

LAND STEWARD PROGRAM | RURAL RESOURCE GUIDELINES



Photo: John O'Connor, Oregon Department of Forestry

Wildfire encroaches upon a home. In Oregon, living with wildfire means creating a fire-resistant landscape.

# THE HOME IGNITION ZONE: Protecting Your Property from Wildfire

## Max Bennett and Clint Nichols

**O**regon is fire country. With our hot, dry summers and abundant fuels, it is not a matter of if a wildfire will occur, but when. Wildfire can threaten homes, property and lives. But it also plays important ecological roles, such as reducing fuels and recycling nutrients.

Historically, not all wildfires in Oregon were the same. Some burned much hotter than others. Some forests burned more frequently, but the fires were less intense. Generally, the state's wetter regions tended to experience intense but infrequent fires, while drier locations experienced much more frequent low- and moderate-intensity fire. In recent decades, hotter, drier summers and a buildup of flammable vegetation have led to an increase in fire size and severity in these drier areas of the state.

For landowners, living with wildfire means protecting your home and property from damaging fires while creating a forest or woodland that is fire-resistant — meaning one that can experience a wildfire and survive, more or less intact. For communities, living with wildfire means suppressing wildfires when necessary, but also encouraging the use of prescribed fire at times and in locations where appropriate. This approach is summed up in the vision statement of the National Cohesive Wildland Fire Management Strategy: “To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a nation, to live with wildland fire.”

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## 2 EASY STEPS

### Use this document to evaluate and improve your home and property

1. Read *The Home Ignition Zone: Protecting Your Property from Wildfire*
2. Use the worksheet on page 7 to assess your current management practices and identify areas for improvement.

*If you have questions, contact your county Extension office, state or federal officials, or other local resources.*

#### About the Rural Resource Guidelines

This is one of a series developed for private landowners with little or no technical background by the Land Steward program of Oregon State University's Southern Oregon Research and Extension Center. This guide covers general terms and helps users assess resources and manage property in a responsible manner. This guide was developed for use in Jackson and Josephine counties, but many of the practices apply to other areas.

## REMEMBER THE 6 P'S

*Keep these items ready in the event you need to evacuate:*

- **People** and pets
- **Papers**, phone numbers and documents
- **Prescriptions**, vitamins and eyeglasses
- **Pictures** and irreplaceable memorabilia
- **Personal computers**, hard drives, cellphones, chargers, batteries, etc.
- **Plastic** (credit cards, ATM cards) and cash

## Personal wildfire preparedness

- **Get ready.** If a wildfire occurs, you may be evacuated. Become familiar with the three levels of evacuation preparedness (Be Ready, Be Set, Go!). You should always be at level 1 (Be Ready). At level 2 (Be Set), you should be ready to evacuate at a moment's notice. At level 3 (Go!), leave immediately.
- **Create an emergency kit and an evacuation plan** that lists what you need to take with you, where it is, and how you are going to get it away from your property (the six Ps).
- **Know your neighbor.** In rural areas, your neighbor can be at your home faster than any emergency response. Establish lines of communication to notify each other in the event of a wildfire.

## The Home Ignition Zone

Homes built in the wildland-urban interface, where urban and suburban areas intermingle with the surrounding forest or other wildland vegetation, are at high risk from wildfire.

Home ignition in a wildfire typically occurs when:

- Radiant heat from nearby burning vegetation or structure fires rises to a level that induces combustion.
- Surface fires reach the walls or roof of the home.
- Embers, also known as firebrands, fall on combustible materials on or around the home.

Most commonly, homes are lost in wildfires when

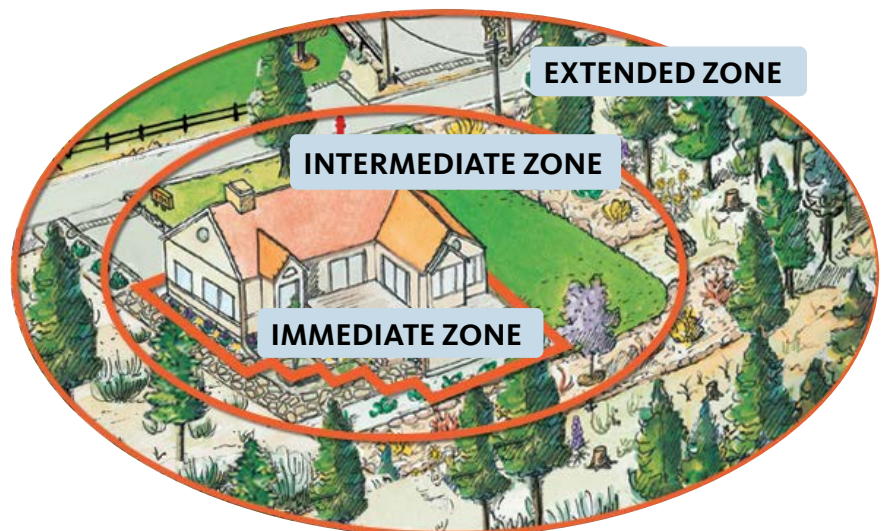


Illustration: © University of Nevada, Reno

The Home Ignition Zone is defined as the home and everything around it out to 100 feet (more on steeper slopes).



Photo: John O’Conner, © Oregon Department of Forestry  
Clean the roof to keep embers from igniting tree litter.



Photo: Stephen Fitzgerald, © Oregon State University  
Maintain a noncombustible area around the base of your home.

they come into contact with embers or low-intensity surface fires — not from a giant wall of flames from an advancing wildfire.

The Home Ignition Zone is defined as the home itself and everything around it out to 100 feet (out to 200 feet on steeper slopes). The condition of your HIZ is the primary factor that determines whether your home will survive a wildfire. The good news is that there is much you can do to reduce your risk!

The HIZ is divided into three zones:

- **The immediate zone**, which includes the home and extends outward for 5 feet.
- **The intermediate zone**, which extends from 5 to 30 feet.
- **The extended zone**, which extends from 30 to 100 feet (more on steeper slopes).

The actions you take vary by zone.

### Immediate zone (0–5 feet)

This zone includes the home itself and everything out to 5 feet from the foundation.

#### CHIMNEY TO EAVES

- **Consider the composition and condition of your roof.** The roof is the most vulnerable component of a home when it comes to wildfire. The roof should be made of a combustion-resistant material, such as those in Class A (clay tiles, metal, slate, composition shingles).
- **Keep the roof and gutters free of debris** and tree litter. This is one easy and effective way to prevent embers from igniting there. Combustible gutters, such as those made of vinyl, can fail under radiant heat, exposing the underlying surface to direct flame contact.

#### EAVES TO FOUNDATION

Windows and siding that fail due to radiant heat exposure can expose the interior of the home or

the underlying structure, both of which are more susceptible to direct flame contact and ember showers. Install metal mesh screening with 1/8-inch openings, which has been shown to reduce the chances of embers entering the home.

#### FOUNDATION TO 5 FEET

- **Maintain a noncombustible area** at least 5 feet wide around the base of your home. Use gravel, rock mulches or hard surfaces such as brick and pavers.
- **Remove dead vegetation and debris under decks.** Never store lumber, firewood or other flammable materials underneath. Install screen under low-profile decks to prevent ember entry.
- **Assess your storage practices.** Keep accessories such as patio furniture, gas grills and even welcome mats in an enclosed storage area or away from the home when the wildfire threat is high. These can be a source of ignition under an ember shower.

### Intermediate zone (5–30 feet)

This zone should be “lean, clean and green.” Discourage fire-prone, flammable vegetation within 30 feet of the house to keep it “lean.” Maintain a low density of vegetation in general. Keep it “clean” by preventing the accumulation of dead vegetation or flammable debris within this area. Keep plants healthy and “green” by watering sufficiently during fire season. For most homeowners, the lean, clean and green area is the residential landscape. This zone often has irrigation, contains ornamental plants and should be maintained annually.

- **Prune tall trees up to 6–10 feet.** When pruning shorter trees, maintain at least a 50% crown. Proper pruning reduces the chance that a surface fire will use low hanging limbs to move into the upper canopy. Lower limbs as well as small trees and shrubs are known as ladder fuels because fire can “climb” into the upper canopy where fires can become more intense and spread faster.



Photo: Stephen Fitzgerald, © Oregon State University

Home ignition zone maintenance practices include use of a rock terrace as a fuel break, pruning the conifer trees on the right, and thinning between trees and clumps of shrubs. The basic idea is to break up the continuity of the fuel.

- **Prune individual tree canopies** at least 10 feet away from the home or attached structures. Individual trees and clumps of trees should be spaced at least 15–20 feet apart between tree tops, with a greater distance on steeper slopes.
- **Remove dead plant material** such as leaves, needles and twigs.
- **Replace flammable plants** such as juniper or Leyland cypress with fire-resistant plants.
- **Keep grass watered** (green) and mowed to 4 inches.
- **Create fuel breaks** with driveways, walkways, paths and other hardscapes.
- **Avoid large, contiguous areas of bark mulch**, which is flammable, especially when dry. Keep bark moist and break it up with hardscapes, lawn or other, non-flammable materials.
- **Park vehicles in areas clear of vegetation** and maintain fuel breaks around secondary structures. Vehicles and other nearby structures such as gazebos and sheds can be a source of ignition and fuel.

## Extended zone (30–100+ feet)

This area extends from the 30-foot lean, clean and green area out to at least 100 feet, and up to 200 feet or more on steeper slopes with thick vegetation. It typically lies beyond the residential landscape and often consists of naturally occurring plants such as conifer and hardwood trees, brush, weeds and grass.

You may find that your Home Ignition Zone overlaps onto adjacent properties. Work closely with neighbors to reduce your shared risk.

- **Remove dead vegetation**, including dead shrubs, fallen branches, thick accumulations of needles and leaves, etc.
- **Mow grass to 4 inches high or less.**
- **Remove invasive weeds** such as blackberries, cheatgrass and Scotch broom.
- **Remove ladder fuels** such as low tree branches, shrubs growing underneath larger trees and small trees growing between mature trees.

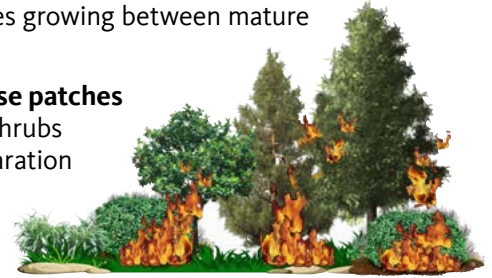


Illustration: Cat Kizer, © Oregon State University

Ladder fuels allow flames to climb nearby trees. Prune branches of live trees up to 10 feet.

- **Thin out dense patches** of trees and shrubs to create separation between them in order to slow the spread of fire. Breaking up the canopy, or reducing the connection between tree crowns, reduces the chance that high-intensity crown fires will approach your home. Such fires can create a major source of radiant heat as well as embers. In some cases, however, mature stands of healthy, fire-resistant trees, such as ponderosa pine and bigleaf maple, catch and filter embers that would otherwise land on the home.
- **Continue pruning and removing ladder fuels** out to the farthest extent of the Home Ignition Zone, from 100 feet to 200 feet.



Photo: John O'Conner, © Oregon Department of Forestry

A well-maintained Home Ignition Zone.



Photo: Ed Reilly

Fuel reduction in Zone 3 and beyond: before (left) and after (right). Keep larger trees of fire-resistant species.

## Beyond the Home Ignition Zone: creating a fire-resistant woodland

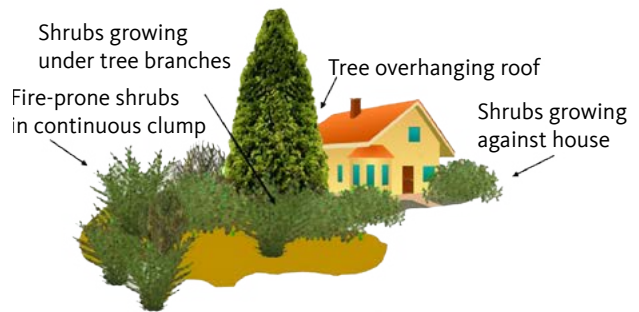
The Home Ignition Zone extends out to approximately 100 feet from the home (up to 200 feet or more depending on slope, aspect, vegetation type and density). But your fuels management activities shouldn't stop there. You can create a forest or woodland that is more fire-resistant — that is, one that is able to experience a wildfire and survive more or less intact. Research and experience in forests throughout the American West show four basic principles for creating fire-resistant forests:

1. **Reduce the amount of surface fuels**, such as small branches and other debris lying on the forest floor. This does not mean removing all woody material or litter; just reduce the heavier concentrations. However, it is important not to leave bare ground, which may encourage invasive plants that are often highly flammable.
2. **Reduce ladder fuels**, such as lower tree limbs, small trees, and brush growing under larger trees. Reducing surface and ladder fuels reduces fire intensity and heat production and makes it harder for a fire to ignite tree crowns.
3. **Create space between individual trees** or clumps of trees to reduce the potential for tree-to-tree fire spread.
4. **Keep larger trees** of fire-resistant species, which are the trees best able to survive a fire.

### Access

- **Clearly post your home address** at the foot of the driveway and at every junction on a shared road. Firefighters cannot defend what they cannot find or access.

### FIRE-PRONE LANDSCAPE



### FIRE-RESISTANT LANDSCAPE

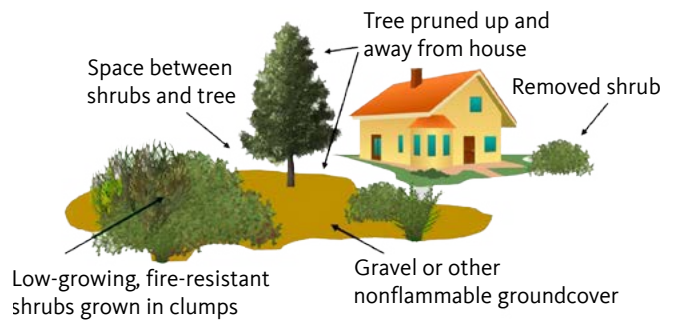


Illustration: Cat Kizer, © Oregon State University

- **Make sure your driveway has the proper clearance** for large fire equipment. Firefighters will not defend a structure that has inadequate ingress and egress routes or one that lacks defensible space.

### Follow the rules

Several state and county regulations require landowners in areas designated as high-risk to follow guidelines regarding fuels reduction, setbacks, access to the property and more. See References, below.

Certain activities, such as using chain saws and other power-driven equipment, open burning, and

forestry operations, may be restricted or prohibited during fire season. Be sure you know where to access this information for a complete list of restrictions in your area. See *Forests and Woodlands: Protecting an Ecosystem*, EM 9245, [catalog.extension.oregonstate.edu/em9245](http://catalog.extension.oregonstate.edu/em9245).

## References

*Reducing Wildfire Risks in the Home Ignition Zone*, National Fire Protection Association. [www.nfpa.org/-/media/Files/Training/certification/CWMS/ReducingWildfireRisksHIZ.ashx?la=en](http://www.nfpa.org/-/media/Files/Training/certification/CWMS/ReducingWildfireRisksHIZ.ashx?la=en)

*Standard for Reducing Structure Ignition Hazards from Wildland Fire*, National Fire Protection Association 1144, [www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1144](http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1144)

*Keeping Your Home and Property Safe from Wildfire: A Defensible Space and Fuel Reduction Guide for Homeowners and Landowners*, EM 9184, [catalog.extension.oregonstate.edu/em9184](http://catalog.extension.oregonstate.edu/em9184)

*Reducing Fire Risk on Your Forest Property*, PNW 618, [catalog.extension.oregonstate.edu/pnw618](http://catalog.extension.oregonstate.edu/pnw618)

Citizen Fire Academy, [extension.oregonstate.edu/citizen-fire-academy](http://extension.oregonstate.edu/citizen-fire-academy)

Oregon Forestland-Urban Interface Fire Protection Act, or Oregon's Defensible Space Law, [www.oregon.gov/ODF/Fire/Pages/UrbanInterface.aspx](http://www.oregon.gov/ODF/Fire/Pages/UrbanInterface.aspx)

Oregon Department of Forestry public use restrictions: [www.oregon.gov/odf/fire/pages/restrictions.aspx](http://www.oregon.gov/odf/fire/pages/restrictions.aspx)

Firewise USA, [www.firewise.org](http://www.firewise.org)

Fire Adapted Communities, [www.fireadapted.org](http://www.fireadapted.org)

Ready Set Go, [www.oregonrsg.org](http://www.oregonrsg.org)



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## Worksheet: Wildfire preparedness and home ignition zone assessment

<i>Use this checklist to assess the current condition of your home ignition zone. Use extra paper as necessary.</i>	Yes	No	Not sure	N/A
<b>Personal wildfire preparedness</b>				
Evacuation plan in place that you practice and update regularly				
Neighborhood emergency phone tree in place and shared with local agencies				
72-hour kits for your family and pets or livestock created and periodically checked				
Important personal documents and list of valuables protected in case the home is lost				
<b>Zone 1: chimney to eaves</b>				
Home constructed of materials resistant to combustion				
Roof is of a composition that resists combustion, such as Class A roofing material				
Roof is in good repair, with no gaps or missing shingles				
Roof is free from tree litter and debris				
Skylights are constructed with multilayer glazed panels or tempered glass				
Gutters are constructed from combustion-resistant material				
Gutters and downspouts are free from litter and debris				
Eaves are boxed				
Home has wildfire protection system installed (roof sprinklers or fire retardant applicators)				
<b>Zone 1: eaves to foundation</b>				
Siding is of a combustion-resistant material				
Home construction is free of gaps and openings beneath siding				
Eave, soffit and roof vents are screened with 1/8-inch metal mesh or smaller				
Windows are multi-paned or tempered glass				
Window screens are combustion-resistant with mesh openings no larger than 1/8 inch				
Area around the foundation is free from litter and debris				
<b>Zone 1: foundation to 5 feet</b>				
Adjacent structures (carports, gazebos, garages) are combustion-resistant				
Deck, patio furniture, propane grills stored or combustion-resistant				
Attached fixtures (fences, decks, etc.) cannot carry fire to the home				
Attached fixtures cannot collect embers beneath or on the surface				
Noncombustible area 5 feet wide maintained around base of home				

<b>Zone 2: 5–30 feet</b>	<b>Yes</b>	<b>No</b>	<b>Not sure</b>	<b>N/A</b>
Firewood or flammable liquids (paint, fuels, etc.) stored at least 30 feet away from the home				
Vehicle parking areas are not vegetated and are separated from the home				
Highly flammable vegetation removed				
Grass within 30 feet of the home irrigated and mowed; cuttings removed				
Shrubs within 30 feet of the home pruned to less than 18 inches tall and free from litter and dead material				
Trees within 30 feet of the home pruned or limbed up 6 feet to 10 feet above ground				
There is adequate separation between crowns of individual and clumps of trees				
<b>Zone 3 and beyond</b>				
Surface fuels have been reduced, and are at a low level				
Ladder fuels are minimized				
There is adequate separation between crowns of individual and clumps of trees				
Large fire-resistant trees retained				
<b>Access, water storage, signage</b>				
Address clearly marked on the house and at the entrance to the driveway				
Minimum clearance of the driveway is 12 feet wide; vertical clearance of 15 feet				
Driveway accommodates emergency vehicles turning around, and has a secondary exit from property				
Trees along driveway adequately thinned to allow visibility into surrounding forest				
Bridges rated to hold a minimum of 50,000 pounds and wide enough for fire trucks to pass				
Water storage structures for firefighting use				
If applicable, property has submitted Oregon's Defensible Space Act, SB 360 certification card to Oregon Department of Forestry (see References, page 6)				
Home setbacks, addressing and access conform to county requirements.				



Review the results of the worksheet. Consider any practices you checked in the “No” and “Not sure” columns. What are the most important potential follow-up actions? List and briefly describe these below.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.