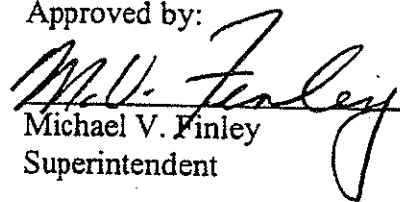


Appendix E. 2001 Yellowstone National Park Structure Protection and Firefighter Safety Hazard Fuels Management Guidelines.

YELLOWSTONE NATIONAL PARK
STRUCTURE PROTECTION AND FIREFIGHTER SAFETY
HAZARD FUELS MANAGEMENT GUIDELINES
An addendum to the Yellowstone National Park Fire Management Plan

Approved by:


Michael V. Finley
Superintendent

Date 4/2/2001

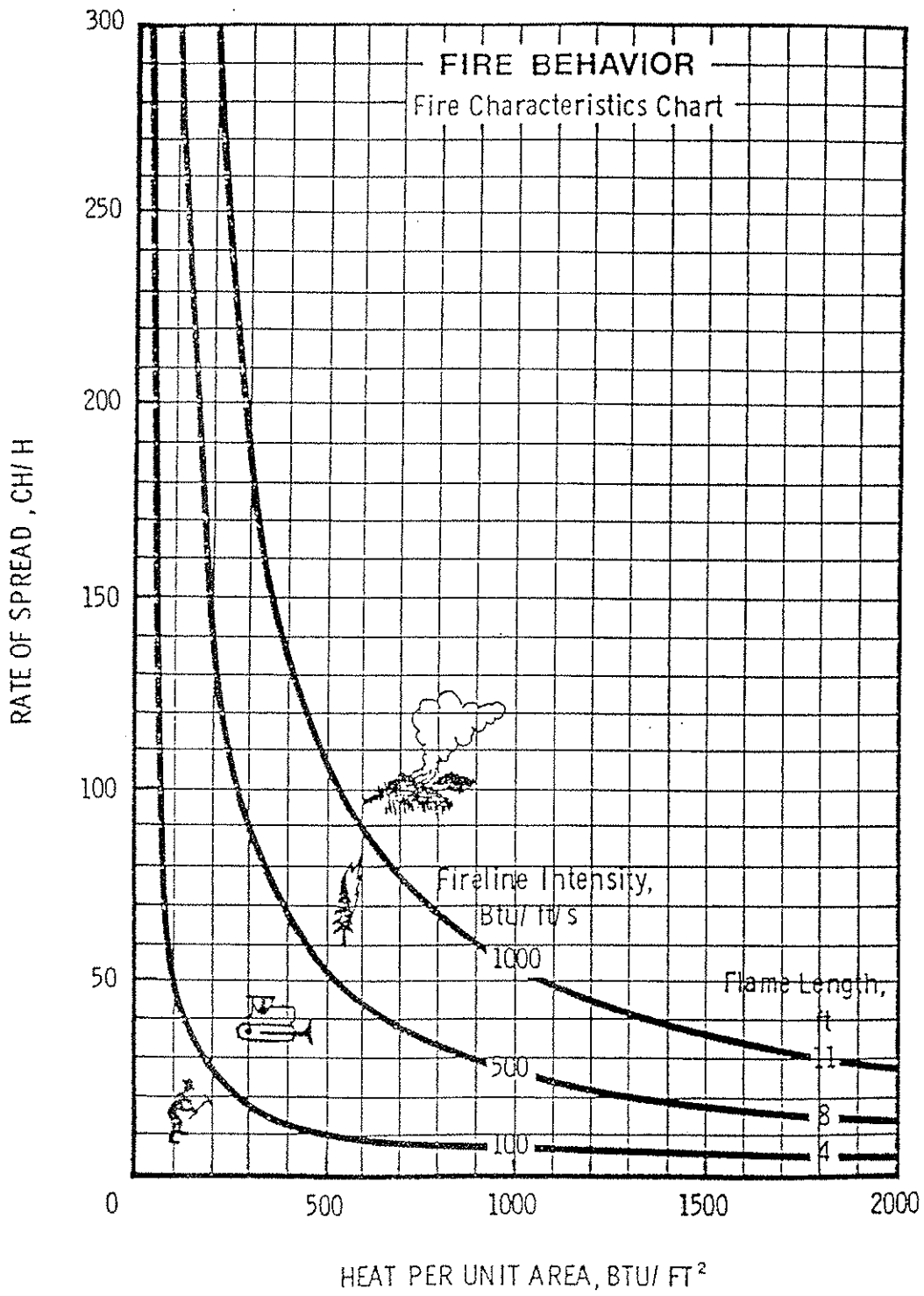


Figure 2

DEVELOPMENT OF TREATMENT PRESCRIPTIONS

Treatment prescriptions are an effort to balance conflicting objectives and are based upon a structural protection needs assessment. While the result of hazardous fuel reduction is meant to make the area less "fire friendly" for several decades, it does not need to leave the area denuded or "cut-over". Initially, following treatment, a developed area will appear more groomed with the trees being more uniformly spaced. However over time, windthrow, regeneration and the accumulation of other forest debris will result in a less managed appearance.

The process used in developing treatment prescriptions for developed areas consists of two parts. The first is to ensure that conditions do not exist that are conducive to the most extreme form of fire behavior, the independent running crown fire. The second relies on the use of fuel models to describe the current and future desired forest condition. While fuel loading described in terms of

- Rate of spread: 1.6 chains per hour
- Flame length: 1.0 feet

Achieved by creating:

- *A thinned forest consisting of trees that have crown edges no closer than 20 feet*
- *Extending 400 feet from the edge of any building in the development*
- *With carefully managed ladder fuels (regeneration and surface fuels)*

Under these fire behavior conditions, firefighters can safely conduct suppression actions and have a probability of success in protecting structures near 100%.

After developing a treatment prescription, it is necessary to determine the current fuel model, then remove the excess vegetation, both standing and down, in order to attain the desired fuel model. In order to determine levels of treatment and achieve the desired condition for each developed area, each area will be addressed individually. The actual treatment will vary somewhat depending upon the following fire related criteria: surrounding fuel types, amount of surface fuel, crown potential, ladder potential, water of crown, stand age, wetting potential

Notifications

The Mammoth Fire Cache will notify the Public Affairs Office of any activities with potential public or media interest at least 30 days in advance. Such activities may include, but are not limited to:

- Heli-logging
- Log hauling with tractor-trailers
- Contract timber cutting
- Work in areas where noise levels could adversely affect the visitor experience
- Activities in which an interpretive presence may be desirable

Upon notification, the Public Affairs Office will inform appropriate park staff or will request the Fire Cache to do so. The Public Affairs Office will conduct all public or media notifications.

Biomass Disposal

Disposal of trees can be accomplished by a wide variety of methods. None of the following options is superior to the others. Any one method or combination of methods can be used for a specific project.

- Firewood permits: This is a quick and easy method of disposing of large amounts of wood. The Visitor Services Office manages the program for residential use by residents of the park and the gateway communities. A variation of this method is to ship the wood out of the park at the expense of and for the benefit of another NPS unit. An example is the relationship Yellowstone has developed with Golden Spike National Historic Site in Utah. Golden Spike has an annual need for 110 cords of wood for use as fuel in their historic locomotives. They have contracted with a local timber company to haul logs generated in Yellowstone Park, as they become available.

~~Building materials: Hazard trees can be used as working hemlock, maple, aspen, etc.~~

are not mutually exclusive.

- The distance of the treatment boundary from each cabin will be set at 1/8 mile or 660 feet. While fire behavior calculations would not likely indicate a treatment area that large, the generous size ensures a complete survey for the project.

Site treatment priorities

The following is a list of backcountry structures to be evaluated/treated and their pertinent characteristics. Those structures listed in **bold** type are old enough to be considered historic. Those that are underlined have visual impacts from 1988 fuels work yet to be mitigated. The following lists do not consider hazard tree management needs.

It is the intent of the plan to meet final safety zone specifications on Priority I and Priority II areas during the next 10 years.

Priority I areas

Deaf Jim

Crevice

Sportsman Lake

South Riverside

Buffalo Lake

Winter Creek

Daly Creek

Mary Mountain

Observation Peak

Pelican springs

Cabin Creek

Cove

Three River Junction

Nez Perce

The following structures have had hazard fuels operations implemented to remove them from the area.

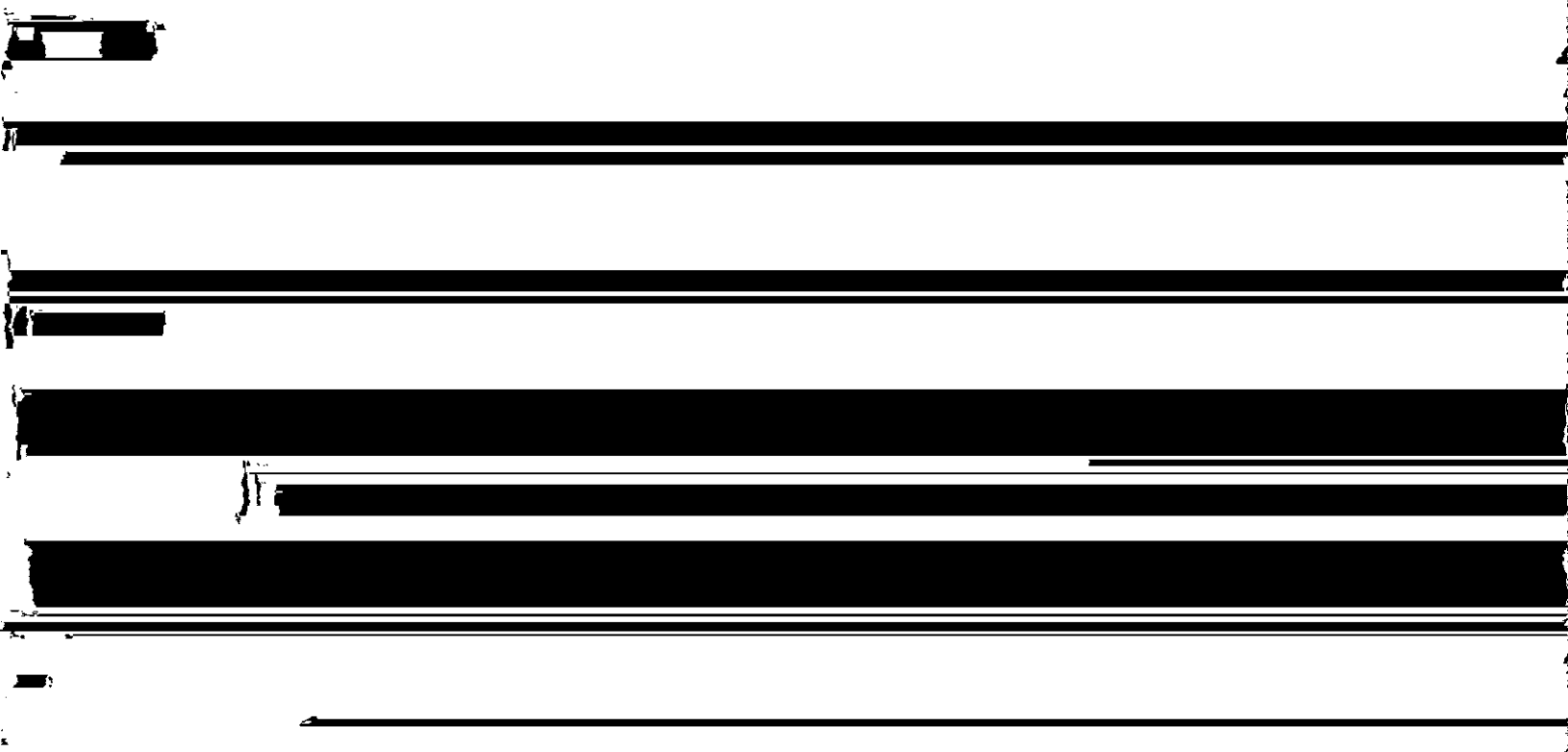


Table 1: Fuel load (tons per acre of live and dead fuels less than 3 inches in diameter), by priority grouping, within 31.4 acres (1/8 mile) surrounding backcountry patrol cabins considered for hazard fuels reduction. Data were derived by buffering each cabin to obtain cover/habitat type, converting vegetation type to fire fuel model, and multiplying the acres of fuel model by each respective fuel model input value. Non-combustible fuel types, such as rock and water, are considered in the analysis. Overall fuel load ranking, from highest to lowest, is also given.

<u>CABIN</u>	<u>FUEL LOAD (TONS/ACRE)</u>	<u>RANK</u>
<i>PRIORITY I:</i>		
Deaf Jim	135.42	14
Crevice	27.02	34
Sportsman Lake	99.19	25
South Riverside	89.58	31
Buffalo Lake	212.66	6
Winter Creek	125.71	16
Daly Creek	127.19	15
Mary Mountain	111.23	20
Observation Peak	142.25	13
Pelican Springs	186.13	8
Cabin Creek	237.82	4
Harebell Creek	146.14	12
<i>PRIORITY II:</i>		
Thorofare	207.64	7
Trail Creek	73.36	32
Fern Lake	146.53	11
Heart Lake	123.63	18
Fox Creek	267.46	3
Buffalo Plateau	182.56	9
<i>PRIORITY III:</i>		
Cache Creek	109.35	22
Calfe Creek	109.35	22
Upper Miller Creek	109.35	22
Cold Creek	153.39	10
Lamar Mountain	19.21	35
Lower Blacktail	28.61	33
Upper Blacktail	93.36	29
Hellroaring	124.97	17
Fawn Pass	102.74	26
Union Falls	360.37	1
Howell Creek	101.86	25
Lower Slough Creek	98.98	27
Cove	98.29	29
Outlet	90.77	30
Elk Tongue	225.39	5
Cougar Creek	112.07	19
Three Rivers Junction	275.06	2

Montana Department of State Lands, Forestry Division. Fire protection standards for wildland residential interface development. April 1991. 26pp.

Montana Department of State Lands. Fire risk rating for existing wildland developments in Montana. November 1991. 11pp.

Moore, P. 1981. Protecting residences from wildfires: a guide for homeowners, lawyers and planners. USDA Forest Service, Pacific Southwest Forest and Range Experiment Station, Gen. Tech. Rep. PSW-60, Ogden, Utah 43pp.

Morgan, P. 1991. Hazard fuel management plan, Grand Teton National Park, John D. Rockefeller, Jr. Memorial Parkway. Grand Teton National Park, Wyoming. 23pp.

National Park Service. 1988. Management policies. 131pp.

_____. 1991. Natural resources management guideline, NPS-77. 689pp.

_____. 1992. Wildland Fire Management Plan. Yellowstone National Park. 80 pp.

_____. 1995. Resources management plan, Yellowstone National Park. 35pp.

_____. 1997. Vegetation management plan, Yosemite National Park. 211pp.

_____. 1999. Wildland fire management policy guideline, RM-18. 354pp.

National Wildfire Coordinating Group. 1992. Fire behavior field reference guide. 106pp.

- 3 _____ Handline and burnout concurrent with threatening fire
- 4 _____ Fire shelter or water system protection concurrent with threatening fire
- 5 _____ Fugitive retardent drops concurrent with threatening fire
- 6 _____ Use of heavy equipment for fireline construction concurrent with threatening fire
- 7 _____ Site/Structure/Improvement pretreatment fuels reduction of unnatural fuels prior to
 _____ fire event
 - a. Fuels reduction
 - b. Flammable material movement (firewood, fuel, etc.)
 - c. Change in building materials

Proposed Tactics: _____

Probability of success:

		Flame length	0-2'	2-4'	4-6'	6-8'	8'+
Fair	40%+		_____	_____	_____	_____	_____
Good	60%+		_____	_____	_____	_____	_____
Excellent	80%+		_____	_____	_____	_____	_____

(draw site map on back; attach other notes or appropriate information)

Roof: construction type/condition

Siding: material/condition

Heat traps: gables/decks/porches/vents

Foundation: type/material/condition

Windows: exposed/covered/type

Prepared by: _____ Date: