

EASTERN NEBRASKA



LIVING WITH FIRE

A HOMEOWNER'S GUIDE



Living With Fire

. . . helping Nebraskans live more safely with the threat of wildfire

Fact Despite our best prevention efforts, much of eastern Nebraska will continue to experience grass/wildfires.

Grasslands often produce wildland fires that spread more rapidly than fire departments can suppress.

Many homes, neighborhoods and communities may not be prepared to survive a wildfire.



Living in a High Wildfire Hazard Area

The potential for loss due to wildfire in eastern Nebraska is growing. In response, numerous organizations have banded together to create *Living With Fire*, a wildfire threat reduction program for homeowners.

The *Living With Fire* program is not about fire prevention. Its purpose is to teach people how to live more safely with the threat of wildfire. For most areas, it is not a question of **if** wildfire will occur, but **when**.

Who Wins, Who Loses...

Why do some houses survive a wildfire, while others are destroyed? Research findings prove that house survival during wildfire is not random, miraculous or dumb luck. Rather, it is how the house is built, the characteristics of the adjacent vegetation and other fuels and routine maintenance that often determine which homes burn and which survive. These types of critical actions are called pre-fire activities. Pre-fire activities are actions completed before a wildfire occurs which improve the survivability of people and the home.

The "winners" will be homeowners who implement pre-fire activities.

HUMAN BEHAVIOR IS JUST AS IMPORTANT AS FIRE BEHAVIOR IN SAVING YOUR HOME!

BEFORE THE FIRE



DURING THE FIRE



AFTER THE FIRE



Prior to the fire, this homeowner changed the roof material from wood shakes to fire-resistant tiles and reduced the amount of flammable vegetation surrounding the home. These pre-fire activities helped this house survive the fire.

Wildfire can threaten your house in three ways...



CONTACT BY FLAMES

This type of threat occurs when vegetation and other fuels burning near the house produce flames that contact the home and ignite it. Often, it happens when fire burns through a uniform layer of vegetation right up to the house. Direct contact by flames is probably what most homeowners visualize when they think of a house burning during wildfire.

RADIATED HEAT

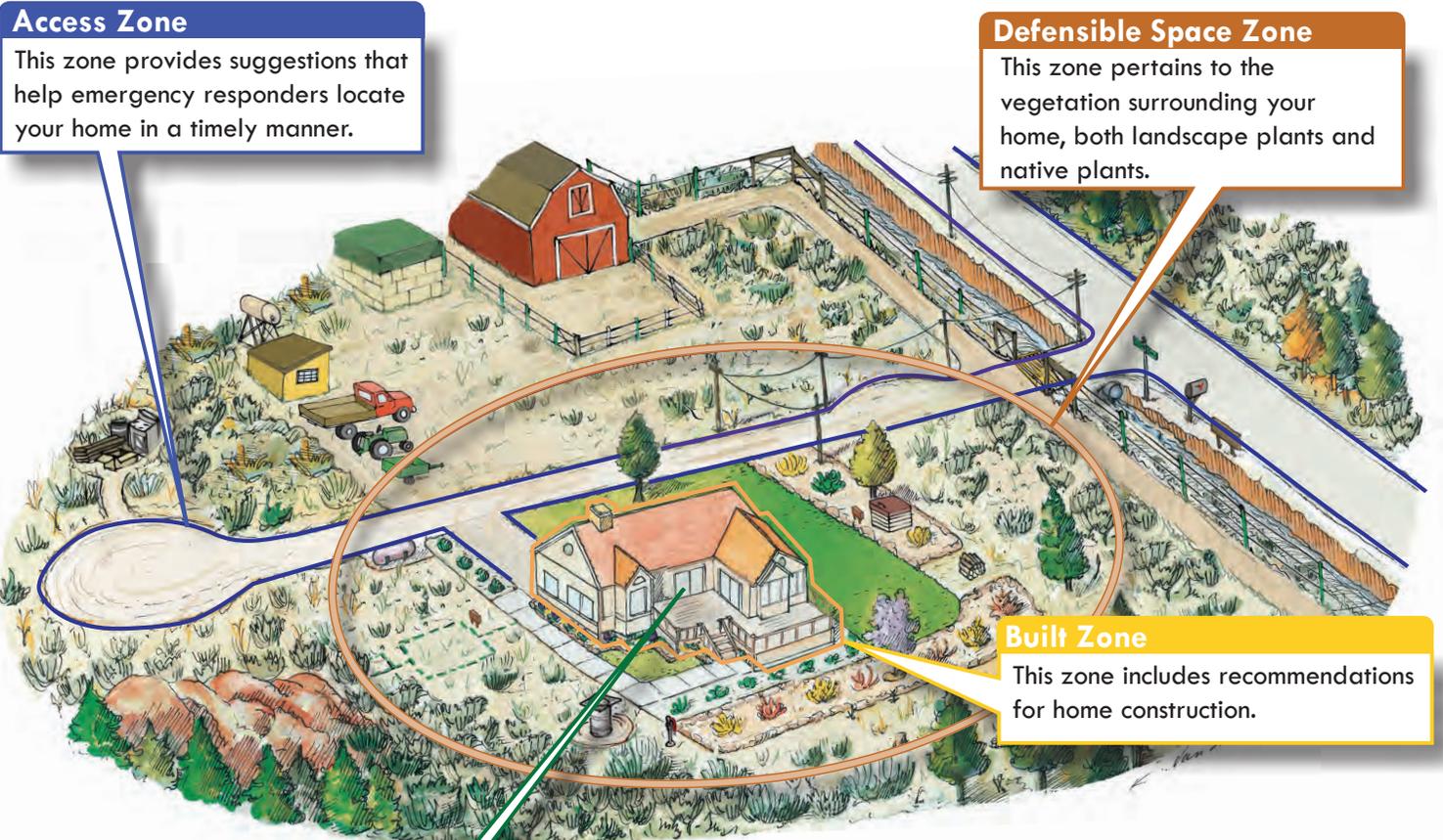
Radiated heat melted the vinyl siding on this house. Flames never came in contact with it. Radiated heat is produced by invisible electromagnetic waves that travel out in all directions from a flame. When a house receives enough radiated heat for sufficient time, it will ignite. Sometimes radiated heat can also burst windows and allow burning embers to enter the house.

FLYING EMBERS

More houses burn due to flying embers than any other reason. If fire conditions are right, embers can be lofted high into the air and transported more than a mile. Burning embers can also be carried by wind and fire whirls. If these burning embers land in easily ignitable materials, a new fire can start.

What can homeowners do to reduce the wildfire threat?

The Living With Fire wildfire threat reduction recommendations are presented as part of to four zones . . .



Access Zone
This zone provides suggestions that help emergency responders locate your home in a timely manner.

Defensible Space Zone
This zone pertains to the vegetation surrounding your home, both landscape plants and native plants.

Built Zone
This zone includes recommendations for home construction.

Interior Zone
This zone offers fire safety tips for inside the home.

Cost estimates for recommendations on following pages

⊖ No cost - just a little time and effort	\$ Minimal cost (< \$50)
\$\$ Moderate cost (\$50 - \$500)	\$\$\$ High cost, highly effective (>\$500)

Access Zone

Driveway and Access Road Clearance:

Remove flammable vegetation extending at least 10 feet from both sides of the driveway and access roads. Overhead obstructions should be removed or raised to provide at least a 15-foot vertical clearance. Ⓢ

Road Width and Grade: Roads and long driveways should be at least 12 feet wide with a steepness grade of less than 12%. \$\$\$

Turnouts: Homes located at the end of long, narrow roads and dead ends can discourage firefighters and complicate evacuation. If possible, create turnouts in driveways and access roads for two-way traffic. \$\$\$

Road Signs: Road signs should be posted at each intersection leading to your home. Each sign should feature characters that are at least 4 inches high and should be made of reflective, noncombustible material. \$

Turnarounds: Homes located at the end of long driveways or dead-end roads should have turnaround areas suitable for large fire equipment. Turnarounds can be a cul-de-sac with at least a 45-foot radius or a location suitable for a three-point turn. \$\$

Well House: Use signs to \$ indicate the location of the well house or water system.

Address: The address should be visible from the main road or street. The address sign should be made of reflective, noncombustible material with \$ characters at least 4 inches high.

Septic Systems: Use signs or fencing to indicate the location of the septic tank and leaching field. Heavy fire equipment can damage septic systems. \$

Bridges, Culverts and Cattle Guards: Inadequately built bridges, culverts and cattle guards may prevent firefighting equipment from reaching your home. Ask your local fire marshal about proper bridge, culvert and cattle guard design for your area. \$\$\$

Defensible Space Zone

Lean, Clean and Green Area: For a distance of at least 30 feet from the home, there should be a Lean, Clean and Green Area. Lean indicates that only a small amount of flammable vegetation, if any, is present within 30 feet of the house. Clean means there is no accumulation of dead vegetation or flammable debris within the area. Green requires that plants located within this area are kept healthy, green, and irrigated during fire season. For most homeowners, the Lean, Clean and Green Area is the residential landscape. This area often has irrigation, contains ornamental plants and is routinely maintained.



Note: These recommendations apply to fuel tanks and all outbuildings including barns, shops, sheds and well houses. Make sure you have an evacuation plan for your domestic animals.

Wildland Fuel Reduction Area: This area usually lies beyond the residential landscape area and is where cedar, tall grasses and other wild plants grow. Within this area:

- Remove all dead vegetation, including dead shrubs, dried grass, weeds, fallen branches, pine needles, etc.
- Consider hay harvesting to reduce fuel on large, continuous grass areas.
- Thin out thick shrubs, redcedar and other pines to create a separation between them.*
- Remove ladder fuels by removing low tree branches, removing or pruning the shrubs under the tree.

* See page 11 for separation recommendations.



Noncombustible Area: Create a noncombustible area at least 3 feet wide around the base of your home. This area needs to have a very low potential for ignition from flying embers. Use irrigated herbaceous plants (such as lawn, groundcover and flowers), rock mulches or hard surfaces (such as concrete, brick and pavers) in this area. Keep it free of woodpiles, wood mulches, dead ornamental plants, dried leaves and needles, weeds, flammable shrubs (such as ornamental juniper) and debris.



See Page 10, 6 Steps to Creating Effective Defensible Space

Built Zone

Chimneys: Chimney and stovepipe openings should be screened with 1/2-inch or smaller wire mesh or an approved spark-arrestor cap. \$

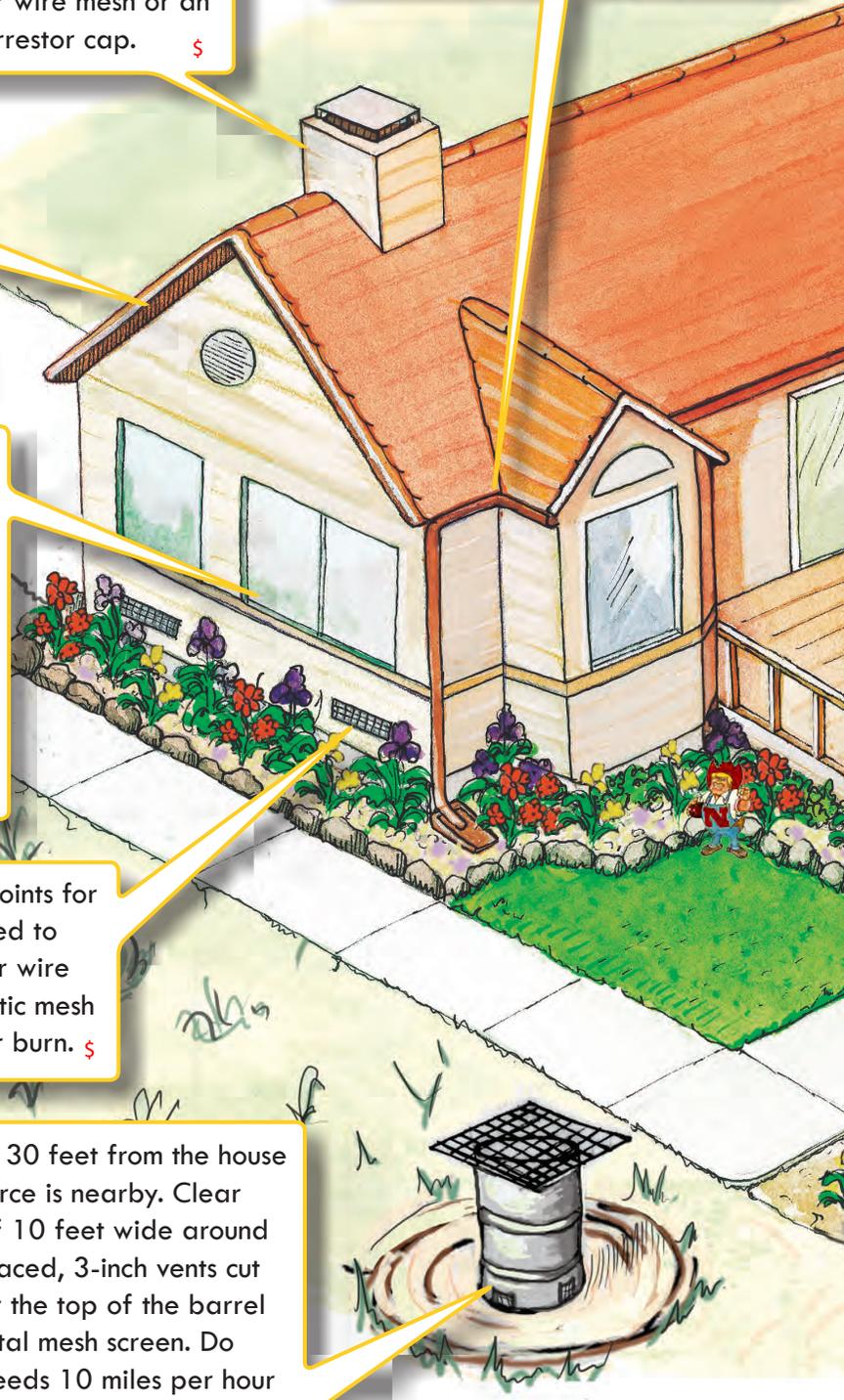
Rain Gutters: Rain gutters trap flying embers. Always keep your rain gutters free of leaves, needles and debris. Check and clean them several times during fire season. Ⓢ

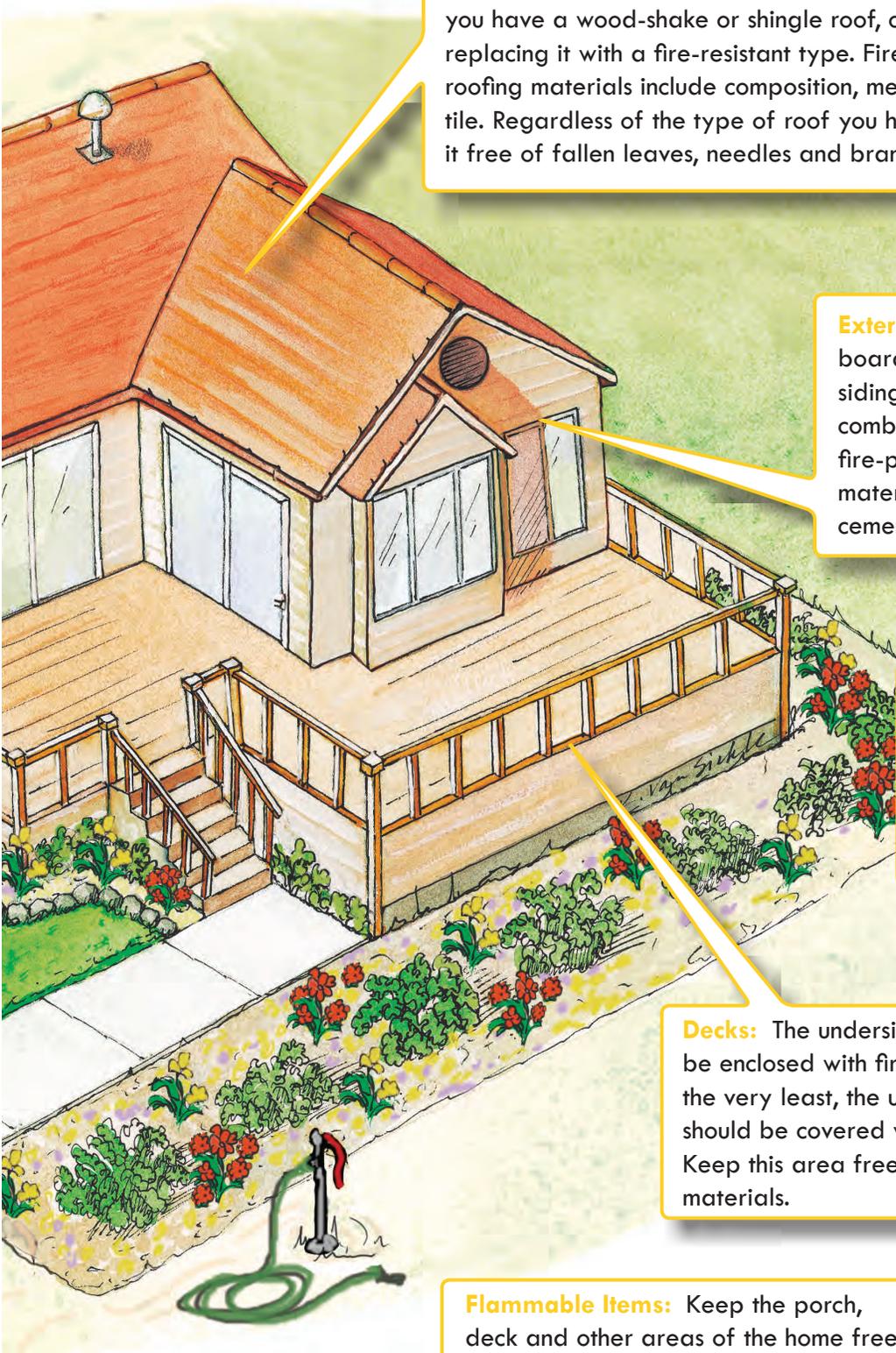
Eaves: The eaves of a home act as a heat trap for hot air and gases, greatly increasing the chance of ignition. Covering the underside of the eave with a soffit, also called *boxing in* the eave, allows the heat to escape. \$\$\$

Windows: Windows are one of the weakest parts of a home and usually break before the structure ignites. This allows burning embers and heat to enter the home, which may lead to internal ignition. Single-paned and large windows are particularly vulnerable. In high fire hazard areas, install windows that are at least double-glazed or tempered glass. Windows with aluminum frames and sashes are better choices than those with wood or vinyl frames. \$\$\$

Vents: Vents are potential entry points for flying embers. All vent openings need to be covered with 1/8-inch or smaller wire mesh. Do not use fiberglass or plastic mesh because these materials can melt or burn. \$

Burn Barrels: Locate burn barrels at least 30 feet from the house and other buildings. Make sure a water source is nearby. Clear an area down to bare soil for a distance of 10 feet wide around the barrel. There should be three evenly spaced, 3-inch vents cut into the bottom portion of the barrel. Cover the top of the barrel and vent openings with 1/2-inch woven-metal mesh screen. Do not burn on days when the wind speed exceeds 10 miles per hour and never leave the barrel unattended when burning. Do not burn plastic, rubber, Styrofoam or asbestos. Once you start a burn barrel fire, you are responsible for it until the fire is completely out. Contact your fire agency for burn restrictions. \$





Roof: Homes with wood-shake or shingle roofs are much more likely to be destroyed during a wildfire than homes with fire-resistant roofs. If you have a wood-shake or shingle roof, consider replacing it with a fire-resistant type. Fire-resistant roofing materials include composition, metal and tile. Regardless of the type of roof you have, keep it free of fallen leaves, needles and branches. \$\$\$

Exterior Siding: Wood products, such as boards, panels and shingles, are common siding materials. However, they are combustible and not good choices for fire-prone areas. Noncombustible siding materials, such as stucco, brick, metal and cement board, are better choices. \$\$\$

Firewood: Firewood stacks should be located at least 30 feet from the home. If the stacks are stored uphill from the house, make sure that burning firewood cannot roll downhill and ignite the home.

Decks: The underside of the deck should be enclosed with fire-resistant materials. At the very least, the underside of the deck should be covered with 1/8-inch wire mesh. Keep this area free of all easily combustible materials. \$

Flammable Items: Keep the porch, deck and other areas of the home free of easily combustible materials, such as baskets, dried flower arrangements, newspapers, pine needles and debris.

Interior Zone

Carbon Monoxide Detectors: Carbon monoxide (CO) detectors are the only way to alert people to dangerous levels of CO before tragedy strikes. CO is a byproduct of combustion from gas appliances or automobiles. Only use detectors that are officially approved and are clearly marked with the American Standard – UL2034 symbol. \$

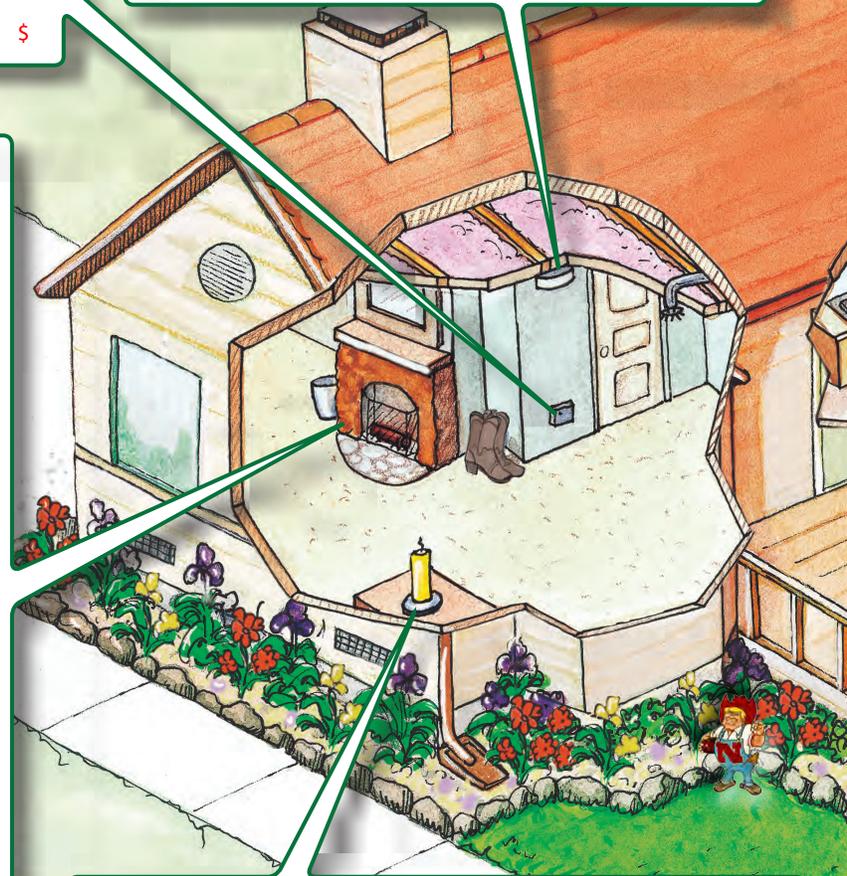
Smoke Detectors: Smoke detectors are inexpensive devices that save many lives. Current fire codes require a smoke detector in every bedroom and in common areas. Many older or retrofitted smoke detectors are not wired to the home's electrical circuits and operate by self-contained batteries. Replace the batteries at least once a year or when the unit is "chirping" to indicate low battery power. \$

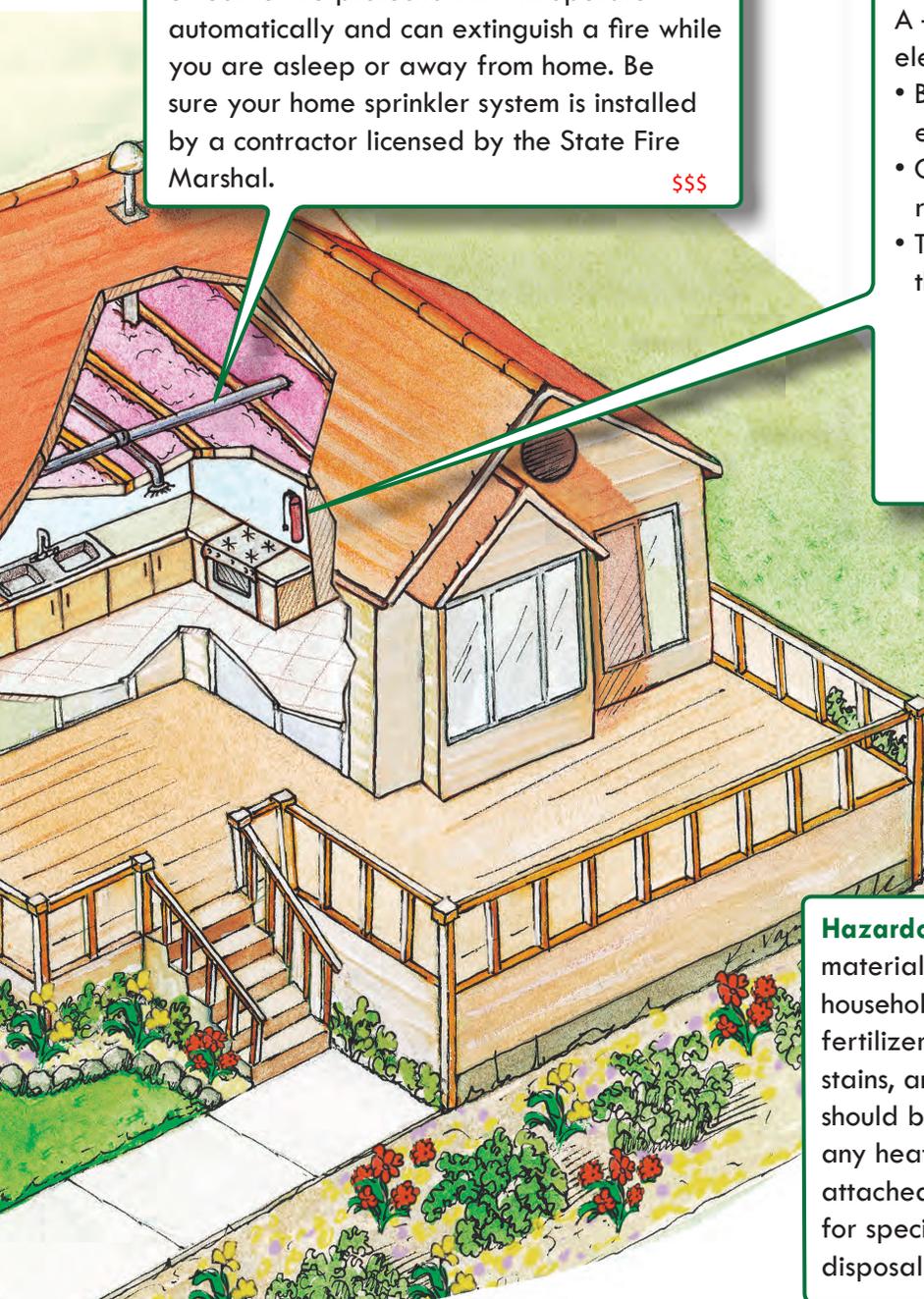
Wood Stoves, Pellet Stoves and Fireplaces: Heat your home safely by following these tips concerning wood stoves, pellet stoves and fireplaces.

- Install according to the manufacturer's directions. \$\$\$
- Never use flammable liquids (fuels, etc) to start a fire.
- Carefully follow directions when using synthetic logs.
- Keep a glass or metal screen in front of the fireplace opening to prevent embers or sparks from escaping.
- Keep flammable materials off the mantle and at least 3 feet away.
- Do not use excessive paper to start your fire.
- Do not burn colored paper (magazines, catalogs, etc.), which can accelerate creosote buildup and increase the likelihood of a chimney fire.
- Avoid burning wood slowly for long periods of time, which contributes to soot and creosote buildup. Instead, allow the wood to burn rapidly for 10 to 15 minutes several times a week to help reduce creosote buildup. Use dry wood for more efficient burning.
- Dispose of ash properly. Regularly remove ashes and place them in a metal container with a lid. Place the ash-filled container outdoors, away from combustible materials. Do not set the ash container on a wood surface, such as a deck, or other combustible material. Once ashes are cool, they can be spread into flower beds, gardens or compost piles.
- Screen chimney and stovepipe openings with 1/2-inch or smaller noncombustible mesh or an approved spark-arrestor cap.
- Inspect and clean the chimney in the spring and fall each year. \$\$

Candle Safety: Candles are a safe product, but can become hazardous when used improperly or in an unsafe manner.

- Always keep a burning candle within sight.
- Keep candles out of reach of children/pets.
- Before burning, trim wicks to 1/4-inch.
- Always use a sturdy heat-resistant candleholder that is large enough to contain any melted wax.
- Keep burning candles away from drafts, vents, air currents and easily combustible materials, including flammable clothing.
- Always burn candles in a well-ventilated room.
- Extinguish the flame when 2 inches of wax remains, or when 1/2-inch remains if in a container.
- Use a candle snuffer to extinguish candles.





Sprinkler Systems: A sprinkler system installed inside the home can provide effective fire protection. It will operate automatically and can extinguish a fire while you are asleep or away from home. Be sure your home sprinkler system is installed by a contractor licensed by the State Fire Marshal.

\$\$\$

Portable Fire Extinguishers: Portable fire extinguishers enable you to quickly respond to a fire. Extinguishers are rated by the type of fire they can effectively extinguish: A – wood or cloth fires, B – liquid fires, C – electrical fires, and D – metal fires.

- Be sure all family members know the extinguisher's location and its operation.
- Get the extinguisher serviced annually and recharged after each use.
- The term P-A-S-S will help you remember the right way to use the extinguisher:

Pull the safety pin;

Aim the extinguisher;

Squeeze the trigger; and

Sweep the extinguisher at the base of the fire.

\$

Plan Your Escape: Even with early warning from a smoke detector, escaping a house fire can be difficult. By planning and practicing exit drills, you can better prepare your family for a fire emergency. Contact your local fire department for advice.

Ⓢ

Hazardous Materials: A wide variety of hazardous materials may be found in rural Nebraska households, farms and ranches. They can include fertilizers, pesticides, lubricants, fuel, paints and stains, and solvents. In general, hazardous materials should be stored in a cool, dry place away from any heat source and preferably in a building not attached to the house. Contact the local fire agency for specific advice concerning proper storage and disposal of hazardous materials in rural Nebraska.

Ⓢ

Other Heating Systems: Kerosene and other fuel-fired heaters should be used properly. Follow manufacturers' instructions when using these devices.

- Be sure they are approved by an independent testing laboratory. Heaters should turn off if accidentally tipped over.
- Use only the fuels specified by the manufacturer for each particular heating appliance.
- Refuel heaters outdoors.
- Keep children away from heaters.
- Never burn charcoal indoors.

Ⓢ

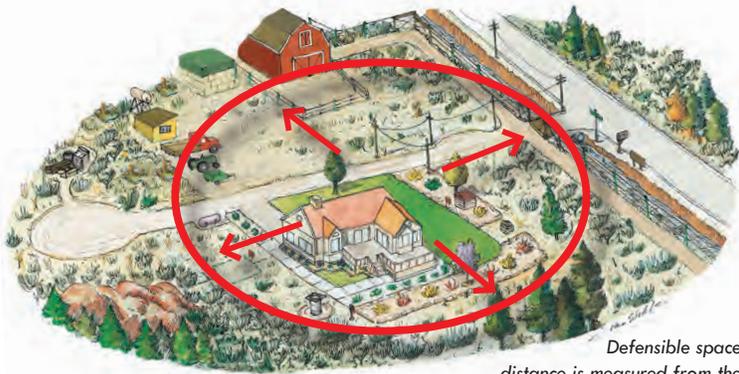
6 Steps to Creating an Effective Defensible Space



A homeowner can have both an effective defensible space and an attractive landscape.

Defensible space, sometimes also referred to as “survivable space,” is the area between a house and an oncoming wildfire where vegetation has been modified to reduce wildfire threat and provide an area where firefighters can safely work to defend the house. With enough fuel reduction, your home may even be able to survive a wildfire without firefighter assistance.

Unfortunately, when some homeowners hear the term defensible space, they envision a large expanse of bare ground surrounding their home. While this is certainly effective at increasing home survivability, it is unacceptable for aesthetic reasons and can contribute to soil erosion. It is also unnecessary.



Defensible space distance is measured from the base of the house, extending outward.

Step 1

Determine the size of an effective defensible space:

The size of the defensible space is usually expressed as a distance extending outward from the house in all directions. This distance is not the same for every home. It varies depending on the dominant vegetation surrounding the home and steepness of slope. The table (above right) will help determine the right size for your home.

Once the recommended distance is known, mark it by tying strips of cloth or flagging to shrubs. This becomes the Defensible Space Zone.

If the Defensible Space Zone exceeds your property boundaries, seek permission from neighbors before doing work on their property. The effectiveness of the Defensible Space Zone improves when entire neighborhoods implement defensible space practices.

Recommended Defensible Space Distance

	Flat to Gently Sloping 0-20%	Moderately Steep 21-40%	Very Steep +40%
Grass Dry grass & weeds	30 feet	100 feet	100 feet
Shrubs & Woodlands Sagebrush, yucca, small red cedar	100 feet	200 feet	200 feet
Trees Forest trees such as pine and cedar. If there's a substantial shrub understory, use the values stated above.	100 feet	100 feet	200 feet

Step 2

Remove dead vegetation:

Within the recommended Defensible Space Zone, remove:

- dead and dying trees;
- dead native and ornamental shrubs;
- dead branches;
- dead leaves, needles and twigs that are still attached to plants, draped on live plants or lying on the ground within 30 feet of the house; and
- dried grass, weeds, flowers.



Hardwood leaf litter and conifer needle cast can create a pathway for creeping fire.

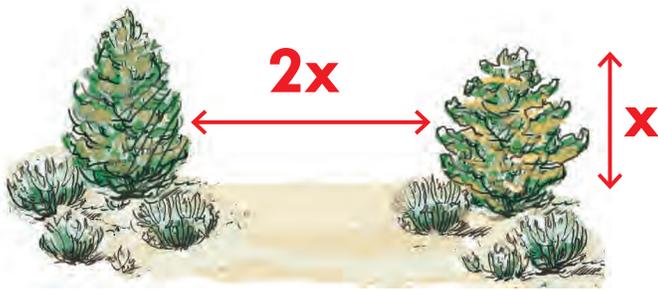
Step 3

Create a separation between trees and shrubs:

Within the Defensible Space Zone, native trees and shrubs should not occur in a dense stand. Dense stands of trees and shrubs pose a significant wildfire threat. Thin dense tree and shrub stands to create more space between them.



Dense cedar can pose a high fire threat.



Shrubs plus cedar, pine, large ornamental grasses:

On flat to gently sloping terrain, individual shrubs or small clumps of shrubs within the Defensible Space Zone should be separated from one another by at least twice the height of the average shrub. For homes located on steeper slopes, the separation distance should be greater. For example, if the typical shrub height is 2 feet, then there should be a separation between shrub branches of at least 4 feet. Remove shrubs or prune to reduce their height and/or diameter. In most instances, removing large flammable shrubs is the preferred approach.

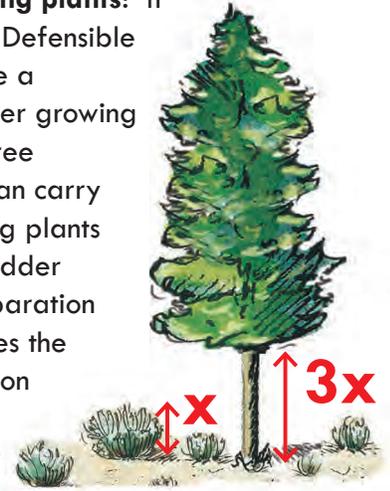


Photo courtesy of Jessica Yohinke

Step 4

Create a separation between tree branches and lower-growing plants:

If trees are present within the Defensible Space Zone, there should be a separation between the lower growing vegetation and the lowest tree branches. Vegetation that can carry a fire burning in low-growing plants into taller plants is called ladder fuel. The recommended separation for ladder fuels is three times the height of the lower vegetation layer. Prune the lower tree branches, shorten the height of shrubs or remove lower plants. Do not, however, remove more than one-third of the total tree branches. When there is no understory vegetation present, remove lower tree branches to a height of at least 6 feet above ground. During a fire, this will help prevent burning needles and twigs that are lying on the ground from igniting the tree.



Removing ladder fuels will help prevent a ground-level fire from reaching the trees.



Photo courtesy of Jessica Yohinke

These before and after photos show how a fuels reduction project near Long Pine reduced ladder fuels and created separation between trees/shrubs.

Step 5

Create a Lean, Clean and Green Area extending at least 30 feet from the house: There are two goals for the Lean, Clean and Green Area. The first is to eliminate easily ignitable fuels (kindling) near the house. This will help prevent embers from starting a fire in your yard. The second goal is to keep fire intensity low if it does ignite near the house. Proper fuels management near the house prevents a fire from generating enough heat to ignite the home.

For most homeowners, the Lean, Clean and Green Area is also the residential landscape. This area often has irrigation, is planted with ornamental vegetation and is regularly maintained.

Lean, Clean and Green Area Tips

- Remove most or all flammable wildland plants, including cedar, juniper and other coniferous species receptive to firebrands. If you wish to retain a few as specimen plants, make sure they are free of dead wood and leaves, pruned to reduce the amount of fuel and separated from adjacent brush fields.
- Select less flammable landscape plants. Some rules of thumb in selecting landscape plants for the Lean, Clean, and Green Area are:
 - Plants under 2-feet tall are better choices than taller plants.
 - Green, herbaceous plants (grass, nonwoody flowers) can be better choices than shrubs and trees.
 - Deciduous shrubs and trees are more fire resistant choices than

evergreens. Avoid juniper, mugo pine and arborvitae.

- Emphasize hard surfaces and mulches. Hard surfaces include concrete, asphalt, and brick. Mulches include rock and wood types. Wood mulches should not be used within 3 feet of the house.
- Clear all flammable vegetation within 10 feet of a propane tank.
- Remove tree limbs that are within 10 feet of the chimney, touching the house or deck, within 6 feet of the roof or encroaching on power lines.
- Create a noncombustible area at least 3 feet wide around the base of the house. Emphasize use of irrigated herbaceous plants, such as lawn, groundcovers and flowers. Also use rock mulches and hard surfaces.



Photo courtesy of California Department of Forestry and Fire Protection

Miracle House? This home survived northern California's Forty-Niner Fire and has been referred to as the "Miracle House." That title, however, is misleading. The reason this home survived was not due to a miracle. It survived because the homeowner was proactive and created a Lean, Clean and Green Area, had a fire-resistant roof and provided good access. It was designed to survive.

Step 6

Maintain the Defensible Space Zone: Maintaining a defensible space is an ongoing activity. Plants grow back and flammable vegetation needs to be routinely removed and disposed of properly. Before each fire season, re-evaluate your property using the previous five steps and implement the necessary recommendations.



Remove flammable vegetation and dispose of it properly.

Little Green Gas Cans

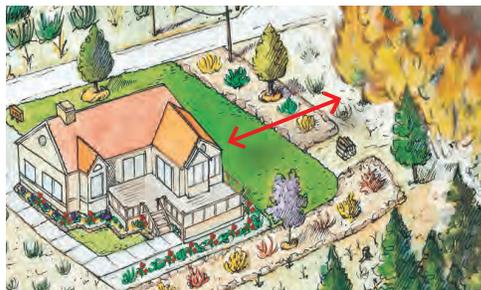
Firefighters often refer to ornamental junipers as "little green gas cans." During a wildfire involving homes, embers can smolder undetected under ornamental junipers. The junipers can then ignite and burn intensely after firefighters have left your property. Planting ornamental junipers next to your house is never a good idea. Keep them at least 30 feet from the house or replace them with low-growing deciduous shrubs, herbaceous flowers, rock mulches and hard surfaces.



Defensible Space FAQ

WHAT IS DEFENSIBLE SPACE?

Defensible space is the area between a house and an oncoming wildfire where vegetation has been modified to reduce wildfire threat and provide firefighters an opportunity to effectively defend the house. Often, defensible space is simply a properly maintained backyard.



HOW DOES VEGETATION IMPACT WILDFIRE THREAT?

Many people do not view the plants growing on their property as a threat. But in terms of wildfire, the vegetation adjacent to their homes can have considerable influence upon the survivability of their houses. All vegetation, including plants native to the area and ornamental plants, is potential wildfire fuel. If vegetation is properly modified and maintained, a wildfire can be slowed, the length of flames shortened and the amount of heat reduced, all of which assist firefighters in defending the home against an oncoming wildfire.

THE FIRE DEPARTMENT IS SUPPOSED TO PROTECT MY HOUSE, SO WHY BOTHER WITH DEFENSIBLE SPACE?

Some individuals incorrectly assume that a fire engine will be parked in

their driveway and firefighters will be actively defending their homes if a wildfire approaches. During a major wildfire, it is unlikely there will be enough firefighting resources to defend every home. In these instances, firefighters will likely select homes they can most safely and effectively protect. Even with adequate resources, some wildfires may be so intense that there may be little firefighters can do to stop them. The key is to reduce fire intensity as wildfire nears the house. This can be accomplished by reducing the amount of flammable vegetation surrounding a home. Consequently, **the most important person in protecting a house from wildfire isn't a firefighter, but the property owner.** Actions taken by the owner **before** a fire occurs (such as proper landscaping) are most critical.

DOES DEFENSIBLE SPACE REQUIRE A LOT OF BARE GROUND?

No. Unfortunately, many people have this misconception. Bare ground is certainly effective in reducing the wildfire threat, but it is unnecessary and unacceptable due to appearance, soil erosion and other reasons. Many homes have attractive, well-vegetated landscapes that serve as effective defensible space.



When wildfire threatens, firefighters will not be able to place an engine in every driveway. Homes need to be designed and maintained to survive a wildfire on their own.

DOES CREATING A DEFENSIBLE SPACE REQUIRE SPECIAL SKILLS?

No. For the most part, creating defensible space employs routine landscape maintenance practices such as pruning, mowing, weeding, appropriate plant selection and irrigation. Equipment needed includes common tools such as a chain saw, pruning saw, pruning shears, loppers, weed-eater and rake. A chipper, compost bin or large rented trash dumpster may be useful in disposing of unwanted plant material.

HOW BIG IS AN EFFECTIVE DEFENSIBLE SPACE?

Defensible space size is different for every home. It varies by slope and type of vegetation growing near the house. See Step One on Page 10.

DOES DEFENSIBLE SPACE MAKE A DIFFERENCE?

Yes! Investigations of homes threatened by wildfire indicate that those with effective defensible space are much more likely to survive a wildfire. Furthermore, homes with effective defensible space and a nonflammable roof (composition shingles, tile, metal, etc.) are more likely to survive.

DOES DEFENSIBLE SPACE INSURE MY HOUSE WILL SURVIVE?

No. Under extreme conditions, almost any house can burn. However, having a defensible space will significantly improve the odds.

WHY DOESN'T EVERYONE LIVING IN A HIGH FIRE HAZARD AREA CREATE A DEFENSIBLE SPACE?

Specific reasons are varied. See below for common excuses for not creating defensible space.

What's your excuse?

"I've got insurance": Insurance can rebuild a house, but it cannot recreate a home. Heirlooms and other memorabilia are irreplaceable.

"I don't have the time or money": If you live in a rural area, creating defensible space needs to be a high priority. Many defensible space activities require little or no money to implement (see following page). For more expensive tasks, consider forming a local Firewise Community or Fire Safe Council chapter for assistance in acquiring grant funds.

"It won't look good": There is a misconception that defensible space must be ugly and barren to be

effective. With proper planning, a homeowner can have an attractive landscape and an effective defensible space.

"It's wrong to cut trees": In some areas, trees can occur in unnaturally dense stands. Thinning reduces fire threat and promotes forest health.

"It's not my responsibility": Home construction, characteristics of adjacent vegetation and maintenance often determine survivability during wildfire. The **homeowner**, not the firefighter, is responsible for these factors.

"I don't have an easy way to dispose of the unwanted vegetation": Look for free community cleanup day in your area

or join with neighbors and rent a chipper and trailer for a weekend.

"It's not going to happen to me": If you live near areas of dense wildland fuels, it is only a matter of time before these areas burn.

"It's against the law to remove vegetation": If there are regulations that prohibit the removal of vegetation necessary to create defensible space, contact your local fire official and ask for help in resolving the conflict.

"I don't know what to do": For more information about creating defensible space, go to firewise.org or contact your local fire agency or Nebraska Forest Service office.

No-Cost Ways to Make Your Home Firewise

Fire has always been and will continue to be present in rural Nebraska. If you choose to live within that landscape, it pays to know how to make your acreage as fire permeable—fire passes through without damage to structures—as possible. While some pieces of the defensible space puzzle may require a long-term investment, some are easily addressed. All they require is a little time and effort.

- Take the Wildfire Hazard Assessment Test on the Nebraska Forest Service (NFS) website (nfs.unl.edu/Fire/firehazardtest.asp) or contact NFS for a free home visit.
- Clear leaves and pine needles from gutters and the roof every spring and fall.



Gutters and roof valleys can collect large amounts of dry, flammable fuel.

- Keep your house numbers and/or road numbers visible from the road by clearing any obstructions.
- Keep 100 feet of hose attached to an outside faucet.
- Trim branches that hang over the house or within 20 feet of the chimney.



This pine branch is too close to the attic vent and could create a way for fire to enter the structure.

- Stack firewood more than 30 feet from any structure and clear flammable vegetation around it.



Storing firewood near the home is convenient, but it can offer a receptive place for flying embers to introduce fire to the home.

- Trim/prune/remove woody plants to maintain a driveway at least 12 feet wide and with 14 feet of vertical clearance.



Although the address of this residence is clearly visible (9), the driveway severely limits fire department access.

- Keep your lawn Lean, clean and green for 30 feet around the home.
- Consider removing conifer shrubs from your home's defensible space.
- Clear all dead, flammable vegetation within 30 feet of

your home. Remove ladder fuel.

- Where burn barrels are allowed, clear flammable materials at least 10 feet around the barrel; cover the opening with a nonflammable screen having openings no larger than 1/2 inch.



The location of these barrels and the extent of flammable materials around them provide many opportunities for fire to escape.

- Compost leaves in the fall rather than burning them.
- Keep stock tanks and ponds easily accessible to fire equipment throughout the year. These can all provide water for fighting fire.
- If you burn brush piles, clear at least a 25-foot barrier around it, be sure to get a burn permit from the fire department and keep an eye on the weather. Have tools on hand (shovel, rake, water supply) to control the burn before you start it.
- Talk to your children about not starting fires or playing with matches.
- Check your fire extinguishers. Are they charged? Does everyone know where they are and how to use them?
- Develop and discuss an escape plan. Don't forget your pets!
- Visit the Firewise website (firewise.org) for more information.

Why Worry About Wildfire in Eastern Nebraska?

Fire is Natural to Nebraska's Environment



Increased understory fuels dramatically change fire intensity, leading to fires that are damaging to Nebraska's hardwood forests and dangerous to homeowners and firefighters alike.



Fire has been a natural part of Nebraska's environment for thousands of years. These historic fires were frequent and a major influence on the appearance of Nebraska's wildlands. Beginning in the 1850s, fire suppression efforts began to change the traditional occurrence of fire.

Much of Nebraska is considered a fire environment. It contains flammable vegetation and a climate to support fire much of the year. Fire is a natural process in Nebraska, and many of the plants growing here evolved in the presence of frequent fires. In fact, it is unnatural for fire to be absent for very long in many areas of the state.

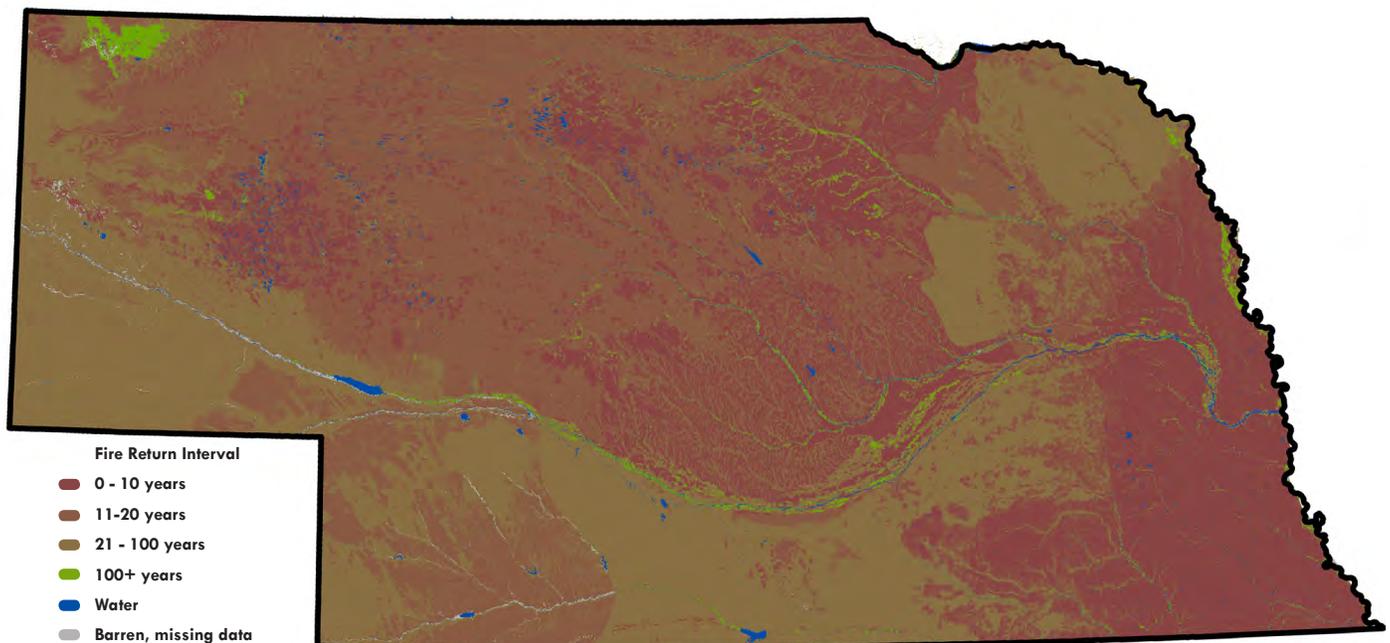
The illustration below shows the historic occurrence of fire in Nebraska prior to settlement. During this period, much of the state burned once every 20 years or less. Because these areas burned so often, large amounts of fuel could not build up, and species with low fire tolerance were kept in check.

As with the rise of fire suppression, the increase in the number of acres in production agriculture also changed the natural fire occurrence in Nebraska. Initially, the increase in farmed acres reduced the wildfire threat in many areas. The tilling of soil essentially created fire breaks. As sustainable agriculture methods—no till farming—become more common, these acres may not provide the same buffer against fire.

Although the threat of high-intensity crown fire—fire reaching into the tops of trees—in eastern Nebraska is generally thought to be less than in the Panhandle, the landscape is changing. The increase in eastern redcedar in the understory of many hardwood forests is increasing the potential for crown fires in areas that may have never experienced it previously. This increasing fuel load, combined with the frequency of grass/wildfire occurrence in the east, is creating a potentially dangerous situation, especially in areas on steep slopes.

So in general, wildfires in eastern Nebraska are dangerous due to:

- **Frequency:** short fire return intervals present a recurring threat.
- **Rate of Spread:** a wind driven grass fire moves very fast.
- **Changing Fuel Type:** fire exclusion has led to a change in vegetation.
- **Increasing Eastern Urbanization:** fire departments simply don't have the resources to place fire apparatus at every home.



In general, fire return interval increases from east to west, at higher elevations and as vegetation transitions from grassland to forest fuel types. Geospatial information provided by Landscape Fire and Resource Management Planning Tools Project (landfire.gov).



Photo courtesy of Eric Berg

When Wildfire Approaches . . .

Stay or Go?

The question of evacuation during a wildfire has always been a difficult one to answer. Emergency service agencies often prefer evacuation to reduce life safety threats, but homeowners often prefer to “shelter in place.” Nebraskans have been practicing shelter in place methods to deal with tornadoes and ice storms for many years, but the key is being prepared for wildfire in advance. A homeowner wouldn’t wait until the tornado sirens are sounding to begin working on a storm shelter, right?

Whether you decide stay or evacuate, here are some tips to prepare for and improve your home’s wildfire resistance.

What should I wear and have with me?

- Wear only cotton or wool clothes.
- Proper attire includes long pants, long-sleeved shirt or jacket and boots.
- Carry gloves, a handkerchief to cover your face, water to drink and goggles.
- Keep a flashlight and radio with you.
- Listen to local radio stations for information.

How should I prepare my car?

- Place vehicles in the garage, pointing out with keys in the ignition, windows up.
- Close the garage, but leave it unlocked.
- If applicable, disconnect the electric garage door opener so that the door can be opened manually.

What about family members and pets?

- If possible, evacuate family members not essential to preparing the house.
- Designate a meeting place and contact person, have alternate escape routes.
- Relay your plans to the contact person.
- Evacuate pets, the local Humane Society may offer assistance if needed.

What should I take if I decide to evacuate?

- Important documents (bank, IRS, trust, investment, insurance policy, birth certificates, medical records)
- Credit and ATM cards
- Medications
- Prescription glasses
- Driver’s license, passport
- Computer backup files
- Inventory of home contents (videotape?)
- Exterior photos of the house/landscape
- Address book
- Cell phone and charger
- Personal toiletries
- Change of clothing
- Family photo albums and videos
- Family heirlooms
- Place essential items in the car



Photo courtesy of Kevin McCully

A wildfire threatening the town of Valentine.

How should I leave my home and outbuildings?

- Close all interior doors
- Leave a light on in each room
- Close barn/shop doors and all windows
- Remove lightweight, nonfire-resistant curtains and other combustible materials from around windows
- Close drapes, shutters, and blinds
- Turn off all pilot lights
- Move overstuffed furniture, such as couches and easy chairs, to the center of the room

What about the outside of my home?

- Put patio furniture inside
- Shut off propane at the tank or natural gas at the meter
- Close all exterior vents if possible
- Prop a ladder against the house to provide firefighters access to the roof
- Attach garden hoses to faucets and attach nozzles set on “spray”
- Close all exterior doors and windows
- Leave exterior doors unlocked
- Turn on outside lights
- If available and if there’s time, cover windows, attic openings, and vents with plywood at least one-half inch thick
- Wet down wood-shake roofs before leaving
- Fill trash cans or buckets with water and place where firefighters can find them
- If you have an emergency water source (pool, trough, pond, etc.) and/or portable pump, mark its availability so it can be seen from the road

What about livestock?

- Evacuate livestock whenever possible. Never turn the animals loose.
- Have an evacuation plan for livestock. Include the routes, transportation needs and host sites. Share your plan with neighbors in case you are absent.
- Make sure vehicles and trailers needed for evacuation are serviced and ready to use
- Notify fire personnel of livestock on pasture to coordinate evacuation

Other prevention and mitigation publications from Nebraska Forest Service

- Creating a Community Wildfire Protection Plan (2009)
- Building a Top Screen for a Burning Barrel (2007)
- Country Living at Its Best (2007)
- Don’t Let Fire Reap Its Harvest (2007)
- Electrical Fire Prevention on the Farm and Ranch (2007)
- Fire Prevention is Easy. . . It’s the Little Things That Count! (2007)
- Fire Prevention on the Farm and Ranch (2007)
- Fireworks in the Country (2007)
- NFS Forest Fuels Treatment Program (2008)
- Preventing Farm Equipment Fires (2007)
- Preventing Fire on Your Farm (2007)
- Pruning Trees (2005)

This and more information available on our website at nfs.unl.edu

Acknowledgements

Living With Fire: A Guide for the Homeowner—Eastern Nebraska Edition, was adapted for Nebraska by Casey McCoy, wildland fire training manager, Nebraska Forest Service.

For more information about *Living With Fire*, contact the Nebraska Forest Service at 402.472.2944. This and other publications are also available at nfs.unl.edu.

The University of Nebraska—Lincoln is an equal opportunity educator and employer.

This publication was adapted from *Living With Fire—A Guide for the Homeowner* written by Ed Smith, University of Nevada Cooperative Extension, with assistance from Sonya Sistare, *Living With Fire* program assistant. Graphic design provided by Lucy Walker, Office of Marketing and Communications, University of Nevada, Reno. Illustration services provided by Kirrah Van Sickle and Animania, LLC. Funding for the original publication provided by a National Fire Plan grant from the USDA Forest Service/ Nevada Division of Forestry.

On the Cover The Big Rock Fire threatened Valentine in 2006. When the smoke cleared, 10 homes had been lost.

This publication courtesy of:

