

Utah Forest News

Utah Forest Landowner Education Program Newsletter

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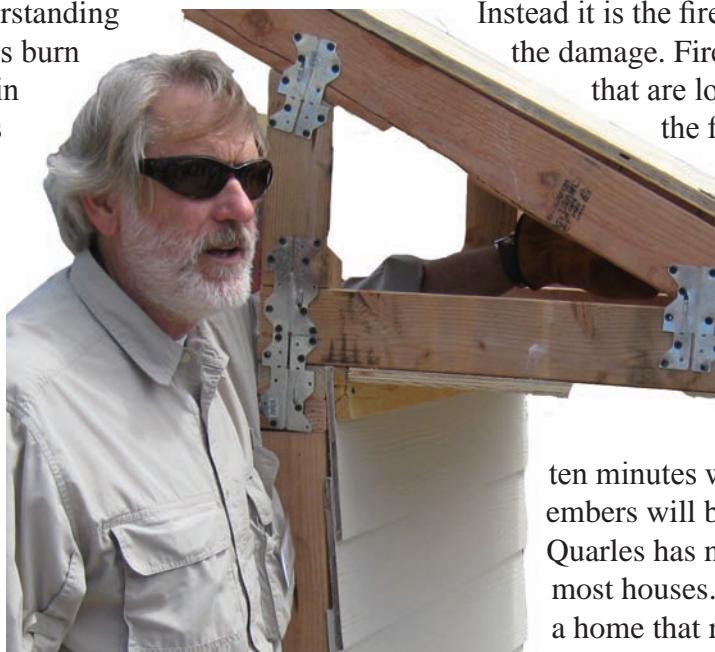
Summer 2007

Can You Survive the Firebrands?

The recent wildfire that destroyed 254 homes and 88 businesses in South Lake Tahoe last June brought the topic of fire in the wildland urban interface to the headlines once again. Understanding exactly how and why homes burn during a wildfire is crucial in reducing the types of losses that South Lake Tahoe experienced this summer.

Steve Quarles, an advisor with the University of California Cooperative Extension and a Wildland Urban Interface Building Standards Technical Specialist, has been studying this issue for a number of years. Quarles jokingly introduces himself as the “un-famous Jack Cohen.”

Cohen is well known in fire circles for his crown fire research, which involved building representative sections of homes in jack pine forests in the Northwest Territories and sending a raging crown fire near them. Video cameras were set up in protective boxes to record the whole event for future analysis.



Steve Quarles uses mock houses and burning firebrands to demonstrate how houses ignite during wildfires

From these experiments we learned that typical home construction materials are fairly resistant to the wall of flames that passes a home during a wildfire.

Instead it is the firebrands that most often do the damage. Firebrands are burning embers that are lofted by wind away from the flaming front of the fire. The

California Fire Alliance estimates that the average distance firebrands will fly ahead of a fire is 1.5 miles. Quarles points out that while your house will be exposed to direct flames for five or

ten minutes when a flame front passes, embers will be present for much longer. Quarles has no doubt that embers burn most houses. The same design features of a home that result in the accumulation of wind blown debris also result in the accumulation

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of wind blown embers. Embers ignite debris and other materials near the home and create flames which burn against siding, and windows. He says, "Homes that can survive ember exposure are the ones with the key to survival."

Steve Quarles has found a way to bring the important messages from Cohen's experiments to the public by conducting demonstrations at local county fairgrounds and other facilities. In these demonstrations, Quarles ignites model "homes" with firebrands and allows participants to observe the outcome at a safe distance. He has done this demonstration perhaps two dozen times all over California. He actually conducted one in South Lake Tahoe just days before the tragic loss of homes in that area.

Quarles prepares for each demonstration by building representative sections of walls, vents, attics, decks, and fences. He also purchases manufactured firebrands for use in the demonstrations. These manufactured firebrands come in three standard sizes, and are made from 3/4-inch Douglas-fir sticks nailed together in a latticed pattern. The firebrands are classified to evaluate the fire resistance of roof materials: a class A roof can handle a class A brand (12x12), and a class B roof can withstand a burning class B brand (6x6). The embers range down to the size of an ice cube -- this range

represents the size of wood chunks commonly seen being lofted ahead of large fires.

Quarles uses a standard camping stove to ignite the brands, and fireplace tongs to place the burning 'ember' on decks and fences to see how different materials and combinations react. At a demonstration I recently observed in San Diego, one ember was

placed on a newly constructed portion of redwood deck and burned through the deck, dropped more embers on the ground, and essentially went out. Another ember was placed on a different deck made of a composite of wood and plastic. This ember caused the decking material to melt and pool on the ground, where it continued to burn until it was extinguished with a fire hose.



Fine fuels such as pine needles or bird's nests can be quickly ignited by firebrands, with catastrophic results.

It was interesting to witness how quickly an 'attachment,' such as a fence attached to the house, led flames up to the home. We watched as materials that represented pine needles and bird nests brought the flames from outside of the home inside to the attic.

Through his observations, Quarles has come up with a list of the top six housing components that are susceptible to ignition by firebrands. They are, in order of importance:

1. Roof/roof edge: materials and design both play a role in how a roof is classified.
2. Eaves and vents: they can be open to firebrands or screened with fine mesh.
3. Vegetation: should be managed to prevent direct flame impingement on the home.
4. Windows: the glass is more important than the casing. Tempered glass is much better.
5. Decks and other attachments
6. Siding.

For homeowners, Quarles emphasizes practicing a smart combination of managing the near-home vegetation and carefully considering the construction materials and design of the home. As always, it is important to clean up around your home or cabin in the woods: remove pine needles and other dried vegetation that has accumulated in the corners of your decks and in the valleys of your roof. Remove the firewood and construction wood from underneath your deck, and don't park your ATV or gas cans beneath your deck or any other portion of your home. Move these materials at least 30 feet from your home.

Call USU Forestry Extension or visit these Web sites for more information on protecting your home from a wildfire:

<http://extension.usu.edu/forestry>
<http://www.firewise.org>
<http://firecenter.berkeley.edu>
<http://firecenter.berkeley.edu/quarles/squareles.htm>
http://cecontracosta.ucdavis.edu/Wood_Durability/Wildland_Urban_Interface_Topics.htm

by Darren McAvoy



The composite decking materials on the left continued to burn long after the redwood decking on the right went out.



Steve Quarles uses fireplace tongs to place a firebrand on this portion of fencing, demonstrating how quickly flames are carried to the wall of a mock house.

New State Forester/Director of Forestry, Fire and State Lands Announced

The Utah Division of Forestry, Fire and State Lands (FFSL) has a new leader. The announcement was made last June by Utah Department of Natural Resources Executive Director Mike Styler. "I am pleased to announce that Dick Buehler is the new Division Director and State Forester. Dick has been involved with fire management, forest management, and sovereign lands management for more than 33 years and is highly qualified to serve in this role."

Buehler was selected following a nationwide search. He had most recently been serving as Interim Director for FFSL, following the retirement of Director Joel Frandsen in March 2007. Prior to that, he was Deputy Director for the Division.

In addition to numerous roles within FFSL, Buehler's career includes employment as a state park boating



New State Forester Dick Buehler

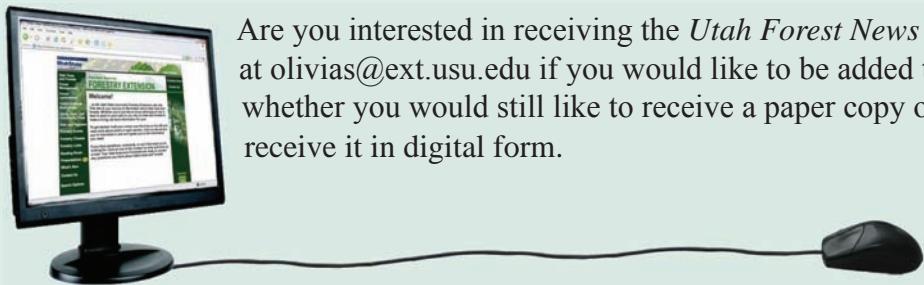
ranger, hazardous materials instructor, law enforcement coordinator and reserve sheriff deputy (current).

He also served in the Air Force and Air National Guard for 30 years. He has a degree in Forest Management from Utah State University. Buehler was born in Utah and grew up in Heber City. He is married with two children and five grandchildren. He enjoys spending time outdoors with his family.

"I have a passion for the natural resources of our state and feel a strong sense of commitment to the people who use and enjoy them. I believe in multiple-use and sustained-yield management balanced with environmental awareness. I believe in public and private property rights and that both must be protected," said Buehler. "I want to do what I can to make the Division of Forestry, Fire and State Lands a successful public entity that capitalizes on the knowledge and skills of its employees as a committed and highly motivated team that administers its duties and responsibilities to the highest degree possible."

Electronic Distribution of *Utah Forest News*

Are you interested in receiving the *Utah Forest News* via email? Contact Olivia Salmon at olivias@ext.usu.edu if you would like to be added to the email list. Please indicate whether you would still like to receive a paper copy of the newsletter or only wish to receive it in digital form.



Utah Aspen Decline is Drawing Attention

The health of aspen stands on private lands in Utah has been a growing concern over the past decade, and it appears that the problem is getting worse. Dr. James Bowns of Southern Utah University started to notice stands loosing vigor on private land on Cedar Mountain, west of Cedar City, in 1998. More recently, USU Forestry Extension responded to calls from concerned members of the aptly named Aspen Mountain cabin owners association east of Oakley regarding the continued loss of mature trees around their homes.

In 1998, USDA Forest Service scientists Dale Bartos and Robert Campbell published a widely cited paper in *Rangelands* magazine about Utah aspen decline. Since 1999, USU Forestry Extension has hosted and co-hosted a series of workshops and conferences ranging from a dozen landowners on a field tour of Cedar Mountain in 2000 to 180 aspen scientists and managers attending presentations of scientific papers in Logan in 2006 (see our Web site for conference proceedings). Last summer aspen decline made headlines in the *New York Times* and on ABC news as it became known as a west-wide phenomenon. In December of 2006, an Aspen Summit was held in Salt Lake City which brought together 35 of the more prominent aspen scientists to share observations from around the West on aspen decline.

Another indication of the growing concern came this spring when aerial surveyors for the USDA Forest Service in the Rocky Mountains expressed a need to pay greater attention to aspen health. This group of surveyors spend their summer in airplanes, monitoring “the big picture” of insect and disease activity in the forest. They are the eyes of the Forest Service, although many of them work for state forestry organizations. Using computer based maps, they observe and record where insect and disease activity are affecting forest health.



Aspen decline was first noted on Cedar Mountain in 1998. Notice the condition of the stand around the trailers at the top of the hill.



This close-up photograph of the same area was taken in the summer of 2007. The stand died without any regeneration.

After years of focusing on the conifer component of our forests, Rocky Mountain aerial surveyors are starting to notice an increase in the number of dead aspen trees. A recent meeting held in Midway, Utah, brought these surveyors together. Bill Ciesla, one

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of the “fathers of aerial surveying” participated in the meeting and expressed concern about the aspen stands he had observed in the state. It was noteworthy that after years of aerial surveying, Ciesla, on his flight to Midway for the meeting, couldn’t help but notice a marked increase in the amount of aspen that are dying or defoliated in Colorado and Utah. At the conclusion of the meeting the aerial surveyors agreed on the need to pay closer attention to aspen health in the future.

One issue that is emerging in the midst of all this concern about aspen health is varying terminology. What some call aspen decline, others refer to die-off, or sometimes die-back. At the aerial surveyors’ meeting, I was asked to provide some insight on this evolving language. After sifting through the various papers presented at the December Aspen Summit, I came up with what seemed to be the popular use of these terms, largely delineated by Wayne Sheppard USDA Forest Service scientist (retired).

Aspen decline is slow and gradual, with very little or no regeneration in the understory. Aspen die-off, or die-back, is swift, with loss of overstory occurring in a period of two years or so. However, in aspen die-off or die-back, a mid-story or under-story of aspen is usually present to take the place of the dying parent stems. Although decline sounds less ominous than die-off, it is actually a more concerning situation since there are no new stems coming up, and the reality of losing aspen on that site becomes very real.

Many causes have been proposed for the loss of aspen, including old age, grazing by livestock and wildlife, lack of fire and other disturbances over the years (aspen regenerate heavily after a disturbance such as fire), conifer encroachment, and a warmer and dryer climate. These stressors work together to reduce the vigor of a tree or stand of aspen, making them more susceptible to what USDA Forest Service Pathologist John Guyon calls “A whole laundry list of insects and diseases.”



Conifer encroachment is one of the causes of aspen decline in the West

In many cases, especially when conifer encroachment is occurring, the solution is not that difficult. Conifers can be removed from a stand, with limitations, and disturbance in general will yield more young aspen trees. Bluntly put, logging and/or burning will set back the successional scale of this forest type, which will yield a greater amount of aspen.

However, in some instances, there are no obvious solutions for aspen decline. On Cedar Mountain, for example, large tracts of aspen are dying without regeneration, and these acres appear to be in the process of being converted from forest to grassland permanently. Although several people are trying innovative methods to turn this around (see our upcoming timber harvest tour), the future of the stand looks bleak. After ten years of watching stands on Cedar Mountain fade away, one is left to wonder if the site will ever support aspen again.

by Darren McAvoy

Sixth Annual Timber Harvest Tour

Join USU Forestry Extension, the Utah Division of Forestry, Fire and State Lands, and the Utah Chapter of the Society of American Foresters for the Sixth Annual Timber Harvest Tour on Cedar Mountain and Duck Creek in southern Utah.

The first property we will visit features an active restoration harvest in declining Cedar Mountain aspen. Several nearby aspen stands have been completely lost in the past decade. Come see these dying stands and look at what one landowner is doing about it. This property also features a rest/rotation grazing system and is part of the Utah Forest Legacy Conservation Easement Program.

Landowners, loggers, and foresters will each share their points of view on the harvest operations and other aspects of land management.

We will then continue on to Duck Creek to visit a completed timber harvest on a five acre property. Finally we will stop for at the Bunk House BBQ stand in Duck Creek to share a meal together before adjourning.



The Timber Harvest Tour will look at work being done on this declining aspen stand

Meet at 1:00 pm on Tuesday, September 25, 2007 at the offices of The Division of Forestry, Fire, and State Lands at 585 North Main, Cedar City, Utah. We will carpool in 4x4 vehicles and plan to be back in town by 7:30 pm. Dinner will be provided.

RSVP to Darren McAvoy at 435-797-0560 or Patrick Moore at 435-586-4408.

Dress for cool mountain weather, tour will continue rain or shine.

For more information regarding any of the information presented in this newsletter, please call Darren McAvoy at Utah State University, 435-797-0560, write to him at 5230 Old Main Hill, Logan, UT 84322-5230, or email darren.mcavoy@usu.edu.

The Utah State University Forestry Extension Web site, found at <http://extension.usu.edu/forestry>, is an excellent source of technical forestry information for woodland owners. Check the "What's New" section periodically for new postings.

State of Utah Division of Forestry, Fire and State Lands (DFF&SL) service foresters for your area can be contacted by calling 801-538-5555.

Ideas and written contributions to this newsletter are encouraged. Send your contributions or comments to the return address above or call 435-797-0560, or email darren.mcavoy@usu.edu.

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COMING EVENTS

Sixth Annual Timber Harvest Tour. September 25, 2007: Cedar City, UT. For more information, contact Darren McAvoy at 435-797-0560 or Patrick Moore at 435-586-4408.

Making Wood Work: Local Energy Solutions. October 16-18, 2007: Missoula, MT. Three-day workshop on implementing woody biomass energy systems. Visit http://fuelsforschools.org/biomass_boiler_workshop.html for more information.

Human Dimensions of Wildland Fire Conference. October 23-25, 2007: Fort Collins, CO. Visit www.umt.edu/ce/cps/humandimensionsofwildlandfire.htm for more information.



This “legless” sagebrush was photographed near the River Heights Complex fire which burned east of Logan, Utah