

# Utah Forest News

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## Fuel Break Around Scout Camp Brings Peace of Mind

The parents of the 800 boys that camp at the Tife Scout Camp in Sanpete County can rest a little easier now that the Central Area of the Utah Division of Forestry, Fire and State Lands has completed a two mile long and 300 foot wide fuel break around the property to reduce the risk of a residential fire disaster happening during the peak of summer. The officials from the division can also rest a little easier knowing they have made significant steps toward improving the safety of the scouts.

Camp Ranger Dave Merrill says that the peace of mind is priceless. Merrill takes seriously the trust parents have placed upon him to look out for their son's well being, and if something ever did happen, he needs to know he has done his best to prevent any harm that could come to the vulnerable youth he has stewardship over while they are at the camp.



*Terry Heath, Division of Forestry, Fire and State Lands Central Area Fuels Specialist, helps keep communities and scouts safer by creating fire breaks between properties.*

Known to most of the scouts in Utah and Nevada as Camp Tife, which is an acronym for Teaching Individuals and Families Independence through Enterprise, the official name of the entire 560

acre facility is the Mountain Dell Scout Ranch. It sits on an oak and maple covered hillside, facing west, and rising above the Sanpete Valley near Mount Pleasant. It is also on the west and south by subdivisions of vacation homes dotted throughout the thickly vegetated hillside. Two years ago a car caught on fire at the bottom of the hill below the camp. This was Merrill's worst nightmare as the fire could have

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easily run up the hill, threatening the scouts' safety. The local fire department is some distance away, so the response time was 25 minutes. Strictly from the standpoint of the scouts' safety, this was unacceptable. As it turned out, Merrill says it was one of the best things to happen, because it made the threat of fire very real.

The neighboring subdivision of Pine Creek Ranches completed a similar project a few years prior. This is how Merrill became aware of the possibility of mitigating the fire danger on the land by reducing the vegetation around the camp that could feed a fire. The project started several years ago when the Division of Forestry, Fire and State Lands Central Area Fuels Specialist Terry Heath and the Sanpete County Fire Warden Tom Peterson contacted Merrill about the idea of creating a fuel break around the camp to protect it from wildfire. More than just a few old cabins, the Mountain Dell Scout Camp was built in 1996, and now has 56 structures including a very large central lodge and many smaller project buildings and sleeping cabins. Since that time there has also been an increase in wildfire frequency and intensity in the area, increasing the worries of Heath and Merrill over the scouts' safety.

They successfully applied for a \$300,000 Western States Fire Management Grant to create a shaded

fuel break on three sides of the property. A shaded fuel break is a strip where most of the vegetation has been removed to prevent a fire from moving

easily through, but enough trees are left to blend the strip into the landscape. In other words it is designed to be functional while not creating an eyesore. The work also included creating defensible space around the structures, by cutting and removing flammable vegetation next to the structures on the camp.



*This photo is of the same view as the photo on the page three, but before the shaded fuel break was constructed.*

Building the fuel break was a cooperative effort between the Division of Forestry, Fire and State Lands and as many as ten other agencies and contractors. A project this large has to start with a plan. This type of plan is called a Community Wildfire Protection Plan (CWPP) and one was cooperatively prepared for just the Mountain Dell property. Many other communities in Utah have their own CWPP. Merrill says this process made him aware of the wildfire threat and the resources available to him in the case of a fire.

The process of creating the CWPP led Merrill to create a straightforward plan for an emergency. Plan A is early evacuation of all of the 800 scouts to reassemble at the high school football field in town. If there is no time to evacuate, then they will execute Plan B, which is to have all of the scouts

assemble at a safety zone on the mountain where they have enlarged a natural meadow to a size that is appropriate to sit out a fire that is immediately threatening the ranch.

Each Monday when a new group of scouts come in for the week, all are required to participate in a fire drill that practices the plan. They have installed fire hydrants and hoses in strategic locations around the camp and improved the roads in and out by widening and graveling them. With other grant money they were able to install a fire siren at the camp. The large swimming pool the scouts use is set up to double as a water source for fire protection, and they plan to install an even larger water tank for fire protection on the property.

The actual work on the fuel break was done by Heath's small crew, contractors and lots of scouts. Each scouting unit had to give two hours of service time during their week-long stay. Much of that was clearing the underbrush around the structures using hand saws, pruners, and a small chipper. The scouts will also help to maintain the camp in the future. Long term maintenance of the project is a concern of USU Sanpete County Extension Agent Matt Palmer,

who helped to set up a local goat herder to have their animals consume the resprouting that is certain to occur.



*This photo was taken after the shaded fuel break was constructed, from the same vantage point as the photo on page two. By removing a majority of the vegetation but leaving some of the best oaks, maples, and junipers the continuity of the fuel to feed a potential wildfire is broken, improving the views and creating a beautiful landscape.*

As a parent of a Boy Scout, I can say with certainty when you send your son off to summer scouting camp there is plenty to worry about. Scouting camp is rife with the hazards of youth; knives, axes, bow and arrows, firearms, tippy canoes, getting lost, and more. The added threat of a wildfire is really more than the typical parent can tolerate. Heath pointed out to me that Sanpete County, with perhaps 7,000 or more vacation

homes dotted through the forest and woodlands, could be the most significant fire hazard concern in Utah's wildland-urban interface. Knowing the scouts on the hillside of Camp Tifie are better prepared for a wildfire should make us all rest a little easier. There are several other individuals that are instrumental in the completion of this project. They include Marv Turner, Central Area Manager for The Division of Forestry, Fire & State Lands and Jason Johnson, the area forester. Also a thank you goes out to all of the scout executives.

*by Darren McAvoy*

## Biochar As A Soil Amendment

The recent Restoring the West Conference held in Logan in October had an entire session devoted to biochar, yet it is likely many of the participants had not heard of biochar before they signed up for the conference. However, biochar is nothing but charcoal, and humans around the globe have been making and using charcoal for centuries. There are those in the industry that reserve the use of the word biochar for those chars that have been engineered and optimized for agricultural use.

Biochar was rediscovered, or rebranded if you will, by a Dutch agronomist who noticed long, oddly straight lines on the ground in recently cleared forests while flying over the Amazon rain forest. His curiosity led him to follow up and see what the lines were. He discovered they were large embankments of human made soils that turned out to be about 2000 years old.

It has typically been thought when you remove the vegetation or biomass from Amazonian soils you take with it all of the nutrients in the system, depleting the soil. This is the reason for slash and burn agriculture. The soil is only productive for a short time after the forest is cleared, and then the farmer must move onto a new site and clear and

burn the forest to start the cycle all over again. Such methods cannot supply food for a city over a considerable time period.

The Amazonian forest continues to be cleared to create grazing land for livestock. Most think these are virgin forests that have never been inhabited by significant human populations. However, now scientists have found there were considerable

numbers of people living in cities on some of these now-forested lands, and it appears biochar was one of the keys to their agricultural success.

These areas have special soils also known as terra preta or dark earth soils. These so-called super soils contain a combination of biochar (charcoal), broken pottery pieces, and composted

organic material. Today some of these soils are mined and sold in Brazilian cities as potting soil.

The most stunning quote I heard at this year's Restoring the West Conference was from Gloria Flora, Director of the US Biochar Initiative and former Forest Supervisor of the Humboldt-Toyabe National Forest, about a trip to Brazil. "I have been to the Amazon, I have seen the terra preta, or dark



*Biochar produced in the USU pyrolysis laboratory of Foster Agblevor, Utah Science Technology and Research (USTAR) Endowed Professor.*

earth soils, and have seen how it sells for five-times what neighboring property, with typical Amazon rainforest soil, sells for. This is because the farmer that owns dark earth soils is producing five-times the amount of food that the neighboring farmers are producing without it. These soils were a gift from their ancestors 2,500 years ago. I see biochar amended soils as a gift that we can give to our children and their children for many generations to come for 2,500 years from now.” This is perhaps the most positive, forward thinking ecological idea I have come across at a conference, or anywhere else for that matter.

Closer to home, a local example of biochar use is in the gardens of Associate Vice President of USU



Gloria Flora

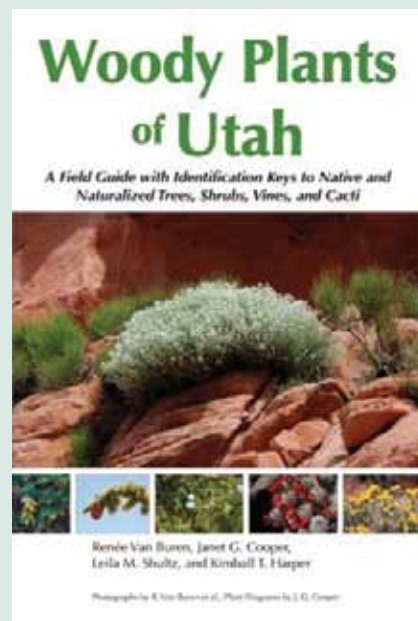
Extension Chuck Gay, who is also a rancher and a forester. Gay’s wife Lou is well known in the valley as an avid gardener, and one of Chuck’s jobs around their place is taking care of the soil. All during the season he will collect small sticks and branches of wood from pruning the trees and shrubs around their home and he places them in his homemade biochar making device. It is simply a 55 gallon steel drum that seals tightly with the exception of a dime sized hole to let out steam. When the barrel is full he builds a fire beneath it and lets it cook for the better part of a day. To make the biochar easier to handle after it cools he will fill the barrel with water, then run it through a chipper, and finally he mixes it into his compost before applying it to the soil. Although this is certainly not scientific the Gays feel that their

## Woody Plants of Utah

*A Field Guide with Identification Keys to Native and Naturalized Trees, Shrubs, Cacti, and Vines*

A comprehensive guide that includes a vast range of species and plant communities and allows easy identification, using detailed descriptions, photography, habitats and ranges, maps, and original keys that are based primarily on vegetative characteristics. Perfect for an arid region like Utah with a limited number of native trees but an amazing variety of shrubs.

Woody Plants of Utah employs identification keys that help users recognize plants by choosing vegetative characteristics from paired alternatives. Specific plant descriptions, illustrated with photos and maps, can be used with the keys or separately to pinpoint species, and they provide additional botanical and environmental information on Utah plant communities.



Renee Van Buren, Janet G. Cooper, Leila M. Shultz, Kimball T. Harper

vegetable production is greatly increased with the use of biochar as a soil amendment.

Biochar is a product of pyrolysis, or heating wood in the absence of oxygen. It can be thought of simply as partially baked wood, or charcoal, and the technology behind its creation has been around for thousands of years.

There are many grades of biochar. High grades of biochar can be manufactured with sophisticated equipment and high quality feedstock inputs.

A highly sophisticated pyrolysis reactor was recently built in the laboratory of Professor Foster Agblevor on the USU Innovation campus. The input is woody biomass or other feedstocks such as poultry litter. The three outputs of pyrolysis are biochar, syngas and bio-oil. Syngas is similar to natural gas, and is piped back into the system to generate heat, making the process self-sustaining. Bio-oil can be further refined into many potential products including plastics, adhesives, and fuel. Agblevor is working with the Utah Biomass Resources Group to identify and develop markets for commercial products from these outputs, especially those that would benefit Utah businesses.

How does biochar work? The value of biochar is mostly as a soil amendment. It does not directly

provide nutrients or water to plants, but it helps hold water and nutrients and makes them available to plants. There is considerable interest and research being focused on biochar currently, with general agreement that char improves soil physical and chemical properties such as porosity. There is considerable controversy however, over claims

of significantly improved plant yield. In some studies the addition of nutrients to study plots has clouded the comparisons between studies.

A biochar researcher who presented at the Restoring the West Conference is University of Idaho Associate Professor of Forest Resources Mark Coleman. Coleman and his associates are conducting

research on the value of biochar as a forest soil amendment. Coleman is also looking at in-woods processing technology to create biochar and bio-oil. Coleman pointed out the Japanese have been using char in the horticulture industry for many years and up to 100 percent char makes an excellent potting medium for nurseries.

General research indicates coarse, sandy soils and clays benefit more from the addition of biochar than other fine textured soils. Enhanced microbial activity and nitrogen cycling have been documented from application of biochar to soil. Coleman's research,



*Biochar is made by cooking sticks and branches trimmed from pruning in a steel drum in the back yard of Chuck Gay, Associate Vice President of USU Extension*

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however, shows a decrease in plant productivity in some soils with char, while others show an increase, depending on the soil characteristics. Carbon sequestration benefits from the addition of biochar to a soil have been documented. However, there has not been intensive study of biochar in soils. It has been suggested the value of biochar in soils comes over a longer time frame than the typical few years that most studies cover. Additionally, biochar application techniques are crude and there is much opportunity for refinement.



*Foster Agblevor*

Biochar appears to have good potential as a soil amendment and as a means to reduce open burning

of logging residue (slash). Its production also could help with fire hazard reduction treatments in the pinyon and juniper (cedar) woodlands of Utah, but continued research into this important topic is needed. To learn more about biochar and other topics related to biomass utilization and forest health, see the archived presentations from the 2011 Restoring the West Conference on “Sustaining Forests, Woodlands, and Communities Through Biomass Use at: [www.restoringthewest.org](http://www.restoringthewest.org), where each of the 32 presentations made at this year’s conference can be viewed and heard.



*Mark Coleman*

*By Darren McAvoy*

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](mailto:darren.mcavoy@usu.edu).

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The Utah State University Forestry Extension website, found at <http://forestry.usu.edu>, is an excellent source of technical forestry information for woodland owners.

State of Utah Division of Forestry, Fire & State Lands 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](mailto:darren.mcavoy@usu.edu).



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### COMING EVENTS

#### Family Foresters Workshop

Friday, January 20, 2012

Spokane Valley, WA

[www.safnet.org/calendar/eventDetails.cfm?eventID=42937](http://www.safnet.org/calendar/eventDetails.cfm?eventID=42937)

#### Smallwood

May 1-3, 2012

Flagstaff, AZ

[www.forestprod.org/assets/images/small\\_wood\\_2012.pdf](http://www.forestprod.org/assets/images/small_wood_2012.pdf)

#### United States Biochar Initiative Conference

July 29-August 1, 2012

Sonoma County, CA

[www.biochar-us.org](http://www.biochar-us.org)



***Utah Huckleberries:** After 15 years of looking, the author finally found huckleberries in Utah near Tony Grove Lake on the Uinta-Wasatch-Cache National Forest. Huckleberries are the wild, purple, slightly more tart cousins of blueberries and are well known and highly desired in the Inland Northwest.*