>2/</u>
Alabama	<u>1/</u> \$1,921,434	\$472,036	\$573,250	\$573,250	
Alaska	3,803,901	159,799	251,864	251,864	
Arizona	46,786	53,070	65,214	65,214	
Arkansas	1,618,826	467,460	551,210	551,210	
California	28,883,429	1,118,648	1,319,353	1,319,353	
Colorado	1,618,530	140,629	191,070	191,070	
Connecticut	371,671	122,030	145,183	145,183	
Delaware	89,385	27,730	47,000	47,000	
Florida	6,342,223	625,568	739,386	739,386	
Georgia	6,878,753	662,026	780,739	780,739	
Hawaii	129,226	56,712	66,643	66,643	
Idaho	1,077,952	313,718	400,767	400,767	
Illinois	429,825	108,952	138,202	138,202	
Indiana	275,979	85,972	101,712	101,712	
Iowa	91,532	62,021	73,284	73,284	
Kansas	567,431	188,559	229,249	229,249	
Kentucky	1,291,693	344,012	431,825	431,825	
Louisiana	3,300,945	544,372	658,248	658,248	
Maine	1,841,519	441,332	520,537	520,537	
Maryland	939,751	216,895	276,979	276,979	
Massachusetts	550,635	218,259	257,187	257,187	
Michigan	2,837,588	556,196	656,253	656,253	
Minnesota	888,473	356,938	421,201	421,201	
Mississippi	3,094,682	528,667	623,896	623,896	
Missouri	<u>1/</u> 1,620,016	422,211	517,592	517,592	
Montana	633,725	178,258	219,325	219,325	
Nebraska	525,228	146,980	189,864	189,864	
Nevada	618,986	169,930	216,727	216,727	
New Hampshire	317,947	117,817	138,710	138,710	
New Jersey	983,612	230,285	284,053	284,053	
New Mexico	185,528	77,962	91,800	91,800	
New York	2,552,327	442,061	532,493	532,493	
North Carolina	3,801,231	564,763	684,826	684,826	
North Dakota	15,036	23,393	36,600	36,600	
Ohio	641,664	184,791	235,641	235,641	
Oklahoma	670,087	205,918	258,998	258,998	
Oregon	3,991,620	578,958	691,993	691,993	
Pennsylvania	2,171,925	408,974	506,138	506,138	
Rhode Island	250,797	67,090	80,301	80,301	
South Carolina	2,699,095	498,143	616,216	616,216	
South Dakota	141,389	70,842	90,128	90,128	
Tennessee	3,025,225	511,472	622,860	622,860	
Texas	1,462,210	383,112	451,919	451,919	
Utah	345,420	122,373	155,593	155,593	
Vermont	163,355	68,694	80,863	80,863	
Virginia	2,022,759	474,669	575,644	575,644	
Washington	5,487,348	585,285	694,457	694,457	
West Virginia	665,411	210,086	256,589	256,589	
Wisconsin	3,000,708	506,829	619,943	619,943	
Wyoming	277,132	94,003	121,975	121,975	
Admin., insp., prevention and special services to States	- -	1,313,500	1,502,500	1,451,500	
Totals	107,161,950	16,530,000	19,994,000	19,943,000	

1/ FY 1970 is the latest data available.

2/ While the amount available to a State may, if the allotment is small, exceed previously computed expenditures by that State, the actual payment to a State never exceeds State and private funds expended by or under the control of the State.

**FIRE DETECTION
OLD and NEW**



LOOKOUT TREE



FIRE PATROL SEAPLANE

COOPERATION IN FOREST TREE PLANTING

1971	\$322,000
1972	325,000
1973	322,000
Decrease	-3,000

A decrease of \$3,000 for reduced employment.

This program provides financial and technical assistance to cooperating States in the production, acquisition, and distribution of tree seed and planting stock for forest and windbarrier plantings on non-Federal lands. Seed and trees thus furnished at modest cost form the backbone of current public forestation efforts which contribute to increased timber production and the enhancement of environmental values, including public recreation, wildlife habitat, and pollution abatement.

Program funds are used to assist the States in meeting the cost of seed extraction, seedling production, nursery maintenance, and other operations.

The procedure for allotment of funds provides for a project approach with funds to be allocated on the basis of projects which will be designed to stimulate more efficient nursery operations. Projects proposed to date range from new irrigation systems to the production of "tubed" or specially packaged seedlings.

The number of trees shipped to landowners during each of the past four fiscal years, in comparison with all forest and shelterbelt trees produced by public and private nurseries, is as follows:

<u>Year</u>	<u>Federal-State Coop. Program</u>	<u>Other State Distribution</u>	<u>Total Output All Nurseries*</u>
1967	572,087,000	30,307,000	922,247,000
1968	544,420,000	29,646,000	888,985,000
1969	523,986,000	30,037,000	813,814,000
1970	494,941,000	112,061,000	894,351,000

*Does not include production from commercial nurseries.

Examples of Recent Accomplishments

Production of improved genetic quality seedlings. Improved genetic quality forest tree seed is becoming available for seedling production at a rapidly increasing rate. For example, during the 1970-71 season, seed orchard seedling stock amounted to over 85 million seedlings.

REGULAR ALLOTMENTS TO STATES

	<u>FY 1972</u>	<u>FY 1973</u>
Arizona	\$3,000	\$3,000
Colorado	7,000	7,000
Delaware	2,500	2,500
Idaho	12,000	12,000
Kansas	12,000	12,000
Montana	12,000	12,000
Nebraska	8,000	8,000
Nevada	12,000	12,000
New Jersey	2,500	2,500
New Mexico	12,000	12,000

REGULAR ALLOTMENTS TO STATES (continued)

	<u>FY 1972</u>	<u>FY 1973</u>
North Dakota	12,000	12,000
Oklahoma	9,000	9,000
Rhode Island	2,000	2,000
South Dakota	12,000	12,000
Utah	12,000	12,000
Wyoming	4,000	4,000

SPECIAL PROJECT ALLOTMENTS TO STATES

	<u>FY 1972</u>	<u>FY 1973</u>
Alabama (Auburn Project--weed control)....	\$26,000	\$26,000
California (extractory modifications)....	12,800	--
Connecticut (greenhouse and provenance)...	1,400	--
Idaho (seeder and tree planting evaluation)	6,000	--
Illinois (seed cleaning).....	2,000	--
Maryland (irrigation system).....	5,750	--
Minnesota (hydromulcher).....	5,000	--
Nebraska (seed source).....	2,000	2,000
New York (seedling storage).....	3,200	3,500
Ohio (tubeling).....	4,000	--
Pennsylvania (hydroseeder).....	1,500	--
Texas (shelterbelt).....	5,000	--
Wisconsin (root rot control).....	1,700	1,700

COOPERATION IN FOREST MANAGEMENT AND PROCESSING

1971	\$4,987,000
1972	5,000,000
1973	4,980,000
Decrease	-20,000

A decrease of \$20,000 for reduced employment.

The majority of the productive forest land in the United States, or 300 million acres, is in the hands of private, nonindustrial owners. Most of them lack the technical forestry skills required to manage their lands to provide their share of the Nation's needs for forest products and services. The program provides technical assistance to these landowners to increase the flow of timber and nontimber products and to improve environmental values. Emphasis is given to improving the supply situation of softwood lumber and plywood. It is also given to enhancement of the environment and nontimber benefits. Technical assistance is also given to loggers, sawmill, and other plant operators to improve logging, processing, and business methods. The work is carried out in cooperation with the State forestry agencies in 50 States, Puerto Rico, and the Virgin Islands.

Through the program, State forestry personnel are providing specialized forestry assistance to Rural Development Committees throughout the Nation. State personnel serve State Committees and sub-State units, and approximately one-third of the counties, thereby strengthening the overall effectiveness of the Rural Development Committees.

In fiscal year 1973, State service foresters will continue to work with local development groups for social and economic improvement. Federal appropriated funds are distributed to the States by formula which is applied to the State's need and performance.

- (1) Need is based on the number of small woodland owners in the State and the acres of commercial forest owned expressed as a percentage of the total in the Nation.
- (2) Performance is based on State funds expended in excess of Federal funds. The excess is determined for each State and then expressed as a percentage of the total excess for all States.
- (3) The average of the need and performance percentages for each State represents the States' share of total funds available for distribution.
- (4) The minimum allotment to any participating State is \$30,000.

The following table shows proposed financing in fiscal year 1973 compared with fiscal years 1971 and 1972.

Cooperation in Forest Management and Processing

State	FY 1972		FY 1973
	FY 1971	Estimate	Estimate
Alabama	\$120,600	\$116,400	\$116,400
Alaska	25,000	30,000	30,000
Arizona	-	30,000	30,000
Arkansas	101,400	98,200	98,200
California	86,300	83,300	83,300
Colorado	56,700	54,700	54,700
Connecticut	35,300	34,200	34,200
Delaware	31,200	30,100	30,100
Florida	208,100	201,900	201,900
Georgia	228,600	221,200	221,200
Hawaii	24,200	30,000	30,000
Idaho	43,100	41,600	41,600
Illinois	65,900	64,000	64,000
Indiana	62,600	60,600	60,600
Iowa	44,600	43,200	43,200
Kansas	35,800	34,600	34,600
Kentucky	153,700	149,300	149,300
Louisiana	98,400	95,200	95,200
Maine	115,500	111,800	111,800
Maryland	78,100	75,700	75,700
Massachusetts	44,300	42,900	42,900
Michigan	138,800	134,400	134,400
Minnesota	97,600	94,700	94,700
Mississippi	127,000	122,900	122,900
Missouri	146,600	142,300	142,300
Montana	57,900	55,900	55,900
Nebraska	37,600	36,300	36,300
Nevada	30,800	30,000	30,000
New Hampshire	57,900	56,000	56,000
New Jersey	44,700	43,200	43,200
New Mexico	44,000	42,500	42,500
New York	161,900	157,100	157,100
North Carolina	250,800	243,500	243,500
North Dakota	30,500	30,000	30,000
Ohio	107,000	103,600	103,600
Oklahoma	41,300	40,000	40,000
Oregon	70,200	67,700	67,700
Pennsylvania	145,000	140,700	140,700
Puerto Rico	31,100	30,000	30,000
Rhode Island	30,600	30,000	30,000
South Carolina	133,700	129,500	129,500
South Dakota	33,800	32,600	32,600
Tennessee	93,900	90,900	90,900
Texas	85,800	83,000	83,000
Utah	31,800	30,700	30,700
Vermont	87,800	85,000	85,000
Virginia	195,600	189,700	189,700
Virgin Islands	13,944	30,000	30,000
Washington	76,700	74,000	74,000
West Virginia	82,200	79,600	79,600
Wisconsin	200,600	194,500	194,500
Wyoming	35,500	34,300	34,300
Total to States	4,382,044	4,303,500	4,303,500
Forest Service administration	604,956	696,500	676,500
Total appropriation	4,987,000	5,000,000	4,980,000

Major work accomplishments are shown in the following table:

Major Benefits	Unit	FY 1971	FY 1972 (planned)
Woodland owners given woodland management assistance	Number	138,000	138,000
Area of woodland involved	Acres	8,360,000	8,400,000
Volume of timber products sold or harvested	MBF	1,480,000	1,480,000
Forest products operators given assistance	Number	16,400	16,500
Area of timber stand improvement	Acres	163,000	163,000
Area planted or seeded	Acres	180,000	180,000

Examples of Recent Accomplishments

Forest management planning. A member of the Sierra Club and Audubon Society in Washington, after receiving the real property tax assessment, decided to introduce scientific management on his 110 acres of forest land. The local service forester, when consulted, made a management plan for the property. He advised the owner to begin with scarifying and planting trees on 40 acres. Scarification was completed this fall and planting will be done by a troop of Boy Scouts beginning in January. Costs for the entire project will be shared under the Rural Environmental Assistance Program.

Dissemination of research information. A Hardwood Symposium, held in Asheville, North Carolina, attracted over 140 professionals. In addition, over 500 copies of the proceedings were requested by individuals.

Log grading and bucking. A team of Forest Service and Wisconsin Conservation Department personnel recently conducted a training session in log grading and bucking techniques for logging contractors. The session was co-sponsored by a large wood-using firm in Wisconsin. As a result of the training session, the firm revised upward prices paid to the cutters based on log grades. This means more dollars to the cutters in the form of take-home pay which benefits the entire community.

Salvaging of driftwood. Due to the efforts of several people of the New Jersey Department of Environmental Protection, the disposal of huge quantities of driftwood from the New York Harbor is no longer a serious problem. The floating debris, a hazard to navigation, and the cause of unsightly litter is now being salvaged and sawn into usable lumber. The operation benefits the economy of the area by creating employment and income and reduces the impact to the environment by salvaging material which was previously wasted. Seven men are presently employed in the sawmill in New Jersey. The firm plans to add a pallet operation that will employ an additional nine people from minority groups or from a drug rehabilitation center. Forest Service and State forestry personnel have periodically provided technical assistance to this firm.

GENERAL FORESTRY ASSISTANCE

1971	\$2,324,000
1972	2,422,000
1973	2,353,000
Decrease	-69,000

A decrease of \$69,000 for reduced employment.

General forestry assistance funds are used to accomplish highly specialized forestry assistance not available through other Forest Service cooperative programs. A major portion of the funds is used to provide professional assistance to State forestry agencies, woodland owners, associations, and the wood industry to enhance rural community development and to promote efficient production and processing of the Nation's timber resources, thus reducing the impact of logging and milling residues on the environment.

General forestry assistance funds are used to provide expert forest resource management assistance through such activities as:

- (1) Land use planning.
- (2) Dissemination of forest research findings.
- (3) Special studies.
- (4) Continuous forest inventory.
- (5) Forest hydrology.
- (6) Multiple use management.
- (7) Personnel management training.
- (8) Advisory management services provided to State forestry agencies.

The assistance is provided directly by the Forest Service or cooperatively with State foresters, colleges, and/or private contractors.

Examples of special study projects currently being conducted are:

(1) Rural development and planning. Provides for a forestry rural planning and development specialist in California, Connecticut, Florida, Georgia, Kentucky, Louisiana, Montana, Nevada, New Hampshire, New Jersey, Oregon, South Carolina, Virginia, Wisconsin, and Wyoming to maximize the use of forest resources in all aspects of State and local planning and development.

(2) Rural town and suburban forestry assistance. Pilot comprehensive forestry programs in rural towns in Kansas focus on towns of less than 15 thousand population. Ten comprehensive forestry plans are being developed that will analyze the town forestry situation and the various governmental, sociological, and economic factors that influence it.

(3) Hardwood marketing analysis. A professional forester in Washington is analyzing ownerships, accessibility, and local environmental conditions to assist local wood users. Market evaluations of cut products for greater local and regional consumption within market areas are being examined. The hardwood chip consumption and potential for additional market will be determined. These efforts will improve the opportunities for marketing of hardwoods.

(4) Minority forest landowners. In South Georgia, Southeast Alabama, and North Florida, an analysis will be made of the potentials to better serve minority forest landowners. Application of operational governmental programs to further the potential of minority landowners to manage their forest land is the major emphasis of the project.

Additional projects currently in operation provide special assistance in forest land inventory and multipurpose management techniques--all designed to improve the Nation's forest land.

Examples of Recent Accomplishments

Rural development specialists. The Forest Service provides highly specialized assistance to States, industries, and quasi-public organizations in low-cost housing, comprehensive planning, industrial development, and other programs designed to increase opportunities and enhance the quality of rural living. An indication of the interest in low-cost housing is indicated by the fact that 10 thousand publications have been distributed in Northeastern United States. Exhibits have been shown at numerous public affairs.

Sawmill analysis. A Federal/State team of forest products utilization specialists conducted an analysis of a Georgia sawmill that was barely breaking even. They determined that an excessive volume of mismanufactured lumber was being produced and that overall production costs were too high. Today, after adopting the specialists' recommendations, the mill owner has doubled his production with the same manpower and production costs have dropped more than \$10 per thousand board feet. Gross revenue is up \$370 thousand per year and the mill is producing more and better lumber from each day's log supply.

Training inmates. In cooperation with the Alaska Division of Corrections, Forest Service and State personnel trained several inmates of Alaska's Adult Conservation Camp in the techniques of logging and sawmill operation. These employable skills are one of the most important keys to rehabilitation.

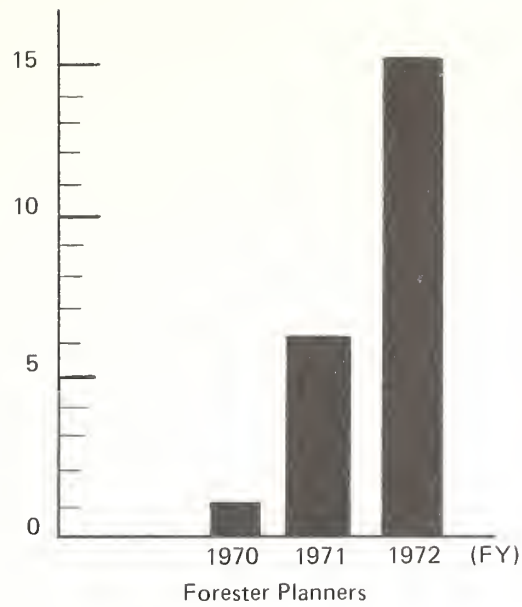
Sawing for grade lumber. Training aids and material developed by the Forest Service were used by a large wood processing firm in Michigan in a one-day training session for its employees in sawing hardwoods for improved lumber grades. The company reports the average value of lumber produced increased \$5.87 per thousand board feet, providing approximately \$35 thousand additional income per year.



Various innovative methods and models of wood house construction.



Low-cost housing display in cooperation with Rhode Island Department of Natural Resources.



Rural Development and Planning. Provides for a forestry rural planning and development specialist in California, Connecticut, Florida, Georgia, Kentucky, Louisiana, Montana, Nevada, New Hampshire, New Jersey, Oregon, South Carolina, Virginia, Wisconsin, and Wyoming to maximize the use of forest resources in all aspects of State and local planning and development.



A systems analysis procedure is used by Forest Service personnel to determine production bottlenecks.

Figure 32-2

Proposed Change in Activity Structure

Present Structure	:	Proposed Structure
FOREST PROTECTION AND UTILIZATION	:	FOREST PROTECTION AND UTILIZATION
1. Forest land management	:	1. Forest land management
(e) Acquisition of lands	:	(e) Cooperative law enforcement program.
	:	(f) Acquisition of lands

Explanation of Need for Additional Activity

Cooperative law enforcement program. Public Law 92-82, August 10, 1971, authorizes the Secretary of Agriculture to cooperate with any State or political subdivision thereof in the enforcement of State or local laws on lands of the National Forest System. Such cooperation includes reimbursement to a State or its subdivision for expenditures incurred in connection with activities on National Forest System lands.

Lands of the National Forest System are experiencing what appears to be a national trend toward more vandalism, destruction of property, theft, and personal assaults. With the large influx of National Forest visitors, many of whom are visitors from other States, formidable problems of law enforcement are occurring. From the trend established over the past few years, it is obvious that visitations to recreation areas will continue to increase annually. It is obvious, also, that as tourism increases in these areas, needed protection for the individual tourist will also increase.

State and local laws and ordinances are applicable on National Forest System lands with few exceptions. The Forest Service must look to State and local law enforcement officials to enforce these laws and ordinances. State and local law enforcement agencies will continue to perform on a nonreimbursable basis the normal law enforcement duties now being performed without cost to the Federal government. However, local law enforcement agreements will be negotiated with the National Forests specifying the type of extraordinary expenses for which reimbursement will be allowable.

A separate activity is proposed to implement Public Law 92-82 and to provide the funds required for the cooperative law enforcement program.

Acquisition of lands. It is proposed to have this activity follow the cooperative law enforcement program activity since it is no longer included in the appropriation, Forest Protection and Utilization. In 1971, acquisition of lands (Weeks Act) was transferred to the appropriation, Construction and Land Acquisition. When all of the orders placed for land acquisition (Weeks Act) against funds appropriated under Forest Protection and Utilization have been delivered, this activity will no longer be shown under this appropriation.

FOREST PROTECTION AND UTILIZATION

Proposed Change in Language

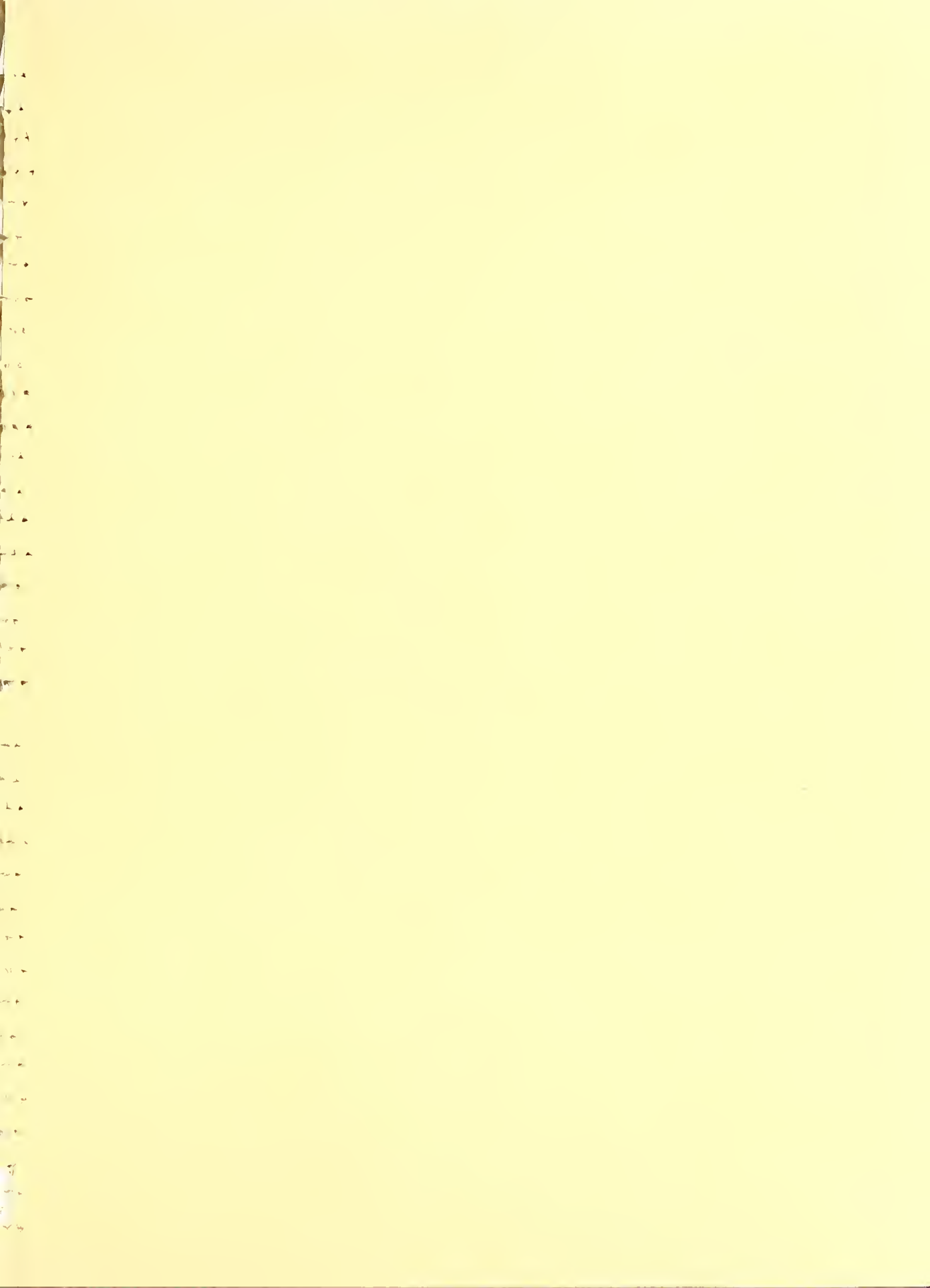
Change in language is proposed as follows. New language is underscored. Deleted matter is enclosed in brackets.

For expenses necessary for forest protection and utilization, as follows:

Forest land management: For necessary expenses of the Forest Service, not otherwise provided for, including the administration, improvement, development, and management . . . may be advanced to this appropri-

- 1 ation[.]: Provided further, That funds appropriated for the cooperative law enforcement program shall remain available until expended.

The first addition proposed is necessary to make the funds appropriated for the cooperative law enforcement program available until expended. Funds are needed on a continuing basis to effectively deal with the State and county law enforcement agencies which are not on the same fiscal year as the Forest Service, and for reimbursement of services performed in accordance with cooperative agreements.



COOPERATIVE RANGE IMPROVEMENTS

Appropriation, 1972	\$700,000
Budget estimate, 1973	<u>700,000</u>

Part of the grazing fees from the National Forests, when appropriated, are used for revegetation of depleted rangelands, construction and maintenance of range improvements, rodent control, and eradication of poisonous plants and noxious weeds. These funds are advanced to and merged with the appropriation, Forest protection and utilization, subappropriation, Forest land management.

Section 12 of the Act of April 25, 1950, (Granger-Thye Act) provides that of the money received from grazing fees by the Treasury from each National Forest during each fiscal year there shall be available at the end thereof when appropriated by Congress an amount equivalent to 2 cents per animal month for sheep and goats and 10 cents per animal month for other kinds of livestock under permit on such National Forest during the calendar year in which the fiscal year begins.

Since figures for animal months permitted are not available until after more than one-half of the fiscal year for which funds are appropriated has elapsed, the 1973 appropriation request of \$700,000 necessarily represents the best current approximation of the amount which will become available in the calendar year 1972 under the animal-months-permitted formula.

For calendar year 1970, the latest available figures, animal months permitted were 6,635,014 for cattle and horses, and 4,862,650 for sheep and goats. This calculates to \$760,754 available under the formula.





CONSTRUCTION AND LAND ACQUISITION

Appropriation Act, 1972	\$35,291,200
Budget estimate, 1973	37,190,000
Increase in appropriation	<u>+1,898,800</u>

SUMMARY OF INCREASES AND DECREASES
(On basis of adjusted appropriation)

	<u>1972</u>	<u>1973</u> <u>Estimate</u>	<u>Increase or decrease</u> <u>Employment</u> <u>Reduction</u>	<u>Program</u> <u>Changes</u>
Pollution abatement -- It is proposed to continue at a higher level than fiscal year 1972 the alleviation of existing pollution problems at recreation, research, and administrative facilities	\$20,359,000	\$28,835,000	-\$8,500,000	-\$8,511,000
Forest land management construction: Development of recreation-public use areas--It is proposed to apply \$3,212,000 to the development of much needed camping, picnicking, and other recreation facilities	4,487,200	3,212,000	-25,000	-1,250,200
Construction for fire, administration, and other purposes--The amount of \$1,958,000 is programed to provide buildings, utilities, communications systems, and other facilities essential to proper National Forest protection and administration	2,225,000	1,958,000	-40,000	-227,000
Research construction--Decrease is due to non-recurring construction projects	5,035,000	--	--	-5,035,000
All other--This \$3,185,000 is proposed to continue at the fiscal year 1972 level the construction of recreation facilities at water development projects of other agencies (\$1,885,000) and the acquisition of key inholdings within the National Forests and the National Forest purchase units (\$1,300,000)	<u>3,185,000</u>	<u>3,185,000</u>	--	--
Total	<u>35,291,200</u> a/	<u>37,190,000</u>	<u>-100,000</u>	<u>+1,998,800</u>

a/ Includes savings of \$100 thousand due to employment limitations. These savings will be used in fiscal year 1973. Funds requested in fiscal year 1973 have been reduced by this amount.



PROJECT STATEMENT
(On basis of adjusted appropriation)

Project	1971	1972	1973	Increase or decrease :Employment: Program :Reduction: Changes
(1) Forest land management construction:				
(a) Development of recreation-public use areas	\$3,043,700	\$4,487,200	\$3,212,000	-\$25,000: -\$1,250,200
(b) Water resource development construction	559,000	1,885,000	1,885,000	-
(c) Construction for fire, administration, and other purposes	2,500,000	2,225,000	1,958,000	-40,000: -227,000
(2) Research construction	1,185,000	5,035,000	-	-
(3) Pollution abatement	7,148,000	20,359,000	23,835,000	-35,000: +8,511,000
(4) Land Acquisition, Weeks Act	1,300,000	1,300,000	1,300,000	-
Total appropriation or estimate	15,735,700	35,291,200	37,190,000	-100,000: +1,998,800

1/ Does not include \$198,000 supplemental appropriation (PL 91-665, 1/8/71).

PROJECT STATEMENT
(On basis of obligations (program level) under available funds)

Project	1971	1972	1973	Increase or decrease :Employment: Program :Reduction: Changes
(1) Forest land management construction:				
(a) Development of recreation-public use areas	\$2,577,424	\$4,916,724	\$3,242,000	-\$25,000: -\$1,649,724
(b) Water resource development construction	553,534	1,890,466	1,885,000	-
(c) Construction for fire, administration, and other purposes	1,844,480	2,847,772	1,998,000	-40,000: -809,772
(2) Research construction	1,032,284	5,240,716	-	-
(3) Pollution abatement	6,110,581	21,312,919	28,865,000	-35,000: +7,587,081
(4) Land Acquisition, Weeks Act	1,133,601	1,466,399	1,300,000	-
Total obligations or estimate	13,251,904	37,674,996	37,290,000	-100,000: -284,996
Unobligated balance brought forward	-	-2,483,796	-100,000	-
Unobligated balance carried forward	2,483,796	100,000	-	-
Total appropriation or estimate	15,735,700	35,291,200	37,190,000	-100,000: +1,998,800

1/ Does not include obligations of \$197,849 incurred pursuant to fiscal year 1971 supplemental (PL 91-665, 1/8/71).



CONSTRUCTION AND LAND ACQUISITION

1971	\$15,933,700
1972	35,291,200
1973	37,190,000
Increase	+1,898,800

A net increase of \$1,898,800 is proposed.

The program provides for the construction and improvement of buildings, utilities, other physical facilities, and land acquisition throughout the National Forests and National Grasslands.

(1a) Development of recreation-public use areas (\$3,212,000, a net decrease of \$1,275,200)

The proposed program level will provide for essential quality improvement measures, new construction at 15 sites, completion of construction started in previous years at 15 other sites, and development of minor visitor information facilities.

Projected recreation use in 1973 will reach 194.5 million visitor days, an increase of 19 percent over 1969. The following table illustrates this increase in use and the capacity of National Forest campgrounds and picnic grounds.

Comparison of Capacity and Use Increases at
Campgrounds and Picnic Grounds

	<u>Fiscal Year</u>				
	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972*</u>	<u>1973*</u>
<u>Campgrounds</u>					
Capacity (thousands of people-at-one-time)	401.3	411.0	420.0	423.0	426.7
Increase in capacity over previous year (percent)	1.1	2.4	2.2	0.7	0.9
Measured and projected increase in use (percent)	3.9	9.1	6.0	3.0	3.0
<u>Picnic Grounds</u>					
Capacity (thousands of people-at-one-time)	113.2	113.6	115.6	116.6	118.2
Increase in capacity over previous year (percent)	1.2	0.4	1.8	0.9	1.4
Measured and projected increase in use (percent)	3.9	8.0	6.0	3.0	3.0

* Projected

The program includes:

Quality improvement, which consists of replacing or upgrading worn out, vandalized, or inadequate facilities, including water and sanitation systems, tables, stoves, traffic control structures, bathhouses, and refuse handling facilities. Increases in capacity do not normally result from this kind of work. Benefits are derived from extending the service life of facilities, maintaining and improving the opportunity for a recreation experience, and preventing unnecessary site deterioration and degradation of the surrounding environment through pollution.

New construction will begin at 15 sites, eventually resulting in an increased capacity of 1,880 people-at-one-time. Construction started in previous fiscal years will be completed at another 15 sites resulting in an increased capacity for 2,045 people-at-one-time. The increased capacity will relieve some overcrowding and use at existing sites and provide facilities to accommodate increased use. It will alleviate sanitation and cleanup problems and soil and vegetation deterioration in some general forest areas.



Emphasis is being placed on completion of projects started in previous fiscal years and on rehabilitation of worn out facilities at heavily used recreation sites. A list of proposed projects is included in Exhibit I. The total of \$3,109,000 includes \$30,000 appropriated in 1972 to be used in 1973. Minor Visitor Information Service facilities will be developed to meet visitor needs for orientation and environmental education dealing with natural resource management of the National Forests. It includes interpretive trails for the handicapped and others, informational signs, auto tours, amphitheater, scenic overlooks with interpretive signs, and information stations. Emphasis will continue to be placed on the development of low cost, high quality facilities and services. A list of proposed facilities is included in Exhibit II.

Examples of Recent Accomplishments

In National Forest developed sites, there was an increase in persons-at-one-time capacity of 7,702 in fiscal year 1971. Capacity of sites developed under concession and recreation use permits also increased during fiscal year 1971 by 3,455 persons-at-one-time. A larger increase is expected in 1972 and 1973.

One of the more spectacular construction projects includes Blanchard Springs Caverns in the Ozark-St. Francis National Forests in Arkansas. Facilities are being developed so the caverns can be opened for safe use by the public in the spring of 1973. Another project constructed was Oh Ridge Campground in the Inyo National Forest, California, on the east side of the southern portion of the Sierra-Nevada Mountains. This area serves people from primarily the Los Angeles Basin. Other construction included facilities in the Whiskeytown-Shasta-Trinity, Flaming Gorge, and Spruce Knob-Seneca Rocks National Recreation Areas.

Admissions and user fees charged for use of National Forest developed sites and recreation special-use permit fees are summarized below:

	<u>FY 1970</u>	<u>FY 1971</u>	<u>Change</u>
Recreation special-use permit	\$2,982,511	\$3,370,281	+\$387,770
Admissions and user fees	<u>1,157,413</u>	<u>2,367,834</u>	<u>+1,210,421</u>
Total	4,139,924	5,738,115	+1,598,191

(1b) Water resource development construction (\$1,865,000)

Funding at the same level as fiscal year 1972 will allow construction of non-deferrable projects (facilities that should be constructed prior to impoundment of water) at reservoirs constructed by other agencies. A list of proposed fiscal year 1973 projects follows:

<u>State</u>	<u>Forest</u>	<u>Project</u>	<u>Estimated Cost</u>
Montana	Kootenai	Libby Reservoir (Boat ramp, beach, picnic and campground).....	\$110,000
Colorado	Pike	Rampart Reservoir (Boat ramp and picnic ground)	166,000
Wyoming	Ashley	Firehole (Flaming Gorge National Recreation Area) (Boat ramp and camp) ..	263,000
California	Shasta-Trinity	Antlers Boat Ramp (National Recreation Area)	46,000
		Hirz Bay Water System	102,000
		Wish Poosh Campground (Completion recreation complex)	17,000
Washington	Olympic	Coho Campground (Wynoochee) (Boat ramp, picnic and camp)	202,000
Kentucky	Daniel Boone	Cave Run (Boat ramp, beach, water, sewer lines)	677,000
		Laurel Reservoir (Boat ramp)	102,000
Pennsylvania	Allegheny	Allegheny Reservoir (Recreation complex)	112,000



<u>State</u>	<u>Forest</u>	<u>Project</u>	<u>Estimated Cost</u>
Wisconsin	Chequamegon	Chequamegon Waters (Chippewa Campground)	\$88,000
		Total	1,885,000

The Forest Service is responsible for designing and developing public use facilities on National Forest System lands at, and adjacent to, project reservoirs built by other agencies. Impact survey findings and recommendations provide for the protection of water quality and fulfillment of other project purposes by pointing the way to carefully designed public use development tailored to individual project needs. Facilities include sanitation improvements, camping and picnic sites, swimming beaches, boat ramps, and other public use and information facilities. To serve their intended purpose, these facilities should be installed in time to meet the initial impact of visitor use when a reservoir fills. Installation during the construction period is generally less expensive than after completion of the project.

Examples of Recent Accomplishments

Fiscal year 1972 accomplishment included construction and planning of facilities at 11 projects as follows: Libby Reservoir, Montana; Turquoise Reservoir, Colorado; Flaming Gorge Reservoir, Utah; Curren Creek Boat Ramp, Utah; Centimudi Boat Ramp, California; Wynoochee Dam, Washington; Cave Run, Kentucky; Indian Mounds, Texas; Kincaid Reservoir, Louisiana; Council Bluff-Lake Huzzah, Missouri; Kinkaid Lake, Illinois.

(1c) Construction for fire, administration, and other purposes (\$1,958,000, a net decrease of \$267,000)

Most forest and land management activities take place in rural and remote areas. Small communities in these areas do not offer the specialized facilities essential to carrying out these programs. General purpose facilities that may be available often are not adequate as to standard, size, or location to meet specific needs. These funds are used to supplement what needs cannot be obtained through lease or purchase means, but are absolute needs in terms of providing buildings and other facilities for:

- (a) Early fire detection.
- (b) Adequate communications systems.
- (c) Shop and storage space for program material and supplies.
- (d) Ground support for aerial operations.
- (e) Headquarters and office space.
- (f) Housing in remote locations.
- (g) Utilities to serve above facilities.

Construction funds are planned for use as follows (includes \$40,000 appropriated in 1972 to be obligated in 1973):

Communications systems (radios and telephones)--Systems will be improved through installation of new equipment at a cost of \$763,400

Specific project locations are as follows:

<u>State</u>	<u>National Forest</u>	<u>Amount</u>
Arizona	Coronado	\$55,000
California	Klamath	132,300
Colorado	Grand Mesa-Uncompahgre	94,400
Idaho	Salmon	149,200
Oregon	Ochoco	45,800
	Rogue River	71,000
	Umpqua	46,500
Miscellaneous projects		169,200



Site acquisition--One administrative site to be purchased within or near the Humboldt National Forest in Nevada at a cost of \$25,500

Water and sanitation systems--Twenty-one systems will be planned, constructed, or improved at a cost of \$513,100

These will be located on the following National Forests:

<u>State</u>	<u>National Forest</u>	<u>No.</u>	<u>Amount</u>
Arizona	Tonto	1	\$30,000
Colorado	Arapaho	1	9,300
Idaho	Boise	1	4,100
	Clearwater	1	40,400
	Coeur d'Alene	2	95,500
	Kaniksu	1	4,900
	Nezperce	1	14,400
Montana	Custer	2	28,600
	Flathead	3	71,900
	Kootenai	1	51,600
	Lolo	1	6,100
Oregon	Fremont	1	49,800
	Wallowa-Whitman	1	47,200
Utah	Wasatch	1	6,700
Vermont	Green Mountain	1	25,100
Washington	Okanogan	1	15,300
Wyoming	Medicine Bow	1	12,200

Service and storage buildings--Five to be planned and/or constructed at a cost of \$118,700

These will be located as follows:

<u>State</u>	<u>National Forest</u>	<u>No.</u>	<u>Amount</u>
Idaho	Targhee	1	\$25,300
Montana	Helena	1	14,700
	Lolo	1	3,700
Vermont	Green Mountain	2	75,000

Fire lookout towers--One to be constructed on the Bitterroot National Forest in Montana at a cost of \$11,900

Offices--One to be constructed on the Green Mountain National Forest in Vermont at a cost of \$100,000

Dwellings and barracks--Eleven family units of standard design to be constructed at a cost of \$408,500

These will be located as follows:

<u>State</u>	<u>National Forest</u>	<u>No.</u>	<u>Amount</u>
Alaska	Tongass	1	\$62,500
California	Six Rivers	4	131,700
Colorado	San Juan	1	40,900
Idaho	Challis	1	35,700
	Targhee	1	35,700
Montana	Beaverhead	1	30,600
	Flathead	2	71,400

Quality improvement of existing structures--Upgrading of structures, rewiring, and miscellaneous site improvement, will be accomplished at various locations throughout the National Forest System at a cost of \$56,900



Examples of Recent Accomplishments

The following units were constructed during fiscal year 1971:

<u>Units</u>	<u>No.</u>	<u>Units</u>	<u>No.</u>
Trailer park	1	Water and sanitation systems	10
Fire lookouts	1	Airports, airstrips, heliports ...	1
Service and storage buildings .	4	Site acquisition	3
Offices	3		

Approximately \$1,122,000 was used to replace, upgrade or install new communications systems and to reconstruct or improve the quality of existing structural facilities.

- (2) Research construction (None proposed. \$5,035,000 appropriated in 1972.) The 1972 appropriation provided for the following non-recurring items, all of which are under construction or being planned:

<u>Location</u>	<u>Facility</u>	<u>Amount</u>
Durham, New Hampshire	Construction, Forestry Sciences Laboratory	\$1,300,000
Burlington, Vermont	Construction, Sugar Maple Laboratory	1,050,000
Lincoln, Nebraska	Construction, Shelterbelt Laboratory	680,000
Macon, Georgia	Construction, Southern Forest Fire Laboratory	1,680,000
Arcata, California	Planning and site development for Redwood Research Laboratory	140,000
Auburn, Alabama	Planning, Forestry Sciences Laboratory	110,000
		<u>4,960,000</u>

\$75,000 was also appropriated in fiscal year 1972 for the Institute of Forest Genetics, Rhinelander, Wisconsin to purchase abandoned farm land for genetics research out-plantings and for research on intensive culture of northern species. No publicly owned land suitable for this use was available in the vicinity. The objective is to acquire approximately 400 acres of land. Negotiations for this purchase are underway.

- (3) Pollution abatement (\$28,835,000, a net increase of \$8,476,000)

The increase will be used to comply with Executive Order 11507, which directs that abatement of water and air pollution at existing Federal facilities be completed or underway by December 31, 1972.

These programs are vitally needed to protect and maintain the resources and environment of the National Forests. They will:

- (a) Help prevent a general degradation of the National Forests.
- (b) Insure a continued flow of high quality water for domestic and irrigation use.
- (c) Eliminate uncontrolled dumping and burning of solid waste from Federal facilities on National Forest lands.

Water pollution abatement (\$26,388,000, an increase of \$7,403,000)

The appropriation will provide for: (1) the completion of the survey and design work required by EO 11507 by December 31, 1972, and (2) the construction costs of the projects shown below.

This work is urgently needed to protect public health and to maintain the quality of the environment.

Following is a summary of proposed projects to be undertaken in fiscal year 1973. Construction projects are identified by project name, with those costing less than \$25,000 being listed under the heading of "Other."

<u>Region</u>	<u>State</u>	<u>Project Name</u>	<u>Proj. No.</u>	<u>Est. Cost</u>
Northern	Montana	Bakers Hole	16	\$85,000
	Idaho	Samowen	1701	150,000
	Idaho	Clarkia Ranger Station	215	120,000
	Montana	Lincoln Ranger Station	642	110,000
	Montana	Holland Lake Campground	57	113,000
	Montana & Idaho	6 Design projects		29,000
		Subtotal		<u>607,000</u>

Region	State	Project Name	Proj. No.	Est. Cost
Rocky	Colorado	Dillon Recreation Area	11	\$1,150,000
Mountain	Nebraska	Bessey Complex	238	263,000
	Wyoming	Wapiti Trailer Dump Station	26	65,000
	Wyoming	Three Mile Trailer Dump Station	268	75,000
	Colorado	South Platte Central Disposal	479	176,000
	So. Dakota	Pactola Campground Cent. Disposal	100	201,000
	So. Dakota	Calumet Campground	391	93,000
	Wyoming	Beartooth-Crandall	38	150,000
	Wyoming	Newton Creek Trailer Dump Station	278	75,000
	Wyoming	Loop Road Trailer Dump Station	1169	72,000
	Colorado	Cave Creek Trailer Dump Station	286	184,000
	Wyoming	Sitting Bull	1245	44,000
	Colorado	Aspen Glade	374	86,000
	Colorado	South Park Central Disposal	469	180,000
	Colorado	1 Other		18,000
	Wyoming & Colorado	4 Design projects		79,000
		Subtotal		<u>2,911,000</u>
South-western	Arizona	Sabino Canyon	12	1,501,000
	Arizona	Lynx Lake Campground	144	648,000
	Arizona	Heber Rim	188	220,000
	Arizona	Rucker Canyon	230	600,000
	Arizona	Chevelon Rim	275	1,200,000
	Arizona	Central Disposal	357	150,000
	Arizona	Jacob Lake Central Disposal	404	286,000
	Arizona	Central Disposal	533	150,000
	Arizona & New Mexico	4 Design projects		406,000
		Subtotal		<u>5,161,000</u>
Inter-mountain	Idaho	Red Fish Lake Recreation Area	5	441,000
	Utah	Fish Lake Recreation Area	21	988,000
	Wyoming	Greys River Central Disposal	130	204,000
	Idaho	Wood River Recreation Area	342	118,000
	Utah	Panguitch Lake Central Disposal	225	130,000
	Utah	Fremont River Recreation Area	534	29,000
	Idaho	Alturas Lake Recreation Area	205	149,000
	Utah	Altonah Central Disposal	595	32,000
	Utah	2 Other		30,000
	Idaho, Utah, & Wyoming	17 Design projects		375,000
		Subtotal		<u>2,496,000</u>
Cali-fornia	California	Pope Baldwin	1	768,000
	California	June Lake Loop	50	1,530,000
	California	Mammoth Lakes Basin	1621	1,549,000
	California	Mammoth Community	1618	447,000
	California	Eagle Lake Recreation Area	156	578,000
	California	Pineridge General	271	27,000
	California	Round Valley	361	87,000
	California	Rock Creek	1617	1,876,000
	California	Arrowhead	202	58,000
	California	Big Bear	261	58,000
	California	San Jacinto	422	58,000
	California	Convict Lake	1616	350,000
	California	Elam Creek	1066	56,000
	California	High Bridge	806	78,000
	California	22 Design projects		1,079,000
		Subtotal		<u>8,599,000</u>
Pacific Northwest	Washington	Shore Lake Quinault	229	750,000
	Oregon	Ripplebrook Ranger Station	61	70,000
	Washington	Denny Creek	257	35,000

<u>Region</u>	<u>State</u>	<u>Project Name</u>	<u>Project No.</u>	<u>Estimated Cost</u>
Pacific	Washington	Lake Wenatchee Ranger Station	157	\$300,000
Northwest	Oregon	Lost Lake Campground	264	279,000
(Cont'd)	Washington	Naches Ranger Station	546	250,000
	Washington	Silver Spring	557	30,000
	Oregon	McKee Picnic Ground	242	25,000
	Oregon	Anthony Lake	281	25,000
	Washington	Asahel Curtis Campground	319	30,000
	Washington	Tieton Ranger Station	1090	225,000
	Oregon	Diamond Lake	3	54,000
	Oregon	6 Other		51,000
	Oregon & Washington	14 Design projects		<u>258,000</u>
		Subtotal		<u>2,382,000</u>
Southern	Mississippi	Choctaw Lake Recreation Area	207	690,000
	Georgia	Lake Russell	243	460,000
	Florida	Alexander Springs	167	234,000
	N.Carolina	Sliding Rock	148	216,000
	Georgia	Lake Winfield Scott	133	323,000
	Texas	Ratcliff Lake	180	245,000
	Florida & Louisiana	2 Other		27,000
	Florida, Georgia & N.Carolina	5 Design projects		<u>58,000</u>
		Subtotal		<u>2,253,000</u>
Eastern	Minnesota	Cut Foot Sioux	95	152,000
	Michigan	Lake Michigan Campground	119	50,000
	Michigan	Brevoort Lake	127	103,000
	Pennsylvania	Buckaloons	222	87,000
	Pennsylvania	Loleta	208	76,000
	Minnesota	Gunflint Trail	290	101,000
	Wisconsin	Two Lakes	308	88,000
	N.Hampshire	East Central Disposal	410	277,000
	N.Hampshire	West Central Disposal	417	251,000
	Michigan	Ottawa Vaults	427	255,000
	Wisconsin	Round Lake	499	84,000
	Missouri	Saint Francis Central Disposal	556	44,000
	Missouri	Piney River	562	45,000
	Minnesota	Fernberg Road Central Disposal	569	104,000
	Pa.,Mn.,Wi., Mi., & Mo.	15 Other		221,000
	NH, Mn., & Mo.	9 Design projects		<u>71,000</u>
		Subtotal		<u>2,009,000</u>
		Total		26,418,000*

*Includes \$30,000 appropriated in 1972 to be obligated in 1973.

Air pollution abatement (\$2,447,000, an increase of \$1,073,000)

The increase will be used to implement 17 pilot projects for the disposal of solid waste and meet the air pollution requirements of Executive Order 11507 on National Forest lands. Through an evaluation of these pilot projects, a basis for analysis and design of all remaining solid waste projects will be established.

The balance of these funds will be used for the analysis and design of all remaining solid waste projects subject to Executive Order 11507.

This program permits Forest Service coordination of solid waste disposal problems with local authorities, Forest Service special use permittees, private citizens, State, and other Federal agencies. It will eliminate duplication of effort in developing sanitary land fill sites, equipment, manpower, and collection routes. It will also reduce the number of disposal sites, allowing better land management.

The proposed program for fiscal year 1973 follows:

<u>Region</u>	<u>Analysis and Design</u>	<u>Implementation</u>
Northern	\$159,800	\$48,000
Rocky Mountain	72,200	139,500
Southwestern	103,100	229,300
Intermountain	189,700	242,500
California	116,500	202,400
Pacific Northwest	206,200	96,000
Southern	109,300	273,400
Eastern	128,900	60,100
Alaska	<u>31,000</u>	<u>39,100</u>
Subtotals	1,116,700	1,330,300

Examples of Recent Accomplishments

In fiscal year 1972, analysis and design for 17 solid waste systems was completed on a pilot project basis. By the end of the fiscal year all remaining systems will have been identified and substantial progress made on their initial analysis. The most significant accomplishment in the field of solid waste disposal is progress on the development of a systematic approach for the analysis and design of solid waste systems in rural areas. Insofar as is known, this is the only system in existence for rural area analysis. It is planned to make this system available to the public in the early part of fiscal year 1973.

In fiscal year 1972 water pollution abatement funds in the amount of \$18,985,000 will be used to accomplish water pollution control at existing facilities to the quality standards adopted pursuant to the Federal Water Pollution Act and prescribed by Executive Order 11507. Approximately 50 percent of these funds are being used for the analysis and design of specific projects, with the remainder being used for remedial measures required to control major sources of water pollution.

(4) Land acquisition, Weeks Act (\$1,300,000)

The acquisition of key inholdings within the National Forests and the National Forest purchase units becomes increasingly urgent as the demands upon wildlands and farm lands for highway construction, industrialization, and summer home development increase. The development program for the National Forests recognizes the need to acquire additional private inholdings in need of land rehabilitation. Included are lands depleted by repeated fires, poor logging practices, clearing and cultivation of steep and erodible mountain lands, disturbed mineral exploitation areas, and submarginal or marginal farms that should be removed from farming operations and managed for timber production and/or grazing. These are lands located primarily in economically depressed areas. Sound management of acquired areas will contribute to:

- (a) Stabilization of the local economy.
- (b) Environmental enhancement.
- (c) Prevention of stream pollution in rural America.
- (d) Improved timber production.

Lands primarily valuable for recreation are not included in this program, since acquisition of such lands is financed under the Land and Water Conservation Fund Act program.

The \$1.3 million included in the fiscal year 1973 estimate will be used to acquire an estimated 12,300 acres in the Redbird Purchase Unit in eastern Kentucky at a cost of \$550,000. The remaining \$750,000 will be used to continue the acquisition programs in purchase units in the eastern United States, plus a minor program in Nebraska. Emphasis is given in this part of the program to the National Forests in Arkansas, Illinois, Michigan, Missouri, and Ohio.

See the tabulation at the end of this section for more detailed information on the actual and planned accomplishments in fiscal years 1970-1972 (Exhibit III).

Examples of Recent Accomplishments

In 1971 a total of 127 tracts were contracted for purchase under authority of the Weeks Act using regular appropriated Weeks Act funds. These cases involved the acquisition of 13,320 acres at a total cost of \$1,133,601. These transactions involve lands suited to timber production and watershed protection in areas where National Forest ownership needs to be consolidated or extended to facilitate these programs. Many of the smaller parcels, 20-40-80 acres in size, are purchases made at a price equal to, or nearly equal to, the cost that would otherwise have been incurred to survey, post, and mark the National Forest boundary surrounding the property.

EXHIBIT I--Recreation-Public Use--FY 1973
 Capital Investments--Distribution by National Forests
 PROJECTS OTHER THAN MINOR VISITOR INFORMATION CENTER FACILITIES

Region	Forest and Project	:Quality improvement:		:Camp and :Water and: Other	:picnic :sewage :developments:	:Estimated: systems : (No. of :Estimated: capital	: cost : (Capacity): (No.) : sites) : cost : investment
		: of existing sites :	: New sites, expansion, and planning :				
NORTHERN	Custer (Buffalo Gap)	185	1			\$135,000	\$135,000
	Gunnison (Lakeview)			\$34,000	1	\$6,000	\$34,000
	Rio Grande (South Fork)			30,000			6,000
	Roosevelt (Poudre River Canyon)				1	5,000	30,000
	San Isabel (Potato Patch)						5,000
	Subtotal, Rocky Mountain Region		1	64,000	1	11,000	75,000
SOUTHWESTERN	Coronado (Rose Canyon)			\$19,000		\$46,000	\$19,000
	Gila (Dipping Vat)	100			1	20,000	46,000
	Tonto (Acacia)			51,000			20,000
	Tonto (Boulder)						51,000
	Subtotal, Southwestern Region		1	70,000	1	66,000	136,000
INTERMOUNTAIN	Bridger (Boulder Lake C.G.)					\$176,000	\$176,000
	Humboldt (White Pine County)	300	1	\$180,000			180,000
	Miscellaneous (General planning projects)					84,000	84,000
	Subtotal, Intermountain Region	300	1	180,000		260,000	440,000



EXHIBIT I--Recreation-Public Use--FY 1973
 Capital Investments--Distribution by National Forests
 PROJECTS OTHER THAN MINOR VISITOR INFORMATION CENTER FACILITIES

Region:	Forest and Project	New sites, expansion, and planning											
		Quality improvement: of existing sites	Water and: sewage systems	picnic sites	Camp and: water and: sewage systems	Other: developments	Estimated: (No. of sites)	Estimated: (No. of sites)	Estimated: cost	Estimated: investment	Total capital		
CALIFORNIA	Angeles (Jackson Flat)										\$2,800	\$2,800	\$2,800
	Cleveland (Desert View)			60*							16,500	16,500	16,500
	Cleveland (Oak Grove)	4		\$30,000									30,000
	Eldorado (Silver Creek)				55*	1					6,000	6,000	6,000
	Klamath (Lovers Camp)				60*	2					25,500	25,500	25,500
	Sequoia (Princess)				495*						144,000	144,000	144,000
	Shasta-Trinity (Pigeon Point)				75*						18,000	18,000	18,000
	Sierra (Dinkey Creek)	1		60,000									60,000
	Subtotal, California Region	5		90,000	745	3						212,800	302,800
	PACIFIC NORTHWEST	Okanogan (Cutthroat Trailhead and P.G.)											
Okanogan (Klipchuck C.G.)					100						5,500	5,500	5,500
Okanogan (Lone Fir C.G.)				\$6,000	230								6,000
Okanogan (Beth Lake C.G.)					190						3,500	3,500	3,500
Siuslaw (Oregon Dunes planning)											16,000	16,000	16,000
Snoqualmie (8 sites-wells)		8		34,000									34,000
Wenatchee (Salmon LaSac C.G.)				8,000									8,000
Subtotal, Pacific Northwest Region		8		48,000	520							32,000	80,000
SOUTHERN	Chattahoochee-Oconee (Lake Russell)	1		\$14,000									\$14,000
	Chattahoochee-Oconee (Lake Winfield Scott)	1		40,000									40,000
	George Washington (Sherando Lake)	1		10,000									10,000
	Kisatchie (Valentine Lake)	1		10,000									10,000
	Florida (Alexander Springs)	1		18,000									18,000
	Florida (Juniper Springs)	1		45,000									45,000



EXHIBIT I--Recreation-Public Use--FY 1973
Capital Investments--Distribution by National Forests

PROJECTS OTHER THAN MINOR VISITOR INFORMATION CENTER FACILITIES

Region:	Forest and Project	:Quality improvement:		:New sites, expansion, and planning		:Water and :Camp and :Water and :Other	:sewage : picnic :sewage :developments:	: systems : systems : (No. of :Estimated: capital	: (No.) : cost : (Capacity): (No.) : sites) : cost : investment		
		: of existing sites :	:	: of existing sites :	:						
SOUTHERN (continued)	Florida (Olstee Beach)	1	\$48,000						\$48,000		
	Mississippi (Choctaw Lake)	1	31,000						31,000		
	North Carolina (Badin Lake)								\$37,000		
	North Carolina (Neuse River)	1	12,000						12,000		
	Ozark-St. Francis (Blanchard Springs Caverns)	--		480						895,000	
	Subtotal, Southern Region	9	228,000	480					932,000	1,160,000	
EASTERN	Miscellaneous (Project Mainstream and YCC)		\$25,000	200*					\$51,000	\$76,000	
	Chippewa (Norway Beach)						1		10,000	10,000	
	Chippewa (Wanaki C.G.)			50					30,000	30,000	
	Clark (Mill Creek C.G.)					1*			10,000	10,000	
	Clark (Oak Knoll C.G.)								5,000	5,000	
	Clark (Paddy Creek C.G.)			75*					10,000	10,000	
	Green Mountain (Potomac Group Site)			70		2			15,000	15,000	
	Green Mountain (Silver Lake C.G.)			150*					25,000	25,000	
	Hiawatha (Brevoort Lake P.G.)			195*					39,000	39,000	
	Hiawatha (General site betterment)		26,000							26,000	
	Hoosier (Hano Point)		40,000		100				11,000	11,000	
	Huron-Manistee (General site betterment)									40,000	
	Mark Twain (Eleven Point National Scenic River)									13,000	13,000
	Mark Twain (Fourche Creek)									40,000	40,000
	Monongahela (Big Bend C.G.)		46,000		250*				15,000	15,000	
	Monongahela (Lake Sherwood)		10,000							46,000	46,000
	Nicolet (Boot Lake C.G.)	1	14,000		75*					10,000	10,000
	Nicolet (Boulder Lake C.G.)		28,200							23,000	37,000
	Nicolet (Seven-Mile C.G.)										28,200
	Ottawa (Sylvania, P.G. and boat landings)									101,000	101,000



EXHIBIT I--Recreation-Public Use--FY 1973
Capital Investments--Distribution by National Forests

PROJECTS OTHER THAN MINOR VISITOR INFORMATION CENTER FACILITIES

Region:	Forest and Project	Quality improvement:		New sites, expansion, and planning		Total capital investment
		: of existing sites :	: cost :	: (No.) :	: cost :	
:	:	: Water and :	: Camp and :	: Water and :	: Other :	:
:	:	: sewage :	: picnic :	: sewage :	: developments :	:
:	:	: systems :	: sites :	: systems :	: (No. of :	: Estimated:
:	:	: (No.) :	: (Capacity): (No.) :	: sites) :	: cost :	: investment
	Shawnee (Kinkaid)		180*			\$40,000
	Superior (General site betterment)					40,000
	Wayne (Burr Oak C.G.)	1				18,000
	Wayne (Indian Mound P.G.)		75			54,000
	Wayne (Leith Run)					3,000
	Wayne (Taber Memorial Rally)		125*			2,000
	White Mountain (Basin Brook Complex)		50*			36,000
	Subtotal, Eastern Region	2	1,595	4	6	533,000
	TOTALS, ALL REGIONS	25	3,925	10	7	2,181,800

Note: P.G. - Picnic Ground
C.G. - Campground

*Completion of site



EXHIBIT II--Recreation-Public Use--FY 1973
Capital Investments--Distribution by National Forests

MINOR VISITOR INFORMATION CENTER FACILITIES

Region	Forest	Number of sites	Total capital investment
ROCKY MOUNTAIN	Bighorn	2	\$5,500
	Grand Mesa-Uncompahgre	1	300
	Gunnison	1	1,600
	Medicine Bow	1	1,900
	Rio Grande	1	3,000
	San Juan	1	1,200
	Shoshone	<u>1</u>	<u>1,500</u>
Subtotal	8	15,000	
SOUTHWESTERN	Coconino	1	\$15,400
INTERMOUNTAIN	Ashley	1	\$15,400
CALIFORNIA	Angeles	1	\$2,500
	Cleveland	1	3,000
	Plumas	3	3,000
	Sequoia	2	3,000
	Tahoe	<u>1</u>	<u>3,500</u>
Subtotal	8	15,000	
PACIFIC NORTHWEST	Okanogan	1	\$15,300
SOUTHERN	Alabama	1	\$4,000
	Cherokee	1	3,500
	North Carolina	3	5,000
	South Carolina	1	1,200
	Mississippi	<u>1</u>	<u>1,300</u>
Subtotal	7	15,000	
EASTERN	Allegheny	1	\$1,500
	Chippewa	1	3,500
	Monongahela	2	7,000
	Nicolet	2	2,000
	Wayne-Hoosier	<u>1</u>	<u>1,000</u>
Subtotal	7	15,000	
ALASKA	North Tongass	7	\$13,000
	Chugach	<u>1</u>	<u>2,000</u>
Subtotal	8	15,000	
INSTITUTE OF TROPICAL FORESTRY	Caribbean	1	\$11,900
TOTAL, ALL REGIONS		42	133,000



EXHIBIT III -- WEEKS ACT PURCHASES 1971-1973

	FY 1971 Actual		FY 1972 Estimated		FY 1973 Estimated	
	Options accepted:	Acres	Options accepted:	Acres	Options accepted:	Acres
Alabama - Talladega	1:	163:				
Arkansas - Ouachita	1:	79:	2:	290:		
Ozark	11:	702:	10:	1,092:	7:	1,560:
Illinois - Shawnee	7:	580:	12:	800:	8:	500:
Indiana - Hoosier	16:	1,365:	9:	750:		
Kentucky - Redbird Purchase Unit	23:	2,793:	35:	9,000:	20:	12,300:
Daniel Boone	4:	440:				
Louisiana - Kisatchie	1:	24:				
Michigan - Hiawatha	4:	161:	4:	800:	5:	420:
Huron-Manistee	16:	373:	11:	340:	15:	500:
Ottawa			4:	320:	3:	200:
Minnesota - Chippewa	4:	1,690:	2:	800:	3:	500:
Superior			1:	175:		
Mississippi - Delta	1:	175:				
Missouri - Clark	1:	200:			5:	600:
Mark Twain	2:	368:	3:	350:	3:	300:
Nebraska - Nebraska			2:	300:	1:	200:
New Hampshire - White Mountain			1:	96:		
North Carolina - Nantahala	1:	13:				



EXHIBIT III -- WEEKS ACT PURCHASES 1971-1973

	FY 1971 Actual		FY 1972 Estimated		FY 1973 Estimated	
	Options accepted	Acres	Obligation	Options to be accepted	Acres	Obligation
Ohio - Wayne	16	1,666	\$81,486	9	750	\$63,750
South Carolina - Sumter	1	150	23,234			
Tennessee - Cherokee	1	180	7,200	4	426	36,500
Pennsylvania - Allegheny				3	100	12,700
Vermont - Green Mountain	1	40	5,000	2	162	14,700
Virginia - George Washington Jefferson	5	1,174	84,855	1	235	76,500
West Virginia - Mononghela Jefferson	2	262	26,755	4	120	40,700
Wisconsin - Chequamegon Nicolet	1	87	3,654	2	200	8,500
Subtotal	127	13,320	791,728	123	17,426	1,036,400
Surveys and related acquisition costs			341,873			213,600
Contingent			166,399			166,399
Unobligated balance carried forward						
Unobligated balance brought forward						-166,399
Total appropriation			1,300,000			1,300,000
						1,300,000





FOREST ROADS AND TRAILS

Appropriation, 1971	\$120,220,000
Estimate, 1972	148,740,000
Estimate, 1973	158,840,000
Increase	+10,100,000

PROJECT STATEMENT

The following tabulation reflects the total program for the construction and maintenance of roads and trails on the National Forests and Grasslands by combining the funds available under the appropriation "Forest roads and trails" with the permanent appropriation of 10 percent of National Forest receipts.

Project	1971	1972 estimate	1973 estimate	Increase or decrease
1. Construction of roads and trails	\$129,536,436	\$143,937,000	\$133,768,000	-\$10,169,000
2. Maintenance of roads and trails	37,031,302	26,826,000	35,795,000	+8,969,000
Total obligations	166,567,738	170,763,000	169,563,000	-1,200,000
Transfer from Roads and Trails for States	-28,761,091	-22,661,542	-34,280,000	+11,618,458
Program under Forest Roads and Trails contract authority	137,806,647	148,101,458	135,283,000	-12,818,458
Obligations incurred under unfunded contract authority	-17,586,647	638,542	23,557,000	+22,918,458
<u>Total available or estimate</u>	<u>120,220,000</u>	<u>148,740,000</u>	<u>158,840,000</u>	<u>+10,100,000</u>

An increase of \$10.1 million is needed to meet cash requirements for liquidation of contract authority. This appropriation provides for the liquidation of obligations incurred for the construction and maintenance of forest roads and trails pursuant to the authority contained in the Federal-Aid Highway Act. An appropriation of \$158.8 million for 1973 is required to:

- (1) Pay for obligations of the prior years which will be due for payment in fiscal year 1973.
- (2) Pay the portion of the 1973 obligations of \$135.3 million contract authority which will require cash payment in that year.

Following is a summary of the road and trail construction and maintenance to be undertaken in fiscal year 1973 as compared with fiscal year 1972:

	FY 1972		FY 1973		Change	
	Miles	Amount (in thousands)	Miles	Amount (in thousands)	Miles	Amount (in thousands)
Recurrent road maintenance	124,000	\$21,970	104,476	\$29,812	-19,524	+\$7,842
Recurrent trail maintenance	99,759	4,856	60,262	5,983	-39,497	+1,127
Road construction	1,027	110,492	900	84,347	-127	-26,145
Trail construction	370	2,036	400	2,417	+30	+381
Surveys, plans, and supervision (timber purchaser roads)	6,200	23,416	6,629	37,108	+429	+13,692
Supplementing timber purchaser construction	1,200	7,793	867	9,696	-333	+1,903
Road purchase	- -	200	- -	200	- -	- -
<u>Total program level</u>		<u>170,763</u>		<u>169,563</u>		<u>-1,200</u>



The \$1.2 million program decrease is for reduced employment (1972 savings of \$2.8 million less 1973 savings of \$4 million).

The shift in the proposed fiscal year 1973 forest road and trail program from direct construction to the maintenance and support activities is a result of the needs of increased environmental concerns. First, consideration will be given to maintaining, operating, controlling, and supporting existing and on-going projects and, second, the development of new opportunities in line with demands for individual and combined resource and service outputs. The remaining road construction activities are heavily weighed toward reconstruction of existing roads.

This program is required to make it possible to maintain the timber supply, and make some additional timber available through such efforts as salvage harvest and thinning. Through timber sale contract allowances, timber purchasers will continue to build many roads tributary to major access, needed to harvest individual sale areas. These roads are an integral part of the total development system. Planning, surveying, design, supervision of construction, and, in some cases, supplemental financing, of roads constructed from timber sale credits are funded from appropriated funds.

The objectives of the road and trail program are to provide, maintain, and operate with optimum efficiency all of the transportation improvements needed to accomplish the land and resource management, protection, and utilization goals of the Forest Service at the lowest cost of transportation consistent with protecting the watershed, preventing erosion and permanent damage to the natural environment, scenic resource, and fish and wildlife habitat.

All management objectives of the National Forests involve the transportation system either directly or indirectly. Management objectives become so enmeshed with a required transportation system that it is impossible to associate a single road project with only one resource unless it is for very short periods. Even then, other resources are affected and are the factors which determine adequacy.

Construction of roads takes time. Projects contracted for in any given year will usually not be completed until one or two years later. Translated to resource management needs, this means that scheduling the same or a reduced program level for roads in any given year will affect the ability to adequately continue or expand many other National Forest programs two years and more in the future.

An adequate system of forest development roads and trails is essential to insure the continued contributions and values of the National Forest System. The presence or lack of access by road or trail has a direct or controlling influence on the proper management and beneficial use of National Forest lands and resources. This factor largely determines the value of timber that can be marketed, the size, duration, and distribution of timber sales, and the level of salvage cuttings. It strongly influences the effectiveness of measures for protecting these lands from fire, insects, disease, and other destructive forces. It influences the level of use made of recreation, wildlife, and other resources of the National Forest.

Improvement of rural life is one of the major objectives of the Department and the Forest Service. The goal is to increase the economic and cultural opportunities of rural people to insure a pattern of living comparable to that of the rest of the Nation. Good roads expand opportunities for rural development. Extending



the forest road system is essential to rural communities which depend upon National Forest resources for a livelihood. Rural businesses and industries depend on access provided to National Forests to move the forest goods and raw materials needed.

The National Forests are endowed with bountiful recreation opportunities and sites. They serve the urban dweller seeking relaxation and open space. Roads make this possible. An adequate National Forest transportation system is essential for both the economic and social well being of urban and rural America.

The following tabulation shows the current status of the forest roads and trails system and projected needs:

<u>Item</u>	<u>Existing Mileage</u>	<u>Estimated Mileage Needing Reconstruction</u>	<u>Estimated Additional Mileage Needed</u>
Roads	196,593	145,553	152,109
Trails	99,791	49,509	23,030

Summary of Work Progress and Accomplishment

	<u>By the Government</u>			<u>By Timber Purchaser</u>		
	<u>FY 1971</u>	<u>FY 1972</u>	<u>FY 1973</u>	<u>FY 1971</u>	<u>FY 1972</u>	<u>FY 1973</u>
Roads (miles)	648	1,027	900	8,999	7,000	6,629
Trails (miles)	280	370	400	- -	- -	- -

Authorizations for Appropriations a/

<u>Fiscal Year</u>	<u>Construction</u>	<u>Maintenance</u>	<u>Total</u>	<u>Funded</u>	<u>Unfunded</u>
1971	\$132,968,698	\$37,031,302	\$170,000,000	\$112,744,000	\$57,256,000
1972	143,174,000	26,826,000	170,000,000	- -	170,000,000
1973	<u>64,205,000</u>	<u>35,795,000</u>	<u>100,000,000</u>	- -	<u>100,000,000</u>
	340,347,698	99,652,302	440,000,000	112,744,000	327,256,000

a/ The annual appropriation language and the Department presentation combine the appropriation for Forest roads and trails made pursuant to 23 USC 205 and the appropriation of 10 percent of forest receipts for construction and maintenance of roads and trails pursuant to 16 USC 501. This merger of funds is made in order to simplify the programing, allotment, and accounting of funds at the field level. Since the accounts for these two funds are merged, it is not practicable to distribute obligations and expenditures between the two appropriations on a precise basis. The amounts shown for the Forest roads and trails appropriation are a proration based on the percentage that contract authorization used under the appropriated funds is of total available funds. Expenditure amounts for maintenance are based on all such obligations requiring cash payment during the fiscal year.

Status of Unfunded Authorizations

Unfunded contract authority beginning of 1972	\$464,836,000
Federal-Aid Highway Act of 1970 (1973 authority available in 1972) .	170,000,000
Appropriation, 1972	<u>-148,740,000</u>
Total unfunded beginning of 1973	486,096,000
Federal-Aid Highway Act of 1972 (1974 authority available in 1973) (proposed legislation)	100,000,000
1973 Budget estimate (cash requirements)	<u>-158,840,000</u>
Balance to remain unfunded as of June 30, 1973	<u>427,256,000</u>

Analysis of Cash Requirements

1. Unliquidated obligations, June 30, 1971	\$84,244,865
2. Estimated cash requirements to finance 1972 program	<u>66,483,195</u>
3. Total cash requirements by June 30, 1972	150,728,060



Analysis of Cash Requirements--continued

4. Less cash on hand 1972: Balance from 1971	4,688,060	
Appropriation, 1972	148,740,000	
Cash on hand, June 30, 1972 .	<u>-2,700,000</u>	<u>150,728,060</u>
5. Obligations in 1972 and prior years for which cash was not provided in items 1 and 2		67,800,000
6. Estimated cash required to finance 1973 program	a/	84,500,000
7. Reserve		<u>6,540,000</u>
8. Total cash required in 1973		<u>158,840,000</u>

a/ An estimated 62.5 percent of the \$135,283,000 new obligations will require cash payments during the fiscal year.

GEOGRAPHIC BREAKDOWN OF OBLIGATIONS
Forest Roads and Trails

	<u>FY 1972</u>	<u>FY 1973</u>
Alabama	\$630,000	\$615,000
Alaska	3,861,000	2,774,000
Arizona	4,255,000	4,250,000
Arkansas	1,824,000	1,807,000
California	30,039,000	30,041,000
Colorado	8,384,000	8,255,000
District of Columbia	3,563,000	4,396,000
Florida	910,000	909,000
Georgia	1,714,000	1,700,000
Idaho	17,178,000	17,331,000
Illinois	413,000	410,000
Indiana	241,000	239,000
Kansas	2,000	-
Kentucky	934,000	933,000
Louisiana	915,000	889,000
Maine	109,000	108,000
Michigan	2,888,000	2,848,000
Minnesota	1,649,000	1,563,000
Mississippi	1,048,000	1,036,000
Missouri	996,000	987,000
Montana	12,715,000	12,382,000
Nebraska	154,000	147,000
Nevada	1,920,000	1,915,000
New Hampshire	964,000	957,000
New Mexico	6,644,000	6,594,000
New York	4,000	-
North Carolina	1,127,000	1,143,000
North Dakota	142,000	147,000
Ohio	225,000	210,000
Oklahoma	184,000	186,000
Oregon	31,824,000	31,531,000
Pennsylvania	1,210,000	1,202,000
Puerto Rico	-	122,000
South Carolina	951,000	967,000
South Dakota	1,751,000	1,759,000
Tennessee	706,000	703,000
Texas	914,000	869,000
Utah	3,901,000	3,898,000
Vermont	784,000	772,000
Virginia	1,938,000	1,886,000
Washington	14,429,000	14,498,000
West Virginia	2,242,000	2,188,000
Wisconsin	1,499,000	1,485,000
Wyoming	<u>2,982,000</u>	<u>2,911,000</u>
Total	170,763,000	169,563,000

Note: Above planned obligation levels would be subject to adjustments required by emergency conditions and situations.





ACQUISITION OF LANDS FOR NATIONAL FORESTS, SPECIAL ACTS

Appropriation Act, 1972 \$80,000
 Budget estimate, 1973 80,000

PROJECT STATEMENT

Project	1971	1972 estimate	1973 estimate	Increase or decrease
1. Cache National Forest, Utah, Act of 5/11/38, as amended	\$11,675	\$20,000	\$20,000	- -
2. Uinta-Wasatch National Forests, Utah, Act of 8/26/35, as amended	- -	20,000	20,000	- -
3. Toiyabe National Forest, Nevada, Act of 6/25/38, as amended	400	8,000	8,000	- -
4. Angeles National Forest, California, Act of 6/11/40	- -	32,000	32,000	- -
Unobligated balance reverted to National Forests Fund	67,925	- -	- -	- -
Total available or estimate	80,000	80,000	80,000	- -

The Congress has enacted several special laws which authorize appropriation from the receipts of specified National Forests for the purchase of lands to minimize erosion and flood damage. Amounts appropriated and laws under which authorized are shown above.

These are critical watershed lands needing soil stabilization and vegetative cover restoration to prevent serious erosion and damaging floods within these National Forests. Land treatment measures must be applied and subsequently maintained on all lands in these areas to make corrective action fully effective. To assure full program effectiveness, the intermingled private lands must be acquired by the Federal Government. The results will be reflected in improved watershed conditions, social benefits, and development of economic strength in local communities.

Cache National Forest. In fiscal year 1971, funds were available from two sources for the purchase of lands within the Cache National Forest in Utah.

1. The Receipts Act of May 11, 1938, as amended -- \$20,000. This is an annual appropriation.
2. The Act of July 24, 1956 -- \$200,000 was appropriated under this authority in fiscal years 1957 through 1960. These funds remain available until expended. Through fiscal year 1971, \$189,163 has been obligated from this appropriation.

These funds are used to acquire key tracts of land in the steep, rough, and highly important watershed areas lying north of the Ogden River along the Wasatch front and on Wellesville Mountain of the Cache National Forest. These are rugged mountain lands above the river valley which have been damaged and their watershed functions impaired through forest fires or overgrazing. This contributes to excessive rainfall runoff causing severe erosion. The damaged watershed lands are potential sources of floods and mudrock flows. Many tracts of land are located in the north fork of Ogden River and on the drainage of Pineview Reservoir, a Federal reclamation project. Others are within the watersheds of the city of Ogden and the other small towns along the Wasatch front. Public ownership of these lands and subsequent restoration and protection of their vegetative cover is a highly important part of a vigorous cooperative program with the local community and agencies.



The appropriation of \$20,000 under the Act of May 11, 1938, is from receipts of the Cache National Forest. In the absence of this appropriation, the State of Utah would receive 25 percent of these receipts for roads and school purposes in the local counties involved. Therefore, the local counties, in effect, are contributing one-fourth of the amount of this appropriation. These appropriations are extremely important to the continuation of a vital and worthwhile program extending almost thirty years and shared in by both the local agencies and the Federal Government through the National Forests.

The 1956 Act requires that expenditures of Federal funds be matched by contributions by local agencies or people. This requirement has been met through donations of money and lands valued at \$189,163. The remainder of the contributions in the amount of \$10,837 are expected in fiscal year 1972.

Through fiscal year 1971, 28,857 acres have been approved for purchase pursuant to the Receipts Act of 1938, and 15,957 acres under the Special Act of 1956. The 1972 objective is to acquire 840 additional acres of these critical watershed lands. A similar acreage is expected to be acquired in 1973.

Uinta-Wasatch. In fiscal years 1963 through 1971, an appropriation of \$180,000 was made under the Uinta-Wasatch Receipts Act of August 26, 1935, for acquiring critical watershed lands in the American Fork Canyon watershed. A total of 2,841 acres has been approved for purchase through fiscal year 1971 and an estimated 400 acres will be acquired each year during 1972 and 1973.

Toiyabe National Forest. \$8,000 was appropriated under this Act in each of fiscal years 1971 and 1972. The 1972 and 1973 objective is to acquire 40 acres each year.

Angeles National Forest. \$32,000 was appropriated in fiscal year 1972 to purchase important watershed lands. Acquisition is needed to minimize erosion and flood damage. The 1972 and 1973 objective is to acquire 80 acres each year.



ACQUISITION OF LANDS TO COMPLETE LAND EXCHANGES

Appropriation Act, 1972	\$26,035
Budget estimate, 1973	- -
Decrease	<u>-26,035</u>

PROJECT STATEMENT

Project	: 1972	: 1973	: Increase or
		: estimate	: decrease
Purchase of land, State of California	\$26,035	- -	-\$26,035

Act of December 4, 1967 (16 USC 484a) stipulates that deposits made by public school districts or public school authorities to provide for cash equalization of certain land exchanges can be appropriated to acquire similar lands suitable for National Forest system purposes in the same State as the National Forest lands conveyed in the exchanges.

In fiscal year 1970, deposits of \$26,035 were made by the North Fork Union School District, Madera County, California. These funds were made available for acquisition of lands in California in fiscal year 1972.

Proposed Deletion of Language

The estimates propose deletion of this appropriation in its entirety since no estimate for this item is proposed in the 1973 budget.

Funds on deposit under the Act of December 4, 1967 (16 USC 484a) are insufficient to acquire lands or suitable lands for acquisition are not available at this time.

DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT
 NATIONAL SYSTEM OF PUBLIC LANDS
 CALIFORNIA STATEMENT OF ACCOUNTS
 FISCAL YEAR 1972



UNITED STATES

CONSERVATION CORPS

OTHER GENERAL
FUNDS



ASSISTANCE TO STATES FOR TREE PLANTING

Appropriation Act, 1971	\$1,020,000
Appropriation Act, 1972	1,028,000
Budget estimate, 1973	1,007,000
Decrease	-21,000

PROJECT STATEMENT

Project	1971	1972	1973	Increase or decrease
		estimate	estimate	
Assistance to States for tree planting:	\$979,810	\$1,118,426	\$1,015,000	-\$103,426
Unobligated balance brought forward ..	-58,236	-98,426	-8,000	+90,426
Unobligated balance carried forward ..	98,426	a/ 8,000	- -	-8,000
Total available or estimate	1,020,000	1,028,000	1,007,000	-21,000

a/ Reduction in obligations due to employment limitations.

A decrease of \$21,000 for reduced employment.

The program authorized under Section 401 of the Agricultural Act of 1956 (16 USC 568e) provides for assistance to States in their forestation and tree improvement programs. Needed rehabilitation on State and country forest lands has resulted from this program.

New and expanded tree improvement programs which are partially or totally funded under this program are underway in 39 States.

Assistance will emphasize seed orchard establishment aimed at the production of improved genetic quality tree seed. Reforestation work will be carried out to restore low-yielding or non-productive forest lands to fuller production of commercial wood. In addition, attending benefits include:

- (1) Erosion control
- (2) Wildlife habitat improvement
- (3) Expanded recreational land use potentials
- (4) Environmental enhancement.

Nationally, the amount expended for tree improvement work under this program is on a State-to-Federal matching dollar basis of 3:1.

Examples of Recent Accomplishments

Production of superior oleoresin tree seedlings. In 1971 Georgia and Florida produced 942 thousand superior oleoresin producing tree seedlings for sale to private landowners. Compared to average slash pine trees, these superior seedlings have a genetic potential for producing 100 percent more oleoresin, which will greatly increase the returns from plantations established with this strain. Research developed the superior trees and made scion material available to the States for grafting into orchards for seed production.

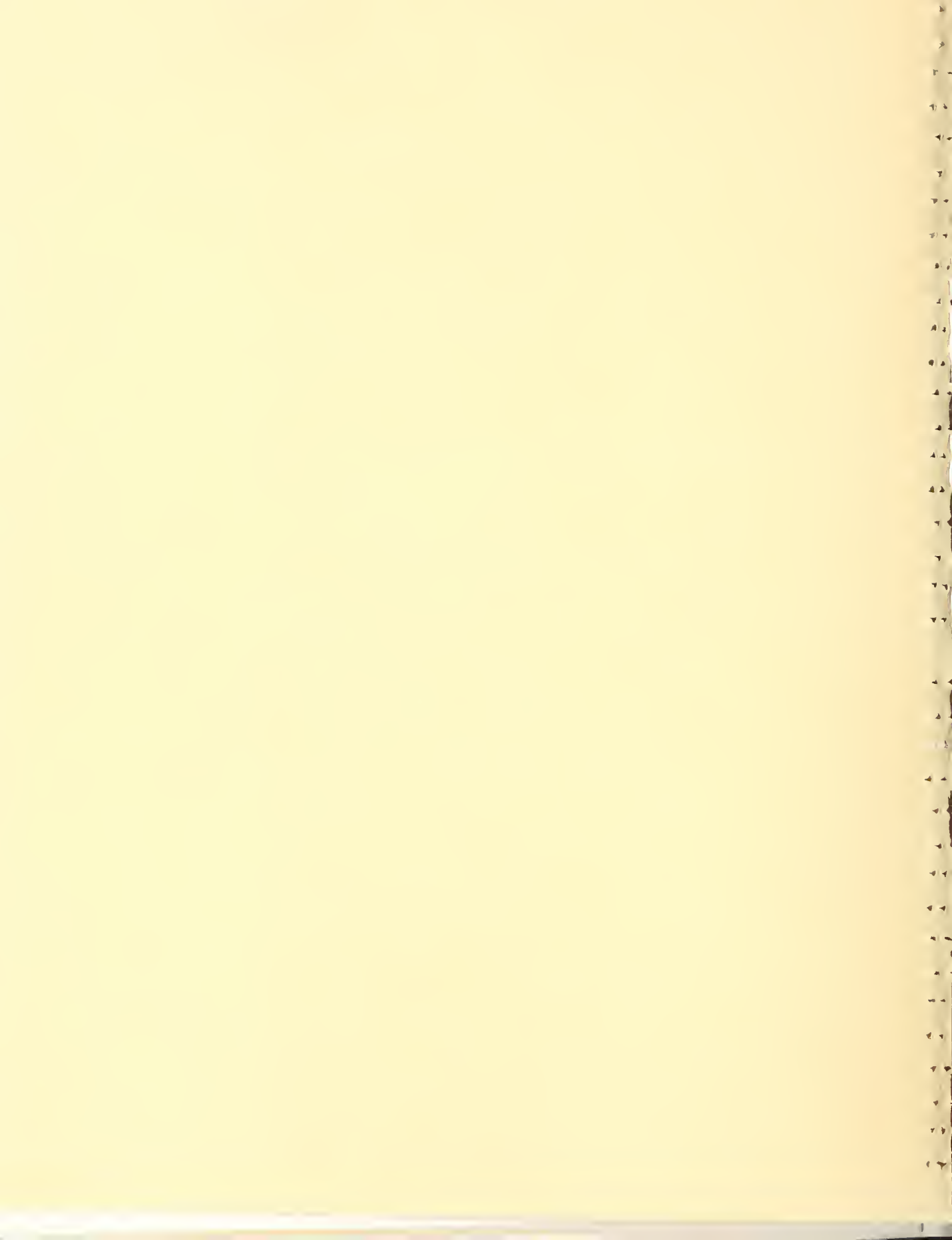
Cooperative progressive tree improvement program in Washington and Oregon. In 1966 Federal and State agencies and industry in the States of Washington and Oregon began a cooperative progressive Tree Improvement Program. During a five-year span, about 4,200 Douglas-fir trees have been selected from areas totaling over 1.4 million acres. Seed will be collected from these tree selections to raise seedlings for planting on different sites to evaluate and rate the superiority of each parent tree for incorporation into seed orchards.



Financing

State	1971 (actual)	1972 (estimate)	1973 (estimate)
Alabama	\$19,000	\$19,000	\$22,000
Arkansas	10,000	10,000	10,000
California	-	18,000	18,000
Colorado	5,000	5,000	5,000
Connecticut	4,600	4,000	4,000
Florida	29,500	29,500	30,000
Georgia	19,000	19,000	20,000
Hawaii	35,000	35,000	35,000
Idaho	10,000	10,000	10,000
Illinois	8,000	8,000	8,000
Indiana	12,400	12,400	12,500
Iowa	4,300	7,000	7,000
Kansas	10,000	10,000	10,000
Kentucky	12,000	12,000	12,000
Louisiana	16,500	16,500	16,500
Maine	15,000	15,000	15,000
Maryland	5,000	5,000	5,000
Michigan	30,000	30,000	30,000
Minnesota	75,000	75,000	73,000
Mississippi	11,500	11,500	12,000
Missouri	26,000	26,000	28,000
Montana	14,500	14,500	14,000
New Hampshire	10,000	10,000	10,000
New Jersey	12,000	12,000	12,000
New York	30,000	30,000	30,000
North Carolina	12,000	12,000	13,000
Ohio	7,000	14,000	14,000
Oklahoma	10,000	10,000	10,000
Oregon	80,000	80,000	78,000
Pennsylvania	24,000	24,000	29,000
South Carolina	22,000	22,000	22,000
Tennessee	11,100	11,100	11,500
Texas	14,900	14,900	15,000
Vermont	5,500	5,500	5,500
Virginia	23,000	23,000	23,000
Washington	81,000	80,000	76,000
West Virginia	9,600	9,600	10,000
Wisconsin	20,000	20,000	20,000
Wyoming	10,000	10,000	10,000
Special project--Cottonwood increase program	38,000	8,000	-
Total to States	792,400	788,500	786,000
Forest Service administration	227,600	239,500	221,000
Total	1,020,000	1,028,000	1,007,000





YOUTH CONSERVATION CORPS

NOTE: For budgetary purposes, the entire appropriation is shown under the Forest Service. However, one-half of the appropriation each year is transferred to the Department of the Interior.

Appropriation, 1972 \$3,500,000
 Budget estimate, 1973 3,500,000

PROJECT STATEMENT

Project	1971		1972		Increase or decrease
	estimate	estimate	Current	1973 estimate	
Youth Conservation Corps	\$1,145,094	\$3,125,000	\$3,500,000	\$3,500,000	+\$375,000
Unobligated balance brought forward ..	- -	-1,354,906	-1,729,906	-1,729,906	-375,000
Unobligated balance carried forward ..	1,354,906	1,729,906	1,729,906	1,729,906	- -
Total available or estimate	2,500,000	3,500,000	3,500,000	3,500,000	- -

The Act of August 13, 1970 (84 Stat. 794) authorized a pilot program designated as the Youth Conservation Corps. The Departments of the Interior and Agriculture share the program equally.

This program is designed to provide:

- (1) Gainful employment of America's youths, ages 15 through 18, during the summer months in a healthful outdoor atmosphere.
- (2) An opportunity for understanding and appreciation of the Nation's natural environment and heritage.
- (3) Further development and maintenance of the natural resources of the United States by the youth, upon whom will fall the ultimate responsibility for maintaining and managing these resources for the American people.

The work-education program is designed to teach proper work habits, encourage greater appreciation of the management of natural resources, and to increase individual pride and dignity. Work projects are tailored to the specific needs and abilities of the youth. There are a great variety of conservation work projects available on public lands which include recreation facilities maintenance and construction, wildlife habitat improvement, timber stand improvement, trail construction, and visitor information services. Youth are recruited through youth-serving organizations, such as State or local public school systems and local employment offices. Guidelines have been established so that the youth recruited are representative of a variety of economic, racial, and social backgrounds.

During the summer of 1971, 2,676 youths were employed (977 females and 1,699 males). The residential program included urban and rural youth who reside away from public lands. The size of camps varied with enrollment between 11 and 60 youths. The non-residential program included those youth who resided adjacent to public lands.

Only 4 percent of the youth were unable to complete the summer program, with one-half of the camps having a perfect completion record.



Summary of Work Accomplished by YCC Youth 1971 Summer

	<u>Units Accomplished</u>	<u>Appraised Value</u>
Construction of campgrounds	250 camping units	\$78,000
Other recreation area work		252,000
Trail maintenance	403 miles	55,000
Trail construction	50 miles	113,000
Timber stand improvement	2,055 acres	86,000
Other timber management work		43,000
Range management work		29,000
Wildlife habitat improvement	1,031 acres	41,000
Other wildlife management work		33,000
Water and soil management work		88,000
Administration and support activities		<u>76,000</u>
 Total, Forest Service		894,000
Total, Department of the Interior		<u>868,000</u>
 GRAND TOTAL		1,762,000





ACQUISITION OF LANDS FOR UINTA NATIONAL FOREST

PROJECT STATEMENT

Project	1971	1972	1973
		estimate	estimate
Acquisition of lands for Uinta National Forest	\$36:	\$96,764:	- -
Unobligated balance brought forward	-\$96,800:	-96,764:	- -
Unobligated balance carried forward	96,764:	- -	- -
Total available or estimate	- -	- -	- -

Public Law 89-226 authorized the purchase of approximately 10,000 acres of non-Federally owned land within a described part of the Uinta National Forest in Utah for the purpose of promoting the control of floods and the reduction of soil erosion through restoration of adequate vegetative cover. \$300,000 were appropriated in fiscal year 1967.

As of June 30, 1971, 8,847 acres have been acquired at a cost of \$203,236.



ACQUISITION OF LANDS FOR WASATCH NATIONAL FOREST

PROJECT STATEMENT

Project	1971	1972 estimate	1973 estimate
Acquisition of lands for Wasatch National Forest	\$936	\$52,593	- -
Unobligated balance brought forward	-53,529	-52,593	- -
Unobligated balance carried forward	52,593	- -	- -
Total available or estimate	- -	- -	- -

The Act of September 14, 1962 (PL 87-661) provided authorization for the appropriation of \$400,000 for purchase of privately owned lands within the Wasatch National Forest in Utah to aid in control of floods and to reduce soil erosion. The full amount of this authorization has been appropriated with the funds remaining available until expended.

As of June 30, 1971, approximately 12,741 acres had been approved for purchase under this authority. It is expected that the remaining lands will be acquired by the end of fiscal year 1972.



ACQUISITION OF LANDS FOR SUPERIOR NATIONAL FOREST

PROJECT STATEMENT

Project	:	1971	:	1972	:	1973
				: estimate		: estimate
Acquisition of lands for Superior National Forest ...	:	\$25,784	:	\$5,215	:	- -
Unobligated balance brought forward	:	-30,999	:	-5,215	:	- -
Unobligated balance carried forward	:	5,215	:	- -	:	- -
Total available or estimate	:	- -	:	- -	:	- -

The Act of June 22, 1948 (PL 80-733) as amended, provided authorization for the appropriation of \$4.5 million for the purchase of lands and improvements thereon in the Boundary Waters Canoe Area, Superior National Forest, Minnesota. The full amount of this authorization has been appropriated with the funds remaining available until expended.

This purchase program is in its final stages. The remaining balance of \$5,215 is held in reserve principally for possible excess awards for purchase cases currently in condemnation proceedings.



ACQUISITION OF LANDS FOR CACHE NATIONAL FOREST

PROJECT STATEMENT

Project	:	:	1972	:	1973
	:	1971	:estimate	:	estimate
Acquisition of lands for Cache National Forest	:	\$31:	\$10,806:	-	-
Unobligated balance brought forward	:	-10,837:	-10,806:	-	-
Unobligated balance carried forward	:	10,806:	-	-	-
Total available or estimate	:	-	-	-	-

The 1956 Appropriation Act provided \$200,000 for the acquisition of lands in the Cache National Forest pursuant to the Act of July 24, 1956 (70 Stat. 632). Obligations under this fund are in addition to the appropriation from National Forest receipts authorized by the Act of May 11, 1938, and provided in the appropriation, Acquisition of Lands for National Forests, Special Acts. Under the 1956 Act, funds appropriated must be matched by contribution of funds or land by local agencies or persons. Explanation of this program and the accomplishments thereunder are included under the appropriation, Acquisition of lands for national forests, special acts.



ADMINISTRATIVE PROVISIONS, FOREST SERVICE

Proposed Changes in Language

Changes in language are proposed as follows. New language is underscored and deleted matter is enclosed in brackets.

- 1 Appropriations to the Forest Service for the current fiscal year shall be available for: (a) purchase of not to exceed [one] two hundred and seventy-
- 2 [one] four passenger motor vehicles of which one hundred and fifty-two shall be for replacement only, and hire of such vehicles; operation and maintenance of aircraft and purchase of not to exceed four for replacement only;
- 3 (b) employment pursuant to the second sentence of section 706(a) of the Organic Act of 1944 (7 U.S.C. 2225), and not to exceed [\$25,000] \$100,000
- 4 for employment under 5 U.S.C. 3109; . . . (g) expenses incident to acquisition by donation of land, waters, or interests in land or waters, pursuant to the Act of August 3, 1956 (7 U.S.C. 428a).

Changes 1 and 2 would provide authority to purchase 274 passenger motor vehicles of which 152 will be replacements.

PASSENGER CARRYING VEHICLES

Replacements

During fiscal year 1973, it is proposed that the Forest Service replace 152 passenger carrying vehicles. Of these, 147 will meet replacement standards and five will require replacement because of accidents or excessive maintenance costs.

Dependability of passenger carrying vehicles is an important factor in keeping work programs on schedule and in meeting emergencies. Vehicle breakdowns while on field travel cause disruptions and delays in field work as well as loss of effective work time of employees. The continued use of over-aged equipment is undesirable from a safety standpoint since most of it is operated over rough, narrow, winding roads in mountainous country under adverse conditions. This use generally results in excessive operating and repair expenses when vehicles reach or exceed replacement standards.

In order to maintain passenger carrying vehicles in a safe and satisfactory operating condition, it is the policy of the Forest Service to schedule periodic preventive maintenance inspections, services, and tune-ups to reduce the necessity for costly repairs and major overhauls, and to minimize lost time resulting from field breakdowns.

It is desirable to maintain a reasonable balance in the age class of the passenger vehicle inventory. The age class distribution is based upon conforming with replacement standards which recognize that some units will be retired under the age standards and others under the use standard. Prescribed replacement standards, although applicable, are not always appropriate for all Forest Service vehicles because of the wide range of operating conditions and the comparatively short field season in many of the National Forests at higher elevations. Decision on replacement of passenger vehicles which reach replacement age is based on an appraisal of each unit. This involves a review of the history record combined with a mechanical inspection of the vehicle's condition and repair liability. When such appraisal indicates that the vehicle is satisfactory for further service without unreasonable repair expenditures, it is retained and assigned to lighter work, even though such action tends to upset the age standards for the fleet inventory.

The vehicles selected for replacement are those which cannot be operated another season without excessive repair expense. They are unsatisfactory for further use both as to safety and mechanical condition. The replacement authorization requested is within the normal annual replacement standards prescribed by the General Services Administration.



Essentially all passenger carrying vehicles are pooled for use by all activities with replacement of pooled units financed from a Working Capital Fund. All appropriations reimburse this fund in ratio to use of vehicles on activities financed by the respective appropriations.

None of the replacements requested will be assigned to areas served or scheduled to be served by Inter-Agency Pools.

Additions

It is proposed that the Forest Service purchase 122 additional passenger carrying vehicles for the following purpose:

Three of these additions will be used to acquire three buses to be used as crew hauling vehicles in lieu of trucks. The remaining 119 will be used to replace pickups, carryalls and sedan deliveries.

The manufacturers have reported that the sedan delivery type vehicle will be discontinued in 1973. The Forest Service operates 600 sedan deliveries which must be replaced with sedans, station wagons or light trucks over the next five or six years. It is expected that the annual PCV request will be high during this period. Since sedans and station wagons are better suited to the needs and are less costly to operate, it is preferable to replace them with PCV's.

Sedans or station wagons cost less to operate and maintain than a truck. During fiscal year 1972, the Forest Service is replacing 21 light trucks, such as carryalls, pickups, panels, and sedan delivery trucks, with sedans and station wagons. The total estimated cost savings is \$7,875 per year. The substitution of 119 passenger carrying vehicles for light trucks in fiscal year 1973 would result in an additional savings of about \$44,625 each year.

The Forest Service analyzes current work plans and program in determining its overall passenger carrying vehicle requirements. This analysis includes a careful study of the number of vehicles needed at each field station using as a guiding principle the ownership of only the minimum number of dependable units required to serve programs for which funds are budgeted. Also, it is Forest Service policy to utilize Inter-Agency Motor Pools or commercial car rental services to the fullest practicable extent. Passenger car use is restricted and is integrated with various activities so as to attain good utilization of all vehicles.

Additions are financed from program funds in direct relationship to the anticipated use of the equipment. Distribution of costs to appropriations is based on analysis of use of the equipment fleet for the past three years and the estimated use for the budget year.

Number of Vehicles

As of June 30, 1971, the age and mileage classes of the passenger carrying vehicles on hand, exclusive of 22 buses, were:

Age Data

<u>Year</u>	<u>No. of Vehicles</u>
1966 and older	135
1967	125
1968	248
1969	203
1970	160
1971	<u>7</u>
Total	873*



Mileage Data

<u>Miles</u>	<u>No. of Vehicles</u>
60,000 and over	152
50,000 to 59,999	94
40,000 to 49,999	157
30,000 to 39,999	181
20,000 to 29,999	143
10,000 to 19,999	121
0 to 9,999	<u>30</u>
Total	878*

* Includes 104 vehicles on hand awaiting disposal, and excludes 118 vehicles on order, but not received at this time.

Use of Vehicles

Passenger carrying vehicles are used by:

- (1) Forest officers in the protection, utilization, management, and development of the National Forests and land utilization projects and in the program for control of forest pests.
- (2) Research technicians on experimental forests, and ranges, on field research projects and forest surveys.
- (3) Foresters engaged in carrying out the laws providing for State and private forestry cooperation.
- (4) Regional office field-going administrative personnel in performing, directing, and inspecting field work.

The Forest Service is essentially a field organization and its passenger carrying vehicles are located mainly at regional, National Forest, and ranger district headquarters, and experimental forests and ranges. There are over 225 million acres within the exterior boundaries of the National Forests.

About 472 million acres of State and private forest land are included within the areas which benefit from Federal participation in the cooperative forest program. Much of this area is without common carrier service, and most forest areas and research centers are remote from commercial travel routes, requiring extensive use of motor vehicles as a means of transportation. The major portion of transportation needs, particularly at regional and forest supervisor levels and at other larger headquarters, involves multiple passenger use and can be more expeditiously and economically met by use of sedans and station wagons than by other types of vehicles.

AIRCRAFT

Replacement of Aircraft

The 1973 estimates propose replacement of four aircraft by purchase and replacements with more suitable aircraft by transfer from other agencies as available. The Forest Service currently has 57 aircraft:

- 6 Single-engine reconnaissance and transport airplanes
- 25 Light twin-engine reconnaissance and transport airplanes
- 17 Medium and heavy cargo and transport airplanes (9 medium, 8 heavy)
- 7 T34-B lead planes (2-place scout)
- 1 Helicopter
- 1 Multi-engine airplane converted to an air tanker

*57



* Excludes 3 aircraft on hand awaiting disposal, as well as a number of airplanes acquired from military surplus which are being inspected for possible renovation and use. Any such planes subsequently overhauled and put into use may replace some of the airplanes included in the above table.

One light twin-engine airplane is modified, equipped, and used primarily for fire mapping with infrared equipment in low visibility of smoke and at night.

One medium twin-engine is modified, equipped and used primarily for high altitude fire detection usually at night with infrared equipment.

The multi-engine airplane obtained from the military was converted to air tanker configuration for test and evaluation project to determine if suitable for dropping retardants. On project completion it will be used for training purposes.

The helicopter is used for experimental development of techniques and equipment, for direct tactical suppression of forest fires and in training Forest Service personnel in tactical use of helicopters.

The multipurpose reconnaissance and transport airplanes are used primarily to transport smokejumpers, firefighters, administrative personnel, equipment and supplies to remote and inaccessible areas where commercial services are inadequate or not available for protection and suppression of forest fires. Other use is to locate and survey timber stand and vegetation conditions such as insect infestations, blowdown, diseased areas, undesirable species, and to appraise resources and damage and evaluate effectiveness of control.

The T34-B lead airplanes are primarily single-purpose military model aircraft used by air tanker bosses to direct and control the dropping of retardants on forest fires by contract air tankers. These are to be replaced with light twins to provide two engine safety.

The replacements by purchase will be primarily light and medium twin-engine airplanes. They will be utility airplanes that may be used for several purposes but primarily for providing essential service in dropping smokejumpers and paracargo and lead planes directing contract air tankers. The airplanes will be new, standard manufacture airplanes to upgrade with greater efficiency and utility some of the old military surplus aircraft currently providing essential services. These replacements will provide more effective operations with greater safety margin. The Forest Service aircraft are operated to a large extent over rough, mountainous terrain in turbulent air conditions, and from unimproved landing fields.

The services of suitable airplanes to perform Forest Service missions are becoming increasingly more difficult to obtain from commercial sources. In most locations only the Forest Service needs the type of flights and they are insufficient in number to warrant furnishing the service. Aviation operators must therefore give first consideration to furnishing services for best revenue. In many instances the aircraft available is not suitable for Forest Service work.

Four heavy twin-engine transport airplanes are leased and operated for dual purpose in transporting firefighting crews or dropping smokejumpers. Three leased light twins fill additional requirements for lead planes in directing air tanker retardant attack on fires.

Medium and heavy cargo and transport airplanes are needed to meet requirements as a result of rapidly diminishing number available from supplemental air carriers and other commercial sources. The transport type may be obtained and other aircraft currently in use be replaced as newer or more suitable models and types become available from military services as excess property.

Although a policy does not permit transfer, the Navy Department has made available twenty-five Lockheed P-2V airplanes on loan. This is the make and model the Forest Service recently tested and determined suitable for dropping retardants on fires. The plan is to have the airplanes converted and operated by qualified commercial aviation firms under government furnished equipment contract as needed. Two single-engine T-28's on loan from the Navy are used as air tanker lead planes especially where faster speed is needed.

Aircraft purchases are financed from either appropriated funds or the Forest Service Working Capital Fund, or a combination of both. Replacement costs of aircraft partially or completely destroyed in a crash accident are financed from program funds in relationship to anticipated use.

The third change is necessary because of the growth of programs, inflation, and the rapid advance in the arts and sciences which require more use of expert specialists to advise and consult with Forest Service scientists and managers. The authorization to hire experts and consultants under 5 USC 3109 has remained at \$25,000 from year to year since 1958 when total regular appropriations to the Forest Service were about \$120 million. By comparison, the regular appropriations for 1972 are about \$497 million.

For fiscal year 1972 the several Washington Office divisions and field organizations requested authority to hire experts and consultants in an amount over \$56,000. Because of the existing \$25,000 limitation we were able to authorize less than one-half of the requests.

The long-existing \$25,000 limitation has inhibited requests for use of the expert and consultant authority to the most urgent needs. It is therefore difficult to project the reasonable needs for fiscal year 1973. It is believed that a \$100,000 authorization will provide adequate opportunity to obtain expert services during fiscal year 1973.

The fourth change would authorize the Forest Service to accept offers of donations of scenic easements and similar partial interests without monetary considerations. Currently, the Act of August 3, 1956, as implemented by the Land and Water Conservation Act, is used in the acquisition of scenic easements and similar partial interests. The Office of the General Counsel advises that there must be a monetary consideration paid in such cases since the present Forest Service appropriation act does not provide for donations under the 1956 Act.

Recently the Forest Service had three partial interest donations which could not be accepted without a monetary consideration paid. These cases had to be submitted to the Bureau of Outdoor Recreation, Department of the Interior, for reprogramming because it was necessary to pay \$1 for each case. This extra processing is estimated to cost the Government an additional \$200. It is proposed that the procedure for acceptance of these interests be simplified.







ROADS AND TRAILS FOR STATES, NATIONAL FORESTS FUND
(Permanent appropriation)

Appropriation, 1972	\$22,661,542
Budget estimate, 1973	<u>34,280,000</u>
Increase (due to an estimated increase in National Forest receipts in fiscal year 1972)	<u>+11,618,458</u>

The permanent appropriation of 10 percent of National Forest receipts pursuant to the Act of March 4, 1913 (16 USC 501) is transferred to and merged with the annual appropriation for Forest Roads and Trails. The explanation of the use of these funds is included in the justification for that appropriation item.



EXPENSES, BRUSH DISPOSAL
(Permanent appropriation)

Estimate, 1972 \$14,000,000
 Estimate, 1973 14,000,000

PROJECT STATEMENT

Project	1971	1972 estimate	1973 estimate	Increase or decrease
Brush disposal	\$14,255,311	\$17,510,000	\$17,740,000	+\$230,000
Unobligated balance brought forward	:-17,836,597	:-17,060,396	:-13,550,396	+3,510,000
Unobligated balance carried forward	: 17,060,396	: 13,550,396	: 9,810,396	-3,740,000
Total available or estimate ..	: 13,479,110	: 14,000,000	: 14,000,000	- -

Timber cutting normally increases the fire hazard because of dry fuel increase in the form of logging slash. This slash may also:

- (1) Impair reforestation.
- (2) Contribute to the buildup of insect populations.
- (3) Cause damage to stream channels.

The objective of this program is the disposal of brush and other debris resulting from timber sale operations. When disposal is necessary National Forest timber sale contracts require treatment or deposit of funds for treatment of debris from cutting operations. When economical and expedient the work is performed by the timber purchaser. When not done by the purchaser, it is done by the Government, using deposits to cover costs of the work as authorized under Section 6 of the Act of April 24, 1950 (16 USC 490).

The effect of timber cutting and the manner of treating slash vary widely among regions. Brush disposal may be accomplished in several ways such as crushing, chipping, burning, or extra fire protection through the critical phase of natural disposal. Combinations of these are often used.

In the Eastern Regions, low volume cut per acre, high utilization, and rapid decomposition reduce the slash disposal work necessary. Exceptions occur in sales where a heavy cut per acre is made, such as the jack pine stands of Minnesota. In such areas, slash is crushed and mixed with mineral soil by disking with heavy equipment. This reduces the hazard and provides a good seedbed to aid regeneration. Treatment of slash to prevent insect epidemics is sometimes necessary in these areas.

In contrast, more slash disposal is required on most sale areas of the West. High volumes per acre generally produce heavy slash. Long dry periods with lightning and man-caused fire risk result in extremely hazardous fire potential. The warm, humid conditions necessary for rapid slash deterioration seldom occur. Treatment varies greatly with different methods of cutting, but generally requires some burning to reduce volumes of slash fuels. Slash may be burned in place or piled and burned under varied weather conditions. Fuel arrangements are planned which allow burning at times when smoke dispersal is favorable and will not influence air quality in population areas.

Within regions, slash disposal follows general prescriptions. Individual needs of each sale are planned and appraised prior to advertisement of the sale. The appropriate specific requirements are incorporated into each timber sale contract. In each instance, the method used will require adequate ecological, environmental, and resource protection at the least expense.



FOREST FIRE PREVENTION
(Permanent appropriation)

Estimate, 1972 \$200,000
 Estimate, 1973 200,000

PROJECT STATEMENT

Project	1971	1972 Current estimate	1973 Estimate	Increase or decrease
Forest fire prevention	\$116,338	\$207,000	\$257,000	+\$50,000
Unobligated balance brought forward .	-114,110	-122,081	-115,081	+7,000
Unobligated balance carried forward .	122,081	115,081	58,081	-57,000
Total available or estimate	124,309	200,000	200,000	- -

The Smokey Bear licensing program is an important part of the Cooperative Forest Fire Prevention Campaign, and accomplishes its purpose through dissemination to the public of Smokey Bear's forest fire prevention message on commercial products licensed by the Chief of the Forest Service, and by support of the Smokey Bear Junior Forest Rangers, exhibits, and the Smokey Bear awards program through contribution of fees and royalties by licensees. Among the educational items presently available under this authority are books, games, bookcovers, television shows, Viewmaster reels, litterbags, children's clothing, musical recordings, and exhibits, to name a few. These items carry the forest fire prevention message to millions of Americans each year.

In addition to funds generated by sale of licensed items, the commercial support program has major educational impact. One licensee alone, last year, produced more than three million Smokey Bear publications. Each item included a variety of forest fire prevention messages.

Examples of Recent Accomplishments

- (1) Selection and installation at the National Zoo of an adopted "heir apparent" to Smokey.
- (2) Involvement of more than 95 cable television systems in Smokey Bear public service message transmission, breaking ground in this promising new medium of communication.
- (3) A 9 percent increase in the value of traceable public service time and space donated to the forest fire prevention program at a time when the support for several major campaigns decreased.
- (4) Illustrated catalog of Smokey Bear commercial items was published to assist field cooperators in introducing their greater use in fire prevention awards and activities.



RESTORATION OF FOREST LANDS AND IMPROVEMENTS
(Permanent appropriation)

Estimate, 1972 \$50,000
 Estimate, 1973 50,000

PROJECT STATEMENT

Project	1971	1972 estimate	1973 estimate	Increase or decrease
Restoration of forest lands and improvements	\$16,515	\$50,000	\$50,000	- -
Unobligated balance brought forward	-10,651	-5,588	-5,588	- -
Unobligated balance carried forward	5,588	5,588	5,588	- -
Total available or estimate	11,452	50,000	50,000	- -

Recoveries from cash bonds or forfeitures under surety bonds by permittees or timber purchasers, who fail to complete performance of improvement, protection, or rehabilitation work required under the permit or timber sale contract, are used to cover the cost to the United States of completing such work on lands under Forest Service administration. Funds received as settlement of a claim are used for improvement, protection, or rehabilitation made necessary by the action which led to the cash settlement (Act of June 20, 1958, 16 USC 579c).



PAYMENT TO MINNESOTA (COOK, LAKE, AND ST. LOUIS COUNTIES)
FROM THE NATIONAL FORESTS FUND
 (Permanent appropriation)

Appropriation, 1972	\$259,038
Budget estimate, 1973	<u>260,000</u>
Increase	<u>+962</u>

PROJECT STATEMENT

Project	:	1971	:	1972 : estimate	:	1973 : estimate	:	Increase or decrease
Payment to Minnesota from the National Forests Fund (total available or estimate)	:	:	:	:	:	:	:	:
		\$258,006		\$259,038		\$260,000		+\$962

The Act of June 22, 1948, as amended (16 USC 577c-577h) provides that the Secretary of the Treasury, upon certification of the Secretary of Agriculture, shall pay to the State of Minnesota at the close of each fiscal year from any National Forest receipts not otherwise appropriated an amount equivalent to three-fourths of one percent of the fair appraised value of certain National Forest lands in the counties of Cook, Lake, and St. Louis situated within the Superior National Forest. The Act further provides that payment to the State shall be distributed to each of these counties in conformity with the fair appraised value of such National Forest lands in each county.



PAYMENTS TO COUNTIES, NATIONAL GRASSLANDS
(Permanent appropriation)

Estimate, 1972	\$537,500
Estimate, 1973	<u>553,750</u>
Increase	<u>+16,250</u>

PROJECT STATEMENT

Project	:	:	1972	:	1973	:	Increase or
	:	:	estimate	:	estimate	:	decrease
	:	:	:	:	:	:	:
Payment to counties (total available or estimate)	:	:	\$511,935	:	\$537,500	:	\$553,750
	:	:		:		:	+\$16,250

At the end of each calendar year, 25 percent of the revenues from use of submarginal lands are paid to counties under the provisions of Title III of the Bankhead-Jones Farm Tenant Act, approved July 22, 1937 (7 USC 1012). Payments are made on the provision that they are used for school or road purposes, or both.



PAYMENTS TO SCHOOL FUNDS, ARIZONA AND NEW MEXICO
(Permanent appropriation)

Appropriation, 1972	\$69,316
Budget estimate, 1973	<u>75,000</u>
Increase (due to an estimated increase in National Forest receipts in fiscal year 1972)	<u>+5,684</u>

PROJECT STATEMENT

Project	:	:	1972	:	1973	:	Increase or
			estimate		estimate		decrease
Payments to school funds (total available or estimate)	:	:	\$84,338	:	\$69,316	:	\$75,000: +\$5,684

Under provisions of the Act of June 20, 1910 (36 Stat. 562, 573) certain areas within National Forests were granted to the States for school purposes. The percentage that these lands are of the total National Forest area within the State is used in determining payments to the States. The receipts from all National Forest land within the State are used as the basis for applying the percentage. For example, if total receipts for the State are \$100,000 and if 10 percent of lands are in the "granted for school purposes" category, the payment to the State would be \$10,000. The amounts so paid are deducted from the net receipts before computing the 25 percent payments to States.

As soon after the close of the fiscal year as the receipts from National Forests and the area of school lands in the States of Arizona and New Mexico are determined, the payments are made to the States. Payments in fiscal year 1972 to Arizona were \$68,775 and to New Mexico \$541.



PAYMENTS TO STATES, NATIONAL FORESTS FUND
(Permanent appropriation)

Appropriation, 1972	\$56,648,064
Budget estimate, 1973	<u>85,693,750</u>
Increase (due to an estimated increase in National Forest receipts in fiscal year 1972)	<u>+29,045,686</u>

PROJECT STATEMENT

Project	1971	1972 estimate	1973 estimate	Increase or decrease
Payments to States (total available or estimate)	\$71,896,615	\$56,648,064	\$85,693,750	+\$29,045,686

The Act of May 23, 1908, as amended (16 USC 500) requires, with a few exceptions, that 25 percent of all money received from the National Forests during any fiscal year be paid to the States in which the forests are located, for the benefit of public schools and public roads of the county or counties in which such National Forests are situated. The amount of this appropriation varies each year in direct proportion to National Forest receipts during the previous fiscal year.

The amounts set aside from receipts collected from the sale of National Forest timber, grazing, special use permits, power, mineral leases, and admission and user fees, before the 25 percent is applied are listed below:

1. Payment to the State of Minnesota covering certain National Forest lands in the Counties of Cook, Lake, and St. Louis situated within the Superior National Forest is made under the terms of the Act of June 22, 1948, as amended (16 USC 577c-577h). Receipts collected from the areas covered by this Act are excluded when the 25 percent payment to the State of Minnesota is computed.
2. For lands in certain counties in Utah, Nevada, and California, the States receive 25 percent of receipts only after funds, if made available by Congress, have been set aside for the acquisition of National Forest lands within the specified National Forests under the terms of special acts authorizing appropriations from forest receipts for this purpose.
3. Payments to the States of Arizona and New Mexico under the provisions of the Act of June 20, 1910 (36 Stat. 562, 573), of shares of the gross receipts from the National Forests in those States which are proportionate to the areas of land granted to the States for school purposes within the National Forests.





WORKING CAPITAL FUND

The Working Capital Fund was established by the Act of August 3, 1956 (16 USC 579b), as amended by the Act of October 23, 1962, (16 USC 579b). It is a self-sustaining revolving fund which provides services to National Forests, Experiment Stations, and when necessary, to other Federal agencies, and as provided by law to State and private agencies and persons who cooperate with the Forest Service in fire control and other authorized programs.

The following services were provided by the Working Capital Fund in fiscal year 1971:

1. Equipment service.--This service owns, operates, maintains, and replaces approximately 13,500 pieces of common use motor driven and similar equipment. This equipment is rented to a total of 146 administrative units, i.e., National Forests, Experiment Stations and other units, and in some cases to other agencies, at rates which recover the cost of operation, repair and maintenance, management, and depreciation. The rates also include an increment which provides additional cash which when added to depreciation earnings and the residual value of equipment provides sufficient funds to replace the equipment. This services operates 93 repair shops.
2. Aircraft service.--This service operates and maintains 57 Forest Service owned aircraft used in fire surveillance and suppression and in other Forest Service programs. The aircraft are based at 16 locations and are rented to National Forests, Experiment Stations, and in some cases to other agencies, at rates which recover the cost of depreciation, operation, maintenance, repair, and improvements in the airworthiness of the aircraft. Aircraft replacement costs are financed from either appropriated funds or the Forest Service Working Capital Fund, or a combination of both. This service operates three aircraft maintenance shops.
3. Supply service.--This service operates the following common services:
 - Central Supply.--This service has two locations for procurement, warehousing, and supply of common use items, such as work project tools, provisions, and supplies. Grass seed is procured, stored and issued from two other locations. Issuances and sales are made to National Forests, Experiment Stations, and others at prices which recover cost.
 - Photo reproduction.--Six photo reproduction laboratories store, reproduce, and supply aerial photographs, aerial maps, and other photographs of National Forest lands. The photographic reproductions are sold to National Forest, Experiment Stations, and others at cost.
 - Sign shop.--These include seven small shops which manufacture and supply special signs for the National Forests for use in regulating traffic and as information to the public and other users of the National Forests. The signs are sold to National Forests and Experiment Stations at cost.
 - Subsistence.--There are 27 facilities which prepare and serve meals at cost to Forest Service work crews working in remote areas where adequate public restaurant facilities are not available.
 - Cribbing.--This facility is located on the Angeles National Forest, California to manufacture special concrete structural material used in embankments for erosion control purposes along access roads in the National Forests. This material is sold to National Forests at prices which recover costs.



4. Nurseries.--This service operates 13 forest tree nurseries and cold storage facilities for storage of tree and seed stock and one seed extractory. Tree seed is procured, cleaned, bagged, and stored in refrigerated facilities. Tree and seed stock is sold to National Forests, States, and other Federal agencies at cost.

Volume of Business for the Various Major Activities
of the Working Capital Fund

(In thousands)

	1971 <u>Actual</u>	1972 <u>Estimate</u>	1973 <u>Estimate</u>
Equipment service	\$22,510	\$23,630	\$25,228
Aircraft service	1,501	1,357	1,637
Supply service	3,897	3,511	3,613
Nursery service	<u>3,054</u>	<u>3,570</u>	<u>3,630</u>
Totals	30,962	32,068	34,108

The Working Capital Fund requires no cash appropriation. Initially, its assets were purchased by regular Forest Service appropriations and were donated to the fund. Where expansion of facilities is required that expansion is financed by Forest Service regular appropriations and the resulting assets are donated to the fund.







COOPERATIVE WORK, FOREST SERVICE (TRUST FUND)

Contributions are received from cooperators, including counties, States, timber sale operators, individuals, and associations, and are expended by the Forest Service in accordance with the terms of the applicable cooperative agreements. The work consists of protection and improvement of the National Forests, work performed for National Forest users, and forest investigations and protection, reforestation, and administration of private forest lands.

The major programs conducted under this account are described below in terms of the projects reflected in the statement at the end of this section.

1. Construction and Maintenance of Roads and Trails, and
2. Construction and Maintenance of Other Improvements.

Under the Acts of June 30, 1914 (16 USC 498) and March 3, 1925, April 24, 1950 (16 USC 572) and October 13, 1964 (16 USC 537) deposits for cooperative work are accepted from State and local government agencies, associations, Federal timber purchasers, users of roads, and others for the construction and maintenance of roads, trails, and other improvements and for performing work which is the National Forest users' responsibility, this method of performance of the work being of mutual benefit or of benefit to the public at large. Cooperative deposits received for wildlife habitat improvement for States from their hunting and fishing fees are included in this activity.

3. Protection of National Forest and Adjacent Non-Federal Lands. The Act of June 30, 1914 (16 USC 498) authorizes the acceptance of contributions for the protection of the National Forests and the Act of March 3, 1925, as amended by Section 5, Act of April 24, 1950 (16 USC 572), authorizes the acceptance of deposits for the protection of non-Federal lands in or near the National Forests. The major portion of the obligations is for the protection of private lands from fire. This arrangement helps both parties since there are millions of acres of non-Federal forest land intermingled with Federal ownership on the National Forests. The lands in non-Federal ownership are usually in small tracts. It would be uneconomical for the owner to set up a fire control organization for the protection of his land. The advantage to the Government is that in many cases it would be necessary to suppress the fires on the non-Federal land without reimbursement in order to protect the adjoining Federal land.
4. Sale Area Betterment (including reforestation). Section 3 of the Act of June 9, 1930 (16 USC 576b) provides for deposits of funds by timber sale purchasers to cover the cost of reforestation and special cultural measures to improve the future stand of timber on the areas cutover by the purchaser. Accomplishments under this program are reported under the Forest land management subappropriation along with accomplishments for reforestation and stand improvement for that subappropriation.
5. Scaling. Under provisions of the Act of April 24, 1950 (16 USC 572) and of Section 210 of the Act of September 21, 1944 (16 USC 572a) acceptance of deposits from timber purchasers for cooperative scaling service is authorized. Such arrangements are established only when requested by the operator and when the operator pays the extra cost of such services, either in advance or through reimbursement under appropriate payment guarantees.
6. Research Investigations. The Acts of June 30, 1914 (16 USC 498) and May 22, 1928 (16 USC 581i-1) authorize the acceptance of deposits for forestry research. Deposits are received from State and other public agencies, and from industrial, association, and other private agencies to finance research projects of mutual interest and benefit to both parties. The deposits may be made either in a single sum or on a continuing basis, and may either



partially or wholly cover the cost of the research. The cooperative research projects may involve any aspect of forestry and vary widely as to scope and duration. A very common example of such cooperation is for a State to make a deposit to the Cooperative work fund in order to intensify or to speed up completion of a comprehensive survey of the forest resources of the State. Other examples are State contributions toward forest fire research. The results of such cooperative investigations are made available to the general public as well as to the depositor.

7. Administration of Non-Federal Lands. The Act of March 3, 1925, as amended by Section 5, Act of April 24, 1950 (16 USC 572) authorizes the acceptance of deposits for the administration of non-Federal lands. These deposits are made by non-Federal owners having land intermingled with or adjacent to National Forests who wish these lands managed in accordance with good forest management practices. Their holdings are usually too small to warrant the employment of professional foresters to administer such tracts. The advantages to the Government include the avoidance of possible high fire hazard areas resulting from improper cutting practices, the elimination of the necessity of precisely marking the boundaries of the private land, and additional private forest land handled under proper forest practices.
8. Reforestation (private lands). The Act of March 3, 1925, as amended by Section 5, Act of April 24, 1950 (16 USC 572) authorizes the acceptance of deposits for reforestation of non-Federal lands situated within or near a National Forest. This work is limited to areas of non-Federal land within a planting project on the National Forests or to areas in which certain civic and other public-spirited organizations have taken an interest.
9. Statement on Utilization of Funds. Following is a statement of funds received and obligated and balances available by major activities:



COOPERATIVE WORK, FOREST SERVICE--Trust Fund

Project	Actual Fiscal Year 1971			Estimate Fiscal Year 1972			Estimate Fiscal Year 1973		
	Balance Available June 30, 1970	Funds Received	Obligations	Balance	Funds Received	Obligations	Balance	Funds Received	Obligations
1. Construction and maintenance of roads and trails	\$5,129,247	\$5,612,248	\$5,722,240	\$5,019,255	\$7,000,000	\$7,710,000	\$4,309,255	\$7,370,000	\$7,845,000
2. Construction and maintenance of other improvements	504,200	826,790	675,593	655,397	800,000	950,000	505,397	850,000	950,000
3. Protection on National Forests and adjacent private land:									
(a) Fire	448,997	1,612,589	1,646,040	415,546	1,200,000	1,325,000	290,546	1,600,000	1,525,000
(b) Other	2,041,511	2,197,588	1,882,277	2,356,820	2,050,000	2,235,000	2,171,820	2,300,000	2,500,000
4. Sale area betterment on National Forest lands (including reforestation) ..	50,564,001	27,727,312	28,920,883	49,370,430	29,000,000	28,800,000	49,570,430	27,900,000	29,600,000
5. Sealing of timber	239,625	1,060,347	1,070,442	229,530	1,100,000	1,100,000	229,530	1,100,000	1,100,000
6. Research investigations	270,523	744,925	763,559	251,889	800,000	800,000	251,889	800,000	800,000
7. Administration of private lands	21,227	27,509	21,976	26,760	30,000	30,000	26,760	30,000	30,000
8. Reforestation (private lands) ..	94,926	37,086	25,128	106,884	20,000	50,000	76,884	50,000	50,000
9. Development, administration, and operation of the Robert S. Kerr Memorial Arboretum and the Cradle of Forestry ..	15		15						
Subtotal	59,314,272	39,846,394	40,728,155	58,432,511	42,000,000	43,000,000	57,432,511	42,000,000	44,400,000
Advanced to FOREST PROTECTION AND UTILIZATION for fighting forest fires	-1,000,000		-1,000,000						
Total	58,314,272	39,846,394	39,728,155	58,432,511	42,000,000	43,000,000	57,432,511	42,000,000	44,400,000

NOTE: Balances carried forward are due primarily to necessity of deferring work for which funds are deposited until the most practicable time for accomplishment. For instance, funds for sale area betterment are received in advance of timber cutting, but work cannot be started until cutting operations are completed. The time lag sometimes extends for several years, depending on the amount of preparatory work required in the sale area and weather conditions.

Above obligations for 1971 include: (1) Transfers to National Forests Fund of earned sale area betterment deposits in excess of obligations for sale area betterment work \$41,476
(2) Refunds to cooperators 223,378
264,854



