BRIEFING PAPER

GREATER YELLOWSTONE POSTFIRE RESEARCH - OCTOBER, 1989

Total number of projects underway: 103
Total number of scientists at work: 81
Total number of different institutions involved: 35
Percentage of projects funded by agency (institution):

NPS	51%	(~$1,500,000. w/o ONPS)
USFS	10%	(>$400,000. w/o OFS)
USFWS	4%	?
NASA	3%	?
USGS	3%	?
Other	31%	?

Distribution of individual projects among institutions:

Institution	Number of Projects:
NPS	22
USFS	13
Montana St. U.	12
U. Idaho	6
Idaho St. U.	5
NASA	5
U. Wyoming	5
USFWS	4
USGS	3
Utah St. U.	2
U. Oklahoma	2
Syracuse U.	2
Montana DFWP	2
U. Colorado	2
U. Wisc.	2
Ft. Lewis Coll.	2

One project each:
U. Montana
Medaille Coll.
Oakridge Natl Lab
U. Utah
Colorado St. U.
U. Pennsylvania
Brigham Young
U. Northern Colo.
U. Calgary
U. Arizona
Kalamazoo Acad.
Ohio St. U.
Carleton Coll.
Keystone School
Veterans Admin. Med. Ctr.
Carnegie Museum
U. Alaska
Yellowstone Grizzly Found.
Private Individuals: 2

Project distribution by topical area:

Wildlife	Plants	Fire	Aquatic	Socio	Erosion	Archeo
33%	20%	18%	14%	9%	5%	2%

POSTFIRE RESEARCH PRIORITIES AND PROJECTS UNDERWAY (October, 1989)

PRIORITIES DETERMINED BY THE GREATER YELLOWSTONE SCIENCE NEEDS PANELS

PRIORITY NUMBER TOPIC

1. Effects of the 1988 fires upon home ranges, movements, habitat use, and food habits of the northern Yellowstone elk herd.
Partially funded:
Projects: NPS F. Singer, Yellowstone NP

2. Effects of the 1988 fires on the Yellowstone Grizzly Bear Population.
Partially funded:
Projects: NPS R. Knight, Interagency Grizzly Study Team
Other S. & M. French, Yellowstone Grizzly Foundation

3. Determine the period of regeneration and density of major tree species (lodgepole pine, Douglas fir, whitebark pine, aspen) following the fires.
Partially funded:
Projects: NPS D. Despain/R. Renkin, Yellowstone NP
NPS R. Knight, Interagency Grizzly Study Team
USFS S. Bunting, University of Idaho
Other W. Romme, Fort Lewis College
Other J. Van Nort, University of Alaska
Other C. Kay, Utah State University
Other W. Romme/ J. Anderson, Ft. Lewis College and Idaho State University
Other S. Eversman, Montana State University
Other V. Herren, Montana State University

4. Nesting status of bald eagles following the 1988 fires in Yellowstone National Park.
Partially Funded:
Projects:
NPS T. McEneaney, Yellowstone NP
Other A. Harmata, Montana State University

5. Determination of the recurrence intervals of fire disturbances in the Greater Yellowstone area.
Partially funded:
Projects:

NPS C. Barnosky, Carnegie Museum
FS/NPS S. Arno, USFS Intermountain Station

6. Effects of the 1988 fires on elk, moose, pronghorn, Mt. goat and mule deer numbers, production, body condition and survival rates.
Partially funded:
Projects:

NPS D. Scott, Yellowstone NP
FS/NPS D. Tyers, Gallatin NF
NPS J. Laundre, Idaho State University
Other D. Vales, University of Idaho
NPS J. Peek, University of Idaho
Other R. Bergstrom, University of Wyoming
NPS G. DelGiudice, Veterans Administration Medical Center

7. Evaluating fire behavior patterns as it related to fuel, habitat and cover type, and weather, during the severe 1988 fire season in the Greater Yellowstone area.
Partially funded:
Projects:

USFS R. Rothermel/J. Brown, USFS Intermountain Station

8. Effects of fire on northern Yellowstone winter range grassland and riparian communities.
Partially funded:
Projects:

NPS L. Wallace, University of Oklahoma
NPS D. Frank, Syracuse University
NPS F. Singer, Yellowstone NP

9. Initiation of a postfire soil and heating intensity survey for the greater Yellowstone area.
Funded
Projects:

NPS H. Shovic, Yellowstone NP/Gallatin NF
Other P. Sobey, Keystone School
Other C. Montagne, Montana State University
USFS K. Ryan, USFS, Intermountain Station
Other A. Garrett, Carleton College

10. Effects of the 1988 fires on stream fisheries in the greater Yellowstone area.
Funded
Projects:

NPS/FWS R. Jones, Yellowstone NP
NPS W. Gould, Montana State University
FWS D. Woodward, Jackson Hole, Wyoming

11. Effects of the 1988 fires on the water quality and nutrient availability in greater Yellowstone lakes and streams.
Partially Funded
Projects:

NPS	W. Minschall, Idaho State University
USFS	F. Vertucci, USFS, Rocky Mountain Station
USGS	R. Averett, USGS, Denver

12. Effects of the 1988 fires on sediment transport in the greater Yellowstone river drainages.

NPS/GS	H. Shovic/J. Mohrman, Yellowstone NP
NPS	S. Custer, Montana State University
USFS	W. Wells, USFS, Riverside, California

13. Monitoring winter-killed ungulates in the fire-altered winter ranges of Yellowstone National Park and surrounding areas.
Partially Funded
Projects:

NPS	F. Singer/W. Schrier, Yellowstone NP
MTFWP	J. Cada, Bozeman, Mt
FWS	J. Roybal, Montana State University

14. Local, regional, and national media coverage of the 1988 greater Yellowstone area fires: content, analysis, and evaluation.
Funded
Projects:

NPS	C. Smith, Ohio State University

15. Effects of the 1988 fires on Yellowstone ecosystem propagule (seed and nonseed) banks available for regeneration.
Funded
Projects:

NPS	T. Weaver, Montana State University
Other	J. Seelig, Kalamazoo Academy

16. Using LANDSAT imagery to estimate post-burn phytomass on ungulate summer range in northern Yellowstone Park.
Funded
Projects:

NPS	E. Merrill, University of Wyoming

17. Interactions of fire and ungulate grazing on forage plant growth and community structure.
Funded
Projects:

NPS	S. McNaughton, Syracuse University

18. Primary productivity and grazing intensity in burned and unburned

watersheds.
Partially funded
Projects:

NPS	L. Wallace, University of Oklahoma
NPS	D. Frank, Syracuse University

19. Effects of fire on the Lamar River channel morphology.
Funded
Projects:

NPS	H. Shovic/J. Mohrman, Yellowstone NP

20. Effects of fire on bison population size, densities, dynamics, distribution patterns, and movements in Yellowstone Park.
Funded
Projects:

NPS	M. Meagher, Yellowstone NP

21. Effects of fires on benthic invertebrates in fluvial environments.
Partially funded
Projects:

NPS	W. Minschall, Idaho State University
NPS	D. Mangum, USFS, Provo, Utah
Other	R. Collins. University of Arizona

22. Impact of the greater Yellowstone area fires on visitor perceptions and planned public visitation.
Partially funded
Projects:

NPS	D. Snepenger, Montana State University
Other	A. Bath, University of Calgary
Other	R. Trahan, University of Northern Colorado
Other	R. Habeck, University of Wyoming

23. Begin development of presuppression approaches and methods, including planned ignition prescribed fires, for reducing fuels near human habitation and near natural area boundaries, including a risk analysis decision system.
Partially funded
Projects:

USFS	RFP process underway.
Other	P. Omi, Colorado State University

24. The impact of the Yellowstone fires of 1988 on 1989 visitation and visitor travel patterns.
Partially funded
Projects:

NPS	G. Machlis, University of Idaho

25. Determine how the economies of the small communities in the greater Yellowstone area have been affected by the 1988 fires.
Partially funded
Projects:

USFS	RFP process underway

26. Geochemistry and groundwater measurements to detect solubles in groundwater due to fire.
Funded
Projects:

NPS	D. Runnells, University of Colorado
NPS/GS	D. Norton, U.S. Geological Survey, Denver

27. Effects of fire on Shiras moose on the northern winter range of Yellowstone Park and the Gallatin National Forest.
Funded
Projects:

NPS/FS	D. Tyers, Gallatin NF

28. The role of exotic plants in community succession following disturbance by fire and fire suppression activities in Yellowstone Park.
Unfunded

29. Develop and implement a computerized Fire Effects Information System to serve the Yellowstone and nationwide fire effects needs.
Unfunded

30. Insect (invertebrate) invasion of burned habitats in Yellowstone National Park.
Partially funded
Projects:

NPS	D. Lowrie, Santa Fe, New Mexico
NPS	R. Lavigne, University of Wyoming
Other	L. Nielson, University of Utah
Other	D. Beetle, University of Colorado

31. Postfire modeling of ecosystem variables and processes in space with emphasis on scale and spatial heterogenity, and biological diversity.
Partially funded
Projects:

NPS/FS	RFP process underway
NASA	J. Brass, NASA (Ames)
Other	M. Turner/W. Romme, Oakridge National Lab

32. Status of the endangered peregrine falcon following the 1988 Yellowstone fires.

Funded
Projects:

NPS T. McEneaeny, Yellowstone NP

33. Ecosystem-level analysis and modeling of fire and grazing disturbances in the greater Yellowstone area.
Unfunded

34. Nesting status and productivity of the osprey following the 1988 Yellowstone fires.
Funded
Projects:

NPS T. McEneaney, Yellowstone NP

35. Repeating aerial photography of the Lamar River drainage to observe the effects of the 1988 fires on stream channels.
Unfunded

36. Determine what emissions and toxic and nontoxic materials were produced in the smoke of the '88 fires. What is the difference between emmissions from prescribed fires done regularly and a major episode?
Unfunded

Other J. Levine, NASA (Langely)

37. Effects of fire in visually changing the landscape from historical to biological time.
Partially funded
Projects:

NPS M. Meagher, Yellowstone NP
NPS S. Coleman, Yellowstone NP

38. Effects of fire on lacustrine ecology.
Partially funded
Projects:

NPS R. Jones, Yellowstone NP
Other V. Klump, Center for Great Lakes Studies
Other B. Shero, Medaille College
NASA R. Lathrop, NASA (Ames)
Other J. Priscu, Montana State University

39. Effect of fire on nutrient availability and flux in Yellowstone Park soils.
Unfunded

40. Determine the climatology of severe fire seasons, including fuel moisture regimes and the probablity of high speed wind events.
Unfunded

41. Changes in snow accumulation resulting from removal of overstory cover by the 1988 fires.
Unfunded
Projects:
Other S. Custer, Montana State University

42. Effects of fires/drought on bighorn sheep population size and distribution.
Funded
Projects:
NPS M. Meagher, Yellowstone NP

43. The influence of fire and interspecific competition on elk and bison habitat and forage use in the Madison-Firehole-Gibbon-Duck and Cougar Creek drainages.
Unfunded

44. Coordination of post-fire biotic diversity research in Yellowstone National Park.
Unfunded

45. Density dependent population regulation and effects of the 1988 fires in the Jackson elk herd.
Partially funded
Projects:
NPS/FWS B. Smith, USFWS, Jackson Hole, Wyoming

46. Using small stream catchments for short- and long-term ecological studies.
Unfunded

47. Avian Communities, reptiles and amphibians, and their changes as a result of the 1988 greater Yellowstone fires.
Partially funded
Projects:
Other R. Hutto, University of Montana
NPS T. McEneaney, Yellowstone NP

48. Determine the effects of fire on "pest" organisms such as spruce budworm, mt. pine beetle, and dwarf mistletoe.
Unfunded

49. An analysis of the attitudes and perceptions of Wyoming residents to the 1988 greater Yellowstone area fires.
Funded
Projects:
Other R. Habeck, University of Wyoming

50. Extensive efforts are needed to establish long term ecosystem monitoring plots to capture information for long term effects studies.
Partially funded
Projects:
NPS D. Despain, Yellowstone NP

51. Determine how fire severity and size influenced forest nutrient conditions and vegetation development to see if regulating fire size and severity influences the loss or gain in productivity.
Unfunded

52. The effects of fire on stream temperatures.
Unfunded

53. Economic analysis of private sector fire suppression efforts.
Unfunded

54. Responses of streams of different order to the 1988 fires: standing crops and nutrient dynamics.
Unfunded

55. Expansion of the snow monitoring system in Yellowstone Park following the fires of 1988.
Unfunded

56. Fire effects on soil organisms, both beneficial and pathogenic, in subalpine forest, shrub and grassland, and riparian communities.
Unfunded

57.Monitoring the effects of fire on trumpeter swan populations in the greater Yellowstone area.
Unfunded

58. Monitoring the fire effects on small and mid-sized carnivores of uncertain distribution in the greater Yellowstone area.
Partially funded
Projects:
NPS R. Crabtree, Univerisity of Idaho

NPS J. Bissonette, Utah State University
NPS M. Hornocker, University of Idaho

59. Small mammal population dynamics, diet, and movement in the post-fire Yellowstone ecosystem.
Partially funded
Projects:
Other R. Moore, Montana State University
Other A. Miller, University of Pennsylvania
NPS R. Renkin, Yellowstone NP
Other N. Huntley, Idaho State University

60. Comparing visitor expectations with visitor experience following the 1988 greater Yellowstone area fires.
Funded
Projects:
Other A. Bath, University of Calgary

61. Developing statistically valid methods to assess front and backcountry use, public attitudes and changes relating to the 1988 fires.
Unfunded

62. American attitudes and knowledge of the 1988 greater Yellowstone area fires and their implications for National Park Service policy and education programs.
Unfunded

63. Effects of fire on prehistoric archeological resources in the greater Yellowstone area. Inventory, locate, record and evaluate sites in areas affected by the 1988 fires.
Partially funded
Projects:
NPS A. Johnson, NPS, Denver, Colorado
Other R. Bellomo, University of Wisconsin

64. Determine the effectiveness of reseeding and other techniques in stabilizing soils in the northern Rockies. What is the effect of seeding introduced species on reestablishment of native vegetation.
Unfunded

65. Mapping of fire severity and extent using remote sensing technology.
Funded
Projects:
NPS/NASA D. Despain/H. Shovic, Yellowstone NP

66. A holocene fire history reconstruction for the Yellowstone Lake Basin, Yellowstone Park.
Unfunded

67. The role of fire upon primary nutrition and seconary defense compounds of willows: a physiological test of the relative importance of fire, drought and browsing pressure.
Partially funded
Projects:

NPS F. Singer/R. Cates, Yellowstone NP and Brigham Young University

68. Riparian productivity and nutrient dynamics following the 1988 greater Yellowstone fires
Unfunded

69. The effects of burning, riparian area hydrology, beaver dams and postfire flooding on willows.
Unfunded

70. Monitoring forest canopy regeneration using remote sensing technology.
Unfunded

71. Determination of the increases in greater Yellowstone area water yield in the post-fire environment, and the relationship to the area burned.
Unfunded

72. Ecology, demography and the effects of fire on big sagebrush on Yellowstone's northern range.
Unfunded

73. Determine how data from the USFS westwide lightning detection system be combined with knowledge of ignitions to provide better guidance to fire managers and planners.
Unfunded

74. Determine the rates of postfire fuel accumulation (the fall-down of fire killed trees) on the risk of future high intensity fire potential.
Unfunded

75. Evaluate how extended range weather forecasts and new climatological information can be used for longer term and more accurate predictions of fire danger.

Unfunded