

Jackson Hole Fire/EMS



Private Wildland Stewardship and Wildfire Mitigation Program

Reducing the Risk of Wildfire in the Wildland/Urban Interface

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Private Wildland Stewardship And Wildfire Mitigation Program

Jackson Hole Fire/EMS has assessed those areas determined to be within the wildland/urban interface within private ownership in Teton County. Approximately 20% of Teton County's population lives within the interface. Most properties of larger size or acreage within the county consist of forested or brush covered lands.

The purpose of this document is to be used as a format for developing a wildland stewardship program for private properties in order to reduce the on-going risk of wildfire. The goal of this program is to assist property owners in developing long-range wildfire protection for their property.

I. Definitions

Chipping: A method of grinding or chipping branches or brush into small chips.

Defensible Space: An area surrounding structures, which consists of green space, limited fuels or fire resistive fuels. This space slows advance of the fire and allows for fire fighting operations.

Fuel: Any type of vegetation available to burn during a wildland fire.

Fuel Modification: A method of changing fuel types, species or arrangement of fuels in order to reduce the wildfire risk.

Fuel Reduction: A method of removal of hazardous fuels, including over-growth, downed dead or standing dead vegetation.

Ladder Fuels: Ground fuels of sufficient height to come in contact with lower hanging branches of trees.

Limbing: Cutting lower branches of a tree in order to increase the space between ground fuels and limbs.

Prescriptive Treatment: Prescriptive treatment is a process by which vegetation is identified for removal. Vegetation to be removed should meet one or more of the following criteria:

1. Entirely or substantially within the drip line of another tree.
2. Diseased or insect infested.
3. Providing a significant ladder fuel effect.
4. Dead, dying or damaged by wind or mechanical means.
5. Hazardous to life, improvements, or property.

Professional Forester: A graduate of an accredited institution of higher education with a degree in Forest Management or related field, or equivalent training, education and job experience who is actively working in the field.

Slash: Waste vegetation remaining following cutting operations.

Thinning: Removal of vegetation in order to reduce the density of growth on a particular parcel of property.

Vegetation Management Plan: A plan for managing growth of vegetation after prescriptive treatment has been accomplished.

Wildland/Urban Interface: A mix of developed and un-developed properties where development poses a fire risk to un-developed resources, and the risk of wildfire poses a risk to developed properties.

Wildland Stewardship Plan: A plan for managing the overall health and wildfire resistance of forested, un-developed property or wildland/urban interface property.

Zone: A Zone is an area, which surrounds your house. Zone 1 is a measurement of 0'-30'. Zone 2 is 30'-60'. And Zone 3 is 60'-100'.

II. Property Assessment

A Professional Forester with adequate knowledge of the property in question should develop the Wildland Stewardship Plan. All Wildland Stewardship Plans should be submitted to the Fire Department for approval. All Wildland Stewardship Plans must include the following information:

Wildland Stewardship Plan

Objectives:

1. A statement outlining the property owner's overall goals and objectives for the plan.

Ownership Information:

1. Name, address and phone number of the property owner.
2. Name, address and phone number of the person or Professional Forester preparing the plan.
3. Legal description and physical address of the property.

Property Description:

1. Acreage.
2. Elevation.
3. Aspect.
4. Vegetation types.
5. Soil types.
6. Existing improvements and property activities.
7. Cultural features on-site.
8. Hazards to the property.
9. Property Access.
10. Visual assessment.
11. Site map.

Property Management:

1. Current Conditions:
 - a. Vegetation data (timber, brush, grasses, age, density, etc.).
 - b. Disease / insect impacts.
 - c. Wildfire hazards.

- d. Erosion issues.
 - e. Flora / fauna issues (wildlife assessment, Endangered Species Act issues, etc.).
 - f. Previous mitigation activities.
2. Proposed activities:
- a. Fuel Reduction
 - 1. Thinning (fuel types, volume, size, methodology, etc.).
 - 2. Limbing.
 - 3. Ladder fuel reduction.
 - b. Fuel modification
 - 1. Plant type conversion.
 - 2. Thinning / arrangement.
 - c. Defensible space:
 - 1. Zone 1 plan.
 - 2. Zone 2 plan.
 - 3. Zone 3 plan.
 - d. Waste management:
 - 1. Hauling.
 - 2. Chipping.
 - 3. Recycling (firewood, product sales).
 - 4. Slash burning.
 - e. Proposed schedule.

Vegetation Management:

- 1. Short term objectives and activities.
- 2. Long term objectives and activities.

III. Mitigation Strategies

Wildland/Urban Interface fires have destroyed thousands of homes in the last decade. While building your home in the trees not only enhances it's appearance and value and can also increase its warm, friendly feeling, one must understand, however, that a "home in the woods" is not without risk. These risks can be reduced if you plan ahead and are aware of your surroundings.

This program is designed to give you information to use to develop a plan to build and maintain your home in a way that reduces the potential for tragedy. This program is meant to enhance your knowledge and allow you to make fire safe decisions. Those whose homes have survived wildfire have put to use information like this to protect themselves.

BUILDING YOUR HOME IN THE WOODS

1. Choosing Your Building Site:

One of the more important things you can plan is where to build. From a fire response point of view, seclusion can work against you. It helps to understand a little about fire behavior when choosing your site.

Avoid building in a natural draw or swale. Homes located in natural chimneys, such as narrow canyons and saddles, are especially fire-prone because wind is funneled into them. This accelerates fire's rate of spread by forming an uphill draft.

Locate your home on the most level portion of the site. Fire spreads at a remarkably faster rate as slope increases. Even minor grades, like ten percent, can accelerate the spread of wildfire.

Homes on narrow ridges without adequate setback are often lost because flames and convection heat hit the home directly. Homes located on the slope, especially stilt and cantilevered homes are particularly vulnerable.

Avoid dense stands of timber, especially if that timber is aged or over-mature. Choose property and a building site, which is accessible or can be made accessible.

Building Site Checklist

Site:

- _____ Building site is not in a draw or canyon.
- _____ Building site does not overhang slope.
- _____ Building site does not utilize steep slope.
- _____ Building site is not in heavily timbered area.
- _____ Building site has acceptable access.

2. Access:

Access to your home is crucial. There is a difference between access and good access. Good access provides the fire department the ability to reach your home to protect it.

Good access consists of a roadway, which is 20 feet wide that is capable of supporting the weight of fire trucks. The grade of the road should not exceed 8%. The side slope of the road should not exceed 2%. Branches and overhangs should be trimmed overhead to a height of 13'6". Good access has more than one way in and out.

If your access design uses a cul-de-sac you should access it with a 20' wide road. The minimum radius of the cul-de-sac should be 45' and its length less than 800'.

Curves should be maintained with radius of not less than 50' for all access roads.

Clearly mark your roadway. Road names and/or numbers are important. If your home is visible from the road be sure to put your house numbers where they can be seen.

Bridges can be a serious problem for fire apparatus. Ensure that the load limit is capable of supporting the loads of fire apparatus. Make sure the width of the bridge will allow trucks to pass across.

Access Checklist

Roads:

- _____ Two different points of access to development.
- _____ Roads dedicated to the public and maintained.
- _____ Minimum 60' right of way with 20' paved surface.
- _____ Curves not less than 50' radius.
- _____ No dead-ends, cul-de-sacs no longer than 600-800'.
- _____ Cul-de-sacs not less than 90' diameter.
- _____ Direct access from residences to street.
- _____ Grades do not exceed 8%.
- _____ Clearly marked house numbers visible from street.

Bridges:

- _____ Same width of paved surface as adjoining road.
- _____ Minimum load limit 20,000 lbs. (10 tons) per axle.
- _____ Built of non-combustible material.

3. Building of Your Home

There are a few things you must consider in a wildland area when deciding how you want your home to look. What type of roof will I have? What type of siding will I use? Will I have a deck? Does my home have a woodstove in it? Will I have large picture windows?

All of these questions can be answered in a way that will provide you with a higher level of fire protection. You must consider both the interior and exterior aspects of your construction.

Overhangs and vents can pose serious problems to your home when subjected to a fire. Reduce overhangs or box eaves to protect the house from ignition and heat or flame entrapment. Under-eave vents should be located near the roofline rather than near the wall. Orient exterior attic and under-floor vents away from possible fire corridors and cover them with wire screen, not to exceed 1-1/2 inch mesh. Screen unenclosed, under-floor areas.

Roof: It is strongly recommended that the roof be constructed of noncombustible or fire resistant materials. If you must use cedar shakes, use shakes, which have been pressure, treated with fire retardant materials.

Siding: Wood is very popular in our area but it burns. Metal siding, stucco, brick or stone, or fire retardant treated materials will lessen the chance of ignition.

Deck: Most homes in our area have a deck. Avoid building a deck that overhangs a slope. Fire resistant materials are a good idea.

Wood stove: Wood stove related fires are the largest single cause of fires in our area. It is extremely important that your stove is properly installed. In a wildland area part of the installation must include spark arresters to prevent sparks from igniting the trees around your home.

Windows: Install only thick, tempered safety glass in large picture windows. Shutters made of fire resistant materials can protect glass, which is exposed to fire.

Building Your Home Checklist

The following checklist covers structures hazard reduction measures that homeowners can take.

Chimney:

- _____ Spark arrestor (max. 1/2" holes).
- _____ Clearance: 15' all sides.
- _____ 2' higher than surrounding roof within 10' of chimney.

Combustible exposure control:

- _____ Eaves extend less than 3' and enclosed.
- _____ Decks or balconies enclosed beneath.
- _____ Stilt construction fire resistant.
- _____ Firewood and other materials fully enclosed or more than 25' from structure.

- _____ Outbuilding 50' from structure.
- _____ Non-combustible patio or deck covers and mats.

Louvers/Windows/Openings:

- _____ Louvers covered with 1/4" mesh wire screen.
- _____ Louvers located in vertical wall rather than soffits of overhang.
- _____ Protection of windows and glazed areas.
- _____ All openings (e.g. garage) have doors or means to cover opening.

Roofs:

- _____ Fire resistant to level required by hazard.
- _____ Roof in good condition.
- _____ Gutters cleared of debris.
- _____ Overhanging trees minimum 15' from chimney thinned, maintained or cut down.

Other building issues:

- _____ House number clearly visible from street.
- _____ Storage tanks for hydrocarbon fuels or propane minimum 10' from building.
- _____ Outside hose bibbs/faucets with garden hose attached.

Mobile homes:

- _____ Under trailer area skirted in non-combustible material.
- _____ Roof of metal or non-combustible material.
- _____ Added decks, porches, or fences of fire-resistant materials.

Building Spacing:

- _____ Minimum spacing between buildings: 60'.
- _____ Minimum property line setback: 30'.
- _____ Minimum separation between primary and accessory buildings: 50'.

Water:

- _____ Hydrants available. Spacing _____. (According to local conditions).

_____ Dependable power source for water.

_____ Individual emergency water storage (minimum 2500 gallons per structure). If no public water, must be accessible with 1-1/2" line from the source for individual protection use.

Electric Power:

_____ Underground transmission.

_____ Above ground power lines, trimmed free of vegetation preferably 10' clear.

_____ Use of large cross arms to prevent shunting of circuits by vegetation.

LANDSCAPING FOR SAFETY

Landscaping for safety may be the most important feature of your wildland/urban plan. Vegetation management is a process by which you can minimize your exposure to wildfire.

Provide a fuel break around your home to a distance of thirty feet. Thin out stands of trees to create some clearance between trees to within 100 feet of your home. Be sure to remove any deadfall or standing dead timber from these areas.

A number of strategies can be used within these “zones” to reduce your risk. Fuel removal, fuel reduction, fuel type conversion, or combinations can be used. It is recommended that in “zone 1”, within 0'-30', any or all of these be utilized. In “zone 2” or, within 30'-60', reduction, conversion and combination can be used, as well as in “zone 3”, which is within 60'-100'. The aspect or slope of your property can influence the effects of landscaping. The steeper the slope the faster the fire moves upward. If you live on or adjacent to a steep slope, it may be necessary to extend your zones by 100' or more. In other words, a house at the top of a steep slope may need to reduce fuel for several hundred feet below in order to reduce the speed of a fire moving up hill.

Within these zones the ground need not be bare, but can include a lawn of green grass, ornamental shrubbery, or individual trees pruned so limbs do not touch the ground. These plants should not allow fire to move from natural growth to structures. Prune all branches around your residence to a height of eight to ten feet. Remove all dead limbs and accumulations of needles and debris. This greatly reduces the probability of fires reaching the crowns of trees, and also can add to the visual quality of your landscape.

Do not allow any portion of any vegetation to extend to within 15 feet of the outlet of a stovepipe or chimney. Keep all trees adjacent to any building or structure free of dead or dying wood and moss.

The electrical lines leading from the main power line to the house ignite many fires. Install these lines underground whenever possible. If this cannot be done, trim all limbs that come in contact with the wires. Stone walls can act as sheet shields and deflect flames. Use swimming pools, decks, and patios to create a safety zone.

Incorporate natural water supplies such as ponds or streams into your landscaping. These may become important sources of water for fire fighting purposes. Ensure that you have ample number of hose bibs on the exterior of your home.

The use of fire resistance plants can also play an important role in designing your home. Not all of the following plants may grow in our area. We recommend you contact your landscaper or the Teton County Extension Service for additional information.

Ground Cover:

Replace bare spaces and weedy patches near your home with ground covers, including turf, perennial flower beds, vegetable gardens, fire resistant clump grasses, and mulches.

If irrigated, turf can provide an effective firebreak.

Herbaceous perennials and annuals also require irrigation. These species include low growing or spreading plants like sedums, sempervivum, potentilla, snow in summer, vinca, virginia creeper, wheat grass, rice grass, tall fescue, marigold, zinnia, strawberries, clover, and others.

Plant perennial bunch grass, such as crested wheat grass, at least ten to twenty feet and as much as three hundred feet wide around the perimeter of your property to create a fire break. Crested wheat grass is largely fire resistant and does not usually require irrigation. It will help suppress the growth of highly flammable annuals such as cheat grass. Grass can be grazed or occasionally mowed to further reduce fuel accumulation.

Mulch helps control erosion, conserve moisture, and reduce weed growth. It can be organic, such as straw, compost, leaf mold, bark chips, shredded leaves, or lawn clippings; or it can be inorganic, including plastic materials, gravel, rock, and decomposed granite. Avoid using pine bark and thick layers of pine needles; they tend to smolder and are difficult to extinguish.

Perennials:

Choose hardy perennial flowers that are adapted to the climate. These green, leafy, succulent plants are harder to burn. Irrigation and regular weeding improves the fire resistance of yarrow, flax, columbine, penstemon, low sage, shasta daisy, pinks, sulfurflower, gillardia, daylily, candytuft, iris, lupine, primrose, poppy, dusty miller, lambs ears, and others.

Shrubs:

Some deciduous shrubs can be used in foundation plantings if maintained, watered, and well spaced. Evergreens such as dwarf conifers and junipers tend to ignite easily; avoid them unless well spaced. Place them at least twenty feet from any structure and prune regularly.

If maintained, hedgerows can deflect wind and filter wind-blown embers. Plant continuous deciduous hedges at least thirty feet from your home only if you will irrigate and remove dead branches regularly. Fire resistant shrubs include bush cherries, hedging roses, bush honeysuckles, currant, cotoneaster, sumac, tamarisk lilac, shrub apples, and buffalo berry.

Trees:

Deciduous trees can be clumped, scattered, or planted in green belts or windbreak patterns. Evergreen trees tend to ignite easily and should be avoided unless well spaced.

Selection of trees is not as important as placement. Inside the yard, space trees at least thirty feet apart and prune to a height of eight to ten feet. Crowns should not touch and branches should not overhang your house. Reduce combustible material under and between trees. Large areas or difficult sites may require professional assistance.

A well-designed deciduous windbreak can slow or even stop a fire before it reaches structures. Plant windbreak trees no more than ten feet apart and at least five times the mature tree height from the area to be protected, or one hundred feet. Plant on flat areas or at the base of slopes. Fast growing trees require frequent irrigation to keep them healthy. Maples, poplars, willows, aspen, and birch all require moist root zones to remain fire resistant.

LANDSCAPING CHECKLIST

- _____ Use of zone management for landscaping.
- _____ Zone 1 is 0'-30' with fuel reduction used.
- _____ Zone 2 is 30'-60' with heavy brush or trees thinned out.
- _____ Zone 3 is 60'-90' with heavy brush or trees thinned out.
- _____ Branches trimmed to a height of 8'-10'.
- _____ Branches trimmed 15' from chimney.
- _____ Branches trimmed away from electrical lines.
- _____ Water sources incorporated into the landscape.
- _____ Fire resistant plants used or intermingled into landscapes.

HOME MAINTENANCE

Once your home is built there are some simple things, which you should do to maintain that level of fire safety, which you have already built in.

Keep tree branches trimmed back away from your roof to prevent transfer of fire. Keep the branches trimmed at least 15 feet from the terminus of your chimney.

Keep the plants surrounding your home well watered to prevent excessive drying. The green zone within thirty feet of the home is most critical for fire and watershed safety. Maintain nonflammable landscaping such as lawns, border plantings, flower gardens and vegetable beds. Structures such as pools, concrete decks, and recreation areas help to reduce fire hazard close to the home. In the thirty to one hundred foot green zones around the home, remove dead woody plants. Occasionally prune trees and shrubs and eradicate weedy species. Beyond one hundred feet, reduce the amount of vegetation and thin out the most flammable species. Remove older vegetation while favoring younger plants to reduce the possibility of major wildfires.

Make sure that electrical lines are kept clear of vegetation.

Keep pine needles and deciduous leaves from building up on the roof and rain gutters.

Be careful with the use of outdoor cooking equipment. Use of outdoor cooking equipment has started a number of serious fires. Equip permanently installed fireplaces with a screen over the outlet and a method of controlling in draft. Clear at least five feet of flammable material around fireplaces and trim overhanging limbs to within 15 feet. Portable barbecues present a special problem; use extra caution in disposing of briquettes remaining after use. Place them in a closed metal container located in a safe place or extinguish them in a bucket of water.

If you have a gasoline, diesel or propane tank, make sure it is at least 10 feet from structures. Make sure all vegetation is cleared away from the tanks. Be especially careful with ignition sources around tanks.

HOME MAINTENANCE CHECKLIST

- _____ Branches trimmed 15' away from chimney.
- _____ Gutters are cleaned of debris.
- _____ Tree limbs trimmed to a height of 8'-10'.
- _____ Vegetation trimmed away from electrical lines.
- _____ Vegetation is trimmed 30' from the house.
- _____ Vegetation is well watered.
- _____ Permanent barbecues have appropriate screens.

- _____ Portable barbecues are in a stable location.
- _____ You have a bucket for ashes from the barbecue with a tight fitting lid.
- _____ Vegetation is cleared away from fuel tanks.

IV. DEVELOPING YOUR FIRE PLAN

It is important that you have a plan to respond to a wildfire. Remember, like most fires, wildfires start small. With a plan and preparation you may avert the large ones.

Report the fire right away. 911 is used in most areas.

You must know how to get out of your house. Two ways out is critical. You must know your evacuation routes so when it is time to leave you have a clear understanding of where to go. Know places of refuge in case the fire approaches to quickly.

If you must leave, leave the lights on in your home. If the electrical power does not fail, such lights will call attention to out-of-the-way homes during hours of darkness.

Leave doors and windows closed but unlocked. It may be necessary for firemen to gain quick entry into your home to fight fire.

If it becomes necessary to drive through fire, roll up the car windows, turn on the headlights, and drive slowly. A motor vehicle can be driven through considerable fire provided the driver remains calm. Look out for other vehicles and pedestrians when driving through smoke-filled streets.

Part of your plan should include fighting the fire if necessary. You should be prepared with proper equipment. The following list gives you some ideas.

EQUIPMENT CHECKLIST

- _____ Hoses pre-connected to all faucets; hoses should be 5/8 inch or larger inside diameter, and 100 feet long.
- _____ One or more long-handle, round-point shovel.
- _____ One ladder long enough to reach the roof of the building easily.
- _____ One rake (leaf, garden, asphalt, or special firefighting).
- _____ One or more 5-pound multipurpose fire extinguisher.
- _____ Axe.
- _____ Hoe (heavy duty or special firefighting).
- _____ One or more fire buckets.

_____ Backpack water pump.

_____ Portable gasoline-powered water pump.

_____ Protective clothing for anyone who may not evacuate before the arrival of a fire.

This includes boots, long trousers, long-sleeved shirt or jacket, helmet or other head covering, gloves, and goggles. Cotton clothing is a "must;" synthetics can melt onto your skin.

Members of your family should have tasks to avoid duplication of effort in an emergency. Equipment should be assembled and easily located to avoid searching for what you need.

If you must stay, evacuate your pets and all family members who are not essential to protecting the home, if possible.

Dress properly to survive the fire. Wear cotton fabrics, not synthetics. Wear long pants and boots and carry with you for protection a long-sleeved shirt or jacket, gloves, a handkerchief to shield your face, and goggles.

Remove combustible items from around the house. This includes lawn and poolside furniture, umbrellas, and tarp coverings. If they catch fire, the added heat could ignite your house.

Close outside attic, eave, and basement vents. This will eliminate the possibility of sparks blowing into hidden areas within the house. Close window shutters.

Shut off any natural gas, LPG, or fuel oil supplies at a point as far from the structure as the plumbing will allow.

Test the water system including any pumps on the property, each valve, and each hose.

Connect all garden hoses and leave them coiled loosely in a convenient location.

Place large plastic trash cans or buckets around the outside of the house and fill them with water. Soak burlap sacks, small rugs, and large rags. They can be helpful in beating out burning embers or small fires. Inside the house, fill bathtubs, sinks, and other containers with water. Toilet tanks and water heaters are important water reservoirs.

Shut off all water except firefight ring valves. The house should be plumbed so that closing one valve will accomplish this. If it is not, close each interior faucet and valve.

Locate garden hoses so they will reach any place on the house. Use a spray-gun type nozzle, adjusted to spray.

If you have portable gasoline-powered pumps to take water from a swimming pool or tank, make sure they are operating and in place.

Place a ladder against the house opposite the side of the approaching fire. If you have a combustible roof, wet it down only when fire is imminent. Premature use of water will only waste a resource that could save your home once the fire arrives.

Back your car into the garage and roll up the car windows. Disconnect the automatic garage door opener so that, if the power fails, you can still open the door by hand. Close all garage doors.

Place valuable papers and mementos inside the car in the garage for quick departure. Any pets still with you should also be put in the car.

Close house to prevent sparks from blowing inside. Close all doors inside the house to prevent draft. Open the damper on your fireplace to help stabilize outside-inside pressure, but close the fireplace screen so sparks will not ignite the room. Turn on a light in each room to make the house more visible in heavy smoke.

Turn off pilot lights to minimize the possibility of igniting a ruptured fuel line.

If you have time, take down flammable drapes and curtains. Close all Venetian blinds or noncombustible window coverings to reduce the amount of heat radiating into your home. This gives added safety in case the windows give way because of heat or wind. If coverings are not available, cover windows with aluminum foil or other heat reflective material.

V. SUMMARY:

The protection of your home from wildfire is something that you can have a great deal of influence on. This information gives only the very basic steps for protection from the devastation of an uncontrolled wildfire. For more information concerning prevention of wildfire and steps to take when wildfire occurs please contact the Jackson Hole Fire/EMS at the following address:

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