



## **WILDFIRE RISK & MITIGATION GUIDE**

***– It's a Team Effort, Be Part of the Solution –***



## **Crested Butte Fire Protection District's**

### **WILDFIRE RISK & MITIGATION GUIDE**

***-It's a Team Effort, Be Part of the Solution-***

**Attention:** Property Owners, Homeowners, Contractors and Builders,

The Crested Butte Fire Protection District, in cooperation with Gunnison Fire Protection District, Gunnison County, West Region Wildfire Council and Colorado State Forest Service is working together to properly plan for the mitigation & risk of wildfire. To achieve this goal we must reduce the risk of wildfire throughout our community with proper mitigation practices. A conceptual plan of wildfire management allows you to consider pathways for reducing wildfire risk to communities and properties. One of our most important goals is fuels reduction on public and private lands to minimize risk. The two principal risk objectives for fuel treatment are to reduce the wildfire intensity and severity within treated areas. Additionally, reducing the probability of fire occurrence beyond treated areas by limiting fire spread rates and/or enhancing suppression effectiveness.

The benefits of mitigating wildfire risks improves survivability for people and homes. The mitigation processes, within the Wildland Urban Interface (WUI), is the responsibility of everyone, to protect life safety, reduce the risk to emergency responders and lessen the risk of a catastrophic wildfire event.

The Crested Butte Fire Protection District Fire Prevention Division has assembled a Wildfire Risk & Mitigation Guide. This guide is our informational packet that will assist our community with WUI information in regards to designing a plan, resource information and cost sharing options.

Gunnison County Community & Economic Development will be reviewing all WUI plan submittals to ensure they are in accordance with their newly adopted Gunnison County Land Use Resolution amendments.

The Crested Butte Fire Protection District Fire Prevention Division is available to assist our community with any questions about wildfire hazards, water supply or code enforcement.

If you have any questions, please contact the Fire Prevention Division staff at 970-349-5333.

*Ric Ems*

Ric Ems, Fire Marshal

Crested Butte Fire Protection District



## **Wildfire Risk & Mitigation Information & Resources**

Wildfires are a natural part of Colorado's varied ecosystems. Planning ahead and taking actions to reduce the risk of wildfires can increase the likelihood your home survives when wildfires occur. As more people choose to live in wildfire-prone areas, additional homes and lives are potentially threatened every year. Firefighters always do their best to protect residents, but ultimately, it is your responsibility to protect your property and investments from wildfire.

### **Local Information & Resources:**

#### **Wildfire Planning & Mitigation**

In 2019 Gunnison County in Cooperation with Community Planning Assistance for Wildfires (CPAW) developed a report to identify appropriate land use and planning tools to result in more resilient Wildland Urban Interface (WUI) communities. The CPAW program helps communities make informed decisions about current and future development to better integrate wildfire-resilience into the planning process. CPAW was established by Headwaters Economics and Wildfire Planning International in 2015. CPAW is funded by the USDA Forest Service and private foundations. Since its inception, CPAW has worked with communities of varying sizes, capacities, and geographical locations across the United States.

Their report can be found by following the links below,

[https://www.gunnisoncounty.org/DocumentCenter/View/12378/FINAL-CPAW-Gunnison-Report-December-17\\_2019?bidId=](https://www.gunnisoncounty.org/DocumentCenter/View/12378/FINAL-CPAW-Gunnison-Report-December-17_2019?bidId=)

#### **Gunnison County Adopted WUI Codes**

As of January 1<sup>st</sup> 2023, Gunnison County adopted 2021 International Wildland-Urban Interfaces Codes (IWUIC) with amendments (Exhibits A & B.) The IWUIC can viewed at: <https://codes.iccsafe.org/content/IWUIC2021P2/chapter-3-wildland-urban-interface-areas>

And the amendments (Exhibits A & B) at:

[https://www.gunnisoncounty.org/agendacenter/viewfile/minutes/\\_09062022-839](https://www.gunnisoncounty.org/agendacenter/viewfile/minutes/_09062022-839)

## **Local Resource Contact List**

For additional information/questions, please contact the respective party:

### Gunnison County Community and Economic Development

Crystal Lambert, Building & Environmental Health Official, Phone (970) 641-7688, Email [clambert@gunnisoncounty.org](mailto:clambert@gunnisoncounty.org)

### Crested Butte Fire Protection District Fire Prevention Division

Ric Ems, Fire Marshal, Phone (970) 349-5333 x1, Email [rems@cbfpd.org](mailto:rems@cbfpd.org)

### Colorado Forest Service:

Mike Tarantino, Supervisory Forester of Science & Data, Phone 970-641-6852, Email [Mike.Tarantino@colostate.edu](mailto:Mike.Tarantino@colostate.edu)

### West Region Wildfire Council:

Aaron Johnson, Wildfire Mitigation Specialist, Phone (970) 615-7300 x305, Email [aaron.johnson@COwildfire.org](mailto:aaron.johnson@COwildfire.org)

## **Regional Resources:**

The Colorado State Forest Service (CSFS) West Region Wildfire Council (WRWC) promotes wildfire risk reduction, adaptation action, and wildfire preparedness throughout Delta, Gunnison, Hinsdale, Montrose, Ouray and San Miguel counties.

West Region Wildfire Council (WRWC) increases resilience to wildfire in Delta, Gunnison, Hinsdale, Montrose, Ouray and San Miguel Counties in Colorado. WRWC is a non profit that provides educational, technical, and financial assistance to residents. Some services they provide include:

- Site Visits: A detailed review of your home and property's vulnerabilities to wildfire.
- Vegetation Management: Including project layout, project administration, and financial assistance

Community Wildfire Mitigation Assistance: Including community meetings, Community Wildfire Risk Assessments, grant assistance, and Community Wildfire Planning

## **State Resources:**

Colorado Legislature established the Forest Restoration & Wildfire Risk Mitigation (FRWRM) Grant Program in 2017. This program provides state support



through competitive grant funds that encourage community-level actions across the state for some specific purposes:

- Reduce the risk of wildfire to people, property and infrastructure in the wildland-urban interface (WUI)
- Promote forest health and forest restoration projects
- Encourage use of woody material for traditional forest products and biomass energy

For more information about the FRWRM grant click on the link below.

<https://csfs.colostate.edu/grants/forest-restoration-wildfire-risk-mitigation/>

### **Federal Resources:**

Community members should work in cooperation with West Region Wildfire Council for information and eligibility for wildfire mitigation grants up to and including the Community Wildfire Defense Grant.

For additional CWDG information:

<https://www.fs.usda.gov/managing-land/fire/grants>

<https://www.fs.usda.gov/sites/default/files/2022-08/CWDG-Risk-Dataset-Methods.pdf>

# My Personal Wildland Fire ACTION GUIDE



*Ready*



*Set*



*Go!*



# Ready, Set, Go!



## Saving Lives and Property through Advanced Planning and Action

This publication was prepared by the International Association of Fire Chiefs' RSG! Program and supported by the USDA Forest Service, U.S. Department of the Interior, Federal Emergency Management Agency, and the U.S. Fire Administration.

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The wildland fire season is a year-round reality in the United States. This strains firefighting resources and emphasizes the need for residents to be proactive and prepared for the threat of wildland fire.

Wildland fire is, and always has been, a natural occurrence. Hills, canyons, grasslands, and forests burn periodically as part of a healthy ecosystem. Wildland fires are fueled by dry vegetation, driven by increasing seasonal temperatures and fanned by dry winds. Wildland fires have become increasingly dangerous with the inclusion of built environments in the wildland-urban interface (WUI), an area or zone where human development meets or mixes with natural vegetation.

Studies show as many as 80 percent of homes lost to wildland fires could have been saved if their owners had followed simple risk-reduction practices. In addition, wildland fire related deaths can occur because people wait too long to leave their homes.

Proactive mitigation around your property and safe and early evacuation can help protect you, your household, and your property. This Action Guide provides tips and tools you need to prepare for wildland fire threat, gain situational awareness when a fire starts, and act early as directed by local officials.

Remember, all efforts to improve defensible space on your property can decrease property damage and help firefighters with suppression efforts. Taking advanced personal action can result in improved safety for all involved.

The Ready, Set, Go (RSG)! Program works in collaboration with existing, local wildland fire public education efforts and amplifies the common goal for wildland fire preparedness.

The tips on the following pages are designed to help guide your actions to create a safer environment for you, your household, and first responders.

**It is not a question of if, but when, the next major wildland fire will occur.** Use this Action Guide to help you become wildland fire ready!

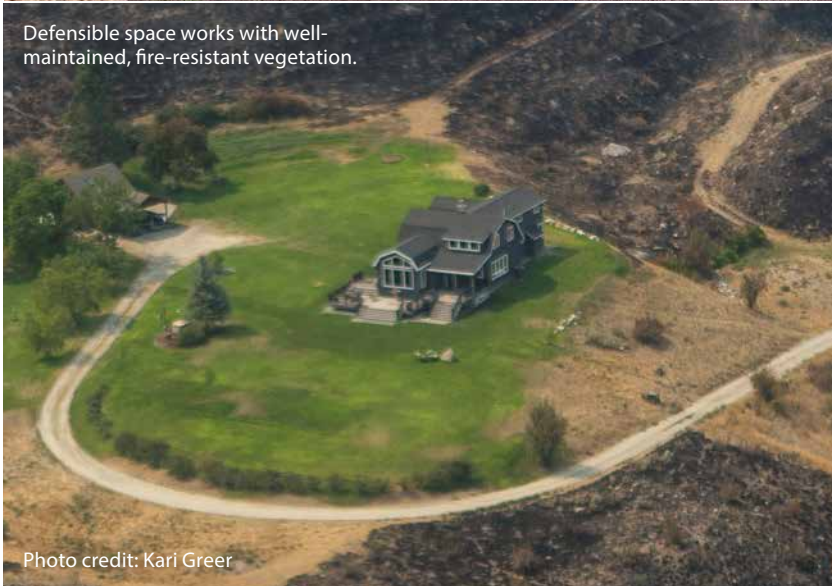
Visit us at [wildlandfireRSG.org](http://wildlandfireRSG.org) to learn more about becoming prepared.



*Ready* begins with property owners taking action.



Defensible space around property created with different types of rock mulch.



Defensible space works with well-maintained, fire-resistant vegetation.

Photo credit: Kari Greer



Red Flag Warning

## Defensible Space and Fire-Resistant Landscaping Can Protect Your Home

If you live next to a dense vegetation area, the WUI, you should provide defensible space to better protect your home. This will create a safer area for firefighters to operate if they have the capacity to defend your home. Creating a buffer zone by removing weeds, dried grass, brush, and other vegetation helps keep the fire away from your home and reduces the risk of ignition from flying embers.

### Consider This

Unmanaged and overgrown vegetation between and around homes increases the risk of wildland fire spreading throughout the community and endangering lives and property. Pre-fire planning through mitigation and vegetation management allows firefighters the ability to fight wildland fires more safely. The work you complete today may save your home and protect a firefighter tomorrow.

### Ember Zone

An ember is a small, glowing fragment from a wildland fire that is carried by the wind. Embers are light enough to travel long distances and are the primary reason homes ignite, often at significant distances from the actual flame front of a wildland fire. Embers travel inside your home through vents, windows, and other openings.

### Homes on the Wildland Boundary are at Risk

If your home is within one mile of a natural area, it may be considered part of an ember zone. Keep in mind, embers can destroy homes or neighborhoods far from the actual front of the fire. Use the information in this Guide to help you prepare your property.

### Red Flag Warning

A Red Flag Warning is issued by the National Weather Service when low humidity, warm temperatures, dry fuels, and strong winds could combine to produce extreme fire behavior. Fires occurring during a Red Flag day can be very dangerous and spread rapidly. You should always follow the instructions provided by your local emergency response organizations and be prepared to take immediate action.

# Ready Create Defensible Space

**D**efensible space is the area around your home in which vegetation, debris, and other combustible fuels have been removed to slow the spread of fire to and from the home.

It can better protect the home from igniting due to direct flame contact and radiant heat. Defensible space is essential to help protect a structure and create a safer area for firefighters during a wildland fire.

You should create defensible space by removing weeds, brush, and firewood, and by spacing out vegetation around your property.

Although this might seem like a daunting task, we recommend starting in Zone 1 and working your way out. Follow the considerations below for each zone and your property can become safer with each step.



## ZONE 1

### 0-5 feet around your home or to property line

- Use hard scape such as concrete or noncombustible rock mulch around your home.
- Clean roofs and gutters of dead leaves, debris, and pine needles.
- Store firewood and other combustible materials away from your home, garage, or attached deck.
- Prune away touching or over-hanging branches from the roof to a distance of at least 10 feet.
- Replace or repair any loose or missing shingles or roof tiles to prevent ember penetration.
- Rake and remove flammable vegetation, such as leaves and needles or wood mulch, from underneath your deck and away from your home.
- Use non-wood, low-growing herbaceous vegetation. Succulents, or other fire-resistant plants, are recommended choices.

## ZONE 2

### 5-30 feet around your home or to property line

- Create vegetation groups or islands to break up continuous fuels around your home.
- Remove ladder fuels to create a separation between low-level vegetation and tree canopies to keep fire from climbing into trees.
- Remove leaf and needle debris from the yard.
- Keep lawns, native grasses, and wildflowers less than four inches in height.
- Store firewood and other combustible materials away from outbuildings such as a shed or barn.
- Move trailers, recreational vehicles, storage sheds, and other combustible structures out of this zone and into Zone 3. If unable to move, create defensible space around them as if they were a part of your home.

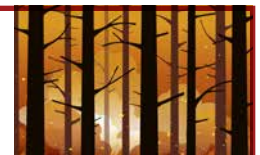
## ZONE 3

### 30-200 feet around your home or to property line

- Create and maintain a minimum of 10 feet between the tops of trees.
- Safely remove ladder fuels up to a height of 10 feet, while retaining at least 75 percent of the foliage, to create separation between the ground and tree branches. This keeps fire from climbing into the tree canopies.
- Store firewood in this area, keeping it a safe distance from your structure.
- Create space between shrubs and trees to eliminate a continuous fuel bed at the ground level.
- Remove dead trees, shrubs, and all other dead or dry vegetation.
- Create separation between your property and your neighbors. Consider that your trees may pose a greater risk to your neighbor's home than to your own.

## Remember the Ember Zone

Embers are burning pieces of airborne material that can be carried more than a mile by the wind. Research points to embers and small flames as the main ways homes ignite in wildland fires.





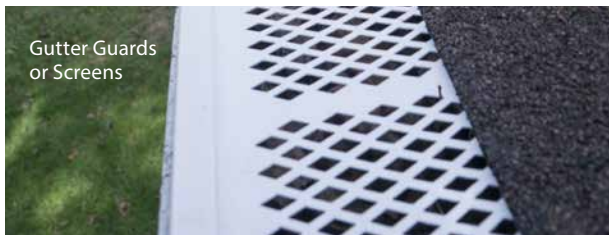
# Ready Make Your Home Fire Resistant - Harden Your Home

Construction materials and the quality of the defensible space surrounding the structure are what increases the chance of survival in a wildland fire. Embers from a wildland fire will find the weak spot in your home's fire protection scheme and can easily lodge in small, overlooked, or seemingly inconsequential areas. Look at where snow drifts form on your roof and deck and around your home - these are the areas where embers will collect. Below are some home hardening measures you can take to safeguard your home.



## Balconies and Decks

Construct your balconies or decks with **noncombustible materials**, and do not store combustible items underneath them. If there is a fire threat, bring any **furniture** into your home. Embers can collect in or on combustible surfaces, or beneath decks and balconies, igniting the material and giving a path for the fire to enter your home. **Remove pine needles, leaves, grass**, or any other flammable materials from underneath your deck.



## Roofs

Roofs are vulnerable to embers that become lodged and can start a fire, especially anywhere on the roof with litter buildup. **Roof valleys**, open ends of **barrel tiles**, and **rain gutters** are all points of entry. Block off all open spaces, and regularly inspect these areas. Remove any combustible material.



## Eaves

Embers can gather under open eaves and ignite combustible material. Enclose your eaves with **noncombustible or ignition-resistant materials** to prevent ember intrusion, and regularly clear away debris that collects here.



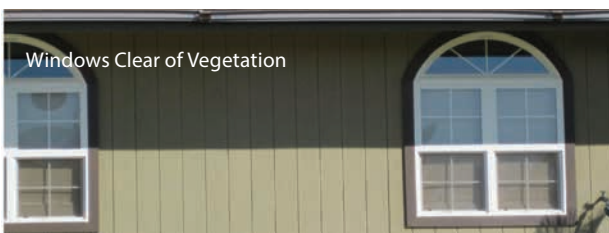
## Vents

Embers can enter the attic or other concealed spaces and ignite combustible materials through open and unscreened vents. Vents in eaves, gables and cornices are particularly vulnerable if not properly screened with wire mesh. Use **corrosion resistant metal mesh** to screen all vents, and check them regularly to remove any debris that collects in front of the screen.



## Walls and Fencing

Combustible siding or fencing provides surfaces and crevices for embers to nestle and ignite. Ensure wooden fences do not connect directly to the house. Create a **break in the fence** by using a gate or noncombustible substitute to connect to the house. Build or remodel with **noncombustible or ignition-resistant materials** wherever possible, regularly clear away debris from any crevices, and perform annual upkeep.



## Windows and Doors

Embers can enter gaps in doors, including garage doors. Install **weather proofing** around your garage door; and if your garage is attached to your home, make sure the interior door is solid and on **self-closing hinges**.

Plants or combustible storage near windows can be ignited from embers and generate heat that can break windows and/or melt combustible frames. Wherever possible, use **dual-paned windows with tempered glass**, as they are less likely to shatter from radiant heat.



# Tour a Wildland Fire Prepared Home

**Home Site and Yard:** Ensure all vegetation within 200 feet around your home or to your property line is well-managed. This area may need to be enlarged in severe fire hazard areas due to topographic conditions. This may mean considering the impact a common slope or neighbor's yard may have on your wildland fire risk. Remember the importance of routine maintenance: creating defensible space is not something you do just once, it's continual. Maintain your defensible space and remove any regrowth. Keep woodpiles, propane tanks, and combustible materials away from your home and other structures such as detached garages, barns, and sheds. Ensure trees are away from power lines.

**Inside:** Keep working fire extinguishers on hand. Install smoke alarms on each level of your home and near bedrooms. Test them monthly and change the batteries twice a year.

**Address:** Make sure your address is clearly visible from the road and constructed of noncombustible materials. Reflective numbering is recommended. Check with your local fire department to see if they offer reflective address signs.

**Roof:** Use a Class A fire-rated roof covering, such as composition shingles, metal, or tile, when roofing or re-roofing. Block any spaces between roof decking by using a noncombustible underlayment covering to minimize ember intrusion. Clear pine needles, leaves, and other debris from your roof and gutters. Prune tree branches within 10 feet of your roof.

**Deck/Patio Cover:** Use heavy timber or noncombustible construction material for decks.

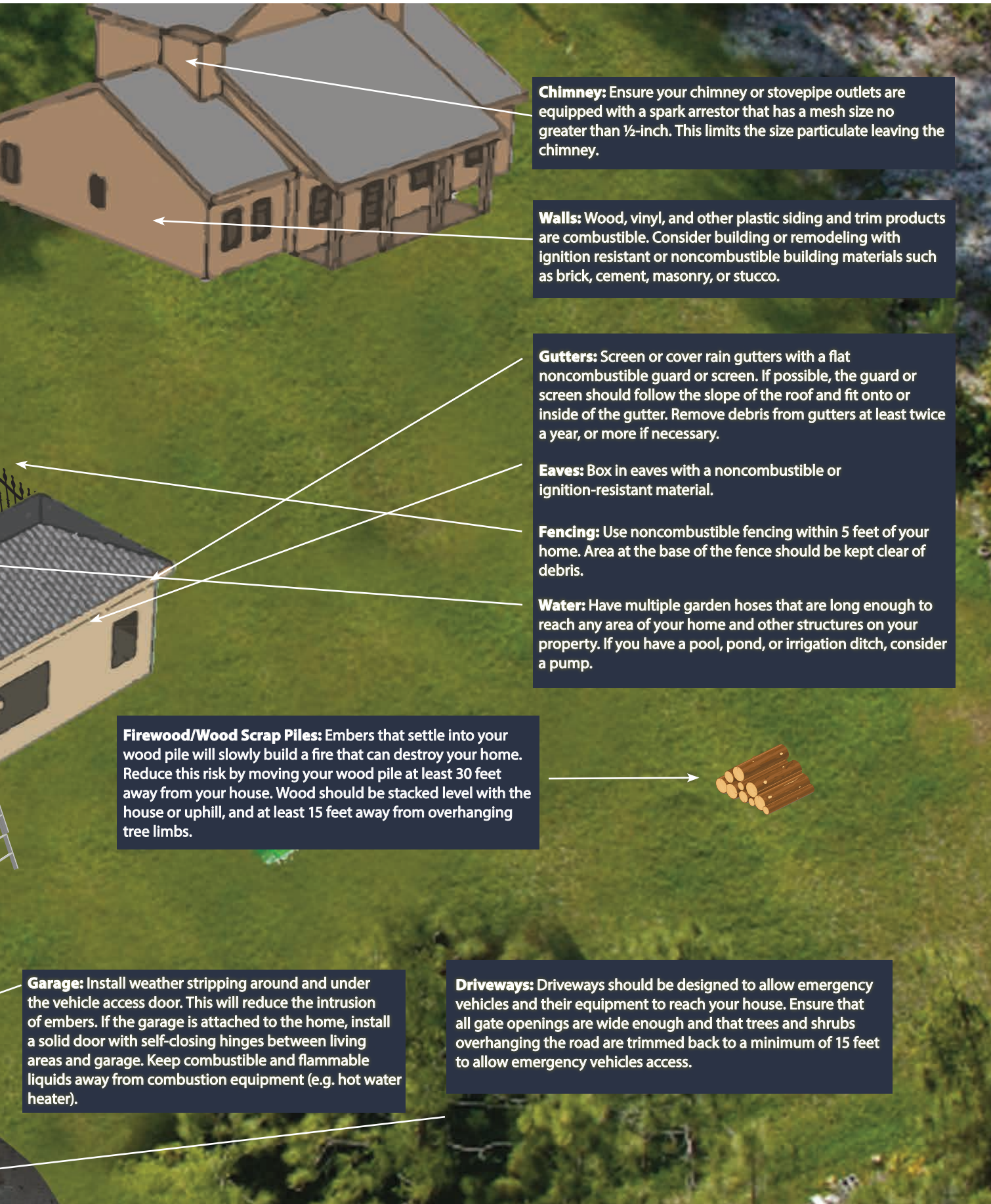
Keep your deck clear of combustible items, such as baskets, flower arrangements, and other material. Combustible materials should not be stored under your deck.

**Ladders:** Having a ladder readily accessible could assist responders in protecting your home during a wildland fire.

**Vents:** At a minimum, all vent openings should be covered with 1/8-inch corrosion resistant metal mesh.

**Windows:** Radiant heat from burning vegetation or a nearby structure can cause the glass in windows to break. This will allow flames to enter your home and start internal fires. Single-pane and large picture windows are particularly vulnerable to glass breakage. Install dual-pane windows with a minimum of one pane being tempered glass to reduce the chance of breakage during a fire. Metal blinds are best to protect the interior from radiant heat.





**Chimney:** Ensure your chimney or stovepipe outlets are equipped with a spark arrestor that has a mesh size no greater than ½-inch. This limits the size particulate leaving the chimney.

**Walls:** Wood, vinyl, and other plastic siding and trim products are combustible. Consider building or remodeling with ignition resistant or noncombustible building materials such as brick, cement, masonry, or stucco.

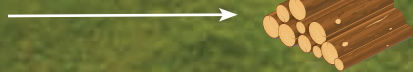
**Gutters:** Screen or cover rain gutters with a flat noncombustible guard or screen. If possible, the guard or screen should follow the slope of the roof and fit onto or inside of the gutter. Remove debris from gutters at least twice a year, or more if necessary.

**Eaves:** Box in eaves with a noncombustible or ignition-resistant material.

**Fencing:** Use noncombustible fencing within 5 feet of your home. Area at the base of the fence should be kept clear of debris.

**Water:** Have multiple garden hoses that are long enough to reach any area of your home and other structures on your property. If you have a pool, pond, or irrigation ditch, consider a pump.

**Firewood/Wood Scrap Piles:** Embers that settle into your wood pile will slowly build a fire that can destroy your home. Reduce this risk by moving your wood pile at least 30 feet away from your house. Wood should be stacked level with the house or uphill, and at least 15 feet away from overhanging tree limbs.



**Garage:** Install weather stripping around and under the vehicle access door. This will reduce the intrusion of embers. If the garage is attached to the home, install a solid door with self-closing hinges between living areas and garage. Keep combustible and flammable liquids away from combustion equipment (e.g. hot water heater).

**Driveways:** Driveways should be designed to allow emergency vehicles and their equipment to reach your house. Ensure that all gate openings are wide enough and that trees and shrubs overhanging the road are trimmed back to a minimum of 15 feet to allow emergency vehicles access.

# Create Your Own Action Plan

Your Wildland Fire Action Plan must be prepared with all members of your household well in advance of a wildland fire. Use these checklists to help you get Ready and Set with situational awareness in the threat of wildland fire.

## Ready Get Ready

- Create an Action Plan that includes evacuation meeting locations and communication plans - rehearse it regularly. Include the evacuation of all pets and large animals, which may include horses and livestock, in your plan.
- Sign up for your local emergency notification system. Check your local fire department or emergency management agency websites for information on the system used in your area.
- Designate an emergency meeting location outside the wildland fire hazard area.
- Plan and practice several different evacuation routes.
- Have fire extinguishers on hand and teach your household how to use them.
- Ensure that everyone in your household knows where your gas, electric, and water main shut-off controls are located and how to use them.
- Assemble a Go Kit as recommended by the American Red Cross. Keep an extra kit in your vehicle. Check this page for a list of recommended emergency supplies.
- Check this page for a list of recommended emergency supplies.
- Have a portable radio or scanner so you can stay updated on the fire and weather emergency announcements.

## EMERGENCY SUPPLIES LIST FOR GO KIT

The American Red Cross recommends every household have an emergency supply kit assembled long before a wildland fire or other emergency occurs. Use the checklist below to help assemble yours. For more information on emergency supplies visit [redcross.org/get-help](https://www.redcross.org/get-help).

- Three-day supply of water (one gallon per person, per day) and non-perishable food for household members (3 day supply).
- First aid kit and sanitation supplies, including toilet paper and baby wipes.
- Flashlight, battery-powered radio, and extra batteries.
- An extra set of car keys, credit cards, cash, or traveler's checks.
- Extra eyeglasses, contact lenses, prescriptions, and medications.
- Important household member documents and contact numbers, including insurance documents.
- Map marked with evacuation routes. It is important to have a printed map in case your phone dies. It may also be easier to see the printed map than a phone screen under smokey conditions.
- Easily carried valuables and irreplaceable items.
- Personal electronic devices and chargers.
- Keep a pair of old shoes and a flashlight handy in case of a sudden evacuation at night.



## Set Prepare and Be Aware

- Monitor fire weather conditions and fire status. Check your local fire department or emergency management websites and social media accounts for wildland fire information. Stay tuned to your TV or local radio stations for updates, including Red Flag Warnings in your area.
- Alert household and neighbors.
- Dress in appropriate clothing (i.e., clothing made from natural fibers, such as cotton, and work boots). Have goggles and a dry bandana or particle mask handy.
- Ensure your Go Kit includes all necessary items, such as a battery powered radio, spare batteries, emergency contact numbers, and drinking water.
- Remain close to your house, drink plenty of water, and ensure your household members and pets are accounted for and ready to leave.

### INSIDE CHECKLIST, IF TIME ALLOWS

- Close all windows and doors.
- Remove all shades and curtains from windows and ensure all blinds remain open, unless you have metal blinds. Close all metal blinds.
- Move furniture to the center of the room, away from windows and doors.
- Turn off pilot lights and air conditioning units.
- Leave your lights on so firefighters can see your house in smoky conditions

### OUTSIDE CHECKLIST, IF TIME ALLOWS

- Make sure combustible items are a safe distance away from the exterior of the house (e.g., patio furniture, children's toys, door mats, etc.) If you have time, place these items inside your garage or home where they will not become a hazard.

- Turn off propane tanks and other gas at the meter.
- Don't leave sprinklers on or water running. They can affect critical water pressure.
- Leave exterior lights on.
- Back your car into the driveway to facilitate a quick departure. Shut doors and roll up windows.
- Have a ladder ready to use to cover attic vents. Use pre-cut plywood or commercial seals. Use the same for ground vents. Do so in a safe manner, and only if time permits.
- Patrol your property and extinguish small fires, if you can do so safely, until you leave.

### IF YOU ARE TRAPPED: SURVIVAL TIPS

- If you have become trapped and cannot evacuate, call 9-1-1 immediately.
- Stay in your home, sheltering away from walls, until the fire passes or emergency personnel tell you differently. Follow their instructions and commands.
- Look for spot fires and extinguish if found inside house.
- Wear long sleeves, long pants, and a bandana made of natural fibers, such as cotton.
- Stay hydrated.
- Ensure you can exit the home if it catches fire. Remember, if it's hot inside the house, it is four to five times hotter outside. Be prepared.
- Fill sinks and tubs for an emergency water supply.
- Place wet towels under doors to keep smoke and embers out.
- After the fire has passed, check your roof and extinguish any fires, sparks, or embers if you are able to safely do so. Check the attic as well.

## Go! Act Early

Leaving early gives you and your household members the best chance of surviving a wildland fire. You also help firefighters by keeping roads clear of congestion, enabling them to move more freely and do their job in a safer environment. Be sure to follow the direction of your local authorities.

### WHEN TO LEAVE

Do not wait to be advised to leave if there is a possible threat to your home or evacuation route. Leave early enough to avoid being caught in fire, smoke, or road congestion. If you are advised to leave by local authorities, do not hesitate!

### WHERE TO GO

Go to a predetermined, low-risk area such as a relative's house, a Red Cross shelter or evacuation center, motel, etc.

### HOW TO GET THERE

Have several travel routes in case one route is blocked by the fire or by emergency vehicles. Choose the safest route away from the fire.

### WHAT TO TAKE

Take your Go Kit containing your household members' and pet's necessary items.

### REMEMBER THE 8 P'S!

- People & Pets
- Pictures & Photo Albums
- PC's
- Papers (important)
- Prescriptions & Medications (for your pets too)
- Plastics (credit cards)
- Personal Devices (phones and chargers)
- Passports & IDs



IAFC Wildland Fire Programs are funded through DHS/FEMA/AFG/FP&S grants awarded FY2018 (EMW-2018-FP-00279) and FY2019 (EMW-2019-FP-00412) and in cooperation with the USDA Forest Service. In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. (Not all prohibited bases apply to all programs.) To file a complaint alleging discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington DC 20250-9410 or call toll free voice 866-632-9992, TDD 800- 877-8339, or voice relay (866) 377-8642. USDA is an equal opportunity provider and employer.

# My Personal Wildland Fire ACTION PLAN

Write up your Wildland Fire Action Plan and post it in a location where every member of your household can see it. Rehearse it with your household.

During high-fire-danger days in your area, monitor your local media for information and be ready to implement your plan. Hot, dry, and windy conditions create the perfect environment for a wildland fire.

## IMPORTANT PHONE NUMBERS

Out-of-Area Contact \_\_\_\_\_ Phone: \_\_\_\_\_

Work \_\_\_\_\_

School \_\_\_\_\_

Other \_\_\_\_\_

## EVACUATION ROUTES

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

## WHERE TO GO

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## LOCATION OF GO KIT(S)

\_\_\_\_\_

## NOTES

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Contact your local fire department for more tips on preparing before a wildland fire.



# My Personal Wildland Fire ACTION PLAN

## Ready

### Get Ready

- Sign up for your local emergency notification system.
- Dispose of or relocate combustible material from around your home.
- Trim trees and bushes allowing ample space between your home and landscape vegetation.
- Arrange your Go Kit with prescription medication, emergency supplies, important documents, and other essential items.

## Set

### Prepare and Be Aware

- Make sure you have your Go Kit on hand in an accessible place.
- Alert household and neighbors of your action plan. Ensure your household members and pets are accounted for and ready to leave.
- Monitor local fire weather conditions and listen to emergency notification systems.

## Go!

### Act Early

- Get your Go Kit and leave well before the threat approaches using a planned, accessible route.
- Stay aware of the situation and follow your plan.
- Cooperate with local authorities during evacuation and re-entry processes.



wildlandfireRSG.org







# THE HOME IGNITION ZONE



A guide to preparing your home  
for wildfire and creating defensible space

*Formerly Quick Guide FIRE 2012-1: Protecting Your Home From Wildfire*





# Reducing Your Home's Wildfire Risk Begins With You

## WHY?

Homeowners have the ultimate responsibility to proactively prepare their property for wildfire. By creating and maintaining the home ignition zone, residents can improve the likelihood of their home surviving a wildfire and reduce the negative impacts wildfires can have on their property.

In Colorado, if you live in the wildland-urban interface, it is not a matter of *if* a wildfire will impact your home and property, but *when*.

If your home is located in or near the natural vegetation of Colorado's grasslands, shrublands, foothills or mountains, you live in the wildland-urban interface — also known as the WUI — and are inherently at risk from a wildfire. This includes any areas where structures and other human developments meet or intermingle with wildland vegetative fuels.

Wildfires are a natural part of Colorado's varied ecosystems. Planning ahead and taking actions to reduce the risk of wildfires can increase the likelihood your home survives when wildfires occur.

As more people choose to live in

wildfire-prone areas, additional homes and lives are potentially threatened every year. Firefighters always do their best to protect residents, but **ultimately, it is your responsibility to protect your property and investments from wildfire.**

This guide focuses on actions that are effective in reducing wildfire hazards on your property. It is important to recognize that these efforts should always begin with the home or structure itself and progress outwards.

Also, remember that taking wildfire risk reduction steps is not a one-time effort — it requires ongoing maintenance. It may be necessary to perform some actions, such as removing pine needles from gutters and mowing grasses and weeds, several times a year. Other actions may just need to be

addressed annually or only once.

While you may not be able to accomplish all of these actions at once to prepare your home and property for wildfire, each completed activity will improve the safety of your home during a wildfire. However, it is important to remember there are no guarantees when it comes to wildfire. Implementing risk reduction actions does not guarantee your home will survive a wildfire, but it does improve the odds.

Knowing that wildfire impacts are inevitable, it is not only important for individuals to work on their own homes, but also for residents to work together to increase their community's resilience to wildfire. To become fire adapted, actions must not only be taken before a wildfire



As the 416 Fire burned near Durango in 2018, firefighters conducted burnouts near homes in the fire's path to eliminate fuel for the main fire and provide a secure control line. The work done by homeowners to create the defensible space buffer visible here gave firefighters the option to safely conduct the operation. Photo: Jerry McBride, Durango Herald

arrives but during and after a fire.

The National Cohesive Wildland Fire Management Strategy defines a fire-adapted community as “a human community consisting of informed and prepared citizens collaboratively planning and taking action to safely coexist with wildland fire.”

In order to increase the likelihood homes and infrastructure survive a wildfire, all landowners must work together to reduce fire hazards within and adjacent to communities. This includes work on individual home sites and common areas within communities. Every community member has a role in fire adaptation, from civic leaders, to developers, to first responders, to homeowners and land management agencies.



**WHAT'S YOUR WUI RISK?**

**MORE THAN HALF** of Colorado residents live in the wildland-urban interface and are at some risk of being affected by wildfire.

Source: CSFS WUI Risk Assessment 2017

**Access WUI risk information** [coloradoforestatlas.org](http://coloradoforestatlas.org)

**Reduce your wildfire risk** [csfs.colostate.edu](http://csfs.colostate.edu)

**Protect your community** [fireadaptednetwork.org](http://fireadaptednetwork.org)



# What Is the Home Ignition Zone?

## HOME IGNITION ZONE (HIZ)

is the home and the area around the home (or structure). The HIZ takes into account both the potential of the structure to ignite and the quality of defensible space surrounding it.

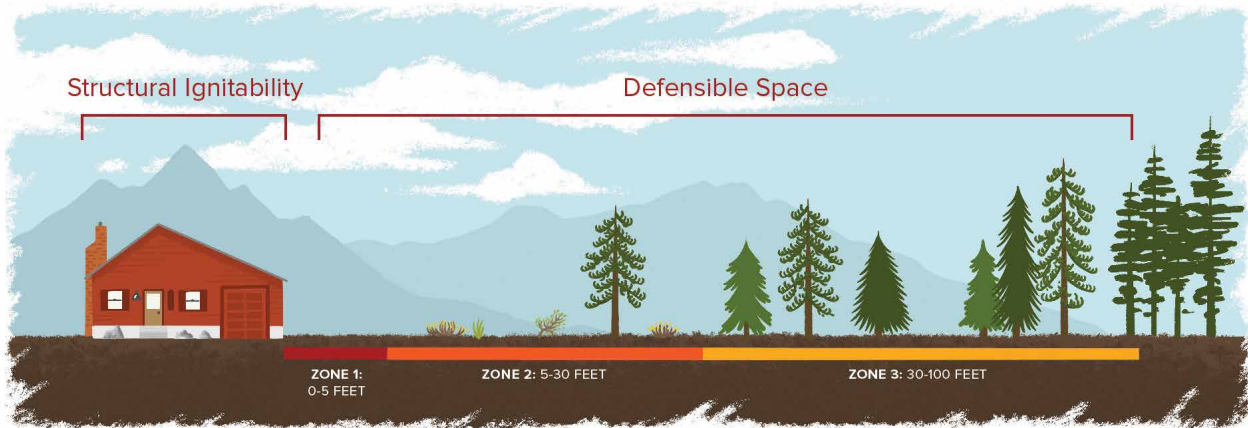


Illustration: Bonnie Palmatory, Colorado State University

The two primary determinants of a home's ability to survive a wildfire include the structure's ignitability and the quality of the surrounding defensible space. Together, these two factors create a concept called the home ignition zone, or

HIZ. It includes the structure and the space immediately surrounding it.

The space around the home is divided into three distinct spaces of management, zones 1, 2 and 3. Pages 8-9 outline specific goals and critical steps to manage your

property within each of these zones.

To reduce wildfire hazards to your home and property, the most effective proactive steps to take are to minimize the ability of the home to ignite and to reduce or eliminate nearby fuel.

## METHODS OF HOME IGNITION

### 1. EMBER IGNITION

Embers (firebrands) are small pieces of burning material that can be transported by wind more than a mile ahead of a wildfire's flaming front. Embers can vary greatly in size, but even the smallest can start new fires (known as spot fires) on any ignitable surface they encounter, inside or outside a home. This is the most common source of home ignition during wildfires.

Flammable horizontal or nearly horizontal surfaces, such as wooden decks or shake-shingle roofs, are at greater risk for ignition from burning embers.

Many homes in the wildland-urban interface have burned because of airborne embers, so addressing structural ignitability is critical even if it appears difficult for fire to spread in the area surrounding a home.

### 2. SURFACE FIRE/ DIRECT FLAME CONTACT

If fuels are adjacent to a home, direct flame contact can ignite the house. Ensuring no such fuels exist within 5 feet of a home, particularly near windows or under decks, greatly minimizes this possibility.

### 3. RADIANT HEAT

Radiant heat is what you feel on your hands while warming them next to a campfire. This same type of heat transfer can ignite a home, whether the source of the heat is a crown fire in treetops or an adjacent home that has caught fire.



*Flying embers are the most common source of home ignition during wildfires. Preparing homes for their impact is critical. Embers can ignite leaf litter in gutters and on roofs, as well as shrubs and mulch at the base of the house, as seen in this controlled ember shower experiment. Photo: Insurance Institute for Business & Home Safety*

# What Is Defensible Space?

## DEFENSIBLE SPACE

is the area around a home (or structure) that has been modified to reduce fire hazard by creating space between potential fuel sources.

**F**irefighters may not be present at your home during a wildfire — they are trained to protect structures only when the situation is safe for them. You should prepare your home and property to withstand wildfire without firefighter intervention. Having an effective defensible space combined with reducing structural ignitability is the best way to improve your home's chance of survival.

Defensible space is the area around a home or other structure that has been modified

to reduce fire hazard by creating a disconnected fuel load both vertically and horizontally. In this area, natural and manmade fuels are treated, removed or reduced to slow the spread of wildfire and alter fire behavior.

Establishing defensible space reduces the likelihood of a home igniting by direct flame contact or by radiant heat exposure. It also helps limit local production of embers and reduces the chance a structure fire will spread to neighboring homes or surrounding vegetation.

**CREATING AN EFFECTIVE DEFENSIBLE SPACE** involves establishing a series of management zones. Develop these zones around each building on your property, including detached garages, storage buildings, barns and other structures.



**BEFORE**



**AFTER**

*A Colorado State Forest Service forest management project near Evergreen cleared dense trees in a residential area to reduce wildfire risk. The same tree with a crooked trunk in the center of these photos shows how tree thinning can be a useful tool to protect property, decrease fire intensity and boost forest health. Photo: Emma Brokl, CSFS*

Recognize that fuel continuity and density play a critical role in wildfire behavior.

As you plan defensible space for your property, you can contact your nearest Colorado State Forest Service field office for guidance, or consult a forester, fire department staff or community organization appropriately trained in wildfire mitigation practices.

# 3

## Factors Determine Wildfire Behavior

1. FUELS
2. WEATHER
3. TOPOGRAPHY

Of the three things wildfires need to start and spread, humans cannot change weather or topography, so we must concentrate on altering fuels in order to have any control over a disturbance as dynamic as wildfire.

Fuels can include vegetation like trees, brush and grass; but when near homes, fuels also include propane tanks, woodpiles, sheds and even homes themselves.



*East Troublesome Fire. Photo: Zach Wehr, CSFS*





**Top left:** Hardening your home can include choosing noncombustible building materials like stucco paired with a stone facade. This house near Salida shows you don't have to sacrifice curb appeal to reduce the ignitability of your house. Photo: CSFS

**Top right:** Preparing your home for wildfire can be accomplished as weekend projects, such as clearing vegetation from around your home's perimeter and adding noncombustible material near the foundation that won't ignite if embers land there. Photo: Wildfire Partners

**Bottom:** A metal roof and noncombustible exterior window coverings add layers of protection against wildfire, in addition to the well-maintained defensible space that surrounds this home. Photo: Wildfire Partners



## MORE ONLINE

This guide provides only basic information about structural ignitability.

The National Fire Protection Association (NFPA) and the Insurance Institute for Business & Home Safety (IBHS) together produce Wildfire Research Fact Sheets that provide additional valuable information.

Visit the "Protect Your Home" section at the CSFS website, [csfs.colostate.edu/wildfire-mitigation](https://csfs.colostate.edu/wildfire-mitigation), for links to these and other structural ignitability resources.





# Harden Your Home Against the Threat of Wildfire

## STRUCTURAL IGNITABILITY

is the likelihood the materials in and on your home will ignite during a wildfire.

The practice of reducing structural ignitability is commonly called “home hardening.”

**T**he ideal time to address home ignition risk is when the structure is in the design phase.

For existing homes, steps must be taken to reduce the structural ignitability in order to improve the likelihood of the home surviving a wildfire. The practice of reducing structural ignitability is commonly called home hardening.

### BEST PRACTICES TO REDUCE STRUCTURAL IGNITABILITY

- Ensure the roof has a Class A fire rating
- Remove all leaves, needles and other debris from all decks, roofs and gutters
- Screen attic, roof, eaves and foundation vents with 1/8-inch metal mesh
- Screen or wall-in stilt foundations and decks with 1/8-inch metal mesh
- Use tempered glass for windows; two or more panes are recommended
- Create 6 inches of vertical clearance between the ground and home siding
- Replace combustible fencing or gates, at least within 5 feet of the home

## STRUCTURAL COMPONENTS TO CONSIDER

### WINDOWS

Windows can fail either from glass breaking or frames melting before a building ignites, providing a direct path for airborne embers to reach the building’s interior. Metal screens should be installed. Windows with multiple panes provide greater protection than single-paned windows.

### VENTS

Vents that are not screened or are screened with a gap that exceeds 1/8 of an inch can be a direct entry point for embers to infiltrate a home and ignite it from the inside. Metal mesh screen that is 1/8-inch is small enough that most embers will be extinguished before making it inside.

**SOURCE** *NFPA/IBHS Wildfire Research Fact Sheet — Attic and Crawl Space Vents*

### EXTERIOR WALLS

The exterior walls of a home or other structure are affected most by radiant heat from a fire and, if defensible space is not adequate, by direct contact with flames. Fiber cement board, brick, stucco or other fire resistant materials are recommended.

### ROOF

The roof has a significant impact on a structure’s ignitability because of its extensive surface area. When your roof needs significant repairs or replacement, choose only fire-resistant roofing materials. Wood and shake-shingle roofs are strongly discouraged because they are highly flammable and are prohibited in some areas of the state. Metal sheets, concrete or shingles made from asphalt, tile, clay, stone or metal are all recommended roofing materials. It is critical to keep the roof and gutters clear of flammable debris.

**SOURCE** *NFPA/IBHS Wildfire Research Fact Sheet — Roofing Materials*

### ROOF EXTENSION

The extension of the roof beyond the exterior structure wall is called the eave. This architectural feature is particularly prone to ignition. As fire approaches a building, the exterior wall deflects hot air and gases up into the eave. If the exterior wall isn’t ignition-resistant, the effect of the excess heat is amplified.

**SOURCE** *NFPA/IBHS Wildfire Research Fact Sheet — Under-Eave Construction*

### DECKS/FENCES

Some decks and fences are readily combustible, whether made of synthetic (plastic/composite) or natural materials (wood). Many deck designs allow embers to accumulate between board gaps and at joists below deck boards. Embers can also fall through decks and may easily ignite flammable materials beneath, making it critical to remove all materials from underneath the deck. Regardless of how fuels below decks may ignite, these burning materials can readily ignite the deck and threaten the home.

Fencing material that attaches to the home must be considered a direct extension of the structure and should be made of a noncombustible material, at least where it is immediately adjacent to a home.

**SOURCE** *NFPA/IBHS Wildfire Research Fact Sheets — Fencing | Decks*

# TO MANAGE YOUR HOME, LEARN THE THREE ZONES

## ZONE 1

### 0-5 FEET FROM THE HOME

The area nearest the home. This zone requires the most vigilant work in order to reduce or eliminate ember ignition and direct flame contact with your home.

## ZONE 2

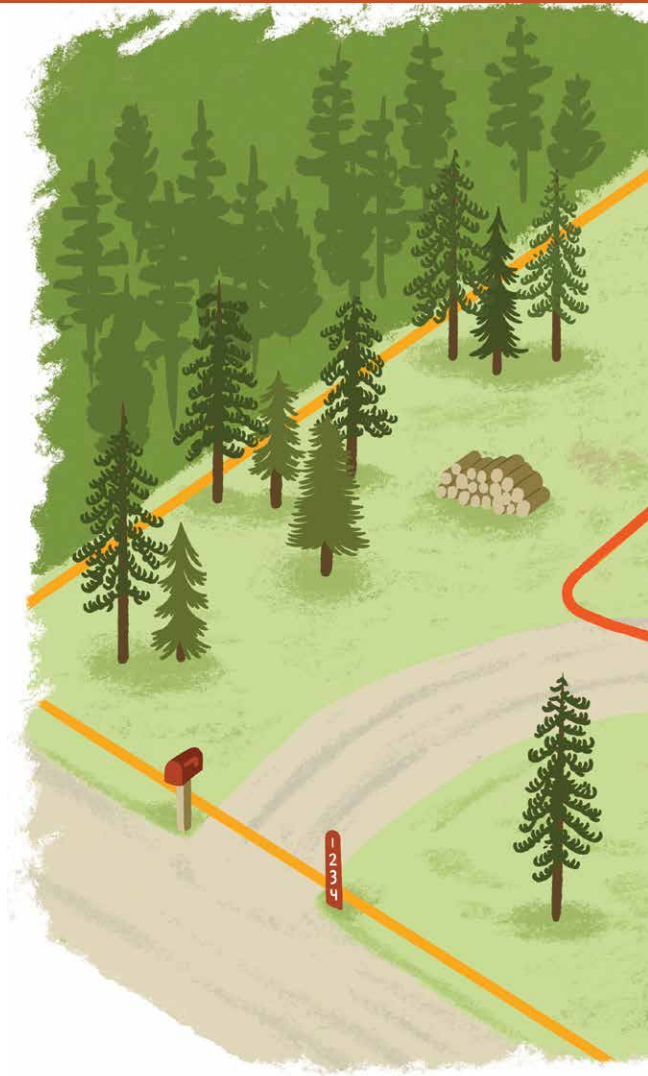
### 5-30 FEET FROM THE HOME

The area transitioning away from the home where fuels should be reduced. This zone is designed to minimize a fire's intensity and its ability to spread while significantly reducing the likelihood a structure ignites because of radiant heat.

## ZONE 3

### 30-100 FEET FROM THE HOME

The area farthest from the home. It extends 100 feet from the home on relatively flat ground. Efforts in this zone are focused on ways to keep fire on the ground and to get fire that may be active in tree crowns (crown fire) to move to the ground (surface fire), where it will be less intense.



## ZONE 1

**GOAL:** This zone is designed to prevent flames from coming in direct contact with the structure. Use nonflammable, hard surface materials in this zone, such as rock, gravel, sand, cement, bare earth or stone/concrete pavers.

### CRITICAL STEPS

- Remove all flammable vegetation, including shrubs, slash, mulch and other woody debris.
- Do not store firewood or other combustible materials inside this zone.
- Prune tree branches hanging over the roof and remove all fuels within 10 feet of the chimney.
- Regularly remove all pine needles and other debris from the roof, deck and gutters.
- Rake and dispose of pine needles, dead leaves, mulch and other organic debris within 5 feet of all decks and structures. Farther than 5 feet from structures, raking material will not significantly reduce the likelihood of ignition and can negatively affect other trees.
- Do not use space under decks for storage.

## ZONE 2

**GOAL:** This zone is designed to give an approaching fire less fuel, which will help reduce its intensity as it gets nearer to your home or any structures.

### CRITICAL STEPS

- Mow grasses to 4 inches tall or less.
- Avoid large accumulations of surface fuels such as logs, branches, slash and mulch.
- Remove enough trees to create at least 10 feet\* of space between crowns. Measure from the outermost branch of one tree to the nearest branch on the next tree.
- Small groups of two or three trees may be left in some areas of Zone 2. Spacing of 30 feet\* should be maintained between remaining tree groups to ensure fire doesn't jump from one group to another.
- Remove ladder fuels under remaining trees. This is any vegetation that can bring fire from the ground up into taller fuels.
- Prune tree branches to a height of 6-10 feet from the ground or a third of the total height of the tree, whichever is less.
- Remove stressed, diseased, dead or dying trees and shrubs.



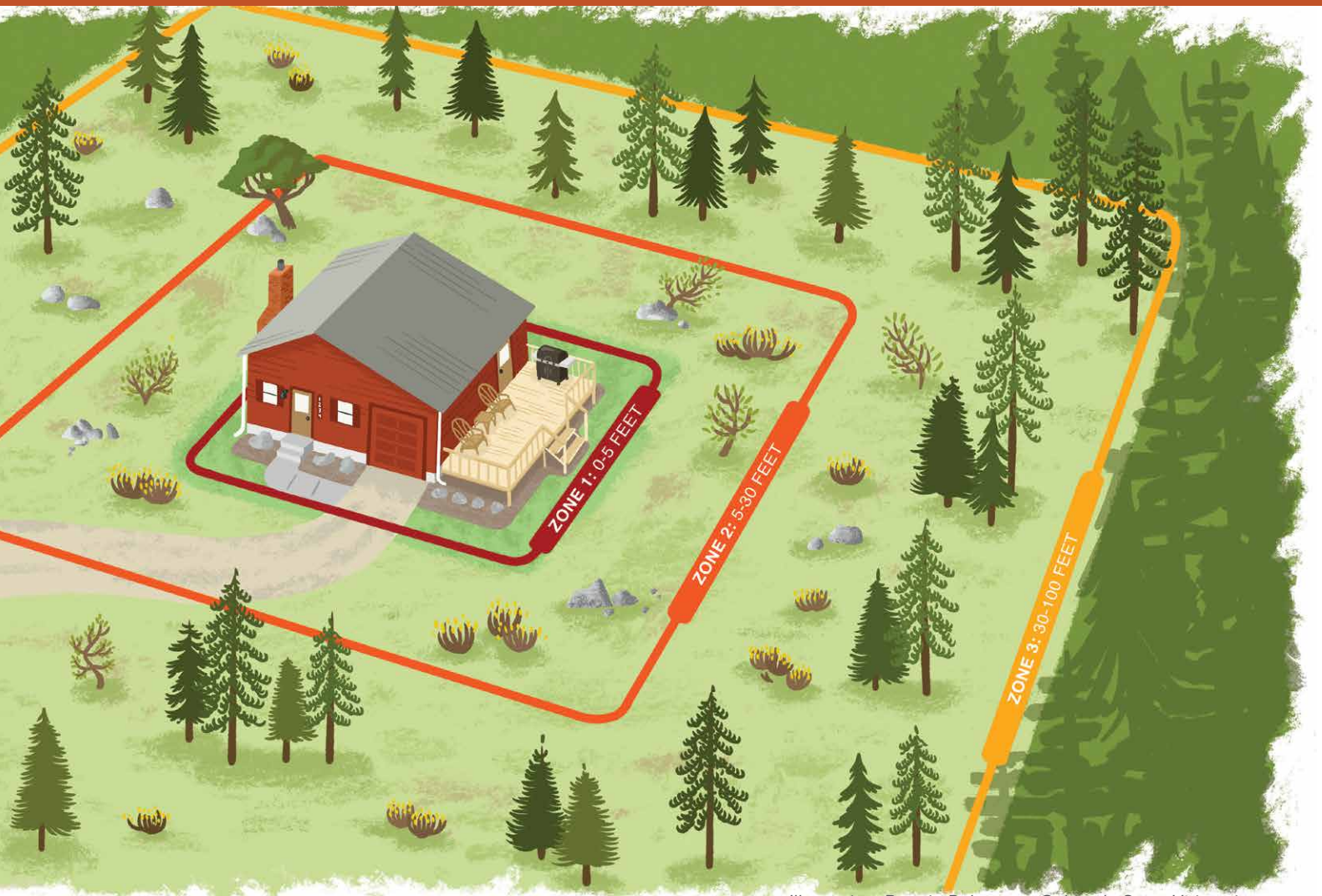


Illustration: Bonnie Palmatory, Colorado State University

This reduces the amount of vegetation available to burn and improves forest health.

- ❑ Common ground junipers should be removed whenever possible because they are highly flammable and tend to hold a layer of flammable material beneath them.
- ❑ You can keep isolated shrubs in Zone 2, as long as they are not growing under trees. Keep shrubs at least 10 feet\* away from the edge of tree branches.
- ❑ Periodically prune and maintain shrubs to prevent excessive growth. Remove dead stems annually.
- ❑ Spacing between clumps of shrubs should be at least 2 ½ times\* their mature height. Each clump should have a diameter no more than twice the mature height of the vegetation. Example: For shrubs that grow 6 feet tall, space clumps 15 feet apart or more (measured from the edge of the crowns of vegetation clumps). Each clump of these shrubs should not exceed 12 feet in diameter.

\* Horizontal spacing recommendations are minimums and can be increased to reduce potential fire behavior, particularly on slopes. Consult a forestry, fire or natural resource professional for guidance with spacing on slopes.

## ZONE 3

**GOAL:** This zone focuses on mitigation that keeps fire on the ground, but it's also a space to make choices that can improve forest health. Healthy forests include trees of multiple ages, sizes and species, where adequate growing room is maintained over time.

If the distance of 100 feet to the edge of Zone 3 stretches beyond your property lines, it's encouraged to work with adjoining property owners to complete an appropriate defensible space. If your house is on steep slopes or has certain topographic considerations, this zone may be larger.

### STEPS TO CONSIDER

- ❑ Mowing grasses is not necessary in Zone 3.
- ❑ Watch for hazards associated with ladder fuels. The chance of a surface fire climbing into the trees is reduced in a forest where surface fuels are widely separated and low tree branches are removed.
- ❑ Tree crown spacing of 6-10 feet is suggested. Consider creating openings or meadows between small clumps of trees so fire must transition to the ground to keep moving.
- ❑ Any approved method of slash treatment is acceptable in this zone, including removal, piling and burning, lop and scatter, or mulching. Lop-and-scatter or mulching treatments should be minimized in favor of treatments that reduce the amount of woody material in the zone. The farther this material is from the home, the better.

# Make Home Ignition Zone Maintenance a Priority

## WHY?

The home ignition zone requires regular, ongoing maintenance to be effective. Your home is located in a dynamic environment — trees, grasses and shrubs continue to grow, die and drop leaves each season, and there are ongoing maintenance needs on any structures on your property.

## HOME IGNITION ZONE CHECKLIST

### PREPARE YOUR HOME FOR WILDFIRE WITH THESE STEPS

#### TOP PRIORITIES

- CLEAR** roof, deck and gutters of pine needles and other debris.\*
- MOW** grass and weeds to a height of 4 inches or less.\*
- RAKE AND REMOVE** all pine needles and other flammable debris from 5 feet around the foundation of your home and deck.\*
- TREAT** or mow shrubs that re-sprout aggressively (such as Gambel oak) every 3-5 years or more depending on growth rates.
- REMOVE** branches that hang over the roof and chimney.
- DISPOSE** of slash from thinning trees and shrubs by chipping, hauling to a disposal site or piling in open areas for burning later. *Any accumulation of slash that's chipped or otherwise should be 30 feet or more from the home.\**
- AVOID** creating continuous areas of wood chips on the ground when chipping logs and/or slash. Break up the layer of wood chips by adding nonflammable material, or allow for wide gaps of at least 3 feet between chip accumulations.

\* Address as needed, more than once a year.

#### FIREWOOD

- Keep firewood stacked uphill from (or at the same elevation as) any structures, and keep the woodpile at least 30 feet away from the home.
- Do not stack firewood between remaining trees, underneath the deck or on the deck.
- Remove flammable vegetation within 10 feet of woodpiles.

#### PROPANE TANKS

- Keep aboveground tanks at least 30 feet from the home, preferably on the same elevation as the house.
- Remove flammable vegetation within 10 feet of all propane tanks and gas meters.

#### DRIVEWAYS

- Maintain at least 10 feet between tree crowns, thinning them a minimum of 30 feet back from each side of the driveway from the house to the main access road.
- Remove ladder fuels beneath trees after thinning.
- Remove any shrubs that are within 10 feet of the outer edge of tree crowns.
- Space shrubs apart at least 2 ½ times their mature height, as measured from the edge of the shrubs.
- Post signs at the end of the driveway with your house number that are noncombustible, reflective and easily visible to emergency responders.

#### SOLUTIONS FOR MANAGING SLASH

- 1** Spread slash and wood chips over a large area to avoid heavy accumulations and large piles. Being close to the ground will help speed decomposition.
- 2** Burn slash piles, but before doing so, always contact your county sheriff's office or local fire department for current information or possible restrictions.
- 3** Lop and scatter slash by cutting it into small pieces (less than 24 inches long) and spreading it over a wide area, to a depth not exceeding 18 inches. Don't scatter material over 4 inches in diameter.





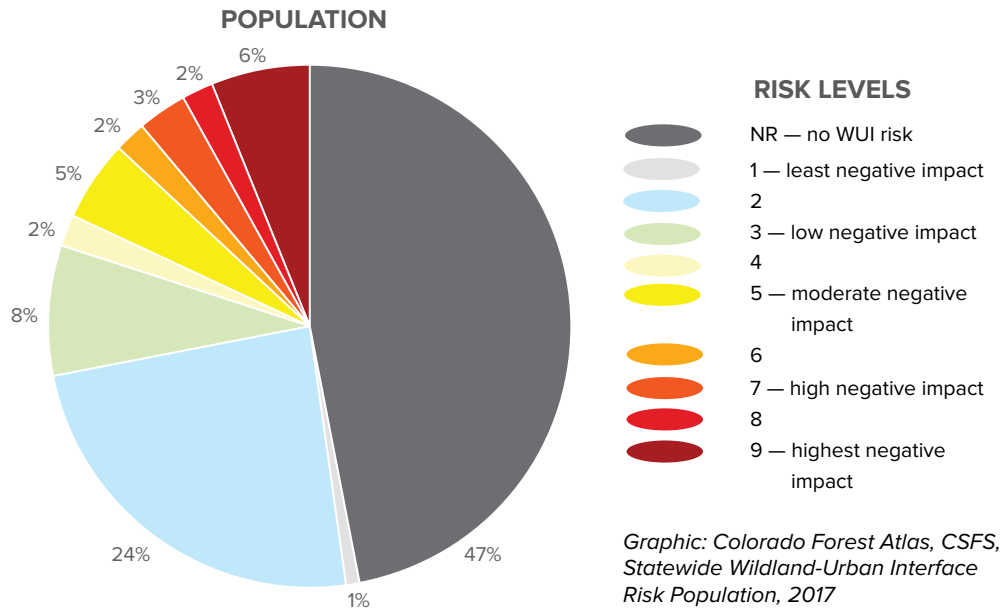
The Colorado State Forest Service works with communities to reduce wildfire risk and become recognized Firewise USA® sites, an accomplishment Piñon Ridge Estates in Chaffee County earned in 2021. CSFS forester Josh Kuehn, right, presents Craig Sommers of Piñon Ridge, with a sign for the community after residents completed the steps required for program recognition. In 2019, the Decker Fire came within a mile and a half of the neighborhood. Photo: Chaffee Chips

## More Than Half of Colorado Residents Live With Some Wildfire Risk

**T**he wildland-urban interface (WUI) includes the portions of Colorado where human development meets wildland vegetation.

The majority of Coloradans live in the WUI, in places with at least some risk of wildfire. And that number continues to increase as more residents build homes in the WUI.

As of 2017, the WUI covered about 3.2 million acres in Colorado. By 2040, the WUI area could encompass over 9 million acres in the state, according to projections from Colorado government models.



### Additional Wildfire Mitigation Resources Online

» Colorado State Forest Service wildfire mitigation information and publications  
[csfs.colostate.edu/wildfire-mitigation](https://csfs.colostate.edu/wildfire-mitigation)

» Colorado Wildfire Risk Viewer and Risk Reduction Planner  
[coloradoforestatlas.org](https://coloradoforestatlas.org)

» Community Wildfire Protection Planning  
[csfs.colostate.edu/wildfire-mitigation/community-wildfire-protection-plans](https://csfs.colostate.edu/wildfire-mitigation/community-wildfire-protection-plans)

» National Fire Protection Association: Firewise USA®  
[nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA](https://nfpa.org/Public-Education/Fire-causes-and-risks/Wildfire/Firewise-USA)

» Insurance Institute for Business & Home Safety  
[ibhs.org/risk-research/wildfire](https://ibhs.org/risk-research/wildfire)

» Fire Adapted Communities Learning Network  
[fireadaptednetwork.org](https://fireadaptednetwork.org)

# Fuel Types and Arrangements

## FUEL

is any material that will burn.

**W**hether in a wildland or urban location, when fuels are abundant and there's no space between them, a fire can quickly become uncontrollable and destructive. But when fuels are scarce and separated, a fire cannot build momentum and intensity, which makes it more manageable.

The closer together the fuels are near

your home, the bigger the threat they pose.

Fuel hazard measures look at both horizontal and vertical fuels, factoring in the type, amount and arrangement of fuels (called continuity and uniformity). Horizontal continuity is how the fuels are arranged laterally across the ground or among plant canopies. Vertical continuity refers to fuels extending from the ground into the crowns

of trees and shrubs.

Fuels with a high degree of both vertical and horizontal continuity are the most hazardous, particularly when they occur on slopes.

Mitigating wildfire hazards in the home ignition zone disrupts this fuel continuity, which helps reduce a fire's intensity and potential sources of home ignition.

## SURFACE FUELS



Colorado State Forest Service

### GRASSES

Grasses are perhaps the most pervasive and abundant surface fuel in Colorado. When available to burn, grasses can catch fire easily, and grass fires often spread rapidly. They also burn out quickly and do not release as much energy as fires in larger fuel types, like trees. Nonetheless, grass fuels can readily ignite structures that are directly adjacent to them.



Colorado State Forest Service

### NEEDLES/LEAVES

Needles and leaf litter accumulate naturally in forests across the state. Long needles from pines like ponderosa and broadleaf litter from trees like aspen, cottonwood and maple do not compact as readily as other leaf types. Fire in these fuels can spread rapidly, particularly during windy conditions.

Shorter needle litter from spruce, fir and lodgepole pines compacts more readily and does not generally spread as fast.

Needles and leaves that ignite anywhere on or adjacent to a structure can cause damage and loss.



Colorado State Forest Service

### LOGS/BRANCHES/SLASH/ WOOD CHIPS (MULCH)

Naturally occurring woody material on the ground and debris left from cutting down trees and shrubs (slash) are an important part of the fuel complex near structures.

This larger and denser material generates more heat than smaller fuels do, and it can be problematic when it is burning near structures.

Ultimately, the farther away from a structure that large amounts of these materials can be moved, the better.

**MORE:** A guide to mulched materials is available on the Colorado Forest Restoration Institute website, [cfri.colostate.edu](http://cfri.colostate.edu).





*A firefighter monitors a burnout on the 416 Fire in southwest Colorado in 2018. This effort to manage the wildfire by eliminating fuels left of the train tracks illustrates how fire can transition through different fuel types and arrangements. Photo: Kyle Miller, Wyoming Interagency Hotshot Crew*

## VERTICAL/LADDER FUELS



*Kari Greer*

### LADDER FUELS

Ladder fuels are burnable materials such as smaller trees and brush that provide a means for fire to climb vertically and continue into aerial fuel sources. Ladder fuels allow a fire to leave the ground level and burn up into the branches and crowns of larger vegetation. Lower branches on large trees also can act as ladder fuels.

These fuels are potentially very hazardous but are generally easy to mitigate. Pay close attention to ladder fuels near homes, as they are extremely hazardous and especially important to address.



*InciWeb*

### BRUSH/SHRUBS

Examples of common brush fuels in Colorado are sagebrush, bitterbrush and mountain mahogany.

As with any type of fuel, brush that is close together and adjacent to homes is hazardous.

In dry climates like Colorado, brush fuels are generally dense and contain more material in a given space than grasses. Brush also usually grows larger and burns longer and more intensely than grass when it ignites.

This makes brush fires more complex, particularly when the brush grows under trees or in large, uniform stands.

## CROWN (AERIAL) FUELS



*Kari Greer*

### CROWN FUELS

An intense fire burning in surface fuels can transition into the upper portion of the tree canopies and become a crown fire. Crown fires are dangerous because they are intense, often move rapidly, can burn large areas, and produce embers that can travel great distances and start spot fires well ahead of the main fire.

Crown fire hazard can be reduced by thinning trees to decrease crown fuels, reducing surface fuels under the remaining trees and eliminating vertical fuel continuity from the ground into the crowns.

See recommendations on pages 8-9 of this guide.

# Forest Types

**R**ecommendations in this guide refer primarily to ponderosa pine, Douglas fir and mixed-conifer ecosystems below 9,500 feet in elevation.

Those who live in or near other forest types can follow these additional recommendations.



## PIÑON-JUNIPER

Fires in piñon-juniper forests tend to burn intensely in the crowns of trees under windy conditions.

When thinning these trees on a property, create a mosaic pattern that is a mixture of individuals and clumps of three to five trees. The size of each clump will depend on the size, health and location of the trees. The minimum spacing between the crowns of individual trees is 10 feet, increasing for larger trees, clumps and stands on steeper slopes.

Pruning trees for defensible space is not as critical in piñon-juniper forests as it is in pine or fir forests. Instead, it is more important to space the trees so it is difficult for a fire to move from one tree clump to the next. These trees should only be pruned to remove branches that are dead or are touching the ground. Live branches can be pruned up to 3 feet above the ground, or a third the height of the tree, whichever is less. Removing shrubs growing beneath piñon and juniper canopies is recommended.

Pruning live branches or removing and processing these trees is not recommended between April and October, when the piñon Ips beetle is active in Colorado. Thinning activity that stimulates sap flow in summer months can attract these beetles to healthy trees. It is acceptable to remove dead trees and dead branches during the summer.



## LODGEPOLE PINE

Older lodgepole pine stands generally do not respond well to selective thinning, but instead respond better to removing all trees over a defined area to allow healthy forest regeneration.

Selectively thinning lodgepole can open the stand to severe windthrow and stem breakage. However, if your home is located within a lodgepole pine forest, you may prefer selective thinning instead of removing all the standing trees.

Thinning older stands of lodgepole pine to the extent recommended for defensible space may require several attempts spaced over a decade or more. No more than 30 percent of the trees in a mature stand should be removed in each thinning operation. Focus on removing trees that are obviously lower in height or suppressed in the forest canopy. Leaving the tallest trees will make the remaining trees less susceptible to windthrow.

Another option is leaving clumps of 30-50 trees. Clumps are less susceptible to windthrow than solitary trees. Allow a minimum of 30-50 feet between tree crowns on the clump's perimeter and any adjacent trees or clumps of trees.

To ensure a positive response to thinning throughout the life of a lodgepole pine stand, trees must be thinned early. Begin when trees are small saplings and maintain low densities within the stand as the trees mature.





## GAMBEL OAK

Maintaining Gambel oak forests that remain resistant to the spread of wildfire can be a challenge because of their vigorous growing habits. Gambel oak trees grow in clumps or groves, and the stems in each clump originate from the same root system. Most reproduction occurs through sprouts from this deep, extensive root system.

Treat Gambel oak near your home every three to five years, or more often depending on growing conditions. Sprouts should be mowed at least once a year. Herbicides can be used to supplement mowing and control regrowth when treating whole clumps.

This species can be “trained” to grow more like a tree than a shrub in some locations. Remove small diameter oak within clumps and any sprouts growing parallel to the ground.



## SPRUCE-FIR

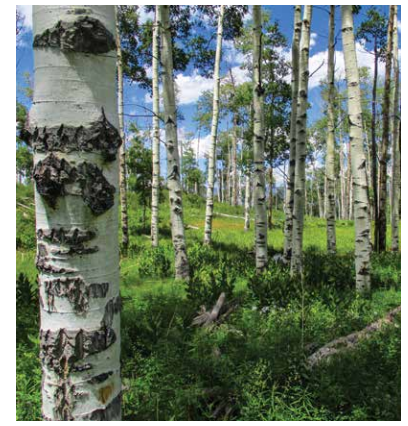
Spruce and fir trees tend to grow in association with each other.

Mature spruce and fir are prone to windthrow when heavily thinned. Light thinnings or leaving groups of trees will help mitigate this problem.

Their hardiness against the wind may not be a problem if a tree has grown to maturity in the open and isn't surrounded by other trees.

Spruce and fir tend to have crowns that extend to the ground. Eliminating lower branches that act as ladder fuels is recommended.

The spruce and Ips bark beetles are native to Colorado and infest Engelmann spruce and Colorado blue spruce. They are particularly attracted to recently fallen green trees and limbs, so it is important to remove any cut branches in a timely manner so surrounding healthy trees are not infested.



## ASPEN

Tree spacing and ladder fuel guidelines do not apply to mature stands of aspen trees.

Generally, no thinning is recommended in aspen forests, regardless of tree size, because the thin bark is easily damaged, which can make the tree highly susceptible to fungal infections.

However, in older stands, numerous dead trees on the ground do require removal. Conifer trees often start growing in older aspen stands and can grow up through these old, downed aspens. A buildup of these trees eventually will increase the fire hazard of the stand, so young conifers should be removed from these areas.

Brush also can increase fire hazard in aspen stands and should be thinned to reduce flammability.

Photos: Colorado State Forest Service

## Acknowledgments

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- CSFS field office personnel

## Cover Photography

### FRONT

**Top left:** Cleaning debris from gutters is a critical step to prevent home ignition. Photo: Wildfire Partners. **Top right:** Firefighters from Colorado's Platte Canyon Fire Protection District defend a home during a wildfire. As the population expands into the WUI, homeowners must take responsibility to prepare their homes for wildfire. Photo: Kari Greer. **Bottom:** Of 1,000 homes threatened in the 2016 Cold Springs Fire near Nederland, only 8 burned, due in part to homeowners who readied their properties and followed home ignition zone recommendations. Photo: Wildfire Partners

**BACK** Mitigation work helped spare this Boulder County home near Nederland during the Cold Springs Fire of 2016. Photo: Wildfire Partners





# ADAPT TO WILDFIRE

It's never too early to start protecting your home.  
The Colorado State Forest Service can help.



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Colorado State Forest Service  
Colorado State University  
5060 Campus Delivery  
Fort Collins, CO 80523-5060

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## OUR MISSION

*To achieve stewardship of Colorado's diverse forest environments  
for the benefit of present and future generations*

*The Colorado State Forest Service is a service and outreach agency of the Warner College of Natural Resources at Colorado State University. CSFS programs are available to all without discrimination. No endorsement of products or services is intended. 052021.10000*





# FORESTRY

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## Grass Seed Mixes to Reduce Wildfire Hazard    no. 6.306

by F.C. Dennis<sup>1</sup>

### Quick Facts...

Plant “FireWise” grass species to reduce the risk of wildfire damage.

“FireWise” grass mixes may contain only native species or a combination of native and non-native species.

Sow half the seed north to south and the other half east to west.

Rake the seed into the soil.

Mulch erosion-prone areas.

If possible, water often and lightly.

Maintain the area properly.

During much of the year, grasses ignite easily and burn rapidly. Tall grass will quickly carry fire to your house. Plant “FireWise” grasses in the defensible space around your home. Defensible space is an area around a structure where fuels and vegetation are treated, cleared or reduced to slow the spread of wildfire. See fact sheet 6.302, *Creating Wildfire-Defensible Zones*.

### Seed Mixes for Colorado

Grass seed mixes developed for Colorado use native or a combination of native and non-native grass species. While the basic mixes (Tables 1 and 3) work reasonably well on all sites, they were modified for moist sites and/or those with northern exposures (Tables 2 and 4).

Grasses included in these mixes have the following characteristics:

- They are lower growing.
- They need less maintenance.
- Seed is readily available and relatively inexpensive.

Grass seed mixes made up entirely of native seed may take longer to establish — up to three years — than those with a percentage of non-native seed.

### Planting

Use either a drop or a cyclone seeder to seed your defensible space.

A drop seeder is more accurate in placing seed, especially if wind is a problem. However, if the ground is rough or rocky, the cyclone seeder will be easier to use.

Seed at the rates shown in the tables below. Divide seed into two equal parts. Sow half of the seed by crossing the area north to south and the other half by crossing east to west.

Rake seed into the soil as soon as possible after sowing to reduce the chances of it blowing or washing out. Soil cover also helps to protect the young seedlings from drying out. When sowing on slopes prone to erosion, cover the seeded area with mulch. Recommended mulches include **clean** straw (straw with no seeds in it), netting or matting of some kind.

If you have water from a central community system or a well permit that allows outside irrigation, water the newly seeded areas frequently and lightly. Water enough to keep the soil moist but not so heavily as to cause soil washing and loss of the grass seed.

### Maintenance

Even “FireWise” grasses need proper maintenance. See 6.303, *Fire-Resistant Landscaping*, for tips on proper mowing and other maintenance and landscaping suggestions.



*Putting Knowledge to Work*

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Reviewed 1/06.

[www.ext.colostate.edu](http://www.ext.colostate.edu)





FIREWISE is a multi-agency program that encourages the development of defensible space and the prevention of catastrophic wildfire.



This fact sheet was produced in cooperation with the Colorado State Forest Service.

<sup>1</sup>Wildfire Hazard Mitigation Coordinator, Colorado State Forest Service.

## Native Grass “Fire Mixes”

**Table 1: All exposures.**

Species	Variety	Percent of Mix	Broadcast Rate PLS* Lbs/Acre
Arizona fescue	Redondo	20	9.0 x .20 = 1.80
Western wheatgrass	Barton/Rosana	20	32.0 x .20 = 6.40
Streambank wheatgrass	Sodar	20	22.0 x .20 = 4.40
Indian ricegrass	Nezpar	20	25.0 x .20 = 5.00
Blue grama	Lovington	20	6.0 x .20 = 1.20
<b>TOTALS</b>		<b>100%</b>	<b>18.80</b>

**Table 2: Northerly exposures and/or moist sites.**

Species	Variety	Percent of Mix	Broadcast Rate PLS* Lbs/Acre
Arizona fescue	Redondo	25	9.0 x .25 = 2.25
Western wheatgrass	Barton/Rosana	25	32.0 x .25 = 8.00
Streambank wheatgrass	Sodar	25	22.0 x .25 = 5.50
Indian ricegrass	Nezpar	25	25.0 x .25 = 6.25
<b>TOTALS</b>		<b>100%</b>	<b>22.00</b>

## Non-Native/Native Grass “Fire Mixes”

**Table 3: All exposures.**

Species	Variety	Percent of Mix	Broadcast Rate PLS* Lbs/Acre
Canada bluegrass	Reubens	10	2.0 x .10 = 0.20
Western wheatgrass	Barton/Rosana	20	32.0 x .20 = 6.40
Streambank wheatgrass	Sodar	15	22.0 x .15 = 3.30
Indian ricegrass	Nezpar	15	25.0 x .15 = 3.75
Sheep fescue	Covar	20	8.0 x .20 = 1.60
Blue grama	Lovington	20	6.0 x .20 = 1.20
<b>TOTALS</b>		<b>100%</b>	<b>16.45</b>

**Table 4: Northerly exposures and/or moist sites.**

Species	Variety	Percent of Mix	Broadcast Rate PLS* Lbs/Acre
Canada bluegrass	Reubens	15	2.0 x .15 = 0.30
Western wheatgrass	Barton/Rosana	20	32.0 x .20 = 6.40
Streambank wheatgrass	Sodar	20	22.0 x .20 = 4.40
Indian ricegrass	Nezpar	15	25.0 x .15 = 3.75
Sheep fescue	Covar	30	8.0 x .30 = 2.40
<b>TOTALS</b>		<b>100%</b>	<b>17.25</b>

\*Pure Live Seed.

## References

For additional information on protecting your homesite, see:

- 6.302, *Creating Wildfire-Defensible Zones*
- 6.303, *Fire-Resistant Landscaping*
- 6.304, *Forest Home Fire Safety*
- 6.305, *FireWise Plant Materials*

Colorado State University, U.S. Department of Agriculture and Colorado counties cooperating. Cooperative Extension programs are available to all without discrimination. No endorsement of products mentioned is intended nor is criticism implied of products not mentioned.

## CASE STUDIES

Homeowners have both safety and financial incentives to complete fire mitigation on their property—reducing wildfire risk and improving the value and insurability of their home. Colorado insurers and REALTORS® encourage WUI communities to become Firewise USA® communities and implement mitigation programs that assist residents in assessing risk and taking proper steps to help their home survive a wildfire.

**Wildfire Partners:** When Lester Karplus moved to the mountains near Nederland, Colorado he knew it was a matter of “when not if” his log home would be in the path of a wildfire. That day arrived in July 2016 when the Cold Springs Fire forced 1,900 residents to flee “100-foot” flames on a moment’s notice. While eight neighboring homes burned, Karplus’ home and seven others in the path of the fire survived — all participating in Wildfire Partners, Boulder County’s community wildfire mitigation program that provides homeowners with a comprehensive on-site property risk assessment that includes step-by-step mitigation needs, resources, a consumer-help line and follow-up inspections. The result – a coveted “Wildfire Partners Certified” yard sign and reduced wildfire risk. Many insurance companies accept Wildfire Partners assessment to meet their mitigation requirements. Karplus says homeowners buying in wildfire-prone areas need to ask themselves: “Are we willing to be caretakers of the land?” If the answer is yes, they must understand the inevitable risk of living with wildfire and the long-term commitment needed to protect their property. For more information: [wildfirepartners.org](http://wildfirepartners.org).

**REALFire®:** After living in his Beaver Creek condominium for two decades, Michael Bengé purchased a home on the mountain and knew it was a “no brainer” to evaluate necessary fire mitigation work — both in terms of creating defensible space around his new home, as well as fire-resistive materials in new construction. Bengé was thrilled to learn from his HOA that he could receive a free, on-site wildfire risk property assessment through the REALFire® program, thanks to support from Eagle County, the Vail Board of REALTORS®, and other local partners.

### Benefits of the REALFire® program include:

- Residents engage directly with local mitigation professionals to learn about local wildfire risk.
- Residents can earn a REALFire® certificate of recognition, which they can use to enhance real estate transactions or share with local insurance providers.
- Qualifying residents may be eligible for an income tax subtraction for mitigation work performed on their property.
- Assessments identify specific actions proven to reduce wildfire risk on a property.

Bengé believes homeowners throughout WUI communities would benefit by taking advantage of the voluntary opportunities to become more educated on wildfire risk, and the available mitigation resources to enhance the beauty of their property and invest in the safety and value of their home. Resources: [REALFire.net](http://REALFire.net)

## WILDFIRE MITIGATION RESOURCE CENTER:

Additional resources and information for homeowners can be found through these stakeholder organizations:

- **Firewise USA®:** Program provides instructional resources to inform communities how to adapt to living with wildfire and encourages neighbors to work together and take action to reduce their wildfire risk. The Colorado State Forest Service (CSFS) and the National Fire Protection Association (NFPA) work together to implement the Firewise USA® program in Colorado. [csfs.colostate.edu/wildfire-mitigation/colorado-firewise-communities/](http://csfs.colostate.edu/wildfire-mitigation/colorado-firewise-communities/)
- **The Colorado State Forest Service:** Provides professional forestry assistance, wildfire mitigation expertise and outreach and education to help landowners and communities reduce wildfire risk. [csfs.colostate.edu/wildfire-mitigation](http://csfs.colostate.edu/wildfire-mitigation)
- **Ready, Set, Go!** Program managed by the International Association of Fire Chiefs, designed to develop and improve the dialogue between fire departments and the residents they serve. [wildlandfirersg.org](http://wildlandfirersg.org)
- **Colorado REALTORS®** are working in partnership with other like-minded fire prevention organizations across our state to bring education and awareness, as well as access to resources directly to residents in their local communities. [ColoradoRealtors.com/ProjectWildfire](http://ColoradoRealtors.com/ProjectWildfire)
- **The Fire Adapted Communities Coalition** is committed to helping people and communities in the wildland-urban interface adapt to living with wildfire and reduce their risk for damage. The coalition provides information and expertise on activities related to fire adapted communities. [FireAdapted.org](http://FireAdapted.org)

- **Insurance Institute for Business & Home Safety (IBHS)** – An independent, nonprofit, scientific research and communications organization supported solely by property insurers and reinsurers. IBHS’ building safety research leads to real-world solutions for home and business owners, helping to create more resilient communities. [disastersafety.org/wildfire/](http://disastersafety.org/wildfire/)



The 2017 wildfire season cost the United States more than **\$18 billion in damages**. That year, 71,000 wildfires scorched **10 million acres of land**, destroying 12,000 homes, evacuating 200,000 people and claiming 66 lives. By comparison, 2016 saw 5.4 million acres burned.

### Most Costly Colorado Wildfires

(Insured losses in today's dollars)

2020 – East Troublesome, Grand County

\$560 million

2012-Waldo Canyon, Colorado Springs

\$470 million

2013-Black Forest, near Colorado Springs

\$420.5 million

2010-Fourmile Canyon, Northwest of Boulder

\$236.6 million

2012-High Park, near Fort Collins

\$115.3 million

2002-Hayman, Southwest of Denver

\$50.8 million

\*Source: RMIA

## Partners and Resources

Visit our resource center at: [coloradoprojectwildfire.com](http://coloradoprojectwildfire.com)



## Colorado Property & Insurance Wildfire Preparedness Guide

Wildfires continue to be a growing threat in the Rocky Mountain Region where population is booming in high-risk wildland-urban interface (WUI) areas. While many people move to and live in Colorado for its forests, mountains and breathtaking views, they don’t always see the potential risks of losing their homes to wildfire – even in suburban neighborhoods. It’s critical homeowners understand the risks of living in wildfire-prone areas, the potential insurance impacts and what steps they should take to protect themselves, their property and personal finances.

Visit our resource center at: [coloradoprojectwildfire.com](http://coloradoprojectwildfire.com)



## WILDFIRE PREPARATION

- Develop your fire evacuation plan and practice family fire drills. Ensure that all family members are aware of two or more escape routes from the neighborhood, meeting points and other emergency details.
- Contact your county sheriff's office and ensure that your home telephone number and other important phone numbers appear in the county's emergency notifications database.
- Prepare a "grab and go" disaster supply kit that will last at least three days, containing your family's and pets' necessary items, such as cash, water, clothing, food, first aid and prescription medicines.
- Ensure that an outdoor water supply is available. If it is safe to do so, make a hose and nozzle available for responding firefighters. The hose should be long enough to reach all parts of the house.
- Complete a checklist of fire safety needs inside your home (these should be available at your local fire department). Examples include having an evacuation plan and maintaining smoke alarms and fire extinguishers.

Source: Colorado State Forest Service

## WILDFIRES AND INSURANCE

Homeowners insurance typically covers property losses caused by wildfire and coverage continues to be available in most wildfire prone areas.\* However, with increasing risk for devastating wildfires, residents should be aware of some important factors. Many insurance companies require customers to share the wildfire risk by taking precautions to protect their property, requiring on-site inspections and notifying policyholders of necessary mitigation that will reduce risk to their home and keep it insurable.

### Examples of additional insurance considerations:

- The type of construction, materials, and features on your home, including the roofing, windows and siding as well as slope and emergency vehicle access.
- Distance to a fire hydrant and a fire station, whether your neighborhood is protected by full-time and/or part-time firefighters, and any factors that affect the time it would take to extinguish a fire in your area. \*Ask your local fire department about your area's ISO Wildfire Protection Classification Rating for potential safety and insurance impacts.
- Insurers consider many individual and geographical risk factors beyond wildfire that affect premiums and insurability, such as hail proneness and unique construction.
- Do annual policy "checkups" with your insurance professional to keep up with local building costs, home remodeling and inventories of personal belongings.
- Consider replacement cost coverage that provides additional protection and update policy limits to rebuild or repair your home for what it would cost in the current building market.
- Accurate inventories of personal possessions make for faster and smoother claims' settlements. Photos and videos offer easy ways to document your possessions. Most insurers and the National Association of Insurance Commissioners ([NAIC.org](http://NAIC.org)) offer free home inventory apps.

**Bottom Line:** Contact your insurance company or agent to find out what prevention steps may be required to help reduce your wildfire risk. State & local fire officials can also help with tips and resources to assist you in mitigating your property. For general insurance information and wildfire property & financial preparedness contact the Rocky Mountain Insurance Information Association at [rmiia.org](http://rmiia.org) or the Colorado Division of Insurance at [dora.colorado.gov/insurance](http://dora.colorado.gov/insurance).

\*Individual risk factors affect insurance premiums & availability, so cost and ability to obtain insurance will vary based on company policies.

## DEFENSIBLE SPACE ZONES

Defensible space is the area around a home or other structure that has been modified to reduce fire hazard. In this area, natural and man-made fuels are treated, cleared or reduced to slow the spread of wildfire. Creating defensible space also works in the reverse, and reduces the chance of a structure fire spreading to neighboring homes or the surrounding forest. Defensible space gives your home a fighting chance against an approaching wildfire. Creating an effective defensible space involves a series of management zones in which different treatment techniques are used.

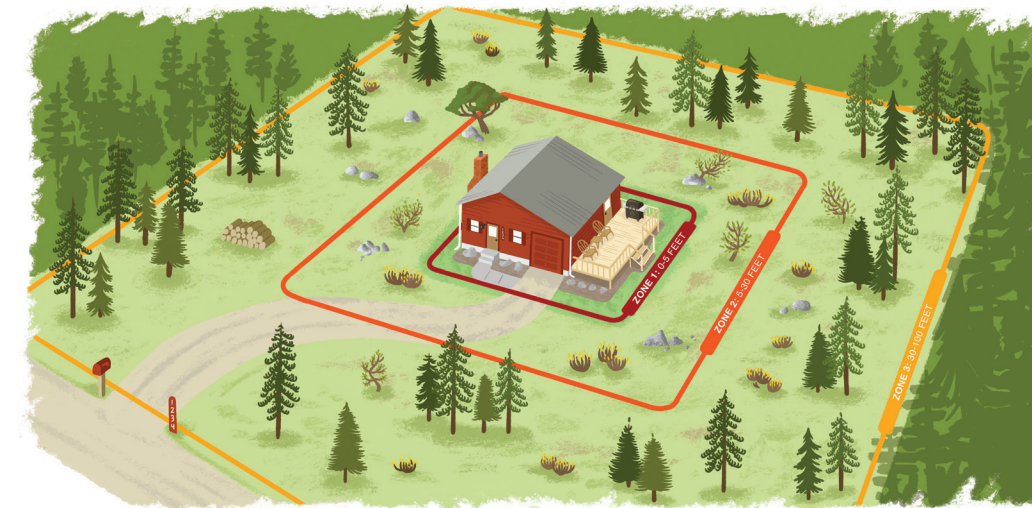


Illustration © Colorado State Forest Service

ZONE 1

### 0-5 FEET FROM THE HOME

The area nearest the home. This zone requires the most vigilant work in order to reduce or eliminate ember ignition and direct flame contact with your home.

ZONE 2

### 5-30 FEET FROM THE HOME

The area transitioning away from the home where fuels should be reduced. This zone is designed to minimize a fire's intensity and its ability to spread while significantly reducing the likelihood a structure ignites because of radiant heat.

ZONE 3

### 30-100 FEET FROM THE HOME

The area farthest from the home. It extends 100 feet from the home on relatively flat ground. Efforts in this zone are focused on ways to keep fire on the ground and to get fire that may be active in tree crowns (crown fire) to move to the ground (surface fire), where it will be less intense.

## CREATING DEFENSIBLE SPACE

Each home and property is located in a dynamic environment that is continually changing. Trees, grasses and shrubs grow, die or are damaged, and drop their leaves and needles each season. Just like your home, the defensible space around it requires regular, ongoing maintenance to be effective. Here are some basic checklists to help you protect your home and property, as well as neighbors in your community.

The following checklists can help you establish and maintain your defensible space (lists are not all-inclusive).

### Defensible Space - Initial Projects

- Properly thin and prune trees and shrubs within the defensible space.
- Dispose of slash from tree/shrub thinning.
- Stack firewood uphill from or on the same elevation as any structures, and at least 30 feet away from structures.
- Screen attic, roof, eaves and foundation vents, and periodically check them to ensure that they are in good condition.
- Screen or wall-in stilt foundations and decks; screens should be 1/8-inch or smaller metal mesh (1/16-inch mesh is best).
- Post signs at the end of the driveway with your last name and house number that are noncombustible, reflective and easily visible to emergency responders.
- Make sure that the driveway is wide enough for fire trucks to enter and exit, and that trees and branches are adequately cleared for access by fire and emergency equipment. Contact your local fire department or check the Colorado State Forest Service website at [csfs.colostate.edu](http://csfs.colostate.edu) for information specific to access.

### Defensible Space - Annual Requirements

- Clear roof, deck and gutters of pine needles and other debris.
- Mow grass and weeds to a height of 6 inches or less.
- Rake all pine needles and other flammable debris away from the foundation of your home and deck.
- Remove trash and debris accumulations from the defensible space.
- Replace or repair loose or missing roof shingles/tiles to reduce ember intrusions.
- Check chimney screens to make sure they are in place and in good condition.
- Remove branches that overhang the roof and chimney.
- Dispose of slash from tree/shrub thinning.

Source: Colorado State Forest Service

3<sup>rd</sup>

COLORADO RANKS 3<sup>RD</sup> in the U.S. for number of properties at high or extreme risk for wildfire with 366,200 or 17% of homes at risk.

(\*Verisk Wildfire Risk Analysis)

2 MILLION

MORE THAN 2 MILLION Coloradans live in the wildland-urban interface (WUI).

(Colorado State Forest Service)

BIG GROWTH EXPECTED Properties located within WUI areas are estimated to grow by 300 percent in the next 15 years.

(Colorado State University)

300%

SOCIETY SAVES ABOUT \$6 on average for every dollar spent on disaster mitigation, according to a national study. Mitigation helps reduce disaster relief costs and tax losses.

(\*National Institute of Building Sciences)

\$6

# COMMUNITY WILDFIRE PROTECTION PLANS



## GUIDELINES FOR IMPLEMENTATION

### OVERVIEW

Community Wildfire Protection Plans are authorized and defined in Title I of the *Healthy Forests Restoration Act (HFRA)* passed by Congress on November 21, 2003 and signed into law by President Bush on December 3, 2003.

The Healthy Forests Restoration Act places renewed emphasis on community planning by extending a variety of benefits to communities with a wildfire protection plan in place. Critical among these benefits is the option of establishing a localized definition and boundary for the wildland-urban interface (WUI) and the oppor-

tunity to help shape fuels treatment priorities for surrounding federal and non-federal lands.

The CWPP, as described in the Act, brings together diverse local interests to discuss their mutual concerns for public safety, community sustainability and natural resources. It offers a positive, solution-oriented environment in which to address challenges such as: local firefighting capability, the need for defensible space around homes and subdivisions, and where and how to prioritize land management – on both federal and non-federal land.





## WHO

- ▶ Community wildfire protection planning should be led by local interests with support from state and federal agencies and non-governmental stakeholders.

- ▶ The HFRA requires that, at a minimum, the local government, local fire authority, and a state forestry representative agree on the plan. The HFRA also requires that the plan be developed through meaningful collaboration with a wide variety of local organizations and interest groups.



- ▶ Federal land managers should contribute specialized natural resource knowledge and technical expertise to the planning process, particularly in the areas of GIS and mapping, vegetation management, assessment of values and risks and funding strategies.

## WHAT

- ▶ A Community Wildfire Protection Plan is a written and agreed upon document that identifies how a community will reduce its risk from wildland fire.

- ▶ The plan should address wildfire response capability and protection of homes and other structures, as well as identify and prioritize areas of federal and non-federal land where fuels reduction is needed to reduce threats to the community or its critical infrastructure.

Other values at risk should be identified, such as watersheds, open space, wildlife habitat, etc.)



- ▶ The plan should also include specific steps for implementing the community's recommendations.

## WHEN

- ▶ NOW is a good time to start working on a Community Wildfire Protection Plan if your community is in an area at risk for large-scale or high-intensity wildfire. The process will generally take from six months to a year depending on the complexity of a community's situation, the partners involved and/or the resources available to put the plan together.

## WHERE

- ▶ A Community Wildfire Protection Plan should emphasize the wildland-urban interface where people, structures and other community values are most likely to be negatively impacted by wildfire.



- ▶ This does not mean communities are limited to considering populated areas. The HFRA suggests that communities develop an interface definition and boundary that suits their unique environment.

- ▶ Depending on the nature of the community, priorities for fuel treatment may include critical watersheds, public water and power facilities, key habitat areas, important recreation sites or other elements of community infrastructure.

## WHY

- ▶ A CWPP allows a community to take the lead in and set priorities for its own protection.
- ▶ A CWPP also brings together diverse local interests to develop strategies for improving public safety, community protection and natural resource management.
- ▶ The HFRA gives communities with a CWPP the opportunity to have greater influence over the location and type of land management treatments that occur on federal lands surrounding their community.



- ▶ The HFRA also gives communities the opportunity to define their own wildland-urban interface. Federal agencies are currently directed to spend at least 50 percent of their fuel hazard reduction dollars on projects in the interface.

## HOW

- ▶ Several national organizations worked together to develop a publication titled *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities*. This publication outlines an eight step process for developing an effective Community Wildfire Protection Plan as described in the Healthy Forests Restoration Act.

- ▶ **Step One:** Establish a core group of local leaders with interest in and commitment to the development of a Community Wildfire Protection Plan.



- ▶ **Step Two:** Engage federal and state land managers and enlist their technical assistance, support and participation.



- ▶ **Step Three:** Contact and seek active involvement from diverse stakeholders that may have an interest in identifying where and how community protection activities occur.



- ▶ **Step Four:** Create a working map of the community, including populated areas, land ownerships, and vegetative conditions.

- ▶ **Step Five:** Conduct a community risk assessment that looks at local wildfire response capability, fuel hazards, risks of wildfire occurrence, and homes, businesses and other community values at risk.





► **Step Six:** Identify fuels treatment priorities and methods on federal and non-federal land and describe ways that homeowners can reduce their own risks through Firewise building and landscaping.



► **Step Seven:** Develop an implementation plan and strategy for assessing the overall plan's effectiveness.

► **Step Eight:** Finalize and share the plan with the larger community.

## For More Information

- Alamosa District Office  
Colorado State Forest Service  
(719) 587-0915
- Boulder District Office  
Colorado State Forest Service  
(303) 823-5774
- Cañon City District Office  
Colorado State Forest Service  
(719) 275-6865
- Durango District Office  
Colorado State Forest Service  
(970) 247-5250

- Fort Collins District Office  
Colorado State Forest Service  
(970) 491-8660
- Fort Morgan District Office  
Colorado State Forest Service  
(970) 867-5610
- Franktown District Office  
Colorado State Forest Service  
(303) 660-9625
- Golden District Office  
Colorado State Forest Service  
(303) 279-9757
- Granby District Office  
Colorado State Forest Service  
(970) 887-3121
- Grand Junction District Office  
Colorado State Forest Service  
(970) 248-7325
- Gunnison District Office  
Colorado State Forest Service  
(970) 641-6852
- La Junta District Office  
Colorado State Forest Service  
(719) 384-9087
- La Veta District Office  
Colorado State Forest Service  
(719) 742-3588
- Montrose District Office  
Colorado State Forest Service  
(970) 249-9051
- Salida District Office  
Colorado State Forest Service  
(719) 539-2579
- Steamboat Springs District Office  
Colorado State Forest Service  
(970) 879-0475
- Woodland Park District Office  
Colorado State Forest Service  
(719) 687-2951