



# BIGHORN BASIN FIRESMART



## BIGHORN BASIN FIREWISE COMMUNITIES

### ISSUE #43 — SUMMER 2022

#### A FEW WORDS DESCRIBING THE 2021 FIRE SEASON

Here are a few “facts” from the 2021 fire season, as shared by the folks who lived it. While none are specific to Wyoming or the Bighorn Basin, we will likely encounter some of them in future years.

The general description of the 2021 fire year: **A historic drought and record-breaking heatwaves combined to spark blazes that burned nearly 7.7million acres.**

The amount of land burned in 2021 was less than 2020, but fires are getting harder to fight as fires are burning hotter, spreading faster, and behaving erratically and dangerously. This has driven up costs, and put enormous stress on U.S. firefighting resources.

While the number of fires that burn each year is trending downward, the average annual acreage burned is continuing to rise.

Fire risk across the American West was exacerbated by a continuance of a record-breaking drought and unprecedented heat waves.

The season of high fire threat is stretching longer and longer. Spring fires were more than 15% above the ten-year average, and wildfires burned in Montana and Colorado into December.

Eight of the top 15 largest wildfires in California recorded history occurred in the last two years, and the three largest wildfires in Oregon since 1900, all occurred in this century.

From Siberia to US west, wildfires spewed record carbon emissions this year. Climate models estimate that the risk of large wildfires could jump up to 6 times higher in the next thirty years.

The above reality has resulted in a few things:

1. The Forest Service is drafting a ten-year plan for fire management in the National Forest system.
2. The U.S. Congress has allocated billions for wildfire management and fuels reduction.
3. Some state’s legislatures have increased funding for fire prevention.
4. Fire weather warnings have prompted power safety shutoffs in a few locations.

**Firesmart information and all newsletter issues are available at:**  
**[www.bighornbasinfiresmart.com](http://www.bighornbasinfiresmart.com)**

#### In this issue

#### Page

#### Special points of interest

A few words on the 2021 wildfires	1	* “Facts” from the 2021 fire season
Firewise/Firesmart Coordinators	2	* Firewise Structures Design & Const.
Ember Storms	3-4	* Description and Firesmart fixes
2022 Wildfire Prediction	5	* A new Wyoming District #3 Forester
Wildfires: A Few Interesting Facts	6	* By Jon Keeley of the USGS
Big Horn Canal Firesmart Work	7	* Before and After photos
Little Things That Matter	8	* Around your home or cabin



# EMBER STORMS

Contrary to expectations, most houses that burn in Wildland Urban Interface wildfires are ***not*** ignited by the heat of flaming trees. The primary source of home ignitions is the “**Ember Storm**” that can occur in front of any wind-driven fire. While embers a mile in front of a fire are not unusual, in extreme cases, firebrands and embers have been observed ***more than 10 miles*** ahead of flames during high winds. The late 2021 Colorado wildfires that burned up to a thousand homes, are an illustration of this. The wind-blown fires did not advance through a forest, it was embers from burning structures that ignited houses downwind. They did this by igniting vegetation and litter around the home, the siding, the gutters, the roof, and sometimes by getting inside the home, igniting and burning the home from the inside out.

As you can see in the film clips mentioned below, an ember storm resembles a heavy rain or snow event; except, instead of rain drops or snow flakes, the storm is millions of flaming embers; each carrying at least the same amount of fire as a lighted match. And anything they touch that could be ignited with a lighted match, **WILL** ignite.

And ember storms are not just something that happens in a forest fire. Once any structure is ignited, it will contribute more embers and firebrands to the downwind ember storm. Flying embers have been the cause of fire burning through large urban subdivisions, destroying all of the homes. And this is not just something that happens in California or Colorado.

The INSURANCE INSTITUTE FOR BUSINESS & HOME SAFETY (IBHS) has an ongoing program to conduct studies on the best materials and designs for ***Firewise/Firesmart*** homes. To do this, they have built models and full-size homes in their big laboratory, and subjected them to ember storms. To view the results of some of the tests and results, here are two locations that your computer search engine should easily be able to find.

- [Your Home Can Survive a Wildfire \(This is a good one\)](#)
- IBHS Research Center **Ember Storm** Test Highlights

Or, you can just do a computer search with the phrase “EMBER STORM.” You will get hundreds of “hits.” This same information is available without the video clips, in the Wildfire magazine and other publications that may be available at or through your local public library.



Tips to minimize the chance of an ember storm burning down your home or cabin, are most of the components of Firewise/Firesmart, and are included in all past and future issues of Bighorn Basin Firesmart. The following page is an encore of a detailed diagram and list of locations where embers can easily start a fire around your home or cabin. **This is so important that much of Page 4 is a repeat of what is on this page, just to emphasize the problem and corrections to protect your home or cabin.**





## **BE EMBER AWARE! . . . . A REMINDER**

During a wildfire, thousands of embers can rain down on your roof, and pelt the side of your home like hail during a storm. If these embers become lodged in something easily ignited on or near your house, it will be in jeopardy of burning.

**Embers coming in contact with flammable material is the major reason homes are destroyed during a wildfire.**

Common materials that become embers during a wildfire include pine cones, branches, tree bark, and wooden shingles.

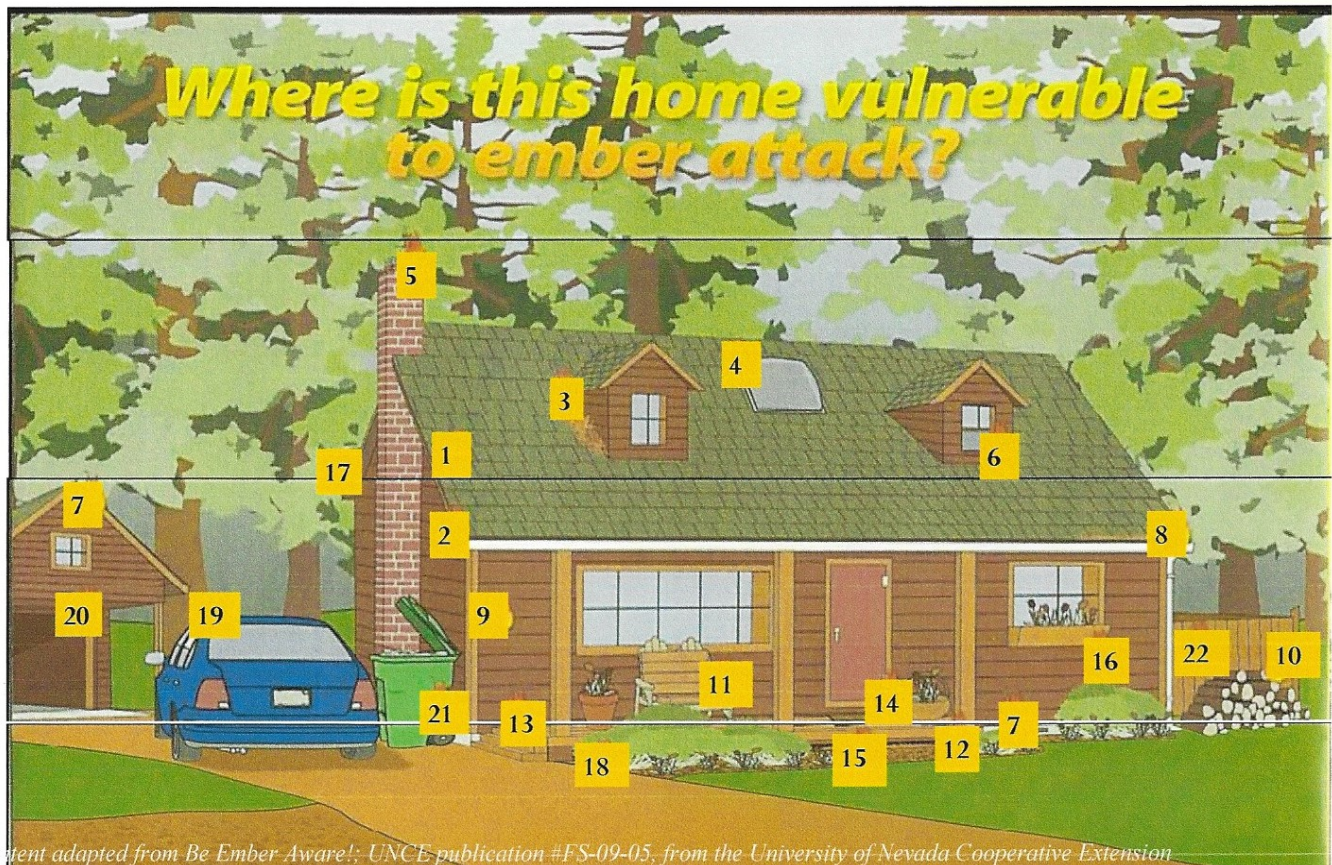
Depending on fire intensity, wind speed, and the size of materials that are burning, **embers can be carried more than a mile ahead of the fire.** Consequently, even homes or neighborhoods located blocks or miles away from the actual flame front are vulnerable to ignition and complete destruction.

By being aware and **taking action ahead of time**, a homeowner can substantially reduce the ember threat by addressing the 22 items on this list and illustrated below.

**Your home CAN survive when the embers arrive.**

### **Awareness Checklist:**

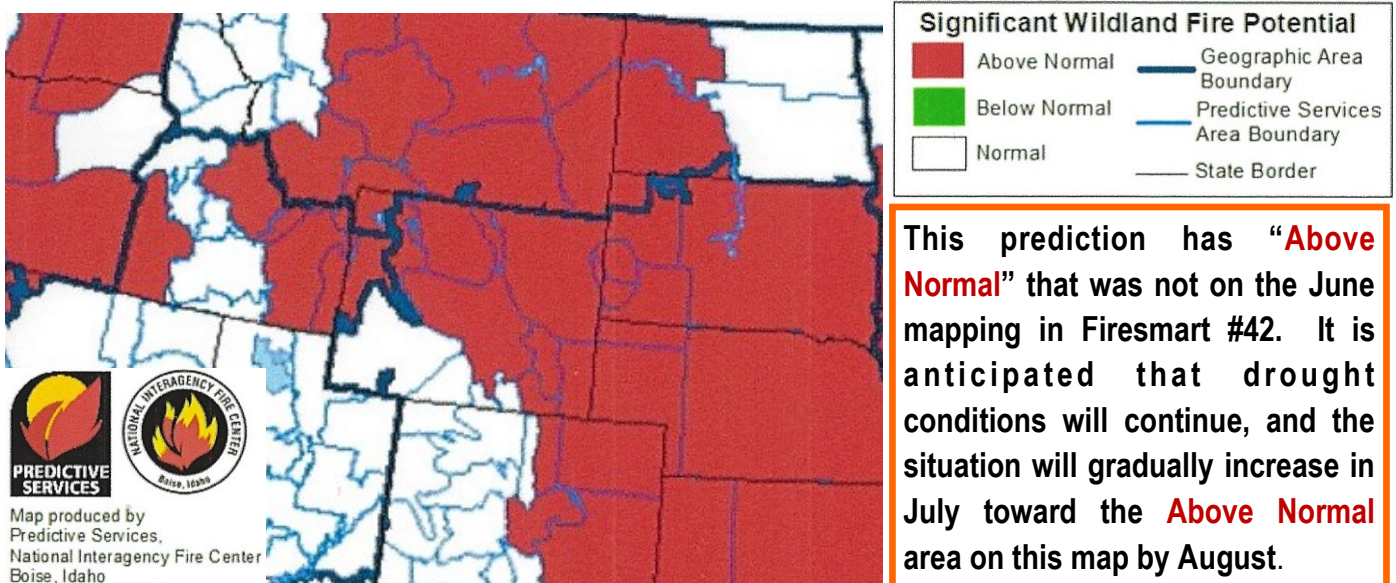
1. Wood Roof?
2. Roof Openings?
3. Roof Debris- Leaves, Branches?
4. Skylights Open?
5. Spark arrestor screen in place?
6. Windows broken or open?
7. Vents screened?
8. Rain gutters clean?
9. Siding intact?
10. Woodpiles 30' from bldg?
11. Patio Furniture combustible?
12. Deck Boards sound and intact?
13. Deck debris - ignitables on deck?
14. Porch and accessories - combustibles?
15. Under deck enclosed? woody debris?
16. Flower boxes- dried plant material?
17. Eaves- accumulated leaves, needles?
18. Flowerbeds- combustible mulch?
19. Vehicles- windows closed?
20. Garage door- Closed?
21. Garbage cans covered?
22. Wooden Fences-sound, detached?



Content adapted from *Be Ember Aware!*; UNCE publication #FS-09-05, from the University of Nevada Cooperative Extension



## Significant Wildland Fire Potential Outlook for August 2022



Since the wildfire activity is predicted to be Above Normal for the entire Bighorn Basin, residents should **1)** make sure that Evacuation Plans are updated and shared with your families, **2)** have finished Firesmart preparation for the fire season, and **3)** stay aware of wildfire activity in their vicinity. **The Wyoming Forestry Division page for current wildfires in Wyoming is at:**

<https://wsfd.wyo.gov/fire-management/fire-information-updates/current-fires>

### The new District 3 Forester for the Wyoming State Forestry Division

Jamie Schmidt is the new District Forester with Wyoming State Forestry Division in District 3. District 3 encompasses Park, Big Horn, Washakie, Hot Springs, and Fremont Counties. Jamie recently moved from the eastern side of the Bighorns, where she worked for State Forestry based in Buffalo. Growing up in the woods of the Rocky Mountains, and working as a forester in the Black Hills of SD and WY prior to moving to northwestern WY, Jamie is familiar with the opportunities and challenges of living in areas frequented by wildfire. Please reach out to Jamie with questions and requests for assistance! Her office is in Worland, WY, and she can be reached at 307-275-2439 and [Jamie.schmidt@wyo.gov](mailto:Jamie.schmidt@wyo.gov).



### WILDFIRE MITIGATION PLANS

If your Washakie County home and/or mountain cabin doesn't have an approved Wildfire Mitigation Plan (WMP), consider making a request to your County Firesmart Coordinator Chris Weydeveld, at [cweydeveld@wytfs.com](mailto:cweydeveld@wytfs.com), Technical Forestry Services, LLC, 6628 W. Riverside Dr. Casper, Wyoming 82604, or (307) 272-9533 (mobile).

## **WILDFIRES: A FEW INTERESTING FACTS**

**Excerpts from “Wildfires: A Few Interesting Facts,” a USGS article by Jon Keeley:**

Lightning strikes the Earth over 100,000 times a day. Of these, 10-20% cause a fire.

Man-made causes such as arson or plain carelessness (like smoking in forested areas or improperly extinguishing campfires) by individuals is the biggest cause of wildfires in the U.S.

More than four out of every five wildfires are caused by people.

An average of 1.2 million acres (almost 1,900 square miles) of U.S. woodland burns every year.

A large wildfire, or conflagration, is often capable of modifying the local weather conditions or producing “its own weather.”

Lodgepole pines and their closely related jack pines have cones that release their seeds only when they are opened by fire.

Naturally occurring fires, as well as controlled burns, clear out underbrush and help prevent even greater wildfires.

Many animals in the food chain benefit when patches of forest are transformed by wildfires into clearings.

Forest fires move faster uphill than downhill! The steeper the slope, the faster the fire travels. If you live on a hill, you might want to leave your house if a wildfire is near.

**Q. Why is wildfire smoke bad for me?** Smoke is a mixture of gases and fine particles (particulate) released when things burn. In addition to burning your eyes, these fine particles and gases can be inhaled deep into your lungs. This makes it harder to breathe and may worsen other chronic health conditions such as asthma or heart disease. Fortunately, most people who are exposed to smoke will not have lasting health problems

**Q. At what temperatures do forest fires burn?** An average surface fire on the forest floor might have flames reaching 1 meter in height and can reach temperatures of 800° C (1,472° F) or more. Under extreme conditions a fire can give off 10,000 kilowatts or more per meter of fire front. This would mean flame heights of 50 meters or more and flame temperatures exceeding 1200°C (2,192° F).

**Q. What other natural disasters happen with wildfires?** The aftermath of a wildfire can be as disastrous, if not more so, than the fire. A particularly destructive fire burns away plants and trees that prevent erosion. If heavy rains occur after such a fire, landslides, ash floes, and flash floods can occur. This can result in property damage outside the immediate fire area, and can affect the water quality of streams, rivers and lakes.

Jon Keeley of the U.S. Geological Survey says that **we can't prevent all wildfires , so should instead "adapt our lifestyle to them."** He adds, "What these fires tell us is that we need to recognize on these landscapes we're never going to get rid of fire. We cannot eliminate these fires."

Keeley suggests urban planning can help to reduce the spread and damage caused by wildfires.



## **BEFORE AND AFTER PHOTOS OF FIRESMART WORK ALONG THE BIG HORN CANAL**

This reduced fuels and removed Russian olive. Project treatments are specified below. **This project was a 50/50 cost share with Washakie County Firesmart.**



**BEFORE TREATMENT**



**AFTER TREATMENT**



**BEFORE TREATMENT**



**AFTER TREATMENT**



**BEFORE TREATMENT**



**AFTER TREATMENT**

The primary treatment for this project was removing all Russian olive and tamarisk (salt cedar), and thinning the remaining trees and shrubs leaving a minimum of one crown-width distance between them, and treating cut vegetation by removing, chipping, or piling for burning. Follow-up will include herbicide application to olive and salt cedar sprouts.



## LITTLE THINGS THAT MATTER



Dry leaf buildup around a window well and under a wooden fence tied to the house. Leaf removal is needed to be Firesmart.



That weed patch behind your garage. Not a problem when the weeds are this green, but it **will be a hazard when it dries out in July**. The solution is cutting and raking.



Flammable items stored against a cabin wall. Removal to outside this zone is the only way to fix this.



Forest litter and needles under a wooden deck and weathered steps.



Automobile and flammable materials by cabin wall.