THE GREATER YELLOWSTONE FIRES OF 1988

QUESTIONS AND ANSWERS

INTRODUCTION

The Greater Yellowstone Area (GYA) is made up of parts of six National Forests and two National Parks. The contiguous portions of these Parks and Forests encompass roughly 11.7 million acres of Federal reservations, plus state lands, National Wildlife Refuges, unreserved public domain (Bureau of Land Management) and other lands. This huge area lies within three states - Montana, Idaho and Wyoming - and includes all or parts of 12 counties.

In the early 1960's Forest and Park managers recognized the need for coordination in managing Forests and Parks in the GYA. The Greater Yellowstone Coordinating Committee (GYCC) born of that need, consists of the following:

* Regional Foresters of Forest Service Northern, Intermountain and Rocky Mountain Regions.
* Regional Director of the National Park Service, Rocky Mountain Region.
* Superintendents of the Grand Teton and Yellowstone National Parks.
* Forest Supervisors of the Beaverhead, Custer, Gallatin, Shoshone, Targhee and Bridger-Teton National Forests.

These Park and Forest managers have met regularly over the past three decades to coordinate management and public services. More formalization of this coordination was prompted by Congressional oversight hearings in October 1985. The GYCC met six times this past summer and fall to coordinate fire suppression and rehabilitation activities.

The GYA fires of 1988 generated more national attention than any other event in the history of the area and involved the largest fire suppression effort ever undertaken in this country. Post fire activities have required intensive effort to survey burned areas, tabulate results, keep up to date information available to the media and the public, and prepare plans for rehabilitation. For more information about the fires and their effects as well as other information about management of the GYA, please contact any of the following members of the Greater Yellowstone Coordinating Committee.

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The following questions and answers provide a brief overview of fire effects information currently known and are intended to address those issues most frequently raised by the general public.

FIRE SUPPRESSION

HOW MANY PEOPLE FOUGHT FIRES IN THE GREATER YELLOWSTONE AREA AND HOW MANY WERE INJURED?

More than 25,000 fire fighters worked in the Greater Yellowstone Area in 1988. There were no fireline fatalities or critical injuries on the GYA fires, prior to October. In early October, there was one fatality on the Clover Mist Fire on the Shoshone N.F. and one critical injury resulting from falling snags. This is a remarkable record considering that suppression continued more than three months with a peak of some 9,500 people and 117 aircraft, with strong, erratic winds, major fire runs, and numerous falling trees. A pilot was killed in a light plane crash returning to Jackson from transporting fire personnel on September 12. On September 20, a Bell 206 helicopter crashed while filling a bucket on the Clover-Mist Fire, but the pilot was not seriously injured.

WHAT WAS THE TOTAL AMOUNT SPENT ON FIRE SUPPRESSION FOR THE 1988 GREATER YELLOWSTONE FIRES?

Nearly 120 million dollars has been spent on fire suppression efforts.

HOW MUCH MONEY WAS SPENT FOR DIRECT PURCHASES IN THE SURROUNDING STATES AND NATIONALLY?

Services for which direct payment was made in the form of cash or a check totalled $33,088,188. This included services such as gasoline, meals, lodging, rental items, and salaries of nongovernment help such as camp crews from local communities. It does not include payments to fire crews. Of this amount, $12,856,268 was spent in Montana, $1,513,600 in Wyoming, and $5,038,898 in Idaho. Most of these expenditures occurred in the gateway communities surrounding the Greater Yellowstone Area.

WHAT WERE THE MAJOR FIRE SUPPRESSION IMPACTS?

About 665 miles of hand lines and 137 miles of bulldozer lines were constructed; 32 miles of bulldozer line was in YNP (Yellowstone National Park). About 1.4 million gallons of fire retardant were dropped, 10 million gallons of water were dropped by helicopters alone, and innummerable water pumping stations were established. There were also 51 spike camps, 150 helispots and a major camp established for each fire. There were significant short term impacts to wilderness and grizzly bear habitat because of motorized use. Portions of National Forests were closed to hunting for safety reasons. Each of these impacts has required restoration, much of which was completed this past fall.

HOW MANY FIRES OCCURRED IN TOTAL FOR THE GREATER YELLOWSTONE AREA?

There were a total of 249 fires in the GYA in 1988. Eighty one percent (201 fires) were suppressed at less than 10 acres. The table below summarizes 1988 and average fire occurrence. Note that for the National Forests the average and total figures include all fires including that portion of the Forest not in the GYA.

Unit	Annual average	Total Fires in GYA 1988	Total Fires for Park or Forest 1988
Beaverhead NF	16*	6	41
Bridger-Teton NF	60*	33	71
Custer NF (Beartooth RD 7	11	11	
Gallatin NF	25*	51	54
Grand Teton NP	9.5	19	19
Shoshone NF	25.5	21	25
Targhee NF	24.4	56	65
Yellowstone NP	22.2	51	51
TOTAL		249	337

* The annual averages include fires that occurred outside of the GYA. All fires after July 24 were treated as wildfires.

HOW WERE THE LARGE MAN-CAUSED FIRES IN THE GREATER YELLOWSTONE AREA CAUSED?

The North Fork Fire was started by the cigarette of a non-commercial woodcutter in the Targhee National Forest, July 22.

The Hellroaring Fire was started by an Outfitter in the Gallatin National Forest.

ACREAGES

HOW MANY ACRES BURNED IN THE GYA, WHERE DID THEY BURN, AND HOW COMPLETELY DID THEY BURN?

The acreages determined by an interagency survey team within the fire perimeters now total 1,569,200 acres. "Fire perimeters" are defined as the line drawn around the outermost edge of the fire. "Burned area" means the actual land area burned excluding the unburned area within the fire perimeter. The total burned area is 1,405,775 acres or 88.5 percent of the perimeter acreage. The following charts summarize the burn area facts by National Park, National Forest, and individual fires.

BURNED AREA ACREAGES WITHIN GREATER YELLOWSTONE AREA

BURN TYPE (ACRES)	BURNED AREA	PERCENT OF BURNED AREA	PERCENT OF PERIMETER AREA
*Canopy	851,900	60.6	53.6
**Surface	473,800	33.7	29.8
Meadow	46,550	3.3	2.9
Sage/Grassland	33,525	2.4	2.1
Unburned	182,725		11.5
Total	1,405,775	100.0	100.0

* *A canopy burn is one that burned from the surface to tree tops.*
** *A surface burn is one that creeps along the ground surface and does not reach the upper tree branches.*

Total in Burned Area 1,405,775 acres.
Total Perimeter Area 1,588,600 acres.
Percentage Burned within Fire Perimeter 88.5%

GYA BURNED AREA BY MAJOR FIRE

	GTNP	YNP	BTNF	CNF	GNF	SNF	TNF	TOTAL
Clover Mist		200,775				118,800		319575
Fan		20,900						20,900
Hellroaring		19,625			47,100			66,725
Huck	2,700	25,625	82,875					111,200
Mink Creek		41,550	74,775					116,325
North Fork		490,225			2,500		11,300	504,025
Snake River		172,025						172,025
Storm Creek		18,200		30,700	46,100			95,000
Total	2,700	988,925	157,650	30,700	95,700	118,800	11,300	1,405,775

* Excludes Fayette, Hunter, and Corral Creek Fires.

Legend for Forests and Parks:
YNP - Yellowstone National Park
GTNP - Grand Teton National Park
BTNF - Bridger Teton National Forest
CNF - Custer National Forest
SNF - Shoshone National Forest
TNF - Targhee National Forest
GNF - Gallatin National Forest

ORIGINAL ESTIMATES INDICATED ABOUT HALF THE PERIMETER ACREAGE BURNED. WHY DO THESE SHOW 88.5 PERCENT?

The original estimates came from aerial observation of the canopy. These figures include data from ground survey teams that found surface fire burns in lodgepole pine stands as well as in brush areas. The percent of tree canopy burned area within the fire perimeter remains just over one half (53.6 percent). The amount of the canopy lost because trees were killed by ground fire around their trunks is not yet known.

WILL THESE FIGURES CHANGE?

Yes, but probably not significantly. These figures are based on a minimum map unit size of 200 acres. Detailed future mapping will refine the data. Shoshone N. F. figures contain some estimates because of incomplete aerial photograph coverage. Infrared photographs next summer will detect additional canopy lost because of ground fires.

WHAT ARE THE FIGURES JUST FOR YELLOWSTONE NATIONAL PARK?

BURNED AREA ACREAGES WITHIN YELLOWSTONE NATIONAL PARK

BURN TYPE	BURNED AREA (Acres)	PERCENTAGE OF BURNED AREA	TOTAL PERCENT OF YNP AREA
Canopy	562,350	56.9	25.3
Surface	372,350	37.7	16.8
Meadow	25,200	2.5	1.1
Sage/Grassland	29,025	2.9	1.3
Unburned	1,232,875		55.5

Total in Burned Area	988,975
Total Park Area	2,221,800
Percent of Total YNP Area	44.5%

REPORTS

WHAT IS THE STATUS OF THE MAJOR REVIEWS AND DOCUMENTS FOR THESE FIRES?

The Greater Yellowstone Coordinating Committee is nearing completion or has completed several major interagency studies or reviews.

1. The GYA Fire "Resource Assessment Report" is a comprehensive assessment of fire effects for each significant affected resource area. The information for these questions and answers was obtained primarily from this interagency study. The report will be available on February 1.

2. The "Fire Chronology Report - Phase II" prepared for Congressional Oversight Hearings will also be available on February 1. This 240-page report is a comprehensive chronology of each individual fire and is a complete version of an initial report (phase 1) quickly prepared in September for hearings.

3. Technical reviews for four major fire complexes were publicly released on December 2, in Denver, Colorado. These interagency teams authorized by the GYCC studied the fire suppression activities for the Huck-Mink, North Fork-Wolf Lake, Hellroaring-Storm Creek, and Clover-Mist Fire complexes. Each team also submitted recommendations for future improvement as part of their reports. The GYCC will act upon these recommendations prior to the 1989 fire season.

4. A compendium entitled *Greater Yellowstone PostFire Research Proposals*, which will detail postfire research topics proposed by public and private groups, will be available February 15th, 1989.

5. The GYCC authorized a nationally recognized independent "Committee of Scientists" to convene in Yellowstone to review the effects of the fires. They have released a document titled "Interim Report of the Greater Yellowstone Postfire Ecological Assessment Workshop". Their final report is expected to be complete on February 1.

These reports are or will be available as indicated through any of the National Park Service or U.S. Forest Services offices listed for the GYCC.

HOW DOES THE NATIONAL FIRE POLICY REVIEW COMMITTEE RELATE TO THESE REPORTS?

This committee was authorized by the Secretaries of Interior and Agriculture to determine if changes are needed in "National" fire policy. Although much of their focus was on the GYA fires, their objective was a national *policy* review. Their report was published in the Federal Register, allowed for a 60 day public comment period and will be finalized after public hearings are held. All data from the various GYCC reports was available to the National committee.

REFORESTATION AND TREE HARVEST

WHERE WILL TREES BE PLANTED TO REFOREST BURNED AREAS?

Within the next three or four years, about 7500 acres of tree planting will occur on the Gallatin, Shoshone, and Targhee National Forests. These are preliminary estimates, and may be revised upwards.

No major reforestation efforts are planned for Yellowstone National Park or for wilderness in GYA National Forests. In keeping with the legislative mandates of these areas, natural reforestation will be permitted to occur. Research indicates that trees in burned areas released abundant seeds following the fires varying with the severity of the burns. This course of management action was recently supported by the independent "Committee of Scientists" in their interim report.

WHAT WERE THE EFFECTS ON NATIONAL FOREST COMMERCIAL TIMBERLANDS?

The 39,200 acres that burned on National Forest Lands suitable for Timber Management represent about 2.2 percent of all GYA National Forest Lands available for Timber Management. However, these effects vary greatly by National Forest, and, on the Shoshone National Forest, these fires had significant impacts on the Timber Management Programs and their associated timber industries. The loss of 18.6 % on the Shoshone N. F. was on one District and will heavily impact the locally dependent mill which employes 55 people.

National Forest	Suitable Timber Acres in Burn	% Of Total Forest Suitable Base Acres In Burn
Beaverhead	0	0
Gallatin	3,340	1.2
Custer (GYA)	0	0
Shoshone	16,000	18.6
Bridger-Teton	0	0
Targhee	11,300	1.6

Salvage Harvests - Salvage of fire damaged timber is one option available to land managers in resource recovery. It is used not only to recover marketable timber that was lost in the fire, but can also be used to help recover visual impacts, range, wildlife, and fish habitat, and reduce the risk of insect infestations or of additional fires. Material that can be salvaged is normally a function of suitability, accessibility, marketability, and time. Forests are evaluating salvage potential at this time. The following figures are preliminary and may change as more information becomes available, and as Forests have time to do further planning and analysis. All volumes in the following table are in MMBF.

National Forest	Total Suitable Volume Lost MMBF	Estimated Volume Considered For Salvage MMBF	Salvage Volume as % Of Forest Annual Harvest
Beaverhead	0	0	0
Gallatin	9.5	9.0	42.5%
Custer (GYA)	0	0	0
Shoshone	100.0	30.0	268.0%
Bridger-Teton	0	0	0
Targhee	60	1.5	1.7%

WILDLIFE

HOW MANY ANIMALS DIED AS A RESULT OF THE FIRES?

The following chart summarizes where and how many animals died.

National Forest	ELK	DEER	MOOSE	BLACK BEAR	BISON
National Forest Lands-Montana	5	2	1	2	0
National Forest Lands-Wyoming	83	30	9	4	0
Yellowstone National Park	257	4	2	0	9
TOTALS	345	36	12	6	9

No dead grizzly bears, antelope, or bighorn sheep were found. There were also numerous small mammals and birds lost as well as an unknown number of trout. The greatest concern has been for elk. A total of 345 dead elk were discovered in the GYA by the agency and State Wildlife agency surveys. The summering elk population in the GYA is approximately 93,000.

Large animals were relatively unaffected during the fires. This conclusion is based on the movements of over 150 collared large mammals and observations from numerous aerial surveys. Data indicated that there was short-term displacement from normal ranges as fire moved through an area.

HOW DID THE FIRES AFFECT WILDLIFE WINTER RANGE?

Effects vary throughout the various winter ranges of the GYA. Overall there are approximately 1,575,000 acres of winter range in the GYA. Of that total, about 11 percent was burned. However, regardless of the percent burned, the quality as well as the quantity of vegetation burned is of most importance.

The elk and bison moved onto their winter ranges earlier than usual, and bison moved on in larger numbers. It is uncertain if this is a function of fire, drought, or a combination of both.

The winter ranges that sustained the greatest impacts are:

1. The range south of Yellowstone Lake, which winters about 450 elk, sustained a 50 percent burnover.

2. About one fourth of the winter range in the Madison-Firehole burned.

3. About 50 percent of the well known Northern range burned, but less than 9 percent was meadowgrass and sagebrush which are highly important.

The impact on food supply will be most noticeable this first winter. The long range outlook regarding forage for elk and other hoofed mammals is positive. There may be a short term loss of hiding and thermal cover on these winter ranges.

WHAT EFFECTS WILL FIRES HAVE ON THE FISH?

Numerous drainages that headwater the Yellowstone, Snake, Gallatin, Madison, Henry's Fork, Stillwater, North Fork Shoshone, and Clarks Fork of the Yellowstone Rivers were affected by the 1988 GYA fires. These

rivers and many of their tributaries support valuable fisheries. Major fish kills occurred in Jones Creek, the North Fork of the Shoshone River, and portions of Lodgepole and Crandall Creeks on the Shoshone National Forest. With the exception of these areas scientists believe impacts will generally be minimal and short term.

Possible negative effects on the fishery may include increased peak flows which may damage stream stability, increased sedimentation which may decrease spawning productivity, and possible channel degradation, and chemical changes in water quality. Positive effects may include higher stream nutrient levels that will increase productivity and higher stream temperatures which will also increase productivity.

WHAT EFFECT WILL THE FIRES HAVE ON GRIZZLY BEARS?

Many research biologists now believe the effects of the fires will enhance areas utilized by grizzly bears by increasing the diversity of both plant and animal food sources available to the bear. Much needs to be learned, however, and no clear answers may be readily available for several years, although sightings were made of grizzly consumption of carcasses this fall.

In an effort to gain more information of future movements in burned areas, the Interagency Grizzly Bear Study Team will attempt to increase the sample of collared bears in the area of the Clover-Mist Fire. At present, 36 bears are collared in the GYA, but not all are in areas in or near the burns.

There were 19 sightings of female grizzlies with 40 cubs of the year in the GYA in 1988. None of these bears died as a result of the fires.

Concern has been expressed about the effects on white bark pine, a fall food source. Less than 20 percent of the whitebark pine stands in and near the fire areas were affected. Impacts will not be known for several years.

ARE THERE PLANS TO FEED ANIMALS THIS WINTER?

There are no plans to provide supplementary feed to wildlife in the GYA beyond traditionally established levels. The National Wildlife Refuge at Jackson Wyoming will operate as usual. United States Forest Service, National Park Service and Montana Fish, Wildlife, and Parks decision makers as well as the independent "Committee of Scientists" from major universities have reached this conclusion. If conditions were to change causing a State Wildlife Agency to begin a supplemental feeding program, the GYCC would assist in any way possible. There are no plans to begin a supplemental feeding program within Yellowstone National Park (YNP). It should be noted that much of the summering wildlife population in YNP migrates out of the Park to National Forest, State, private, Bureau of Land Management and other winter ranges.

WATERSHED

WHAT WAS THE EXTENT OF SOIL STERILIZATION FROM THE FIRES?

Extensive study, mapping of burn intensity, and soil sampling at hundreds of locations has shown that most fires heated soil only to light or moderate intensity; less than one-tenth of one percent of the soil received heat intense enough to penetrate more than two inches deep and kill seeds, roots, bulbs, rhizomes, and other plant matter necessary for regeneration. However, because of steep topography and canyon "chimneys" the percentage of high intensity burn on the Shoshine National Forest has been estimated to be as high as 10-15 percent.

WILL THERE BE INCREASED EROSION AND FLOODING AND WHERE?

The 1988 wildfires in the GYA will probably not have a great effect on water yield and erosion in most areas. The effect will be most noticeable the first 3-5 years and will decrease as vegetative cover returns. The areas where potential effects are most possible (sub-drainages in the Absaroka Range) are already characterized by high, flashy flow regimes. The vegetation in most of this area did not reduce flood peaks a great deal before

the fire, so removal of the vegetation will have a minimal effect. However, it is likely that small increases in peak flows will occur in these drainages for a number of years. Annual increases in total water yield and low flows will occur in drainages as a result of the fire, but these changes generally will not be measurable.

Increases in flood potential are greatest in the upper sub-drainages of the Lamar River, Crandall Creek, Lodge Pole Creek, Oliver Gulch, and North Fork Shoshone River drainages. These sub-drainages are characterized by steep slopes (greater than 45 percent), shallow, erodible, soils, and intense summer thunderstorms. These areas received the bulk of attention in stablization efforts this fall. The Shoshone N. F. is cooperating with the State of Wyoming and other Federal agencies to monitor flooding potential and to develop contingency plans.

Summer thunderstorms provide another instance in which flooding and increase erosion may occur, especially in the high, sub-basins in the Absaroka Range. Soils in burned areas may have reduced infiltration and storage capacities. Water will be routed more rapidly and in larger amounts to the streams, producing higher peaks than pre-fire conditions.

The potential for fire to affect local flood flows in basins other than those in the Absaroka Range is not high. In the Madison, upper Yellowstone and Snake River systems, basin morphology reduces the likelihood of high peak flows and floods. Slopes are generally less steep, valley bottoms wider, and stream gradients lower. Additionally, the proportion of burned area on steep slopes is smaller. The result is that, even with some increases in water yield due to reduction of vegetation by fire, the time of concentration of streamflow is lengthened by basin morphology, stream flow peaks are better regulated, and flooding is less likely.

The likelihood of the fire affecting flood peaks at locations where damage to structures and property might result is remote, except possibly in the Absoroka drainages on the Shoshone N. F. for some ranch structures, highway facilities, and Forest Service administrative facilities. For example, the area in the moderate intensity burn categories represents 29 percent of the Yellowstone Basin above Gardiner, and 14 percent above Livingston. Even though the upper Yellowstone watershed produces most of the water that flows by Livingston (80 percent), it is unlikely that any water yield increases from fire effects would be of a magnitude large enough to be measurable at either location. Additionally, the Yellowstone River is well entrenched in a confined channel for much of its length to Livingston, and any minor increases in peak flows as a result of fire effects would not change the relationship of the river and its channel.

NOXIOUS WEEDS

IS THERE RISK OF NOXIOUS WEED INFESTATION IN THE GYA BECAUSE OF THE FIRE?

The areas disturbed by the fire and suppression activities are at risk for increased invasion of noxious weeds. Native plants were disturbed, damaged and destroyed, and soils exposed which allows for noxious weed establishment. Reseeding also increased the risk of spreading noxious weeds even though every effort was made to provide weed free seed. Following is a chart of the areas disturbed. These areas will be monitored by the GYCC for infestations.

Disturbed Area	Miles	Acres
Control Lines		
Hand Line	665.8	164.0
Dozer Line	137.3	332.6
Camps, Staging Areas, Etc.		*254.7*
TOTALS	803.1	751.3

Considering the 751 acres of mechanically disturbed areas plus the vast burned acreage, local land managers rated the overall probability of noxious weed invasions as follows:

High -	78.1 acres
Medium -	386.9 acres
Low -	26,511.3

RANGE

HOW MANY RANGE STRUCTURES WERE DAMAGED ON NATIONAL FOREST LAND?

The loss of range improvement structures was relatively low; most fires occurred in Wilderness.

Structural Range Improvements	Quantity	Cost ($)
Boundary Fence (private)	2.0 miles	5,000
Boundary Fence (public)	1.0 miles	8,000
Internal Fence (public)	18.3 miles	168,700
Cabin (public)	1 cabin	30,000
Stock Driveways (public)	6.0 miles	4,000
Total cost		$215,700

DAMAGED OR BURNED STRUCTURES

WHAT BUILDINGS WERE BURNED OR DAMAGED?

Structures destroyed in Yellowstone National Park included 18 cabins used by employees and guests, a backcountry patrol cabin, storage structures and other misc. structures. The Forest Service structures destroyed were the Bull Moose Cabin in the Hellroaring drainage of the Absaroka-Beartooth Wilderness and a Shoshone National Forest toilet. One trailhead was damaged. Private structures destroyed and damaged in the Crandall area included 17 mobile homes, 4 dwellings, a general store, and 12 garages and outbuildings. The estimated value of "facilities" damaged or destroyed is $3,280,000.

Ownership	Destroyed	Damaged
National Park Service	29 Structures	6 Structures
Forest Service	2 Structure	1 Structure
Private	36 Structures	5 Structures
TOTAL	67 Structures	12 Structures

INSECTS AND DISEASE

WHAT INSECTS ARE FOUND IN THE GYA AND HAVE THE POTENTIAL TO INCREASE AS A RESULT OF THE FIRES?

Pest	Lodgepole Pine	Limber Pine	Douglas-fir	True fir	Englemann Spruce
Wood borers	C	C	C	C	C
Ambrosia Beetles	C	C	C	C	C
Mountain Pine Beetle	C	C			
Ips Beetle	C	C			C
Douglas-fir Beetle			C		
Spruce Beetle					C
Fir Engraver			0	C	
Red Turpentine Beetle	0	0			

C = common
O = occasional

It will be 2 to 3 years before the extent of any increased activity area be known. The potential does exist and will be monitored.

HOW DID FIRES EFFECT THE "TORNADO" BLOW DOWN AREA IN THE TETON WILDERNESS?

The Huck Snake River Complex and Mink Creek fires burned in areas that would have been affected by a future spruce beetle outbreak from the 1987 blowdown. Several thousand acres of blowdown did not burn, however. While the probability of an extensive outbreak has been significantly reduced from the fires, stands south of Enos Lake may support an outbreak over the next few years.

DID THE FIRES DESTROY A SIGNIFICANT NUMBER OF INSECTS?

Early stages of Douglas Fire and Spruce beetle flights would not have come under the influence of the fires. However, the rest of the wood borers and bark beetles would have had the opportunity to be attracted into fire scorched stands. Since there was reburning from July to the September, some insect mortality may have occurred as a result of the reburns.

POST-FIRE RESEARCH

HOW WILL FIRE-ORIENTED RESEARCH IN THE GYA BE COORDINATED?

Scholarly interest in the GYA fires has been enormous, and hundreds of researchers from many disciplines have expressed interest or submitted proposals for research projects. Many projects have already been initiated, especially those needing to establish data bases prior to the beginning of winter.

The agency coordinators for the research effort are Carter Gibbs (US Forest Service) and John Varley (National Park Service), with whom prospective researchers may communicate directly. On October 14-17, Montana State University sponsored a Greater Yellowstone Fire Impact and Recovery Research Workshop, bringing together 130 researchers who identified major areas of investigation. MSU has established a multi-institutional Fire Research Consortium to help coordinate future research direction.

Numerous individuals, groups, institutions and agencies have offered suggestions relative to post-fire research needs. All proposed research topics will be complied in a single compendium, which will be available in February 1989.

RECREATION AND VISITOR SERVICES

HOW WILL THE FIRES AFFECT PUBLIC USE OF THE AREA IN 1989 AND AFTERWARD?

Practically all visitor activities will proceed as before the fire. All major visitor facilities and attractions, including hotels, natural attractions, campgrounds, and services in local communities will be open and operating as usual. Some minor changes may occur in some National Forest campgrounds or National Park campgrounds as fire damage is repaired. Some backcountry use may be redirected away from areas where the potential is high that fire killed snags may fall on people.

WILL THE FIRES CREATE ANY NEW VISITOR USE OPPORTUNITIES?

The fires have already proven to be a major new attraction in the GYA, though it is unclear what effect they will have on overall visitation levels. Visitation last fall was up. Numerous new educational programs are currently being developed in Yellowstone Park to introduce the public to the great effects fire has had on the GYA. These programs will include new trails for adults and children in burned areas, a variety of multi-media presentations, and many publications. Thinning of the Lodgepole will enable the public travelling by auto to more easily view wildlife.

WHAT REHABILITATION WORK HAS BEEN ACCOMPLISHED?

YNP - Immediate rehabilitation efforts have consisted of hazardous snag tree cutting and removal, erosion control measures on steep intensely burned slopes, trail clearing, trail water barring, cleanup of developed areas and the restoration of bulldozer and fire handlines. Approximate rehabilitation expenditures in Yellowstone National Park were $4 million.

National Forests - Emergency treatments included erosion traps, seeding, snag removal, fire line restoration, improved road and trail drainage, and stream channel armoring and debris removal. These treatments cost approximately 2 million dollars.

WHAT FURTHER REHABILITATION NEEDS REMAIN?

Work remaining in the National Forests includes trail reconstruction/maintenance, repair of wildlife improvements, trail obliteration, fish habitat restoration, noxious weed treatment, road maintenance and closures, building replacement, recreation and visitor facility restoration and replacement, reforestation, research, and monitoring.

Work remaining in the National Parks includes additional fire line restoration and snag removal as well as developed area cleanup and roadside ditch and slope cleanup. In addition these items need attention: Picnic and campground rehabilitation, front country trail clearing and boardwalk replacement of damaged structures such as Sportsman Lake backcountry patrol cabin, restoration of helispots and spike camps and telephone line repair.

WHAT CAN I DO TO HELP IN THE FIRE RECOVERY EFFORT?
The National Forests and National Parks of the Greater Yellowstone Area can use assistance in their recovery programs.

Program needs include erosion control work, replacement and/or rehabilitation of trails, campsites, bridges, cabins, and firelines, wildlife winter range assistance, reforestation, re-establishment of boundary fences and markers, visitor services, research, and monitoring. The total Recovery Program for the Greater Yellowstone area is estimated to cost in excess of 20 million dollars.

You can participate in the recovery effort by volunteering time or funds for the above items. For the National Parks, contributions may be sent to the Superintendent, P.O. Box 168, Yellowstone National Park, Wyoming 82190.

For the National Forests contributions may be sent to: Greater Yellowstone Area Recovery Fund, Forest Service, 11177 W. Eighth Ave., Box 25127 Lakewood, Colorado 80225-0127.

January 25, 1989