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WILDFIRE PREVENTION PLANNING

I. INTRODUCTION

In order to implement a wildfire prevention plan (WPP) as an integrated element of the fire management program, wildfire prevention programs must be concentrated on identified areas of concern. Wildfire prevention efforts must be directed toward ignitions which pose the greatest potential to cause unacceptable damage or loss. Using wildfire prevention as a strategy based on the threat of the ignition integrates it into the fire management program.

To properly direct wildfire prevention efforts it is important to accurately identify problems or potential problems. Any wildfire prevention planning process which does not carefully assess or identify wildfire prevention problems is likely to fail. To identify priority wildfire prevention programs one must look at a number of variables. For the purposes of preparing the WPP variables are categorized as:

1. Risks - Risks are defined as those uses or human activities which have the potential to result in wildfire ignition. When assessing the risk of a given area, only the RISK should be examined. The potential for a fire to spread or burn will be looked at separately; these two items should not be confused. Wherever there are concentrations of people or activity, the potential for a human-caused ignition exists. After assessing the risks within an area, it may be helpful to look at historical fires to validate the risk assessment. Historical fires alone, however, are not an accurate reflection of the risks within a given area. The objective of this effort is to determine the degree of risk within given areas of an administrative unit.
2. Hazards - Hazards are defined as the fuels and topography of an area. The objective in examining hazards is to determine the potential for a large fire to result from a human-caused ignition. This could be more simply put as determining the degree of difficulty in suppressing a fire once it is ignited. It is important to examine hazards without regard for anything else.
3. Values - Values are defined as natural or developed areas where loss or destruction by wildfire would be unacceptable.

Once Risks, Hazards, and Values have been evaluated, it will be possible to determine when, where, and how to implement effective fire prevention programs. An effective fire prevention plan can be written, by comparing an area's potential for an ignition (risks) with its potential to burn after ignited (hazards), and the values which are threatened by a wildfire (values). This plan should concentrate on the highest priority wildfire prevention problems within an administrative unit. It may not be necessary to have an extensive fire prevention effort in an area with a number of risks where the hazard is minimal and there are no real values threatened. In contrast, it will be important to have a comprehensive effort in an area where there are substantial risks, a high hazard, and high values threatened.

The WPP should address what needs to be done in each area based on the types of activities and uses. It should clearly define what actions will take place, when, and who is responsible. Wildfire prevention activities generally fall within one of three broad categories. These categories include:

1. Education - Education is aimed at changing peoples' behavior by informing them. This can be done through printed materials, mass media (radio, T.V., etc.), one-on-one contacts, or group presentations. Information can also be delivered through signs, displays, fairs, parades, etc.
2. Engineering - Engineering is an activity designed to shield an ignition source (e.g. spark arrester) or remove fuels would ignite from a spark (clearance around a home).
3. Enforcement - Enforcement is used to gain compliance with fire codes and ordinances.

The wildfire prevention plan should select the most cost effective mix of activities to mitigate potential fire problems within each priority area. The wildfire prevention plan should be evaluated annually. If ignitions are occurring in an area where an active fire prevention program is implemented, perhaps the fire prevention activities should be reviewed. This review may result in a change of activities within the area.

NOTE: The WPP analysis will become an appendix to the unit's fire management plan. The prevention chapter should be a summary of objectives and general action items established through the analysis process. The appendix will be the specifics for each identified compartment and action.

II. OBJECTIVE

The objective of this handbook is to provide direction and guidelines for the following activities:

- A. Assessing wildfire prevention problems
- B. Establishing realistic, cost-efficient fire prevention goals
- C. Developing wildfire prevention activities focused on unacceptable wildfire ignitions

III. WILDFIRE PREVENTION

Fire prevention traditionally has been viewed as a program striving to eliminate all human-caused wildfires, thereby eliminating or reducing the need for other components of a fire management program. This holistic approach to human-caused fires, while ambitious, is unrealistic and not achievable. The true objective of wildfire prevention is to reduce the likelihood of human-caused wildfire ignitions which could result in unacceptable loss. In order for fire prevention to be viewed as an integrated tool within the Fire Management Program, it must be utilized differently.



Figure 1: Under the umbrella of Fire Management there are various tools which address an identified fire problem. Management ignited prescribed fire can reduce dangerous fuel accumulations; aggressive initial attack can stop ignitions in areas where fire is unacceptable; and prescribed natural fire can allow fire to continue its role in an ecosystem. In this context fire prevention becomes a management strategy for a specific wildfire problem rather than competing with the other fire management actions.

This handbook will assist in identifying how fire prevention can be used as an effective management strategy within the over-all fire management program. The key to determining when to use fire prevention programs is the accurate assessment of the unit's wildfire problems. In order to assess the wildfire problem, a three step process will be used.

1. Analyzing risks (likelihood of a wildfire ignition).
2. Analyzing hazards or fuel and topography (potential for wildfire to spread and resist suppression actions).
3. Assessing values (natural, cultural, political, and developed improvements) which may be threatened by a wildfire.

This will provide a systematic, step-by-step process to make objective, cost-efficient decisions concerning when and where fire prevention management strategies are applied.

IV PREPARATION FOR THE ASSESSMENT

A. Gathering Materials

To conduct the assessment it will be necessary to make some preparations. Materials should include:

1. 4 or 5 topographic maps of the unit.
2. Enough acetate for 4 overlays.
3. Grease pencils or markers in a variety of colors to outline areas on overlays. Black, Green, Blue, and Red are required in the final product.
4. Reference materials which include:
 - a. Up to 10 years of historical human-caused fire data by location, ignition source and date.
 - b. Plans - NPS-18(1990), Resource management plans, fire management plans, compendia, interpretive prospectus, etc.

B. Building Support

Prior to initiating the development of the prevention chapter, build support for the effort. Inform Agency Administrators and supervisors of the objectives of the prevention planning process and obtain their support and advice. This will be crucial to the successful implementation of the program.

It is also necessary to use an interdisciplinary approach when you develop your unit's values. Resource Specialists, Ecologists, Wildlife Specialists, Law Enforcement Specialists, etc, should be included. Arrange a time and place for them to assist in developing resource values and program actions. This will be explained in detail in the section on rating values and developing final compartments.

V CONDUCTING THE ASSESSMENTS

The assessment will consist of three distinctly different steps. It is important that each step be conducted independently with no attempt to blend or combine any of them. Each step must be done with a singular focus, and in the order presented.

Through all the steps the ratings of high, medium, or low will be assigned. It is important to keep in mind that these are relative ratings, not absolutes.

Develop a good base map from which to work prior to doing the assessments. (example #1)

A. Risk Assessment

Process: Assessing Risks consists of evaluating the potential for wildfire ignition. It does not consider how or if a fire will spread or burn once ignited. In this sense, Risk equates to activity or use. Concentrations of use, developments, or activities should be identified. Do not plot or consider historical fires at this point.

As the analysis proceeds, a validation of sorts can be accomplished by comparing current concentrations against the historic ignition patterns. If this is done, avoid the trap of forcing all compartments into the historic patterns. The flexibility of this planning process is that it permits the manager to anticipate changes in risk due to expected use or demographic changes.

Factors important to Risk analysis include:

- *user activity concentrations
- *proximity of cause agents
- *amount of use
- *identification of WHO is involved
- *specification of where the people come from
- *similarity between activities

Action: On a clear overlay on the base map, encircle concentrated use areas in red. Try to keep identified areas broad. Travel corridors, developed areas, recreational use areas, etc, can be encircled in large blocks. Label these areas as high risk. Other areas which have some use, but less than the obviously high areas, should be encircled and labeled as medium. All remaining areas will be considered low risk. (example #2)

B. Hazard (Fuel/Topography) Assessment

In fire prevention terminology, the word "hazard" is used to describe the relationship between fuels and topography and must not be confused with how hazard is defined in other disciplines. For purposes of this exercise, hazard and fuel/topography are synonymous.

Process: The fuel/topography assessment deals with identifying areas of like fire behavior based on fuels and topography. Given a normal fire season, how intense, and at what rate of spread will a wildfire burn? What is its resistance to control? Again, it is important to keep a single focus. Do not confuse this process by considering potential for an ignition or values threatened; concentrate only on how a fire will burn. Under average fire season conditions, fire intensity is largely a product of fuels and topography.

Action: Remove the Risk area overlay and place a new overlay over the base map. With a green marker encircle broad areas where fires will burn and will be difficult to stop or control. These should be labeled as high fuel/topography areas. Keep the areas broad; if small pockets of fuels or topography differ from a larger general area, don't be concerned. Include them in the larger area. After encircling areas which present the most significant problems (high), encircle areas of moderate fuels and topography. Again, keep the areas broad. All remaining areas not labeled high or medium will be considered low. (Example #1)

Each unit throughout the country will have different criteria for making distinctions between high, medium and low. Some examples of these distinctions on other units are:

GRAND TETON NATIONAL PARK

High - Lodgepole pine on 20 to 100% slopes
Medium - Grass, light brush on 0 to 100% slopes.
Low - Lodgepole, hardwoods on 0 to 20% slope.

SAN BERNARDINO NATIONAL FOREST

High - Brush on 30 to 100% slopes.
Medium - Grass on 0 to 100% slopes; brush on 10 to 30% slopes.
Low - Timber on 0 to 100% slopes.

C. Values Assessment

Process: Assessing values is a more subjective process. During this process, an interdisciplinary approach must be used. A variety of specialists from the unit must be encouraged to participate.

Action: With a new overlay, encircle broad areas of value, using a blue marker. Areas of value may include, but are not limited to:

1. Rare and endangered species
2. Wildlife habitat (both game and non-game)
3. Merchantable timber
4. Wilderness, (existing or proposed)
5. Residential/commercial development
6. Developed recreation and associated areas
7. Political values
8. Watershed values
9. Aesthetic values
10. Private inholdings

These values should be viewed as areas where wildfire would be unacceptable.

Individual units may have existing inventories of values which have been identified in other planning processes. Areas of obvious value should be labeled high. Other areas which have some value, but are less in relative comparison, should be encircled and labeled as medium. Everything else should be considered Low. Do not be concerned about fire potential, ignition potential, or anything other than values during this process. After values have been identified, consider lumping like value areas which are in close proximity. (example #4)

D. Adjusting Risk Areas

Now that the process of developing Risk, Hazards (fuel/topography), and Value areas is complete, it is time to make some adjustments. Plot 5 to 10 years of historical human-caused fires on the base map. (The number of years should be determined by the volume of fire incidents the unit has experienced over time). Make sure there is a record of cause for each fire. This will be important later in developing specific fire prevention action items. (example #5)

After plotting fires, place the risk area overlay over the map with the fires plotted. Compare the existing risk areas with historical fire occurrence. There is likely to be some correlation between concentrations of fires and risk areas. If there are fires which do not fall within high or moderate areas consider adjusting the risk boundary to include these fires, if appropriate. If these fires are unusual or isolated occurrences the boundary does not necessarily need to be altered. If a number of fires have occurred within a moderate area, consider upgrading the risk to high.

Some units may have limited or no records of historical fires and their specific causes. This is not a problem in developing the analysis. This is because a location that concentrates use (such as a stream with water based recreation or a community/ residential development) may show a collection of "statistical" fire causes (such as campfires or smoker fires), all of which are related to a single activity pattern. A prevention program is more efficient in making contacts and is more likely to succeed if it targets broader categories instead of individual fire causes.

The use of "statistical" fire data is very helpful in adjusting/validating Risk areas and in helping to target specific prevention activities, but not a requirement in the development process. All units which do not have good records must begin to gather cause and occurrence data to validate future updates of the prevention plan.

E. Developing Final Compartments

The information necessary to establish final compartments is now in place. Take all of the overlays and place them on the base map. In order to establish final boundaries, the **risk areas** will be the **primary consideration**. Because fire prevention programs usually treat risks, it is logical that the final compartment boundaries be determined primarily by risks.

Take the base map with the risk overlay and place a new overlay on top of them. Trace over the risk areas in black; label them as high, medium, or low according to your original assessment.

After all of the risks have been assigned, remove the original risk overlay and place the hazard overlay on the base map. Put the new overlay which has the risks identified on top. Identify the hazard rating for each compartment in green. Again using the risk areas identified in black, assign a hazard rating to each of either high medium or low. If there are one or more hazard ratings within the final compartment boundaries, assign one hazard rating which best represents the entire area (interpolate).

Now that each area has been assigned a hazard rating, remove the original hazard overlay. Place the value overlay on the base map and place the new overlay on top. Each compartment will now receive a value rating of high, medium, or low. If one or more values exists within the final compartment boundaries, it will be necessary to interpolate. Assign the value which best represents the entire area; label it in blue. The new overlay will now represent your final compartments with respective ratings. Examine the compartments and their ratings, to ensure they generally reflect reality. (example #6)

F. Documentation

The final step in conducting the fire prevention assessment will be to document the findings. These will be important in developing the fire prevention plan. The documentation should be brief and to the point. It will be necessary to list each compartment, zone or area with an assigned number or geographic name and a brief description of the ratings.

Example (also See GRTE FP Zones)

Compartment 1 - Oak Creek

Risk - High- Concentrated use in the area around Oak Creek. History of escaped campfires, smoker fires.

Hazard - Moderate - Oak and hardwoods with fine flashing fuels on mild to moderate slopes.

Value - High- Recreational developments (campgrounds along creek) riparian area adjacent to creek.

After each compartment has been documented and the rationale for the ratings described, develop the prevention plan.

VI. DEVELOPING THE FIRE PREVENTION PLAN

The fire prevention plan will consist of describing appropriate fire prevention actions for each compartment. Priorities should be determined by the previous assessments. If a compartment has a high **Risk** rating (high potential for an ignition), high **Hazard** rating (fire will spread and be difficult to suppress) and high **Value**, it will obviously be a priority for fire prevention actions. In contrast, a compartment with all low ratings may not call for any prevention efforts. If a wildfire will not result in appreciable damage, it may be prudent to invest prevention resources in areas where a wildfire will threaten higher values and would be more difficult to suppress.

Each compartment will require its own assessment when developing fire prevention plans. Actions should be commensurate with the relative ratings of each compartment. For the example compartment, fire prevention actions might look something like this:

Compartment 1 - Oak Creek - Prevention actions - Place signs at entrance to campgrounds on safe campfire use and smoking. Make weekend patrols of high use areas along the creek. Assure that fire prevention messages concerning smoking and campfire use are incorporated into visitor information handouts.

After developing appropriate fire prevention actions for each compartment, it will be time to complete the final plan. If there are fire prevention actions which apply to the total unit, these should be listed as general fire prevention actions and listed first. These might include developing new handouts, assuring power lines are inspected and in firesafe conditions, assuring off-road vehicles are equipped with approved spark arresters, etc. The remainder of the plan will consist of the actions (in priority) for each compartment. Be sure the plan identifies who will be responsible (accountable) for the actions identified and when they should occur.

VII. THE PREVENTION CHAPTER OF THE PARK FIRE MANAGEMENT PLAN

This fire prevention analysis should become an appendix to the unit's Fire Management Plan. The prevention chapter in the FMP should be a brief summary of objectives and general action items established through this analysis process.

The following is an example chapter in the recommended format for the fire Management Plan. This chapter can be more detailed for larger parks or heavily used areas or very general. The bulk of the analysis will be displayed in the appendix.

PREVENTION CHAPTER

A. Objectives

To reduce the threat of human caused fires through visitor and employee education.

To integrate the prevention message into interpretive programs.

B. General Actions

All members of the park staff will be familiar with this plan and be able to explain it to other interested parties.

Fire prevention will be discussed at each park safety meeting.

Smoking will be prohibited on all park trails when fire danger is very high or extreme. Signs will be placed to notify the public at all entrances and trailheads.

Interpretive programs will include fire prevention messages to alert the visitors concerning current fire conditions.

C. Fire Prevention Plan

The fire prevention analysis is attached to this plan as appendix --. This appendix contains the detailed prevention actions identified for specific areas or fire problems in the unit. It will be reviewed annually and updated if changes occur which alter the identified RISKS, HAZARDS, or VALUES.

VIII. EVALUATION

The fire prevention plan should be reviewed annually as stated in the prevention chapter. If human caused ignitions are occurring in new areas or increasing in identified priority areas, it may be time to change the prevention strategy. The evaluation should concentrate on areas where specific problems are occurring rather than changing the entire plan. If the plan is working there is no need to make changes.

As new recreational sites are developed or use and values change, the plan must be reviewed to determine if new actions are required, and the decisions made will be documented in that year's prevention plan.

GRAND TETON FIRE PREVENTION EXAMPLE ANALYSIS

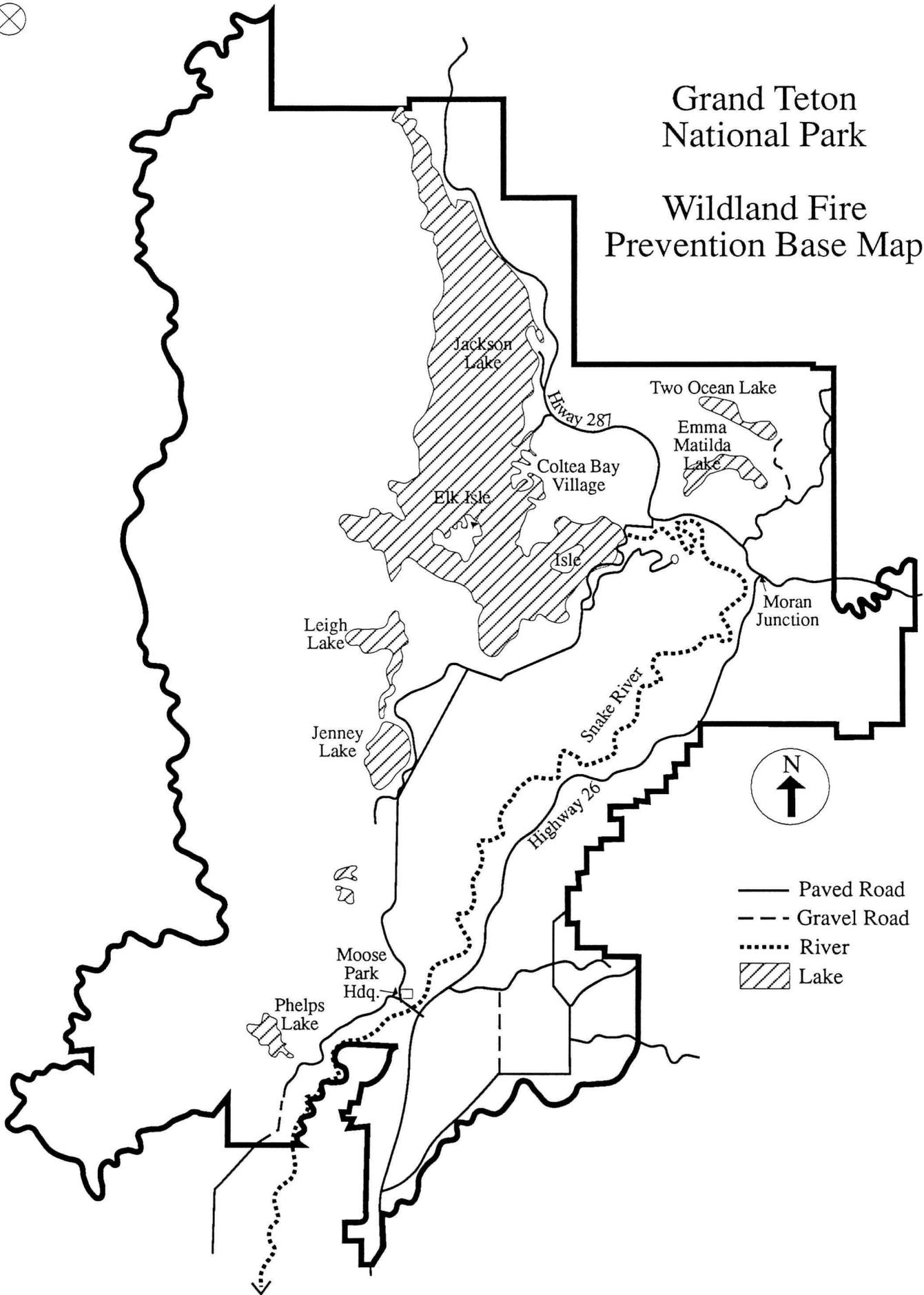
Example #1

The first step is to develop a good base map. A map of 1:62500 is recommended, however any scale can be used as long as major features pertinent to the planning process (such as campgrounds, road corridors, trails, recreation sites, developments, or other risk/hazard/values) can be clearly located. Do not use maps with zones from other planning processes (such as fire management zones).

The map used for the GRTE plan was a USGS 1:62500 map with 80 foot contours. It depicted developed areas, roads, rivers, streams, camping areas, and to some extent changes in vegetation. You may wish to include lands around the unit, remember our neighbors can effect our prevention goals.

Grand Teton National Park

Wildland Fire Prevention Base Map



Example #2

The first overlay is the identified Risk areas. Delineate broad zones, getting too specific only muddies the water at this point. Make sure each area is clearly marked with the appropriate rating and that it is drawn in RED.

This inventory identifies the causal agents and user activities with the potential to cause ignitions.

Examples of risks:

1. water use areas
2. camping areas (established or dispersed)
3. transportation systems
4. powerlines
5. residential/commercial uses
6. trails
7. inholdings
8. agricultural use
9. interpretive sites

Identified risks are not necessarily equal in their potential for causing ignitions. For that reason it is necessary to establish priorities so that, when a risk level is set for each risk area there is sufficient rationale for the decision.

The following criteria could be set for risk rating.

HIGH = concentrations of camping, high use trails
residential/commercial areas

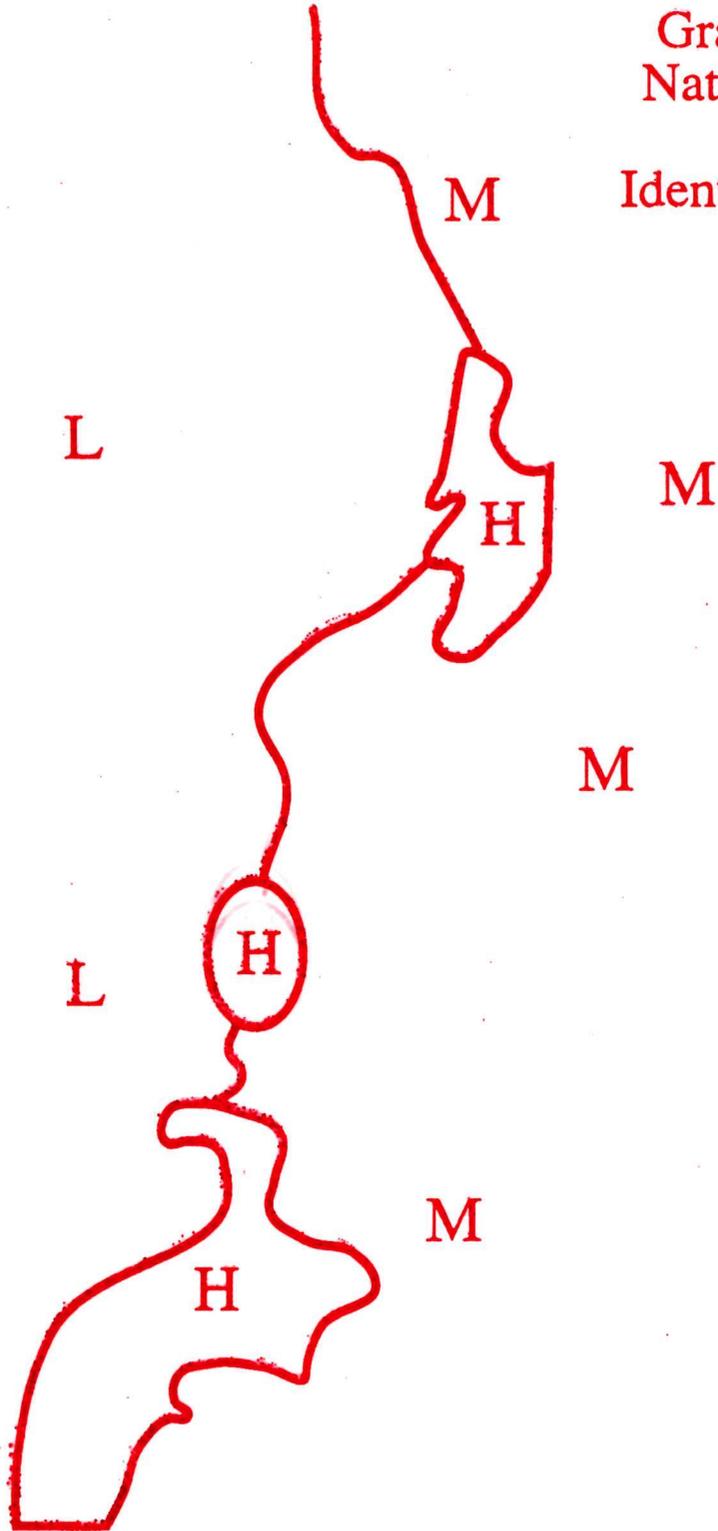
MEDIUM = dispersed camping, lesser used trails

LOW = little recreation or visitor use

Analyze all the factors. Then create the risk areas, plot them on the first overlay, and rate the areas in relation to each other as high, medium, or low risk. **Note:** Transportation corridors are not necessarily high or medium risk by themselves but their travel destinations may be.

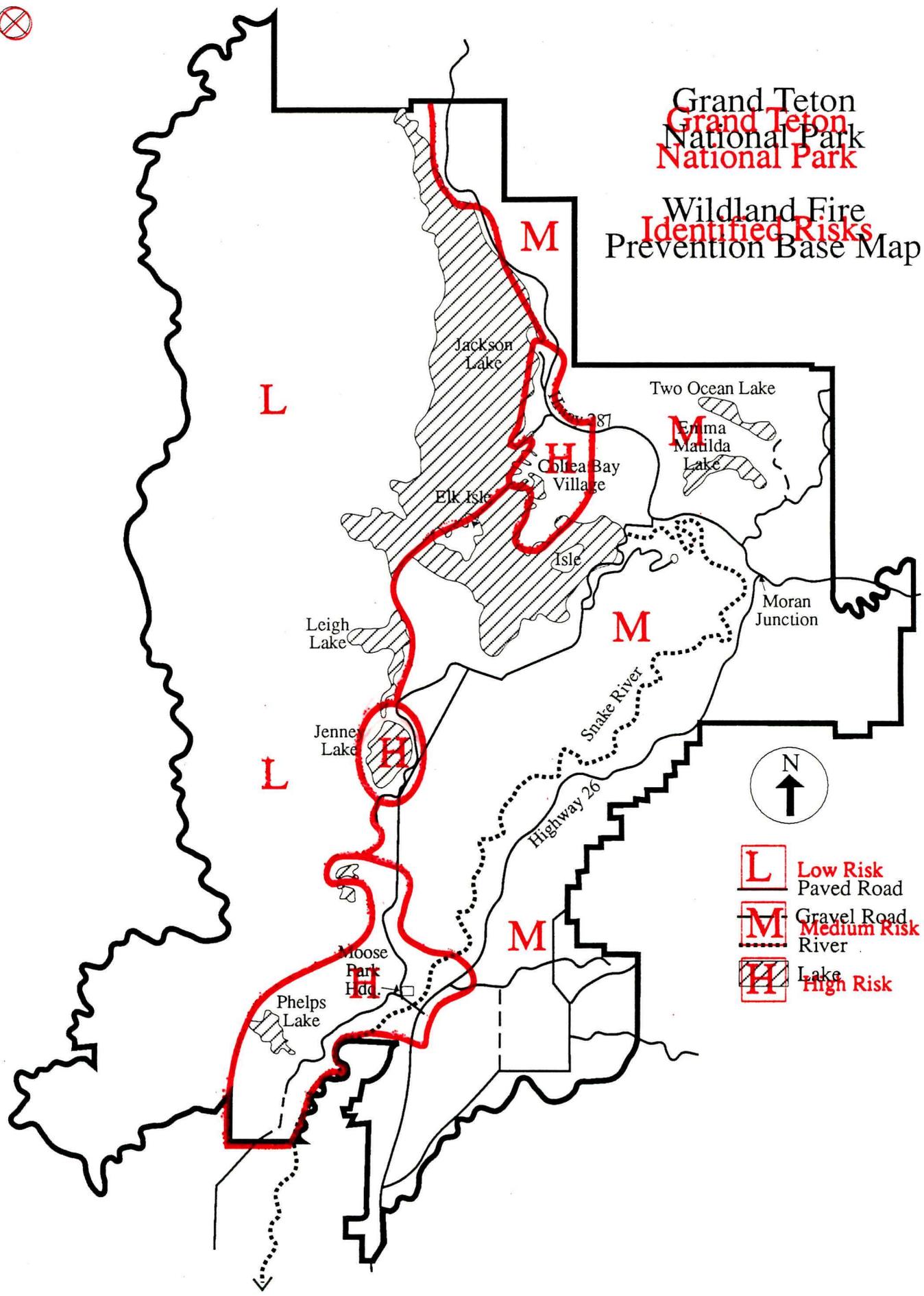
Grand Teton National Park

Identified Risks



- L** Low Risk
- M** Medium Risk
- H** High Risk

Grand Teton National Park
Wildland Fire
Identified Risks
Prevention Base Map



- L** Low Risk
Paved Road
- M** Medium Risk
Gravel Road
River
- H** High Risk
Lake

Example #3

The next task is to identify Hazards (fuel/topography) on the second overlay. Hazard rating criteria, based on combinations of slope and fuel type must be agreed upon. For instance:

HIGH = brush fuels on 30 to 100%+ slopes

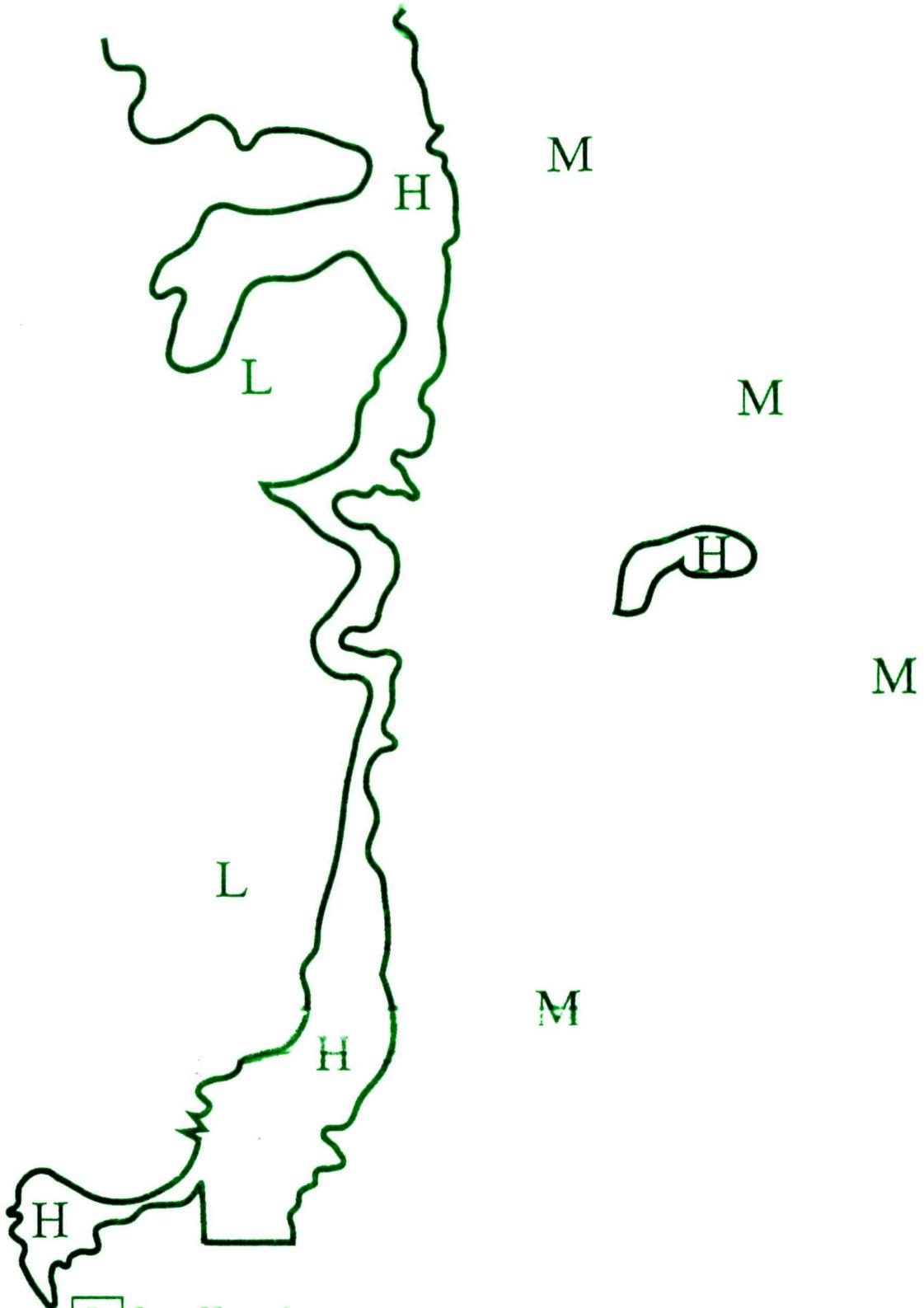
MEDIUM = grass fuels on 0 to 100%+ slopes, or brush
on 0 to 30% slopes

LOW = timber on 0 to 100%+ slopes

Remember to set these rating on the degree of difficulty in suppressing a fire should it occur in a given fuel/slope area. Outline and rate the hazard areas on the Hazard overlay in GREEN. This can be accomplished by comparing slope class to fuel type and then gaming each variation. As this process is followed, it is necessary to use broad generalizations or the variations become too numerous to rate into three levels.

If fire management analysis zones have been developed during other planning work and they are based on fuel/topography these may be used for the Hazard overlay. In any case the units need to be evaluated in relation to all other units for rating the level of hazard.

Identified Hazards
(Fuel/Topography)

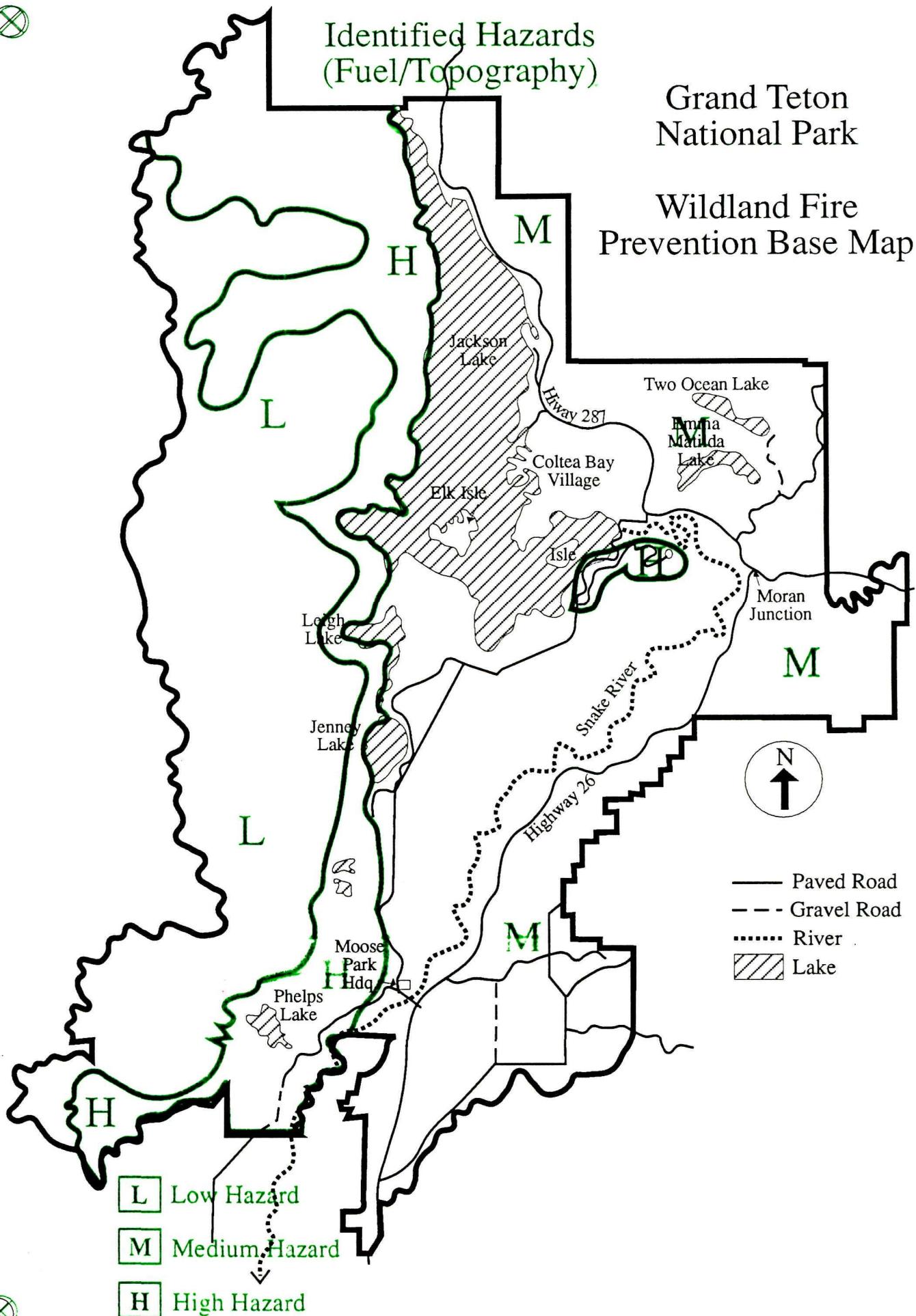


- L** Low Hazard
- M** Medium Hazard
- H** High Hazard

Identified Hazards (Fuel/Topography)

Grand Teton National Park

Wildland Fire Prevention Base Map



Example #4 (a+b)

On this third overlay value areas will be defined. This effort must be interdisciplinary. As in the previous overlays keep the areas broad and always rate them in relation to each other. Plot areas and ratings in BLUE.

In the example general areas of consistent value were identified during a meeting between various staff specialists. All values were considered such as developments, watershed, cultural, aesthetic, soils, wildlife, plants and political considerations. Rating criteria was established as in the previous overlays and can be documented as the following:

HIGH = developed areas, established camp sites, rare
plant occurrence, political

MEDIUM = Dispersed camp sites, backcountry cabins

LOW = little recreation use, fire poses no threat
to plant or animal values

At first many small areas were identified on a draft overlay (4a) then working together the staff interpolated the values in broader areas to develop the final Value compartments (4b). The key again is to think in general overall terms.



M

M H

- L Low Value
- M Medium Value
- H High Value

Draft Values

M

H

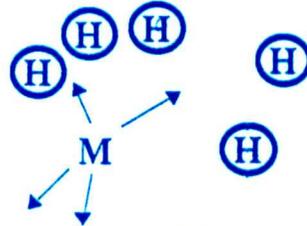
L

H

M

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L

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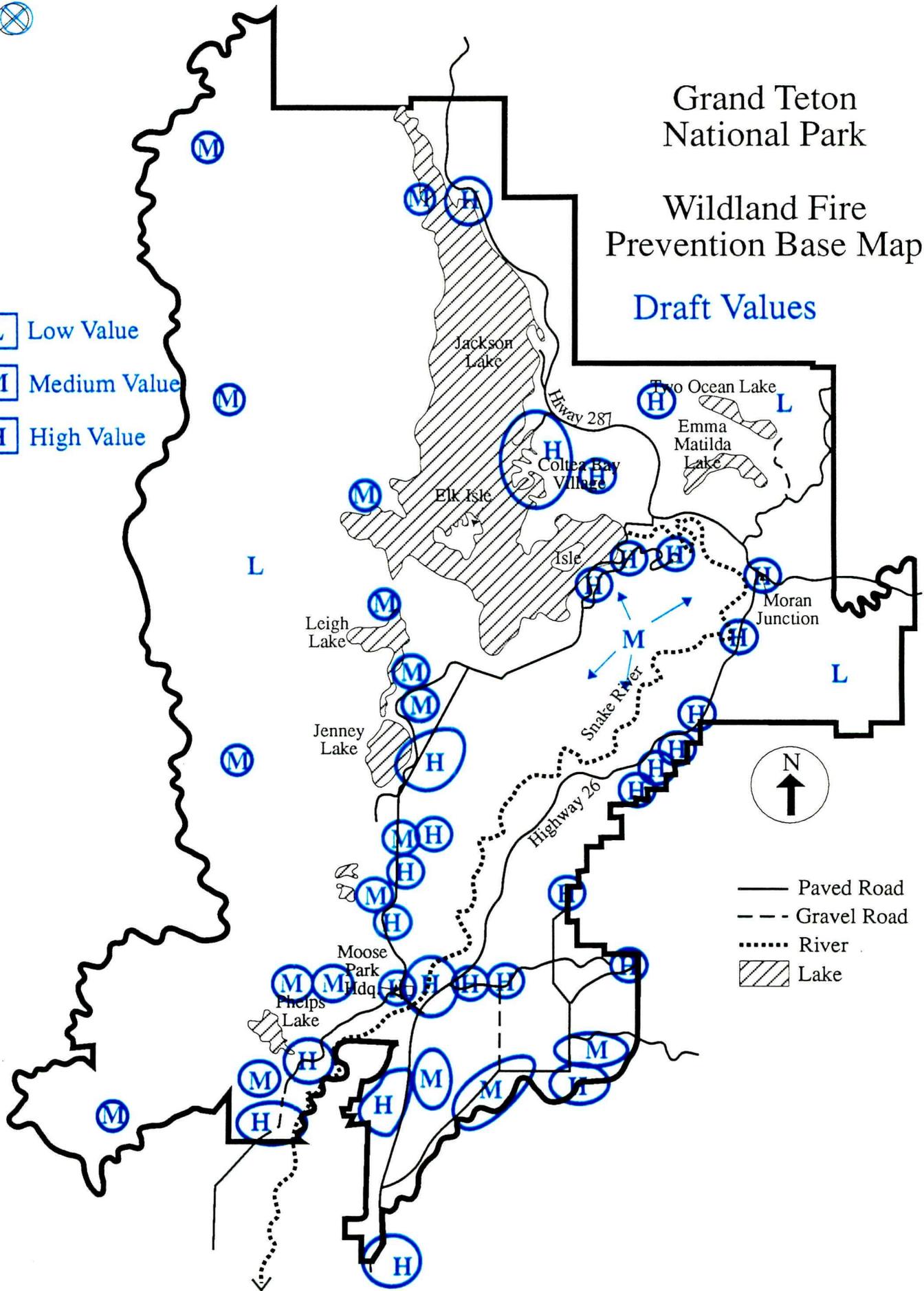


Grand Teton National Park

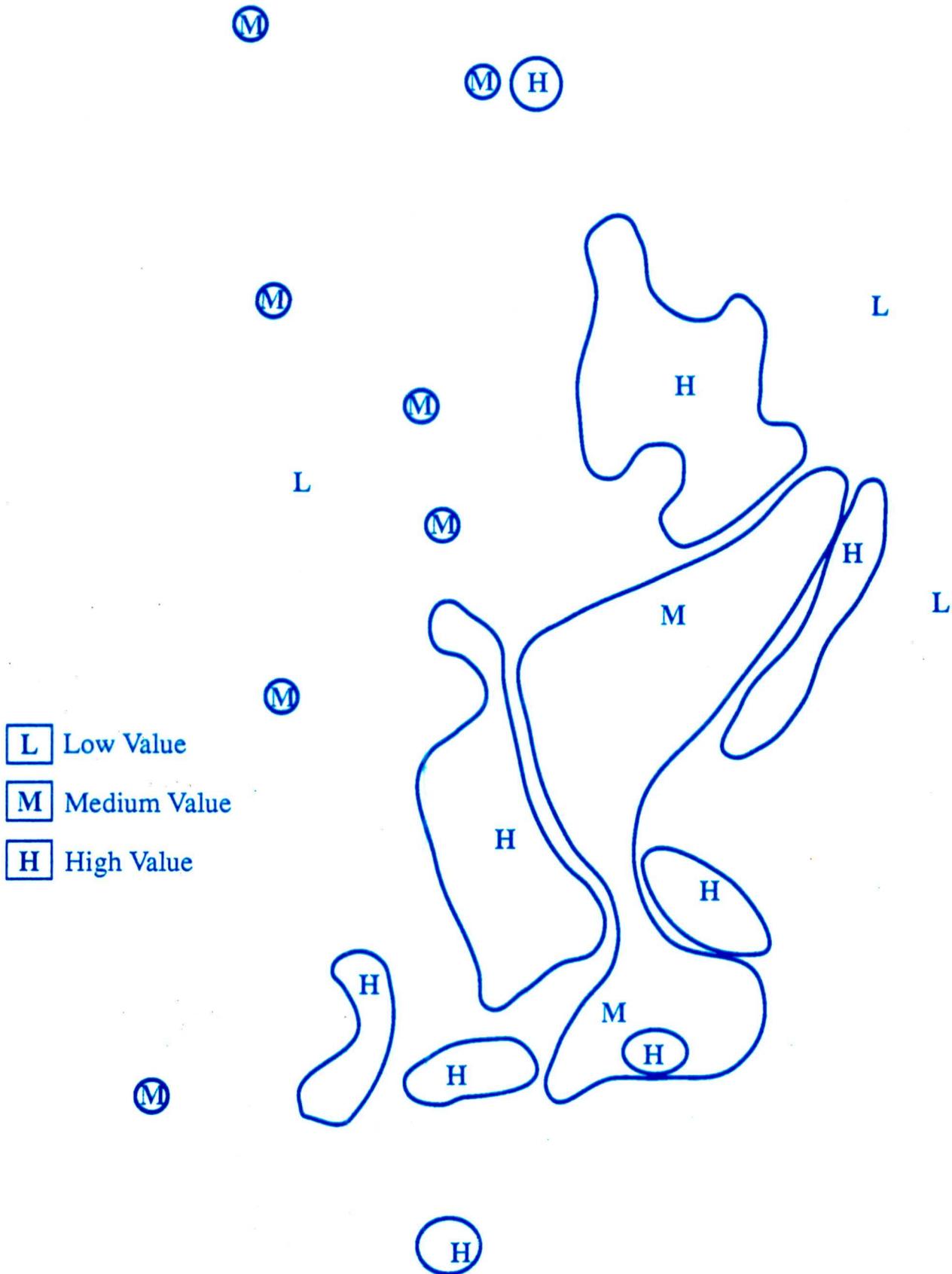
Wildland Fire Prevention Base Map

Draft Values

- L** Low Value
- M** Medium Value
- H** High Value



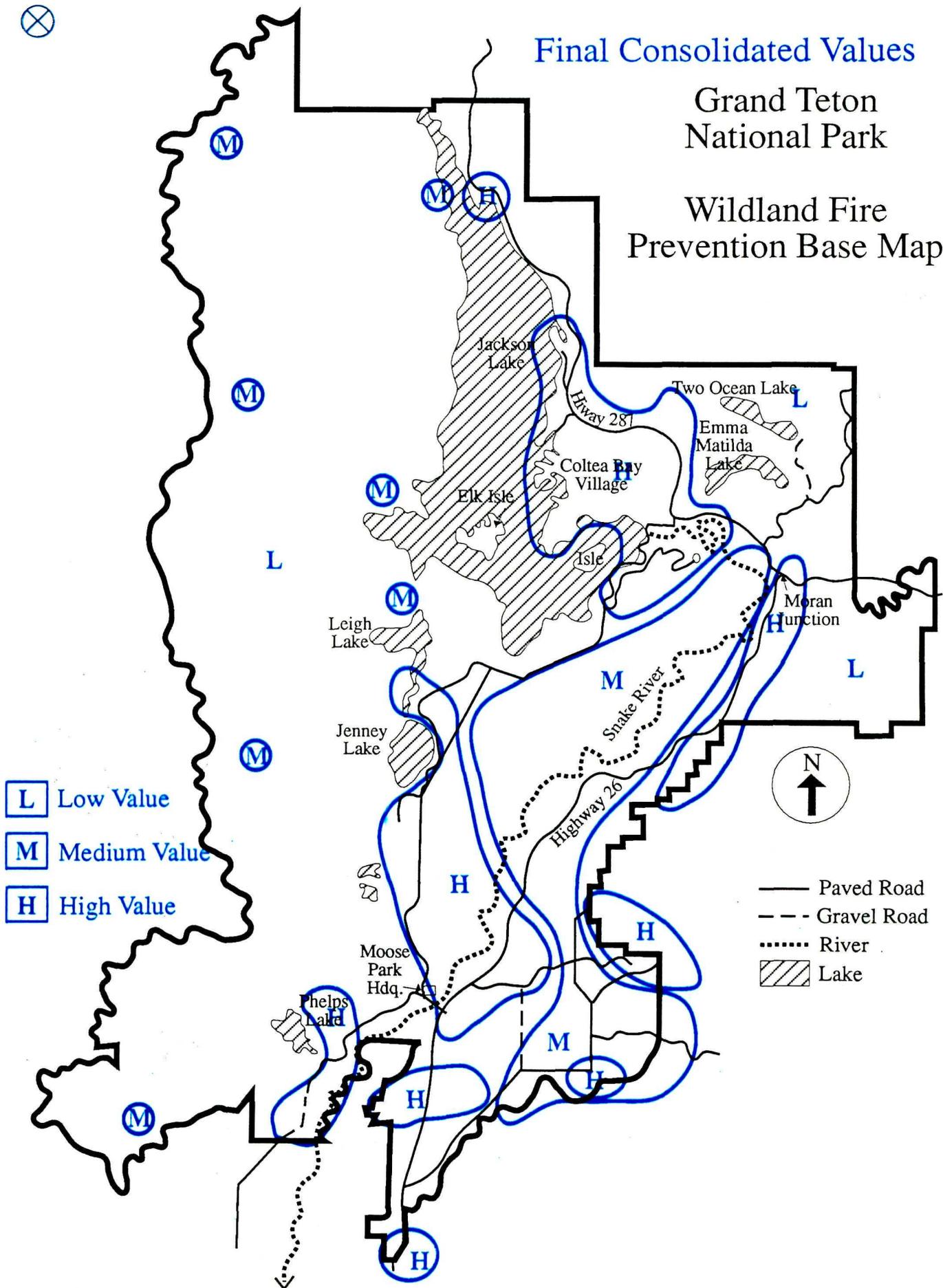
Final Consolidated Values



Final Consolidated Values

Grand Teton National Park

Wildland Fire Prevention Base Map



Example #5

At this point in the analysis it is helpful to look at the historical human-caused fire occurrence. The historical fires can be plotted on the base map, on a new overlay or on a separate occurrence map. Plot the fire in numerical sequence with an index attached.

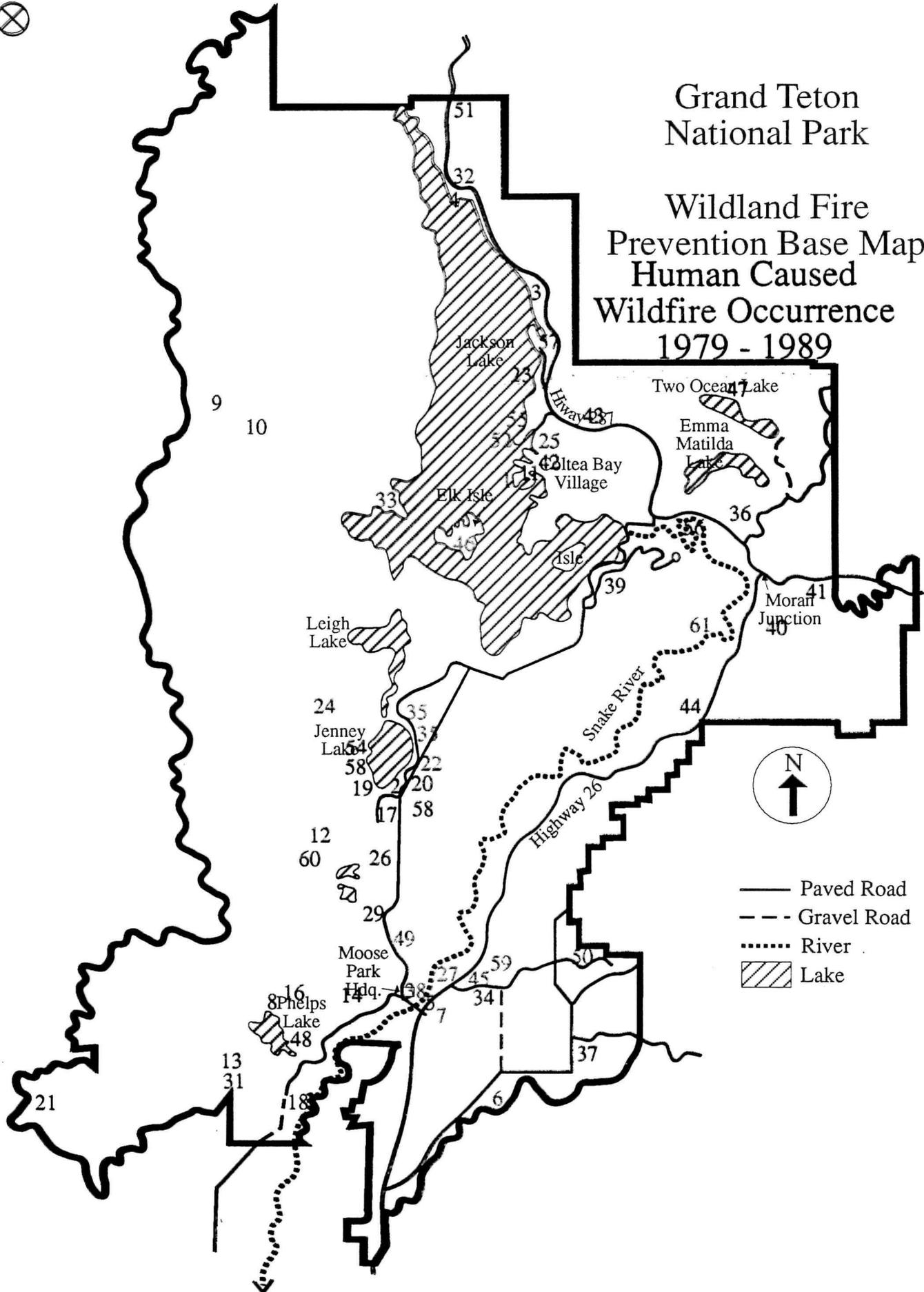
Remember that the comparison of historical fires to the unit's risk areas is for verification and minor adjustments. There can be high risk areas with little or no recorded fires. That is why the comparison comes is done after the risk, hazard, and values have been determined. This preserves the broad picture and allows for flexibility in anticipating future patterns.

Knowing the specific causes of the historical ignitions will assist in the development of targeted actions for the final established compartments. Plotting future ignitions can also indicate a need to review or modify the prevention efforts as change occurs.

Historical structure fire can be included to identify problems and then target specific actions. Remember structure on fire in the interface threaten wildlands.

Grand Teton National Park

Wildland Fire Prevention Base Map Human Caused Wildfire Occurrence 1979 - 1989



HUMAN-CAUSED FIRES 1979-1989

<u>NO.</u>	<u>YEAR</u>	<u>NAME</u>	<u>DATE</u>	<u>TWN</u>	<u>RNG</u>	<u>SEC</u>	<u>LON</u>	<u>LAT</u>	<u>CAUSE</u>	<u>ACRES</u>	
1.	1979	Colter Bay	10-02-79	45N	115W	3	110 38	43 54	Unknown	2.0	
2.	1979	Jenny	07-18-79	45N	116W	26	110 44	43 45	Smoker	.1	
3.	1979	Arizona	07-17-79	46N	115W	10	110 38	43 58	Campfire	.1	
4.	1979	Lizard	07-14-79	47N	115W	29	110 41	44 00	Campfire	.1	
5.	1979	Menor	07-03-79	43N	116W	25	110 43	43 39	Fireworks	.1	
6.	1980	Gros Ventre	08-10-80	42N	115W	8	110 41	43 37	Unknown	2.0	
7.	1980	Blacktail	08-07-80	43N	115W	30	110 42	43 40	Unknown	.1	
8.	1980	White Grass	06-27-80	43N	116W	28	110 47	43 39	Powerline	.1	
9.	1980	Moose Basin	08-10-80	8 miles West of Jackson Lake						Campfire	.1
10.	1981	Moose Basin	09-09-81	46N	116W	18	110 49	43 57	Campfire	.1	
11.	1981	CBN305	09-08-81	46N	115W	34	110 39	43 54	Unknown	.1	
12.	1981	Glacier Gulch	09-18-81	44N	116W	33	110 46	43 44	Campfire	.1	
13.	1981	Granite	08-02-81	42N	117W	12	110 51	43 36	Campfire	.1	
14.	1981	Trail	09-21-81	43N	116W	27	110 45	43 40	Smoker	95.0	
15.	1981	Flagg	07-31-81	48N	115W	21	110 40	44 07	Smoker	.1	
16.	1981	White Grass	07-04-81	43N	116W	33	110 46	43 39	Unknown	.1	
17.	1981	Julie	07-01-81	44N	116W	25	110 43	43 45	Campfire	.1	
18.	1981	Granpark	08-07-81	42N	116W	17	110 47	43 36	Campfire	.1	
19.	1981	Jenny 3	09-08-81	44N	116W	26	110 44	43 45	Smoker	.1	
20.	1981	Jenny 2	08-16-81	44N	116W	25	110 43	43 45	Smoker	.1	
21.	1981	Mid Fork	08-12-81	42N	117W	18	110 55	43 36	Campfire	.1	
22.	1981	Jenny	08-02-81	42N	116W	25	110 43	43 45	Smoker	.1	
23.	1981	Pelican	08-04-81	46N	115W	27	110 39	43 55	Campfire	.1	
24.	1981	Holly	09-05-81	44N	116W	8	110 47	43 47	Campfire	.1	
25.	1981	CB Trailer	09-22-81	46N	115W	34	110 39	43 54	Smoker	.1	
26.	1981	Fabian	09-08-81	43N	116W	2	110 43	43 43	Campfire	.1	
27.	1982	Colley JL	07-19-82	43N	116W	24	110 45	43 45	Unknown	.1	
28.	1982	Larson	07-18-82	44N	116W	13	110 45	43 45	Unknown	1.0	
29.	1983	Taggart	08-19-83	43N	116W	14	110 44	43 42	Powerline	.1	
30.	1983	Picnic	07-30-83	48N	115W	33	110 39	44 05	Trash Fire	.3	
31.	1984	Granite	07-15-84	42N	116W	7	110 49	43 37	Campfire	.1	
32.	1984	Lizard	07-07-84					44 00	Fireworks	.1	
33.	1984	N. Moran Bay	07-15-84	45N	115W	18	110 35	43 51	Campfire	.1	
34.	1985	Mormon Row	07-02-85				110 41	43 38	Fireworks	1.0	
35.	1985	Jenny Lake	07-14-85				110 43	43 46	Campfire	.2	
36.	1985	Lozier Hill	07-03-85	45N	114W	15	110 32	43 57	Powerline	.1	
37.	1985	Rocket	08-26-85				110 38	43 38	Fireworks	.5	
38.	1985	Lazy	08-28-85				110 42	43 40	Powerline	.2	
39.	1985	Signal	Unknown							.1	

<u>NO.</u>	<u>YEAR</u>	<u>NAME</u>	<u>DATE</u>	<u>TWN</u>	<u>RNG</u>	<u>SEC</u>	<u>LON</u>	<u>LAT</u>	<u>CAUSE</u>	<u>ACRES</u>
40.	1986	G Loop	08-17-86	45N	114W	33	110 38	43 54	Smoker	.1
41.	1986	Sheer P1	07-04-86	45N	113W	30	110 29	43 50	Powerline	.1
42.	1986	B&U	07-03-86	45N	115	35	110 36	43 53	Children	.1
43.	1986	Colter A	06-30-86	45N	115W	36	110 37	43 55	Smoker	.1
44.	1986	Wolfe	09-04-86	44	114	9	110 33	43 47	Smoker	.1
45.	1987	Molton	10-21-87	43N	115W	20	110 39	43 40	Trash	1.5
46.	1988	North Bar	07-12-88	45N	115W	16	110 40	43 52	Campfire	3.7
47.	1988	Weiser	07-16-88				110 31	43 55	Campfire	1.0
48.	1988	White Grass	07-24-88	43N	116W	28	110 46	43 39	Unknown	.1
49.	1988	Power	07-24-88				110 44	43 42	Powerline	.1
50.	1988	Hunter	08-20-88	43N	115W	23	110 37	43 41	Powerline	156.0
51.	1988	Huck	08-20-88	47N	115W	5	110 42	44 04	Powerline	2700.0
52.	1988	Lake Trail	08-06-88	46N	115W	34	110 38	44 54	Campfire	.1
53.	1988	Springer	08-09-88				110 46	45 44	Trash	.1
54.	1988	Perch	07-14-88	44N	116W	24	110 42	43 46	Unknown	.1
55.	1988	Groupsite	09-05-88	46N	115W	34	110 29	43 55	Smoker	.1
56.	1988	Oxbow	06-17-88	45N	114W	16	110 34	43 52	Powerline	.1
57.	1988	RV Stump	07-02-88	46N	115W		110 38	43 54	Stove Sparks	.1
58.	1989	Timbered Island	07-09-89	44S	116W	12	110 43	43 42	Dump Fire	.5
59.	1989	Craighead	08-04-89				110 40	43 40	Unknown	.1
60.	1989	Surprise	08-19-89				110 47	43 43	Smoker	.1
61.	1989	Nightrider	09-07-89	45N	114W	33	110 34	43 54	Smoking Debris	.1

TOTAL ACRES 2969.5

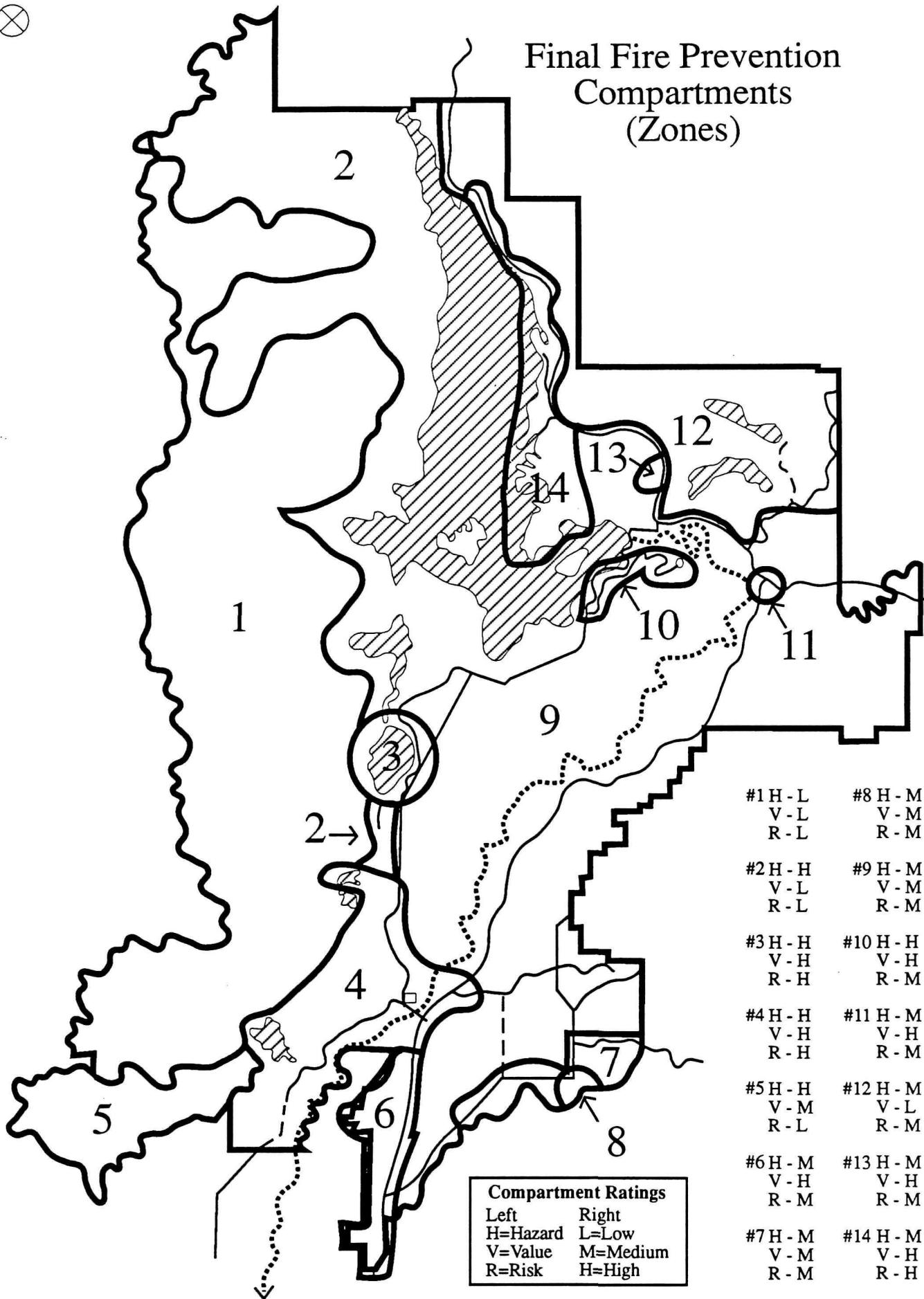
Example #6

The three overlays are now integrated into one overlay or map of the whole unit. The original risk area boundaries can be used for the final compartment, but as in the example other compartments can be designated to meet unique conditions. The process, however, must still remain fairly general.

Each final compartment must be identified by a name and a number and given a rating for risk, hazard, and value. For instance unit #1 GRTE is given a LLL meaning low risk, low hazard, and low value. A narrative must be written for each compartment, describing the factors that made up the ratings. Additionally a prevention prescription must be written describing the specific prevention action to be taken and by whom. As in this example, units can write general actions that cover all compartments and only mention specific actions for an individual compartment, should that compartment have a unique prevention problem.

Now with all the compartments rated comparisons can be made on priority actions. Managers can immediately see that the analysis shows zone #3 GRTE with a HHH rating should receive priority over zone #1 GRTE which rated out LLL.

Final Fire Prevention Compartments (Zones)



Compartment Ratings	
Left	Right
H=Hazard	L=Low
V=Value	M=Medium
R=Risk	H=High

#1 H-L V-L R-L	#8 H-M V-M R-M
#2 H-H V-L R-L	#9 H-M V-M R-M
#3 H-H V-H R-H	#10 H-H V-H R-M
#4 H-H V-H R-H	#11 H-M V-H R-M
#5 H-H V-M R-L	#12 H-M V-L R-M
#6 H-M V-H R-M	#13 H-M V-H R-M
#7 H-M V-M R-M	#14 H-M V-H R-H

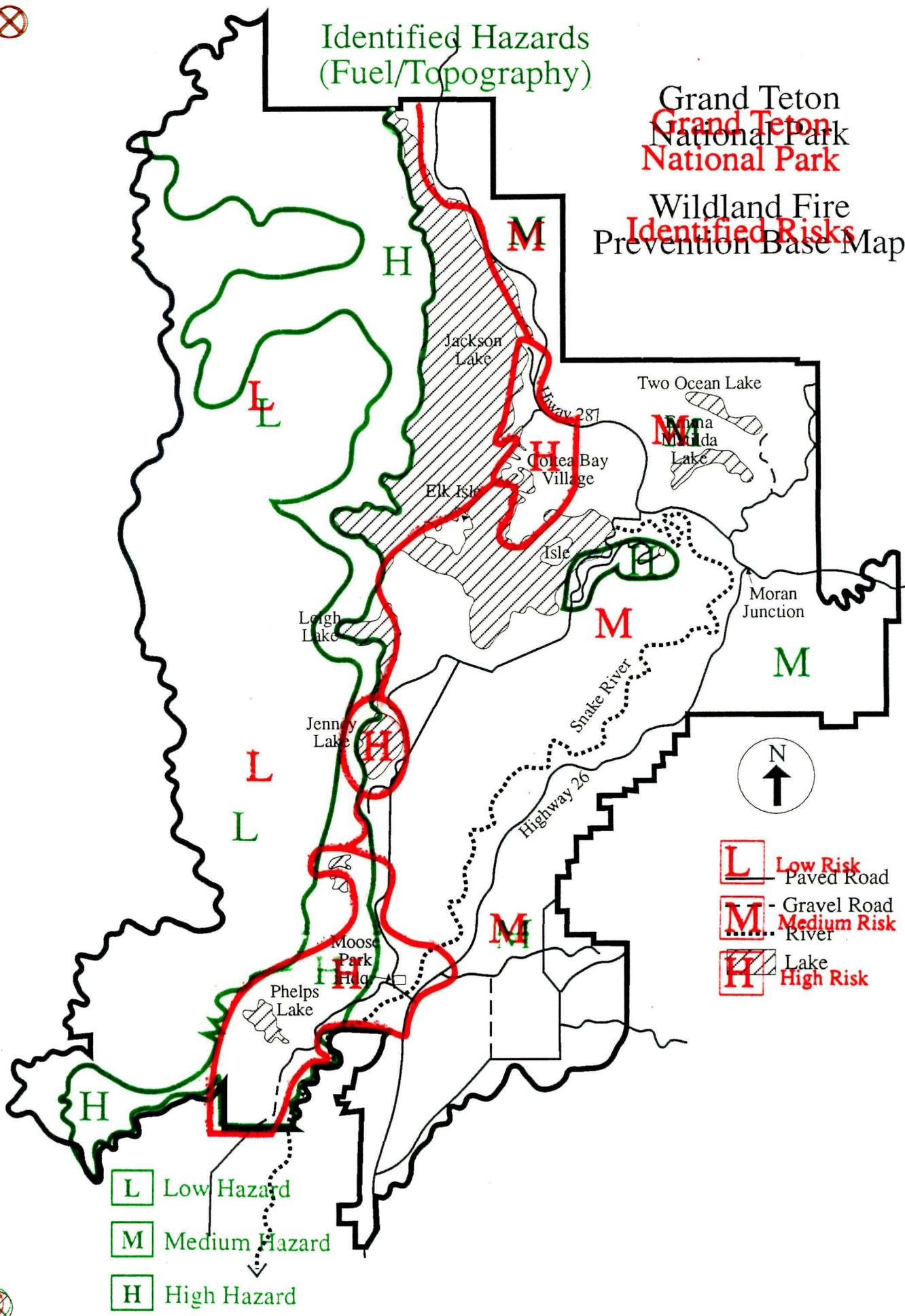


Identified Hazards
(Fuel/Topography)

Grand Teton
National Park

Wildland Fire
Identified Risks

Prevention Base Map



- L Low Hazard
- M Medium Hazard
- H High Hazard

- L Low Risk
— Paved Road
- M Medium Risk
— Gravel Road
- H High Risk
— River
- H High Risk
— Lake





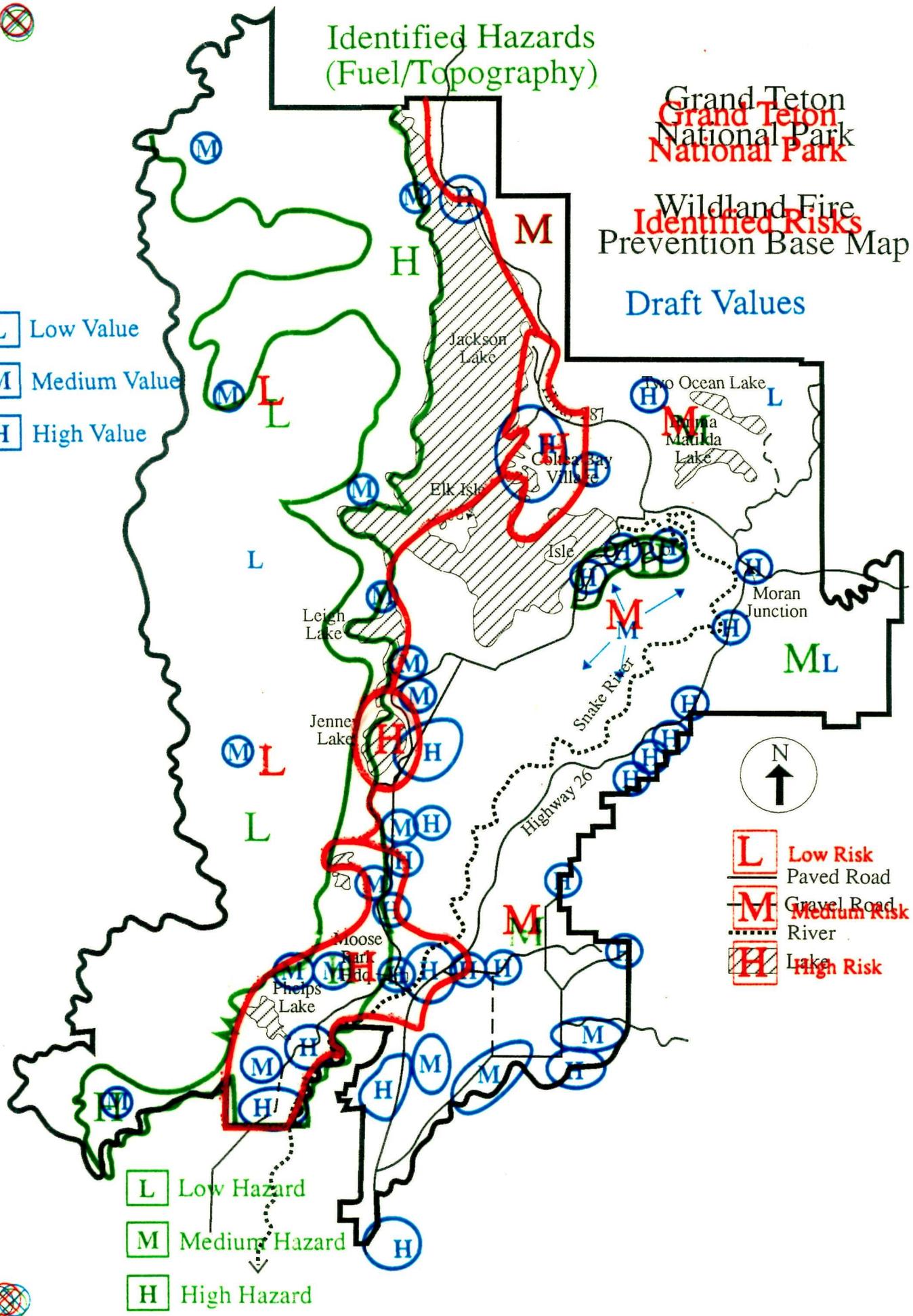
Identified Hazards (Fuel/Topography)

Grand Teton
National Park

Wildland Fire Prevention Base Map

Draft Values

- L Low Value
- M Medium Value
- H High Value



- L Low Risk
Paved Road
- M Medium Risk
Gravel Road
- H High Risk
River

- L Low Hazard
- M Medium Hazard
- H High Hazard





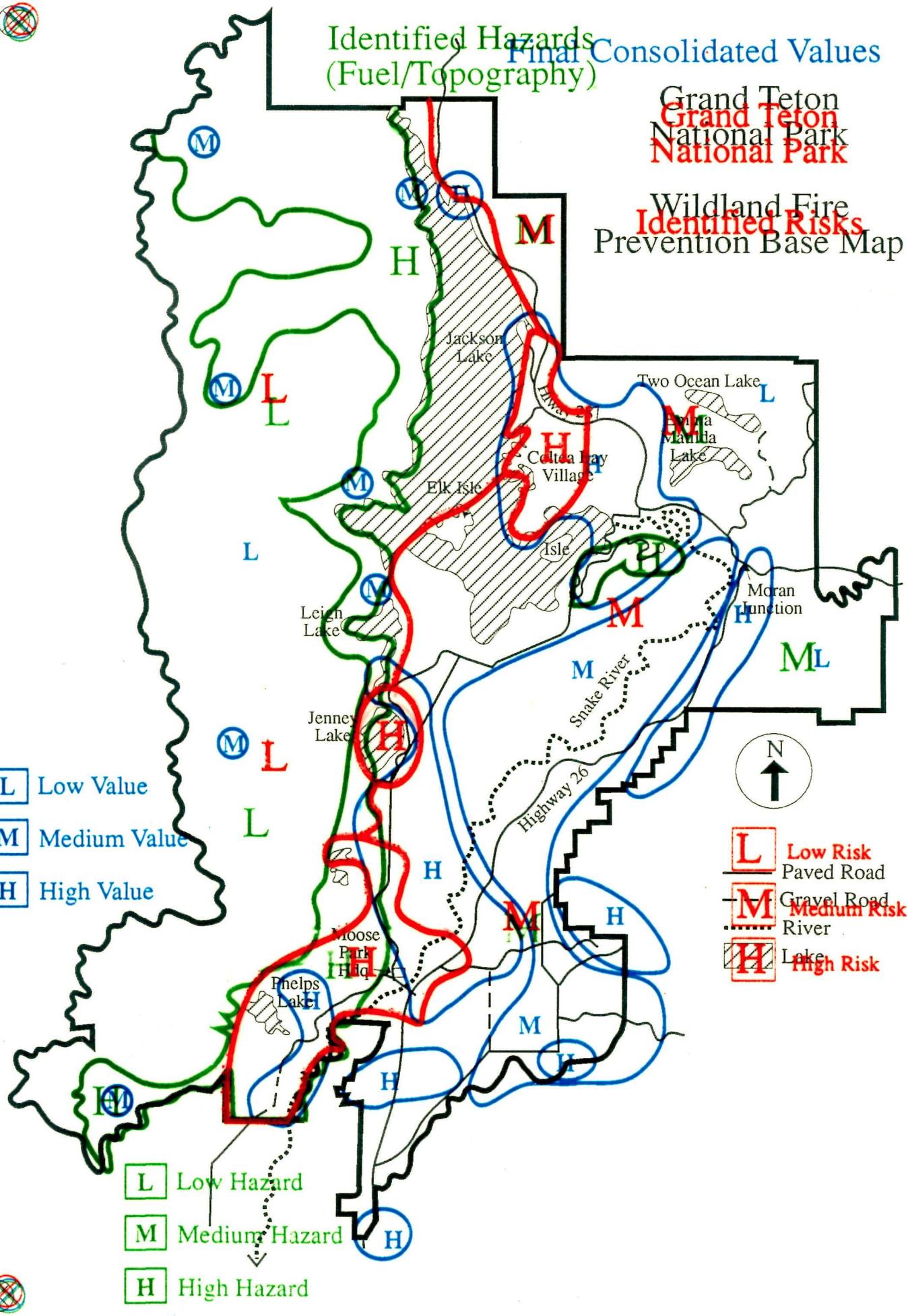
Identified Hazards (Fuel/Topography) Final Consolidated Values

Grand Teton National Park
Wildland Fire Prevention Base Map
Identified Risks

- L Low Value
- M Medium Value
- H High Value

- L Low Risk Paved Road
- M Medium Risk Gravel Road
- H High Risk River
- H High Risk Lake

- L Low Hazard
- M Medium Hazard
- H High Hazard



FIRE PREVENTION

A major objective of the park's overall fire management program is to reduce human-caused wildland fires.

In early 1990, Grand Teton was selected to be the pilot park for the development of a new servicewide process for analyzing human-caused fires in park areas and selecting appropriate and achievable action items for reducing these fires.

The analysis was completed by developing a series of overlays of the park base map which defined and assigned relative values of High, Moderate and Low to specific Risk Areas, Value Areas, and Hazard Areas for the entire park. High Risk Areas were defined as those areas of concentrated human activity within the park, where the likelihood of a human ignition is greater. Hazard Area ratings were developed based on fuel bed characteristics and topography. An interdisciplinary group of park staff assigned value ratings to areas where fire presented unacceptable potential impacts to park resources, developments or public safety. After plotting all human-caused fires known to have occurred in the last ten years, the overlays were interpolated to establish final "Fire Prevention Zones", each with its own specific Risk, Hazard, and Value Rating.

Concurrently with this process, the causes of the 61 human-caused fires which had occurred in the park in the last ten years were more closely examined. This analysis identified three major causes of fires which were common to the park as a whole, as opposed to specific to a particular fire prevention zone. These were, smokers, campfires and powerlines. Again, utilizing an interdisciplinary group of park staff, a list of General Action Items - fire prevention efforts that would be parkwide in scope, and which would address these broad, park-wide problems, were identified.

After identifying the General Action Items which would be parkwide in scope, each of the Fire Prevention Compartments was reexamined to determine if the General Action Items would adequately address the human-caused fire problem in that area or if SPECIFIC ACTION ITEMS were needed to address problems specific to that area. Finally, assignments of responsibilities and implementation dates were assigned to each of the GENERAL and SPECIFIC ACTION ITEMS.

A formal record of the full planning process for the park, including the base maps, overlays and complete Fire Prevention Compartment descriptions are on file in the Fire Management Office. For a more complete description of the analysis process, see NPS-18 Chapter 11, and the NPS Fire Prevention Handbook.

The Fire Prevention Action Plan, which will be reviewed annually and updated as necessary, appears as Appendix C to this plan.

APPENDIX C

FIRE PREVENTION ACTION PLAN

GENERAL ACTIONS

The following General Action Items have been identified as elements in the park's overall Fire Prevention Program. They are designed specifically to address the three major causes of human-caused fires in Grand Teton in the last ten years; powerline fires, fires resulting from smokers and escaped campfires.

Powerlines

1. Several miles of powerlines were converted to underground in 1989. The line in the Oxbow area will be undergrounding in 1990. Continue to pursue agreements with LVP&L to install underground powerlines wherever possible.

Responsible person: Chief of Maintenance On-going

2. Grand Teton has an 5 year agreement with LVP&L in which the power company pays the park to maintain and remove hazard trees along the powerline corridor. This program will remain in place and an effort made to extend the agreement.

Responsible person: Chief of Maintenance On-going

3. Following the 1988 fires, LVP&L has installed state-of-the art- fault interruption equipment which shuts off power whenever a tree falls on the lines. Use of the best available fault interruption technology will continue to be encouraged in the park.

Responsible person: Chief of Maintenance On-going

4. LVP&L will be encouraged to consolidate powerlines where and when possible, particularly in the Moran Area.

Responsible person: Chief of Maintenance On-going

5. The Mobilization Step-Up Plan will call for increased prevention patrols and/or aerial detection of powerline fires following major wind events.

Responsible person: Fire Management Officer Completed

Campfires/Smokers

Many of the efforts focused on smokers and the campfire problem overlap and therefore are presented here together. Many of these action items involve public information efforts. It is critical to emphasize that all fire prevention messages will explain the differences between human-caused wildfire and prescribed fires with respect to park ecosystems and threats to park developments.

1. A human-caused fire prevention message will be developed and included in the summer edition of the park's newspaper, the Teewinot.

Responsible person: Fire Management Officer Completed

2. Fire danger signs will be developed and proposed to the Park Sign Committee for installation at Moose and Moran Entrance Stations.

Responsible person: Fire Management Officer 6/1/91

3. A human-caused fire prevention poster will be procured or developed for installation on campground and picnic area bulletin boards, concession facilities and other appropriate locations.

Responsible person: Fire Management Officer 6/1/91

4. The Backcountry Handout and the Backcountry Permit will be reviewed and revised if necessary to ensure that an adequate fire prevention message is included.

Responsible person:

Review: Fire Management Officer 12/31/90
Revise (If Necessary): Jenny Lake Sub-Dist. Rgr. 3/15/91

5. The ParkWatch newspaper will be reviewed and revised if necessary to ensure that an adequate fire prevention message is included.

Responsible person:

Review: Fire Management Officer 12/31/91
Revise (If Necessary): LE Specialist 6/1/91

6. A fire prevention message will be developed and included in the park's visitor information computer system.

Responsible person: Fire Management Officer 6/1/91
Computer Specialist

7. Concession operations will continue to be encouraged and required when possible to convert outside cooking sites to gas grills rather than open fires.

Responsible person: Concession Specialist On-going

8. The installation of an AM radio Tourist Information System will be investigated. If approved, a fire prevention message will be developed and included in the visitor message.

Responsible person: Chief Naturalist

Evaluate suggestion: Asst. Chief Ranger 12/31/90
Chief Naturalist

Develop message: Fire Management Officer
Chief Naturalist

9. The Park Step-Up Plan for Wildland Fire will call for increased fire prevention patrols and the broadcast of public service announcements during periods of High Fire Danger in the park.

Responsible person: Fire Management Officer Completed
Public Affairs Officer On-going

10. As the park's Memorandums of Understanding regarding wildland fire with neighboring agencies are revised, cooperative fire prevention efforts will be explored and implemented.

Responsible person: Fire Management Officer On-going

SPECIFIC FIRE PREVENTION ZONE RATINGS/ACTION ITEMS

FP ZONE #1 - HIGH MOUNTAIN/BACKCOUNTRY ZONE

HAZARD

Low Steep rocky slopes, above timberline. Sparse patchy vegetation.

VALUE

Low No structural, cultural, or natural resources which would be significantly threatened by fire.

*There are several backcountry patrol cabins in the mountain canyons of moderate value.

RISK

Low Limited risk due to prohibition on all backcountry fires and steep rugged terrain, accessed mainly by serious hikers and climbers.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Fire prevention messages delivered by permit staff at time of issuance of backcountry permit.
2. Backcountry handout will contain fire prevention message.
3. Backcountry permits will contain fire prevention message.
4. Trailhead posters will contain fire prevention message.
5. Education/enforcement through normal backcountry patrols.
6. Seasonal training will emphasize need for fire prevention education/enforcement.
7. Target special use groups; NOLS, Exum, Jackson Hole Mountain Guides.

Responsible person(s):

Message Development:

Fire Management Officer 02-15-91
Jenny Lake Sub District Ranger

Implementation:

Jenny Lake Sub District Ranger 06-15-91
Permits Office

FP ZONE #2 - EASTERN FACING SLOPES WEST OF GLACIAL LAKES

HAZARD

High Steep slopes covered with dense lodgepole pine/fir forests.

VALUE

Low No structural, cultural, or natural resource values which would be significantly threatened by wildfire.

*One Ranger cabin in Berry Creek of moderate value.

RISK

Low No developed recreational activities; prohibition on backcountry fires.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Adequately addressed by actions for Zone 1.

Responsible Persons: Same as for Area #1

FP ZONE # 3 - JENNY LAKE AREA

HAZARD

High Steep slopes with thick lodgepole pine stands. The west side consists of flashy grass and sage fuels.

VALUE

High Numerous government buildings, and major concessioner facilities.

RISK

High Historical incidence of human caused fires; primarily campfires and smokers. Risks are associated with heavy day use (day hiking, fishing, etc.)

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Trailhead posters will contain fire prevention messages.
2. Campground bulletin boards will contain fire prevention message.
3. Ranger Station will contain fire prevention message.

Responsible Person:

Jenny Lake Sub District Ranger

06-15-91

FP ZONE # 4 - MOOSE/BEAVER CREEK/JY RANCH CORRIDOR

HAZARD

High Dense lodgepole pine/fir forests on the west side. East side consists of flashy grass and sage fuels.

VALUE

High Numerous government buildings, including Park Headquarters. Numerous inholdings and residences, ranches, etc.

RISK

High Historical incidence of human caused fire (fireworks, campfires, trash and powerlines). High use area. Major entry point into backcountry.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Fireworks education at Moose/Beaver Creek.
2. Letters to inholders re: trash burning.
3. Improved internal communications regarding fire prevention.

Responsible Person:

Fire Management Officer On-going

FP ZONE # 5 - GRANITE CANYON ZONE

HAZARD

High Steep slopes covered with lodgepole pine and fir forests.

VALUE

Moderate Has a Ranger cabin located in the center of the zone. Borders on National Forest, with Jackson Hole Ski Area immediately adjacent to the zone.

RISK

Low Very limited use, no structural, cultural or natural resources threatened by wildfire.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. General fire prevention actions and actions slated for Zones #1 and #2 adequate.

FP ZONE # 6 - JACKSON HOLE AIRPORT ZONE

HAZARD

Moderate Flashy grass and sage fuels throughout the zone.

VALUE

High Numerous private inholdings with structures at Jackson Airport.

RISKS

Moderate Much human activity associated with private residences and commercial airport activities.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Coordination with airport.
2. Education/enforcement with inholders.
3. Improved internal communication for maintenance activities.

Responsible Persons:

Fire Management Officer On-going
South District Ranger

FP ZONE # 7 - GROS VENTRE CAMPGROUND AREA

HAZARD

Moderate Flashy sage and grass fuels bordering Gros Ventre River.

VALUE

Moderate Gros Ventre Campground and interfaces with the town of Kelly.

RISK

Moderate Some historical fire incidence (fireworks and other).
Heavy recreational use, plus activities associated with town of Kelly.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Campground bulletin board will contain fire prevention messages.
2. Education/Enforcement in campground.
3. Fire prevention messages included in campground interpretive programs.

Responsible Persons:

Gros Ventre Sub District Ranger On-going
South District Interp. Staff

FP ZONE # 8 - KELLY ZONE

HAZARD

Moderate Flashy fuels of grass and sage throughout the area.

VALUE

High Town of Kelly, private inholdings, private electrical substation.

RISK

Moderate Risks are associated with activities occurring within and around town of Kelly.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Fire Prevention letters to inholders.
2. Annual fire prevention program at Kelly School during Fire Prevention Week.
3. Ranger contacts/enforcement
4. Fire Prevention poster in Kelly Post Office.

Responsible Persons:

Fire Management Officer 06-01-91
Gros Ventre Sub District Ranger

FP ZONE # 9 -ANTELOPE FLATS ZONE

HAZARD

Moderate Large zone consisting of flashy grass and sage fuels. Zone is dissected by the Snake River. There are some pockets of lodgepole pine stands.

VALUE

Moderate Some private inholdings with structures.

RISK

Moderate Historical fire occurrence (powerlines, dumps, smokers and campfires). Major roads through the park. Much recreational activity associated with Snake River.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. General prevention actions adequate.
2. Target construction crews. Deliver fire prevention messages during pre-construction conferences.

Responsible Person(s):

Fire Management Officer On-going
Gros Ventre Sub-District Ranger

FP ZONE # 11 - MORAN JUNCTION AREA

HAZARD

Moderate Lodgepole pine and fir forests on primarily flat terrain.

VALUE

High Structural developments, government buildings, Park housing, school, post office, power sub-station, etc. Community of Moran Junction.

RISK

Moderate Risks are associated with activities from town, children, etc.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Annual fire prevention program at Moran School during Fire Prevention Week.
2. Coordination with fire department.
3. Poster in Post Office.
4. Improved internal communications with employees.
5. Entrance station fire danger sign proposed to Sign Committee.
6. Continue to consolidate/underground powerlines.

Responsible Persons:

Fire Management Officer
Buffalo Sub District Ranger

06-01-91

FP ZONE # 12 - TWO OCEAN LAKE ZONE

HAZARD

Moderate Lodgepole pine forests on moderate slopes.

VALUE

Low No structures, cultural or natural resources threatened by wildfire.

RISK

Moderate Historical fire occurrence (powerlines, smokers and campfires).
This area open to elk hunting in October.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Hunters information handout will contain fire prevention message.
2. Fire prevention posters in hunt camps when necessary due to fire danger.
3. Fire Prevention posters at developed areas.

Responsible Persons:

Buffalo Sub District Ranger 06-01-91

FP ZONE # 13 - JACKSON LAKE LODGE ZONE

HAZARD

Moderate Tall grass interfacing lodgepole pine forest.

VALUE

High Jackson Lake Lodge inholding

RISK

Moderate Risks are associated with human activity in and around lodge.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Campground/trailhead bulletin boards will contain fire prevention message.
2. Concession activities; education/enforcement.

Responsible Persons:

Buffalo Sub District Ranger

06-01-91

FP ZONE # 14 - COLTER BAY ZONE

HAZARD

High Lodgepole pine forests on mild slopes; heavy fuel accumulations.

VALUE

High Numerous government buildings and major concessioner developments.

RISK

High Major hiking trail to Hermitage Point. Several campgrounds with outdoor fire facilities. Numerous historical fire incidents (stove sparks, campfires, smokers, children, etc).

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Campground Bulletin Boards will contain fire prevention message.
2. Concession activities; education/enforcement.
3. On-going hazard fuel reduction
4. Interpretive programs will contain fire prevention messages.
5. Education/Enforcement.
6. On-going consolidation/undergrounding of powerlines.
7. Improved internal communications on fire prevention issues.
8. Trailhead Bulletin Boards will contain a fire prevention message.

Responsible Persons:

Fire Management Officer 06-01-91
Colter Bay Sub District Ranger
North District Naturalist

FP ZONE # 15 - JOHN D. ROCKEFELLER, JR. MEMORIAL PARKWAY #1

HAZARD

Moderate Lodgepole pine/fir forests on moderate slopes.

VALUE

Low No developments, cultural or natural resources threatened by wildfire.

RISKS

Low Very little use. some hunting in fall months. No historical fire occurrence.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Hunter information will contain fire prevention message.
2. River handout will contain a fire prevention message.

Responsible Persons:

John D. Rockefeller Sub District Ranger

06-01-91

FP ZONE # 16 - JOHN D. ROCKEFELLER, JR. MEMORIAL PARKWAY (FLAGG RANCH)

HAZARD

Moderate Lodgepole pine on relatively flat topography.

VALUE

High Flagg Ranch concession lies within the zone.

RISK

High Recreational use (horseback riding, hiking, cookouts, boating, etc.) associated with Flagg Ranch.

SPECIFIC PREVENTION ACTIONS REQUIRED

1. Concession activities; education/enforcement.
2. Campground/trailhead bulletin boards will contain a fire prevention message.
3. Fireworks enforcement.

Responsible Person:

John D. Rockefeller Sub-District Ranger

6/1/91

AVAILABLE LITERATURE

Policy Guidance for wildfire prevention in the National Park Service can be found in NPS-18, Section III, Chapter 3.

Behavioral Science Applications in the Fire Prevention Job
PMS 905-1 NFES 1590

Wildfire Prevention Handbook NWCG Handbook 4
PMS 450-1 NFES 1818

Wildfire Prevention Job Performance Analysis
P-331-1 NFES 1588

Wildfire Prevention Training Course Development Guidelines
P-900-1 NFES 1589

Copies may be ordered from:

Boise Interagency Fire Center
Bureau of Land Management Warehouse
3905 Vista Avenue
Boise, Idaho 83705

