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Wildfire Prevention Patrol Guide



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Wildfire Prevention Patrol Guide



Preface

This Wildfire Prevention Guide is a project of the National Wildfire Coordinating Group. This guide is one in a series designed to provide information and guidance for personnel who have interests and/or responsibilities in fire prevention.

Each guide in the series addresses an individual component of a fire prevention program. In addition to providing insight and useful information, each guide suggests implementation strategies and examples for utilizing this information.

Each Wildfire Prevention Guide has been developed by Fire Prevention Specialists and subject matter experts in the appropriate area. The goal of this series is to improve and enhance wildfire prevention programs and to facilitate the achievement of NWCG program goals.

NWCG Wildfire Prevention Guide development:

- Conducting School Programs (1996)
- Event Management (1996)
- Wildfire Prevention Marketing (1996)
- Wildfire Prevention and the Media (1998)
- Wildfire Prevention Strategies (1998)
- Wildfire Prevention Patrol Guide (1998)

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Fire Occurrence Matrix

Fire Occurrence - Specific Cause Chart

Fire Occurrence - Types of Users Chart

Fire Occurrence - Patterns of Human Use

Fire Occurrence Analysis

Wildfire Prevention Daily Contact Log

Wildfire Prevention Key Contact List

Introduction & Objective

1.0

The use of our wildlands by people, living, working and recreating is increasing rapidly in today's world. Many areas that received light visitor use a few years ago, now experience large numbers of people over an extended recreational season.

The increased use of our wildlands escalates the risk of fire ignitions which threaten and damage human life, homes, property and natural resources.

The wildfire prevention strategies which are most effective dealing with these types of human ignitions fall within the categories of education and enforcement. The most effective implementation of these prevention actions occur immediately before, during or after these activities take place. For example, it is proven that the most effective prevention actions that reduce recreational campfire ignitions include posting signs at specific camping locations, educating the specific target or user group and conducting highly visible patrols during periods of high fire danger.

The irony of this situation is that as human-use of our wildland areas has increased, agency patrols and presence in these use areas has often decreased—generally, as a result of increased operating costs and decreased agency staffing.

The challenge to proactively prevent unwanted loss of life, property and natural resources then becomes “Implement effective prevention patrols in high risk, hazard and value areas during periods of increased fire danger with limited resources.”

This guide is designed to help you take this first step and develop the appropriate and effective patrol plan for your area. The challenge that may remain is to garner agency support for and implement a proactive prevention program.

PATROL

Route of travel over a given area to prevent, detect and suppress fires. The primary purpose is for the patrol unit to be seen in areas of person-caused or in areas of high probability of fire ignitions.

OBJECTIVE

The objective of this guide is to provide Fire Management Specialists having patrol responsibilities, wildfire prevention techniques which will reduce unwanted wildland fire ignitions, suppression costs, damages to property and natural resources and reduce the risk of exposure from wildfire to firefighters and the public.

Developing a Patrol Plan

2.0

The objective of a Wildfire Prevention Patrol program is to effectively reduce the incidence of unwanted wildland fires and the resulting damages and exposure to life, property and natural and cultural resources.

An efficient prevention patrol program is well planned to target historical and potential fire causes in priority locations during the most effective time periods. It must remain flexible with a shifting emphasis that responds to changes in risk, hazards, values, historical and potential ignitions.

Wildfire prevention patrolling can provide the foundation for a strong fire management program by (1) strengthening communications with an agency and its users and neighbors, (2) increasing suppression effectiveness through early detection, and (3) preventing fires before they start and cause damage.

I. ASSESSMENT

An assessment of risks (potential to ignite), hazards (potential to burn), values (potential for loss) and historical fire occurrence will help determine the why, when, where and how's of the most effective prevention patrol plan.

A. Assessing the Wildfire Situation

The Wildfire Prevention Patrol Plan must take into account the wildfire occurrence situation (potential and historic). It is important to fully understand:

1. What is the recent wildfire problem:



- a. Specific fire cause.
 - b. Size of fire.
 - c. Location.
2. Where “potential” wildfire ignitions are likely to occur.
 3. Who is responsible for the ignition (types of users).
 - a. What are the patterns of human use that result in ignitions?
 - b. When do these ignitions occur?

(See Appendix for data tables helpful in capturing this information.)

II. PLANNING

Prevention strategies selected and applied as a result of completing an assessment build the patrol plan. It becomes an operating plan that documents specific patrol objectives, routes, time frames and desired accomplishments, as well as administrative needs such as personnel training, and the budget for supplies, materials, etc.

A. The Wildfire Prevention Patrol Plan must contain:

1. Priority Patrol Areas (see also Chapter 7.0 The Patrol Route)

Generally patrol resources are limited. As result, it is important to put priority on the areas that have the greatest risk for potential ignitions, the most hazardous fuels and terrain, the greatest potential for damage by wildland fire and the most recent history of fire occurrence. The assessment of risk, hazard, values and

fire history will determine these priority areas. A map delineating these areas and identifying targeted audiences (example: back country hikers, campers, absentee property owners, etc.) is a valuable tool for the patrol specialists.

2. Patrol Scheduling

It is important to identify the timing of patrols in the plan. The most effective patrol schedule is usually determined by potential ignitions (risk) and fire season severity (hazard). Patrolling is most effective immediately prior to and throughout periods of high fire danger, active human use and natural events such as lightning storms or high winds.

Patrolling activities should not be routine. The desired patrol schedule should be established and documented but also be adaptable and able to respond readily to changing situations. Consider the following when developing a patrol schedule:

- a. Holidays, including Memorial Day, Fourth of July, Labor Day and other holidays during fire season.
- b. Hunting and fishing seasons.
- c. Periods of high human use (weekends, holidays, reunions, etc.).
- d. Patterns of natural ignition activity (examples: lightning, volcanoes, etc.).
- e. Implementation of fire restrictions or closures.
- f. High fire dangers or increased burning conditions.

- g. Significant weather events during fire season (example: frontal passages with high winds).
- h. Reduced initial attack forces.
- i. Ongoing fires in the unit or area.

When determining the appropriate patrolling time frames, consider (1) month of year, (2) day of week, (3) time of day (by nearest one-quarter period), and (4) use patterns that require observation.

3. Patrol Staffing

During those periods when patrolling is most effective, it is ironic that this is the same time when personnel for patrols are unavailable. In order to maintain the effectiveness of wildfire prevention patrols during these busy periods, it is important to have trained numerous fire (fire crew, prevention specialists, etc.), non-fire (resource specialists, back country rangers, law enforcement, recreation specialists, etc.) and volunteer personnel to conduct routine patrols.

- 4. Materials and Supplies (see Chapter 3.0 “Patrol Tools”)
- 5. Reporting (see the Appendix for examples of data collection tables and forms)

The reporting system used should be compatible with agency fire reporting procedures and should accurately capture only the specific data determined to be useful. Keep in mind that too much data is almost as bad as poor data or no data.

6. Evaluation

The patrol plan should identify realistic and measurable objectives (example: “Reduce the number of unattended campfires by 80% in all undeveloped camping areas within two years’ time.”). Regular (at least annual) evaluation of the patrol plan and necessary changes must be made to keep it an effective prevention tool.

Notes

Patrol Tools

3.0

Tools and materials needed to conduct a routine Prevention Patrol:

1. Proper agency uniform, badge, shoulder patch and nameplate should be worn, if required.
2. Maps of the areas to be patrolled.
3. Current list of landowners with names, addresses, and phone numbers.
4. Necessary forms and notebook. Notes should be taken of observed hazards and risks. Sketches, photos, or maps also may be an aid in future patrols or for firefighting operations.
5. Necessary fire tools.
6. Pencils.
7. Flashlight (may assist in checking for certain hazards).
8. Spark Arrester Guide and operational guides as needed.
9. Copy of applicable laws and ordinances.
10. Necessary handbooks, guides and plans (examples: agency prevention handbook and guides, safety plan, etc.).
11. Fire prevention materials (available for handout).
12. Binoculars.

13. Camera (photographs can be documentation used for possible legal action, information and education purposes).
14. Prior records (where previous evaluations have been made, they should be studied before additional contacts are made).
15. String or wire.
16. Portable tape recorder (to record observations, transcribe to records later).
17. Measuring tape (to determine adequate clearances, etc.).
18. A reliable, well-maintained vehicle.
19. Handtool Kit (includes screwdrivers, wrenches, wirebrushes, etc.).
20. Signs and posters.
21. Staple gun
22. Necessary permits (campfire, authorized use, etc.).
23. Dispatch plan.
24. Personal protective equipment.
25. Adequate communication equipment (mobile and/or portable).
26. Fire Investigation Kit.

Qualifications of the Patrol Specialist

4.0

Patrol personnel must have the skills to effectively:

1. Identify the risk and hazard conditions which create the potential for wildland fire ignitions.
2. Understand and apply the necessary actions that reduce fire loss by the agency, land owner, occupant or wildland user.
3. Communicate with landowners, cooperators, contractors, concessionaires, visitors, etc.

Listed below are some of the qualities of an effective prevention patrol specialist. He/She should:

1. Be neat.
2. Be in proper uniform.
3. Be well-mannered.
4. Be dependable.
5. Have the ability to spot unusual or dangerous conditions, and foresee the creation of dangerous situations.
6. Be able to “size up” people quickly and correctly.
7. Have personal initiative (be able to plan assignments, and carry out work without direct supervision).

8. Have an interest in the job and a sense of responsibility toward the public.
9. Possess self-confidence (be firm but not overbearing).
10. Be alert to new ideas (be willing to listen and learn).
11. Be familiar with fire safe policies.
12. Point out hazards and give advice tactfully.
13. Have the fortitude and perseverance to see the job through.
14. Know the applicable laws and ordinances thoroughly.
15. Know the area.
16. Know basic agency philosophies, policies and regulations.

Types of Patrol

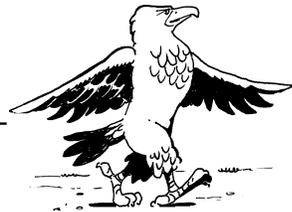
5.0

There are many types of patrol activities appropriate to wildland fire prevention. This guide describes the most common types. However, there are others (canine, bicycle, etc.) that may also be effective. The Patrol Plan should identify which type of patrol is most efficient for an area.

- Ground Patrol (motorized) - The most common type of patrol. Highly effective in wildland urban interface areas and areas of concentrated public use.



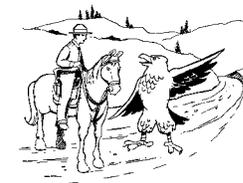
- Foot Patrol - A patrol method for inaccessible areas and/or making one-on-one contacts.



- Aerial Patrol - An effective method of patrolling large areas in a short period of time.



- Mounted Horse Patrol - An effective method of trail, back country or off-road patrol.



- Motorcycle & All Terrain Vehicle Patrol - An effective method of trail or off-road patrol, especially in areas of off-road vehicle use.



Ground Patrol (motorized)

5.1

The effectiveness of a ground patrol cannot be denied. The patrols can accomplish these basic missions:

- Reduce the violation of forest and fire laws.
- Actively enforce fire and agency laws and regulations.
- Provide information and assistance to area users and residents.
- Provide quick initial attack on fires.

Ground patrols provide mobility and flexibility of operations. Wider coverage is, therefore, possible and considerably more tasks can be accomplished.

Ground patrols can be accomplished by a variety of personnel, patrol officers, volunteers, engine crews, other agency personnel, etc. Areas where motorized patrols can be effective include:

- Wildland/urban areas.
- Recreation areas.
- Areas of historical fire occurrence.
- Areas where use patterns and types of users indicate a high risk of ignition.

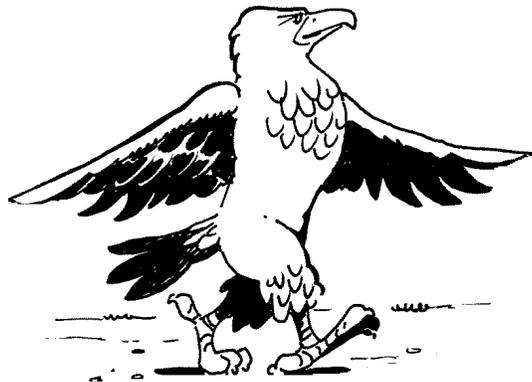


Foot Patrol

5.2

Foot patrols can be a highly effective patrol method, especially in remote areas where other access is limited or not practical. This type of patrol places the agency personnel in direct contact with the public and provides a source of communication not otherwise readily available. Areas where foot patrol can be effective are:

- Wilderness or back country areas.
- High-use recreation areas.
- Along rivers, streams, canyons, etc.
- Trail systems.
- Dispersed campsites.
- Wildland/urban interface areas.
- Parks.
- Special events.



Aerial Patrol

5.3

Helicopters and fixed aircraft can be used effectively for patrol. Aerial observation can provide:

- Locations of use (risk).
- Directions for maneuvering ground units to specific locations.
- Detection of fires.
- Patrol of large areas in a short period of time.
- Assistance in search and rescue.
- Quick response.
- Perspectives unavailable to ground units.
- Dual purpose use, can be utilized with other resource and fire activities.

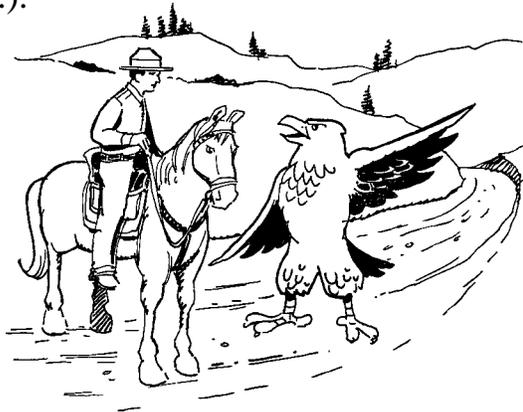


Mounted Horse Patrol

5.4

Mounted horse patrols once were the backbone of administration in the wildlands. It is one of the oldest types of patrol. Today, mounted horse patrols are in limited use throughout the country. Areas with difficult access are conducive to mounted horse patrol. Patrolling large parks or areas on foot is obviously impractical, and in vehicles it is difficult to travel on surfaces other than paved. The horse can move effectively from one point to another, thereby reducing travel time and increasing efficiency. Mounted horse patrol can be highly effective in the following areas:

- Trails.
- Wilderness and back country areas.
- Parks.
- Sparsely populated areas.
- Recreation areas.
- Search and rescue.
- High visibility events, planned and unplanned (parades, demonstrations, etc.).

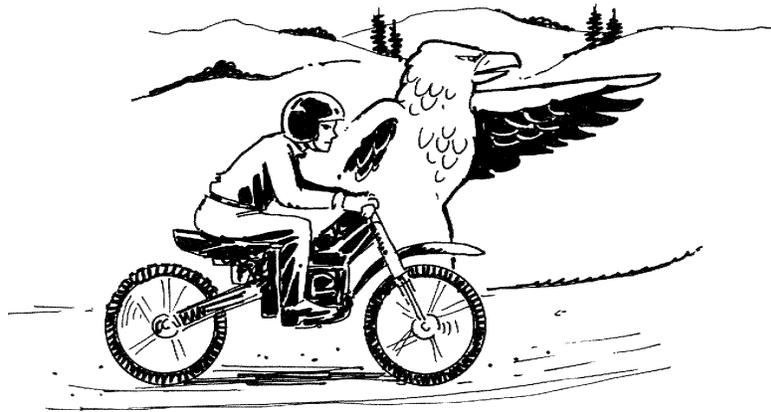


Motorcycle and All Terrain Vehicle Patrol

5.5

Motorcycle and all terrain vehicle patrol is probably the least-used patrol method in wildland areas. However, it is an option that should not be eliminated from consideration. This method has proved effective in areas, such as:

- Off highway vehicle areas (roads/trails).
- Recreation areas (large).
- Back country road systems.



Patrol Safety

6.0

The safety of personnel conducting patrol activities has always been a priority and continues to remain an essential element of the job. Agency safety policies and the following should be maintained:

- Always properly maintain and use the appropriate personal protective equipment.
- Necessary tools.
- Portable and mobile radio communication devices.
- Training in all assigned activities, areas of responsibility and equipment use.
- Two-person patrols in necessary situations (after dark, etc.).
- Defensive driving and all terrain special driving techniques.
- Check-ins with dispatch center or other employees at predetermined intervals.
- Adequate and appropriate equipment (vehicle or other selected mode of transportation).
- First aid training and equipment.
- Hazardous materials.
- Training in effective communications and conflict resolution.
- Environmental awareness (snakes, poison oak/ivy, Hanta virus, etc.).

- Fire training (initial attack, red card qualified).
- Changing and significant weather patterns or events.
- All weather safety.

The Patrol Route

7.0

The patrol plan should outline various patrol routes and alternative routes. It should define:

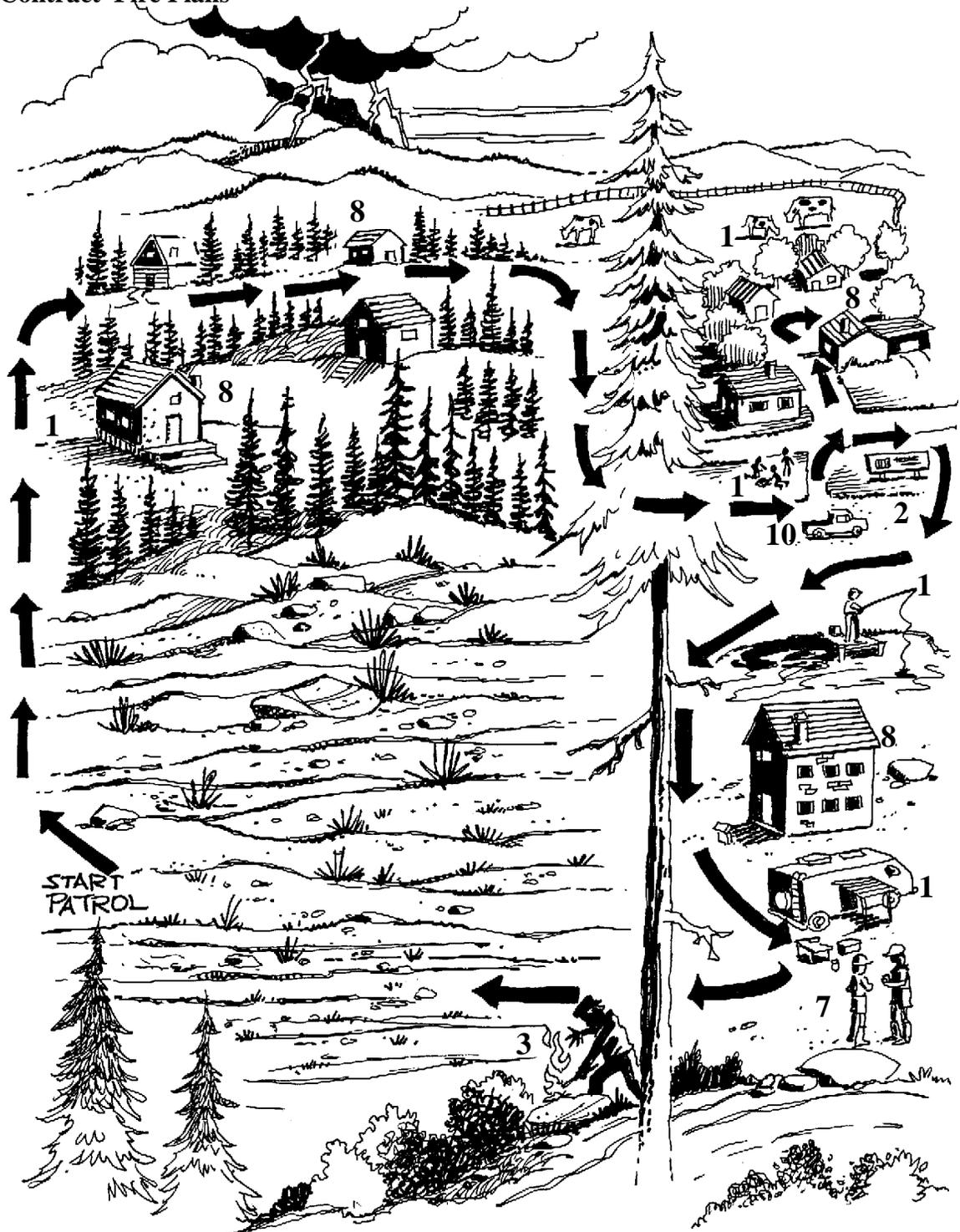
- Area to be patrolled.
- Performance expectations (work to be accomplished).
- Priority contacts.
- Time of day patrol is required.
- Type of patrol to be accomplished, i.e., ground, foot, aerial, mounted, motorcycle or other.
- Patrol staffing.
- Equipment required.
- Necessary maps and records.
- Alternate routes and times — should vary schedules and location.
- Briefing and relief consideration.

The Patrol Route #1

7.0

Route Activity Key:

- 1. Public Contact
- 2. Signing
- 3. Fire Investigation
- 4. Permits & Contracts
- 5. Contract Fire Plans



Notes

Patrol Activities

8.0

Numerous activities can be accomplished while patrolling. These activities may include, but are not limited to:

- Informational Contacts
 - Individuals
 - Groups
 - Priority Contacts
- Signing — Installation and Maintenance
- Enforcement
 - Observe Inappropriate Conduct or Behavior
 - Complete Fire Investigations
 - Issue Permits and Contracts
 - Contract Fire Plans
 - Identify Restrictions and Closures
- Fire Safe Evaluations
 - Inspect Structures and Improvements
 - Observe Industrial Operations and Equipment Use (Agency & Private)
 - Check Spark Arresters, Mufflers and Power Lines
- Identify Hazard Fuel Reduction Locations
- Complete Patrol Documentation

Public Contacts

8.1

Patrol emphasis should be to communicate with as many users as possible. One-on-one contact to inform people of the need to be fire safe while using the wildlands is one of the most effective means of wildfire prevention.

Contacts include:

- Individuals
- Groups
- Priority Contacts
- Special Interest Contacts

I. INDIVIDUALS

Individual public contacts by agency personnel are an important part of any fire prevention program. To be effective you must carefully prepare for each contact you will make. The individual contact, delivered with enthusiasm “sells” the person on the safe use of fire and on the prevention of wildfire.

Examples of individual contacts you may be involved with include:

- A. Campers at dispersed recreation sites
- B. Campers at developed recreation sites
- C. Water based recreation users (streams, lakes)
- D. Off-highway vehicle users
- E. Hunters, anglers

- F. Hikers
- G. Loggers on a timber sale
- H. Construction workers at construction/maintenance sites
- I. Employees at mining sites
- J. Homeowners
- K. Transient users traveling throughout an area
- L. Local ranchers
- M. Woodcutters

II. GROUPS

While in a patrol status, opportunities may arise to provide fire safe information to different groups.

Group contacts can be an effective way to increase awareness of fire prevention. The best results from group fire prevention contacts are obtained when you tailor your program to meet the groups' interests or needs. Group contacts might include:

- A. Homeowner associations
- B. Camping groups (trailer, motorhome)
- C. Equestrian associations
- D. Outdoor/recreation associations
- E. Boy/Girl Scout groups
- F. Off highway vehicle groups

- G. Ethnic groups
- H. Outfitters/guides
- I. Hiking groups

III. PRIORITY CONTACTS

Wildfire prevention patrol provides the opportunity to meet with key people in the area. Key people could include:

- A. Elected officials
- B. Local business leaders
- C. School officials
- D. Public utility representatives
- E. Outfitters and guides (fishing, back country, whitewater, etc.)
- F. Ranchers
- G. Officials of organized groups (off highway, equestrian, etc.)
- H. Local fire officials
- I. Local law enforcement
- J. Property owners
- K. Permittees

Public Contacts

8.1



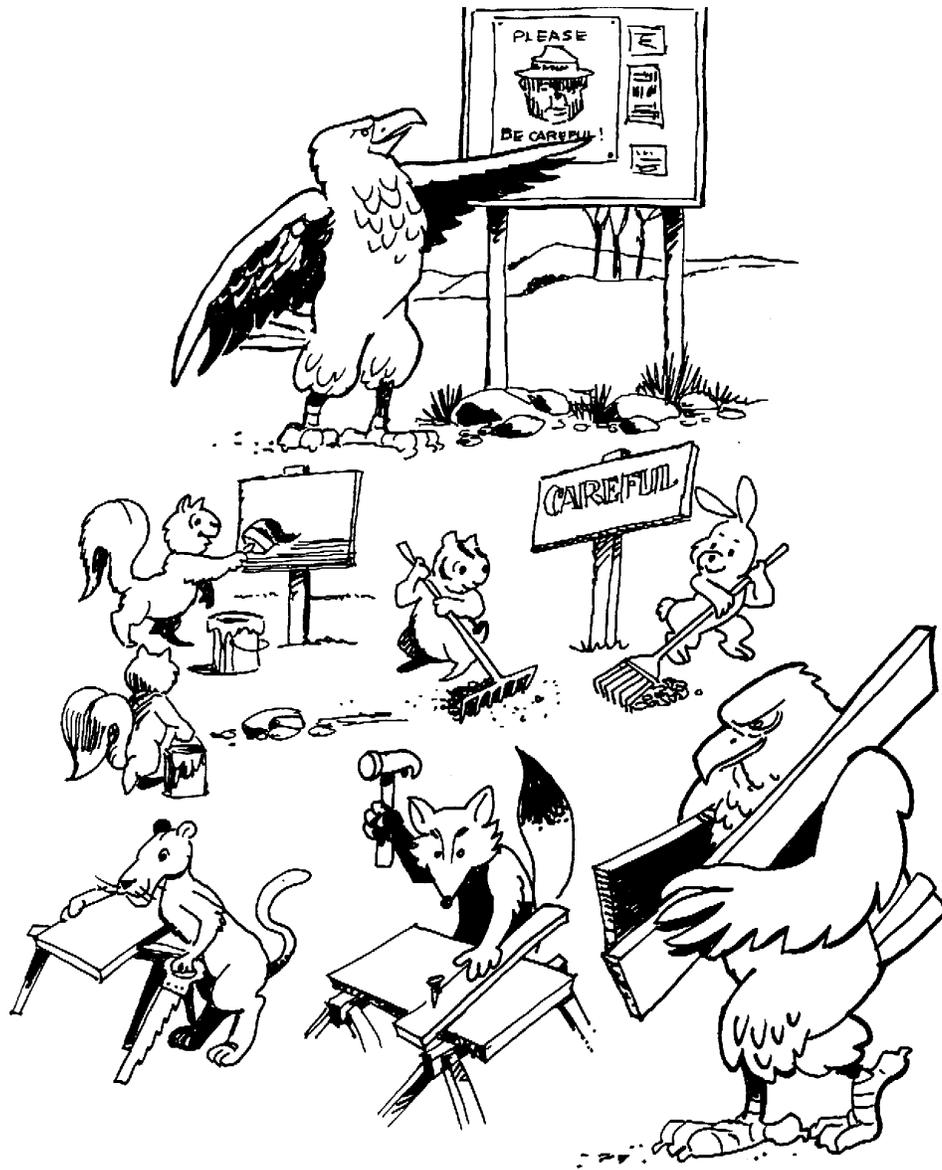
Signing is a technique used to convey wildfire prevention messages and provide visual information/education concerning a variety of wildfire prevention needs to general and specific public audiences. Prevention specialists should integrate signing into their wildfire prevention programs and identify specific signing and sign requirement needs in the plan.

Carefully located signs with selected messages can be effective tools in preventing resource losses due to wildfire. Poor signing practices waste funds and can have an adverse effect on the prevention program. Prevention signing can be:

- Informational — Advising the public of ways to prevent fires (example: “Completely extinguish smoking materials.”).
- Regulatory — Keeping audiences informed of what they must do to prevent fires (example: “Campfires permitted only in developed camping areas.”).
- Prohibitive — Emphatically stating what fires or acts are prohibited (example: “Fire restrictions currently in effect; campfire permits required.”).

Examples of signing activities while on patrol:

- Replace posters to maintain a fresh look and correct message.
- Make necessary repairs to existing sign mountings (stain, straighten, etc.).
- Install new sign mountings as per approved sign plan.
- Compile data for sign plan update.
- Determine areas where new signs are needed.



Enforcement

8.3

Law enforcement is used to gain compliance with fire ordinances and regulations and has secondary educational benefits. It is based on federal and state laws, agency regulations and local fire ordinances.

These laws are intended to regulate human activities and protect individuals using public lands and to protect natural resources from negligent or illegal acts that may result in a wildfire. When violations of these fire regulations are innocent and without major consequences, they may be handled administratively by issuing a written or verbal warning, or by some other response. Serious violations with major consequences may prompt more severe legal action such as citations, fines, etc.

CONDUCT

Employees engaged in enforcement activities should display professionalism at all times. The following are a few professional characteristics of personnel with law enforcement responsibilities:

- Be courteous and helpful at all times, even during an emergency or incident.
- Have a desire to render a public service.
- Be able to explain the reasons for laws, regulations, and your agency's land management responsibility.
- Maintain the ability to recognize and avoid dangerous situations.

- Be aware of your authority to enforce the law, but always enlist the help of your agency or local law enforcement officer when approaching potentially dangerous situations or violators.
- Be familiar with the appropriate fire laws, statutes, ordinances, regulations and policies that apply to your agency.

Enforcement—Fire Investigation 8.31

In order to design and implement an effective wildfire prevention program targeted at specific fire causes, accurate historical fire cause data is required. This valuable data is obtained by, and results from, accurate fire cause determination and documentation.

An effective wildfire investigation program begins with initial attack suppression personnel, trained in fire investigation, who locate and protect the origin of the fire. Trained fire investigators are then able to more accurately determine the specific fire cause and can compile the necessary evidence and subsequent case information. Agency policy may require that fires be investigated as to cause, origin and responsibility and that appropriate action be taken on human-caused fires to recover the costs of suppression and damages to improvements and resources.

The primary goal of a fire investigation is to obtain all information and evidence possible to clearly identify the responsible party or continue the investigation until every reasonable means of identifying a suspect has been exhausted.

Fire investigation training is available for wildfire prevention personnel (NWCG P-151 Wildfire Origin and Cause Determination) and law enforcement personnel (FLETC National Wildfire Investigation). Other wildland fire investigation classes also are available from a variety of agencies and organizations.

Examples of fire investigation activities while on patrol:

- Observe what’s going on in the area—where people are, what they are doing, vehicles, etc.
- Provide preliminary fire investigation if needed.
- Conduct interviews if needed.
- Assist investigators.

Enforcement—Fire Investigation

8.31



Enforcement—Permits & Contracts 8.32

Permits and contracts are examples of documents used to allow people to work on or otherwise utilize the public lands. These documents require the contractor or permit holder to comply with certain stipulations, including those dealing with fire hazards.

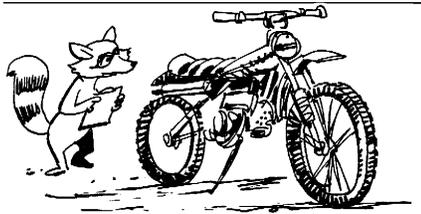
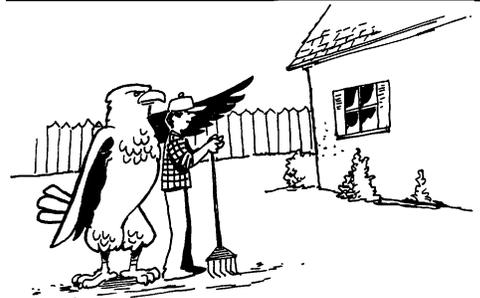
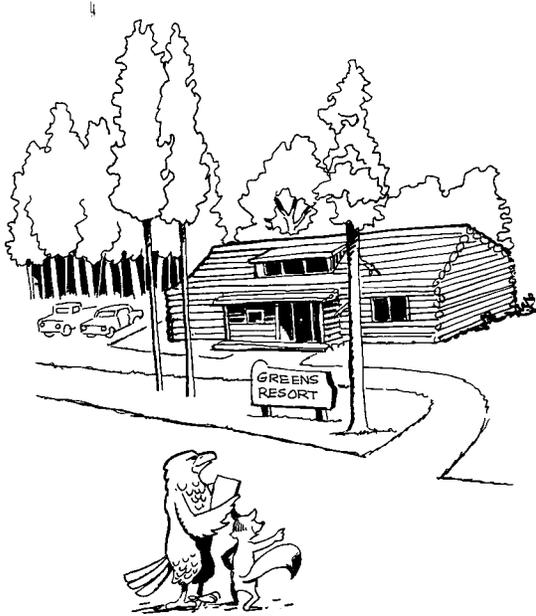
Contract or permit stipulations may require the applicant to have the following:

- Proper clearance around equipment, machinery, service areas or other sources of possible fire ignition.
- Fire protection equipment available or on site.
- Spark arresters on all pertinent equipment and machinery.
- Hand tools such as shovels or Pulaskis to suppress a fire ignition.
- Any other measures necessary to minimize or eliminate the fire hazard or risk.

Examples of permit and contract activities while on patrol:

- Posting signs to notify users of permit requirements.
- Check compliance of permit or contract requirements.
- Issue permits as necessary.
- Provide information regarding permit stipulations.
- Inspect contract or permit sites.

Enforcement—Permits & Contracts 8.32



Enforcement—Contract Fire Plans 8.33

A fire plan should be required for any permitted or contracted use that creates a fire hazard or risk on public lands. The plan should cover all necessary fire precautionary measures to protect the public's interest. The plan is the responsibility of the local manager and should be discussed with the contractor or permittee.

A fire plan may be required for the following activities:

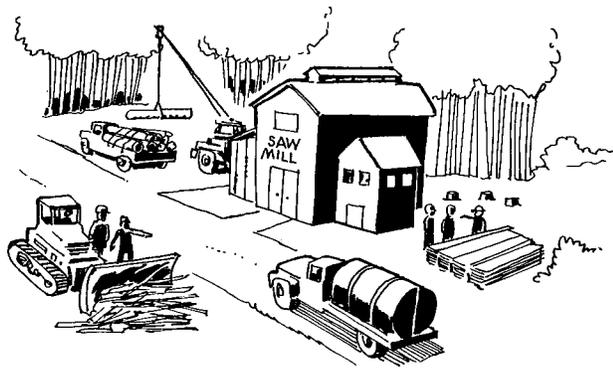
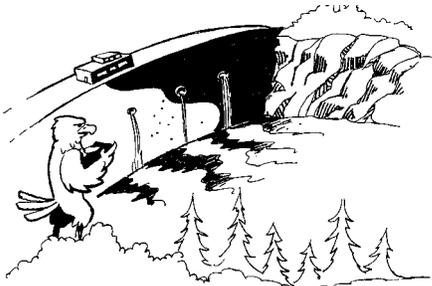
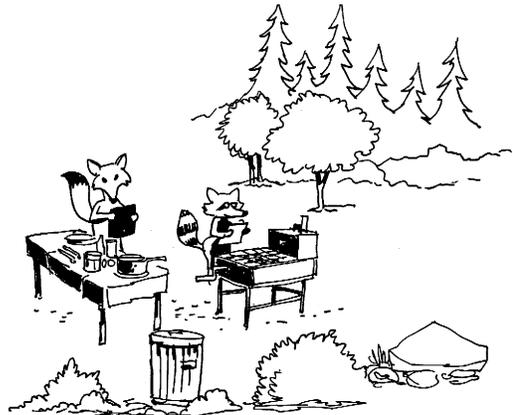
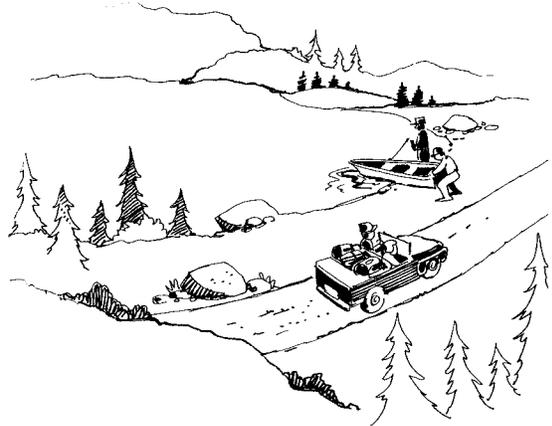
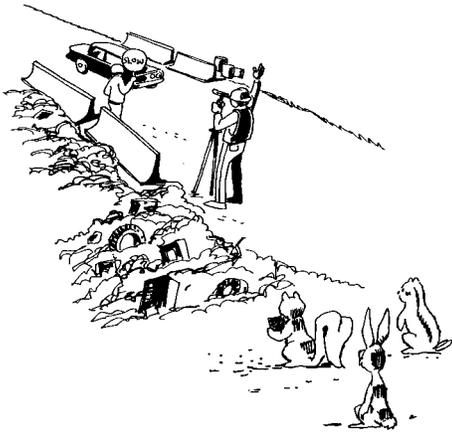
- Right-of-way operations.
- Timber sale projects.
- Construction projects.
- Service contracts through which the government agency contracts for a specific job and a contractor does the work.
- Government prescribed burning projects.
- Any other use or activity that creates a hazard or risk on public lands.

The fire plan is made a part of the permitted use, license or contract. The permittee is aware of the plan and conditions before purchase, lease or bid. Once in force, the plan is binding until its expiration or until a mutual written agreement alters it. Failure on the part of the permittee or contractor to comply with the terms can be grounds for revocations of the permitted or contracted use.

Examples of contract fire plan activities while on patrol:

- Compliance inspection of contract stipulations.
- Public contact with contractor.
- Issue necessary permits.
- Review fire plan (contract) stipulations.

Enforcement—Contract Fire Plans 8.33



Notes

Enforcement—Restrictions & Closures

8.34

The use of fire restrictions or closures is an effective method of dealing with periods of extreme fire risks and hazards. By definition, restrictions and closures call for the curtailment or ceasing of normal public activities in the wildlands. They should be initiated only when conditions warrant and be removed as soon as conditions allow.

Closures and restrictions should be initiated only after all other prevention efforts have failed, large fires are burning, or extreme fire danger is predicted to continue. When restrictions and closures are enacted, only authorized personnel and members of the public with written exemptions may continue restricted activities or enter closed areas. This may create a severe public impact and outcry.

The following should be considered when initiating restrictions and closures:

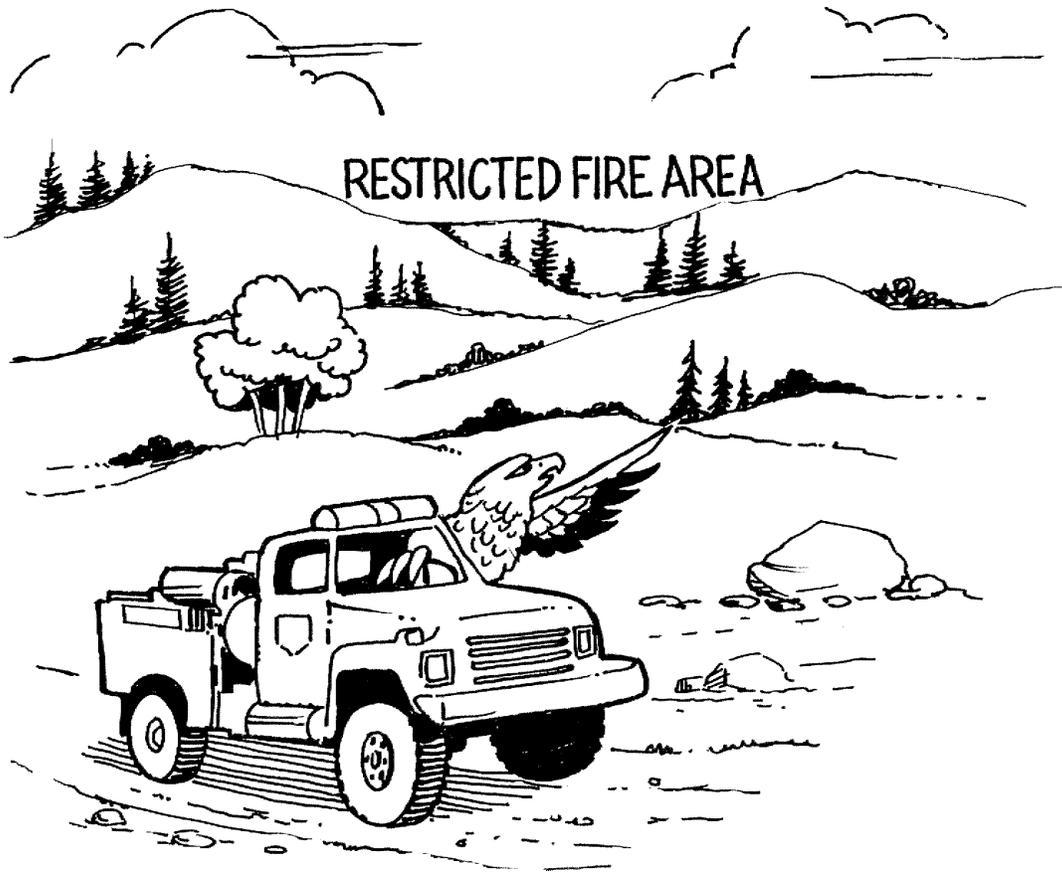
- Continual coordination with law enforcement personnel, adjoining public agencies, the media, permittees, contractors and others impacted must occur before, during and after the closures and restrictions are implemented.
- Documentation of the conditions, rationale, timing, changes, etc., must be compiled.
- Special orders which authorize the restrictions and closures must be legally correct and binding and conform to agency policy.
- Planning is necessary to ensure organized and timely implementation, public notification and enforcement.
- The restrictions and closures should be removed as soon as conditions allow.

Examples of restrictions and closures while on patrol:

- Enforcement of regulations relating to the restricted use.
- Posting signs indicating the use restrictions.
- Public contact in area restricted or closed.
- Provide high visibility in the restricted use area.

*Enforcement—Restrictions
& Closures*

8.34



Notes

CAMPFIRE PERMITS

Issuing campfire permits is an effective means of making personal fire prevention contacts (education) prior to the public's use of campfires. The actual permits specify the elements of when, where and how the public may have cooking or warming fires.

There is a wide variance in the use of, or requirement for, campfire permits. Contact your local fire prevention specialist for specific policies and procedures concerning campfire permits.

BURNING PERMITS

Burning permits are usually issued through a state authority and through the use of state documents and procedures. Requirements vary by state and you should become familiar with the system for your area.

Burning permits offer the following advantages:

- They provide documentation of when, where, who and why of permits.
- Prevention personnel have the option of issuing or not issuing permits according to fire conditions, timing, risks, etc.
- Mitigation measures can be made part of the permit to reduce the potential for a burn to escape and become an uncontrolled wildfire.
- Information about where and when burning will be done reduces costly false alarms.

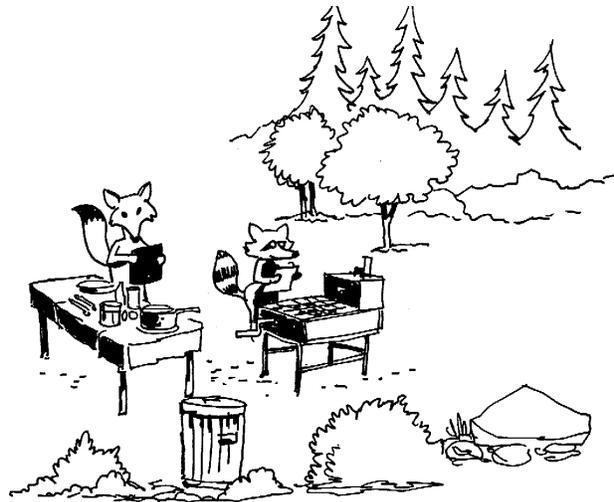
- Establish criteria that identify those conditions in which permits will not be used.

Examples of permit activity while on patrol:

- Inspect permit sites.
- Issue necessary permits.
- Public contact with users in areas where permits are required.

Enforcement—Permits

8.35



Notes

Fire Safe Evaluations (Inspections) 8.4

One objective of a fire prevention program is to significantly reduce the incidence of destructive fires in timber, brush and grasslands and the resulting loss of life, property and resources. One of the necessary tools of a fire prevention program is the fire prevention inspection or evaluation program.

A fire prevention inspection program is designed to gain compliance with fire laws and educate and inform users about fire safe practices. This program must be long-range and flexible as needs require. As risk and hazard problems change, the emphasis of any fire prevention program also must change to meet the problem.

An essential element of a successful fire prevention program involves the use of approved agency forms to document formal fire prevention inspections. Inspection and evaluation programs can be undertaken in the following areas:

Fire Safe Evaluations— Structures & Improvements

8.41

A structure is any construction, production or piece of work artificially built or composed of parts joined together in some definite manner. This includes dwellings, office buildings, equipment sheds, chemical toilets, trailer houses or any building under construction. Two types of structures or improvements are residential and commercial.

Residential Structures

Fire prevention efforts around residential areas are aimed at educating and encouraging homeowners to take steps that will make their homes more defensible against wildfire and less susceptible to ignition from firebrands.

Commercial

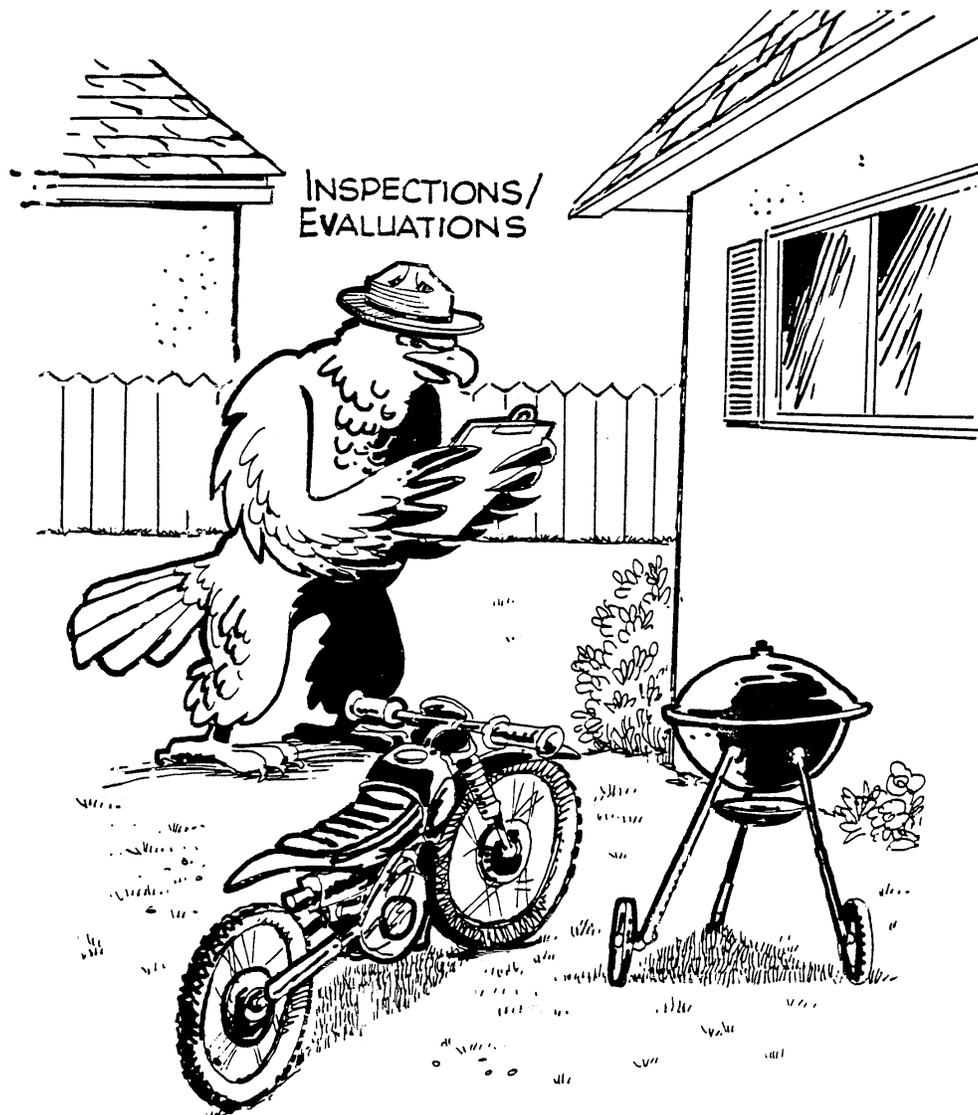
Commercial structures and operations may also be evaluated as a fire risk or a potential cause of wildland fire. When spark-producing tools, lead melting pots, tar pots or fuel storage and equipment services areas, etc., are of concern, a different approach is required. Other agency regulations usually govern these operations. When it becomes necessary to review or evaluate these activities, contact those other agency personnel (e.g., local fire marshal, local fire departments, agency hazardous waste specialists, etc.).

Examples of fire safe evaluation activities while on patrol:

- Homeowner inspections.
- Issue necessary permits.
- Provide fire safe material.
- Conduct commercial structure fire safe evaluations.
- Post fire safe signs in neighborhoods.
- Conduct door-to-door fire safe educational visits.
- Conduct fire safe meetings with homeowner associations.

Fire Safe Evaluations— Structures & Improvements

8.41



Notes

Fire Safe Evaluations—Industrial Operations & Equipment Use 8.42

Each year wildfires are caused by industrial operations and equipment use. Because of these fires, it is necessary to evaluate these activities to obtain compliance with fire prevention laws, contract stipulations and seasonal restrictions concerning equipment use.

A well-planned fire prevention evaluation program gives fire prevention personnel the opportunity to advise property owners and managers of their responsibilities regarding the use of fire, fire causing agents and equipment.

Industrial operations and equipment uses include, but are not limited to, the following:

- **Timber Operations:** Forest product harvesting, planting, thinning and salvage operations.
- **Agriculture:** This industry includes packing sheds, warehouses, processing plants and wineries. Industrial equipment includes farm implements and machinery, welding and grinding equipment, etc.
- **Mining Operations:** Mines, oil fields and refineries, quarries, sand and gravel plants and all equipment used in this field.
- **Other Projects:** Operations such as defense plants, military and civilian target ranges, missile bases, fuel storage plants, ammunition depots, construction projects or other operations that take place on or near public land and pose a fire threat.

There are numerous and varied fire laws governing industrial operations and equipment use. These may be local, state or federal laws. Coordinate with other fire agencies to acquaint yourself with these codes and develop a

coordinated plan for fire safe evaluations of industrial and equipment operations.

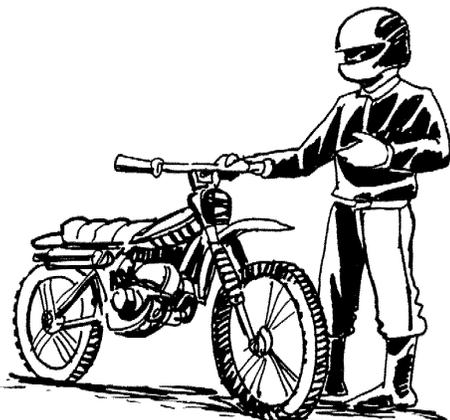
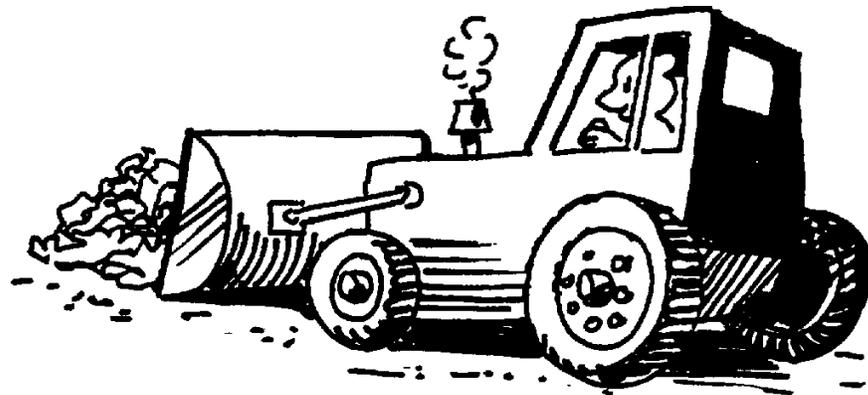
Prevention efforts dealing with industrial operations take place as contract stipulations and as an active inspection program. Information on contract stipulations and compliance inspections can be found in agency manuals, contract specifications, or through the agency contract administration personnel.

Examples of industrial operations/equipment use activities while on patrol:

- On-site inspections.
- Contract stipulation administration.
- Equipment inspections.
- Spot checks.

Fire Safe Evaluations—Industrial Operations & Equipment Use

8.42



Notes

Fire Safe Evaluations—Spark

8.43

Arresters, Mufflers & Power Lines

Mechanical equipment must comply with certain fire prevention regulations designed to reduce or eliminate the risk of fire. The high number of fire starts caused by machinery indicates that inspections of mechanical equipment are necessary and should receive high priority.

All gasoline, steam powered and diesel equipment used on public lands must be equipped with approved spark arresters or mufflers in working order.

Some examples of equipment requiring approved spark arresters or mufflers include:

- Construction, logging and mining equipment
- Vehicles (cars and trucks), motorcycles, ATVs
- Chainsaws
- Generators
- Locomotives

A current list of approved spark arresters for general purpose, locomotive and multiposition small engines can be found in the Spark Arrester Guide (PMS 430-2).

Examples of spark arrester/muffler activities while on patrol:

- On-site vehicle inspections.
- On-site stationary equipment inspections.
- Public contract with off-highway vehicle users/groups.
- Provide inspection checks for the public, i.e., woodcutters.

POWER LINES

A significant number of large and destructive fires are caused by power lines. Many of these fires result from trees or other objects falling across power lines or the mechanical failure of power line hardware found on the power line poles. Power lines on public lands are regulated by special use permits. These permits stipulate vegetation clearance widths, hardware requirements, etc., and establish standards for utility company inspections. Prevention specialists need to become familiar with the appropriate permits and inspection procedures.

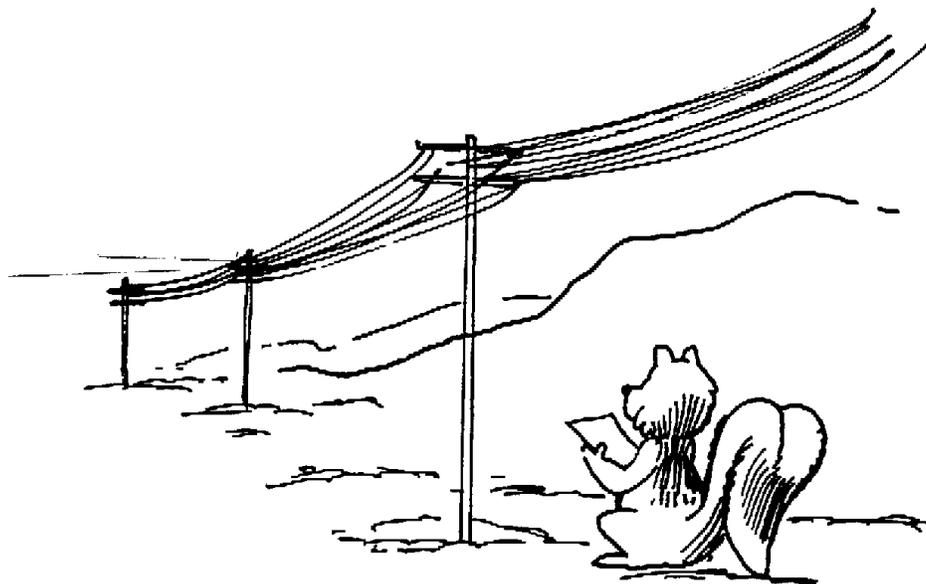
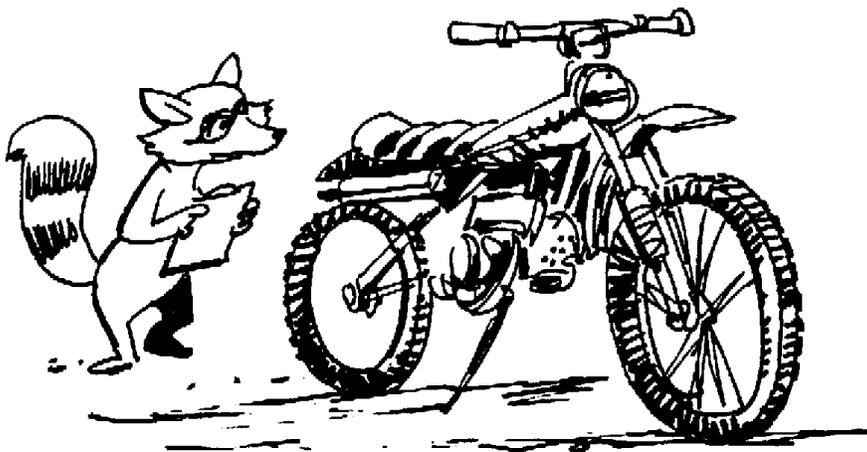
Additional information on equipment design and modification can be found in the NWCG Wildfire Prevention Handbook (NWCG Handbook #4, NFES #1818), or the Spark Arrester Guide (NFES 1363 and 2363).

Examples of power line activities while on patrol:

- Meet with utility personnel.
- Conduct power line right-of-way fire safe compliance.
- Review permit fire safe stipulations with utility personnel.
- Spot check power lines of necessary fire safe compliance.

*Fire Safe Evaluations—Spark
Arresters, Mufflers & Power Lines*

8.43



Hazard Reduction

8.5

Fuels are classified as live and dead materials. Hazardous fuel situations are found where there are thick growths or areas of flammable vegetation and where there is a combination of flammable fuels and moderate to steep topography. These hazardous fuel situations can be found in remote areas as well as in areas where wildland vegetation is intermixed with structures.

Hazardous fuel situations can occur naturally or as a result of human activities. Areas of hazardous fuels produce severe fire behavior, contribute to disastrous wildfires and are resistant to fire suppression.

Fuels management is the manipulation and reduction of hazardous fuels to meet fire management objectives. Fuels management is accomplished through a variety of fuel treatment strategies such as piling and burning timber slash; manipulating vegetation (greenstripping); fuel reduction or removal along roadways and near structures and developments; prescribed fire projects; etc.

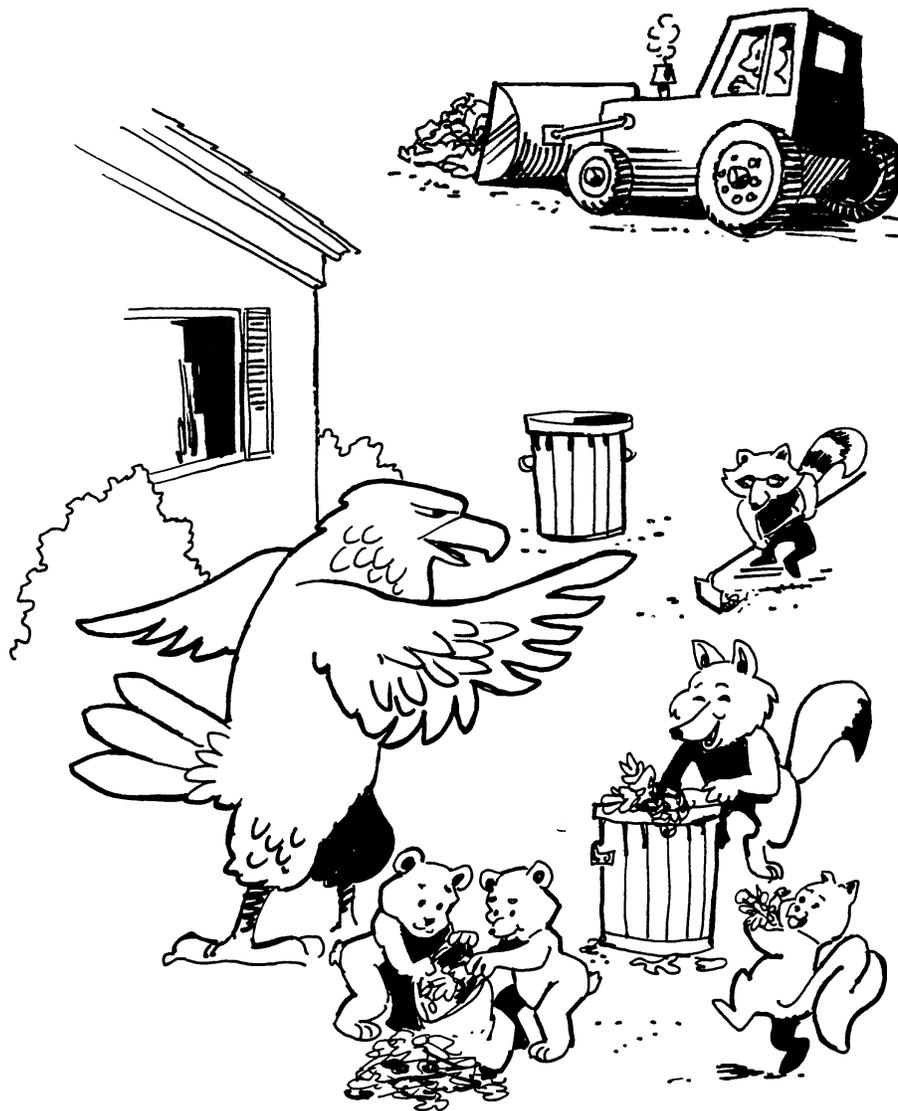
Fuel treatment projects used properly in specific areas can effectively reduce the fire hazard. This is an efficient application of wildfire prevention actions which can reduce the potential loss of natural resources and property while reducing agency fire suppression costs. Hazard reduction plans and projects should be outlined in the local Wildfire Prevention Plan.

Examples of hazard reduction activities while on patrol:

- Hazard reduction around dispersed recreation area campfire sites.
- Hazard reduction at places of concentrated public use areas: roadside turnouts, scenic areas, parking areas, etc.
- Developed recreations areas: clearance around stoves, tables, toilets, etc.
- Complete fuelbreaks in hazardous fuel areas.
- Complete hazard reduction around all agency improvements.

Hazard Reduction

8.5



Notes

Patrol Documentation

9.0

It is essential to document patrol activities to ensure information necessary for further needs (investigations), legal action, work accomplishments, workload factors and a historical overview. See examples in appendix.

A daily patrol log should be kept that includes, as a minimum:

- Log number
- Date
- Time
- Type of contact: identification, license number
- Location
- Remarks

Other information:

- Fire information/report if necessary
- Weather information
- Report of violations/citations
- Photographs if necessary
- Other activities accomplished
- Daily work accomplishment record



Notes

Appendix

Fire Occurrence Matrix

PRIMARY FIRE CAUSE - PLANNING PERIOD: _____ COMPARTMENT: : _____

CAUSE	# FIRES	SIZE CLASS	CAUSE	# FIRES	SIZE CLASS
<input type="checkbox"/> NATURAL			<input type="checkbox"/> EQUIPMENT		
<input type="checkbox"/> CAMPFIRE			<input type="checkbox"/> RAILROAD		
<input type="checkbox"/> SMOKING			<input type="checkbox"/> JUVENILES		
<input type="checkbox"/> FIRE USE			<input type="checkbox"/> MISCELLANEOUS		
<input type="checkbox"/> INCENDIARY					
TOTAL					

Fire Occurrence - Specific Cause Chart

Prepare a specific cause chart by using information prepared in the fire occurrence chart.

SPECIFIC CAUSE OF FIRE										
Year										
CAUSE										TOTAL
NATURAL										
1. Lightning										
2. Volcanic										
3. Other Known/Unknown										
CAMPFIRE										
4. Cooking/Warming										
5. Other Known/Unknown										
SMOKING										
6. Smoking Activities										
FIRE USE										
7. Trash Burning										
8. Burning Dump										
9. Field Burning										
10. Land Burning										
11. Slash Burning										
12. Right-of-Way Burning										
13. Resource Mgmt Burning										
14. Other Known/Unknown										
INCENDIARY										
15. Grudge Fire										
16. Recurrent (Pyro)										
17. Employment										
18. Other Known/Unknown										
EQUIPMENT										
19. Vehicle										
20. Exhaust										
21. Brakes										
22. Blasting										
23. Power Line										
24. Other Known/Unknown										
RAILROADS										
25. Exhaust										
26. Brakes										
27. Other Known/Unknown										
JUVENILES										
28. Recurrent (Pyro)										
29. Fireworks										
30. Ignition Devices										
31. Other Known/Unknown										
MISCELLANEOUS										
32. Aircraft										
33. Burning Building										
34. Fireworks - Adult										
35. Other Known/Unknown										

Fire Occurrence Evaluation - Types of Users Chart

Prepare a type of user summary chart by using information prepared in the fire occurrence chart.

TYPES OF USERS (Code of Users)									
YEAR	1	2	3	4	5	6	7	8	TOTAL
TOTAL FIRES									

Record number of person-caused fires in columns by types of users.

CODE LIST (Types of Users)

1. Cooperator/Contractor/permittee
2. Employee
3. Land Owner/Resident
4. Recreation Visitor
5. Transient
6. Illegal Occupant
7. Other
8. Unknown/Unidentified

Fire Occurrence Evaluation - Patterns of Human Use

PATTERNS OF HUMAN USE														
YEAR	1	2	3	4	5	6	7	8	9	10	11	12	13	TOTAL
TOTAL FIRES														

PATTERNS OF HUMAN USE CODE LIST

1. Railroad
2. Recreation - Developed
3. Recreation - Dispersed
4. Roads and Highways
5. Other Public Utilities
6. Harvest - Timber
7. Harvest - Fuelwood
8. Harvest - Other Products
9. Arson
10. Residential Occupancy
11. Forest and Range Management
12. Other
13. Unknown/Unidentified

Fire Occurrence Analysis

This tabulation and chart can be used in the wildfire prevention occurrence analysis.

Step 1: Tabulation of records (Agency Fire Report). Tabulate on chart by entering the following:

1. Year - Legal Description to quarter section.
2. Fire Number Column: agency identifier.
3. Month and Date fire occurred.
4. Day of Week as:
 - Saturday = SA
 - Sunday = SU
 - Weekday = WD
 - Holiday = H
5. Time: check quarter of the day fire originated.

FIRE OCCURRENCE ANALYSIS							
1 Year-Legal Description	2 Fire Num	3 Month and Date	4 Day of Week	5			
				6 am to noon	noon to 6pm	6pm to midnite	midnite to 6am

