

Utah Forest News

Utah Forest Landowner Education Program Newsletter

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Second Annual Biomass Field Day Focuses Upon Utilization

With the unmistakable roar of heavy machinery engines and a cloud of sawdust in the late spring air, the Second Annual Southern Utah Biomass Field Day began. On June 3 and 4, biomass enthusiasts from 15 U.S. states and Canada gathered on a Bureau of Land Management (BLM) mechanical treatment site south of Beaver, Utah. Federal and state employees, private contractors, equipment vendors, and university researchers convened on a parcel of pinyon and juniper covered land that the BLM had marked for thinning.

This year's field day centered upon the viability of biomass as an economically feasible and renewable fuel source. Many of the two-day event's speakers spoke about the need to thin Utah's pinyon-juniper forests in order to restore ecosystem health and prevent catastrophic wildfires. Bob Rummer, a Forest Service research engineer and biomass expert from Auburn, Alabama spoke about cost-effective uses for mechanically treated trees that can be provided through biomass utilization.



Slash like this can be converted to energy through biomass utilization.

Central to efficient biomass utilization is the use of machinery that can chip or compress biomass on site, reducing transportation costs. Vendors representing eight forestry equipment companies provided attendees with an up-close glimpse of biomass harvesting and processing in action. Equipment exhibits included a Bobcat skid steer with a Fecon BullHog mulcher, a WoodMizer portable sawmill, a BioBaler mulcher and compactor, and many others.

One highlight of the equipment exhibits was a demonstration of gasification provided by the University of

Montana's BioMax biomass generator. Brian Kerns of the University of Montana spoke about the potential

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uses for biomass in generating energy. The BioMax's gasification technology creates combustible gasses from a woody feedstock. According to Kerns, the BioMax provides a model of one way to convert local renewable resources into useful products, effectively turning waste into energy.

Representatives from the Utah state government arrived on day two of the field day. Ted Wilson, Governor Gary Herbert's senior advisor on environmental matters, spoke in support of biomass utilization projects throughout the state. Newly appointed energy policy advisor, Amanda Smith, also showed support for alternative energy initiatives.

Members of the Utah Biomass Resources Group (UBRG) (see UFN Winter 2011) were present at the field day as well. Darren McAvoy, co-chair of UBRG, advocated biomass utilization as a way to restore ecosystems. He presented the main goal of the UBRG, which is to create a market for biomass utilization in Utah.

During a dinner at Eagle Point Resort near Beaver, biomass experts presented information about the future of biomass utilization in the Intermountain West. Daniel Simon, a member of the Board of Directors of the Biomass Power Association, spoke

about encouraging biomass development in Utah. He maintained that competitively priced electricity, plentiful local pinyon-juniper material, and state and

federal policies that support biomass use are essential for the development of a biomass industry in the state. Dr. Robin Tausch of the Rocky Mountain Research Station in Reno, Nevada, also presented his research about the availability of juniper and pinyon based upon paleoecological data in the Great Basin. Bob Rummer ended the evening's presentations with

a short presentation about a timeline for the feasibility of biomass use. Rummer cited an example of an already-running flagship biomass power plant in Port Talbot, Wales. He noted that the future of biomass was on its way, but it would take time for it to become economically stable.

A pinyon nut silviculture tour was offered on June 2 as a precursor to the field day. Twenty-two participants arrived at a site near Modena, Utah to learn about pine nut production in the Great Basin. Commercial pine nut contractors Larry Shurtliff of Blue Coyote Pine Nuts and Jack McMullin gave an overview of the pine nut industry from the perspective of harvesters. There was also some discussion about Native American uses of pine nuts.



A pinyon nut silviculture tour was held on the Thursday preceding the field day.

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Dr. Robin Tausch shared some of his knowledge on the hybridization of Utah juniper with western juniper from the thousands of years of prevailing winds carrying western juniper pollen east across the Great Basin to land on Utah Juniper trees. Tausch also discussed Native American practices of managing a stand of trees for pine nut production. He described ancient sites where the trees had been thinned to the point where the remaining trees remained in an almost steady state of open woodland.



Pinyon-juniper woodlands at the Nevershine Hollow site were treated to reduce fuel buildup and regenerate sagebrush habitat.

This site is next to I-15 south of Beaver.

The tour continued through a stand of recently treated pinyon and juniper. The treatment involved removal of many of the trees and leaving the trees with the greatest potential for

pine nut production. By removing the other trees, the favored producers will have more room to grow and be more likely to produce a better crop of pine nuts.

Part of the day's discussion revolved around creating a 'Pine Nut Protocol' for other natural resource managers to refer to when managing a woodland with the primary goal of pine nut production. Reduced fire hazard and an increase in plant diversity and wildlife habitat are secondary benefits of the removal treatment.

by Rose Wiarda,

Extension Forestry Intern, with Darren McAvoy

USU Forestry Extension Launches New Website

New look, same trustworthy and objective content! The Utah State University Forestry Extension has launched a new website. The site's new address is forestry.usu.edu.

A reminder: Make sure to change your bookmarks to direct to the new site!

The Western Aspen Alliance: A Network for Sharing Science

Since 2008, the Western Aspen Alliance (WAA) has been actively engaging difficult aspen issues around the western U.S. and Canada, but many in Utah aren't aware that this resource is centered so close to home. The Alliance is housed at USU, as a formal partnership with the U.S. Forest Service and the Bureau of Land Management, though our network of scientists, managers and conservationists spans many state, federal and private institutions. Its goal is to facilitate cooperative research and disseminate state-of-the-science aspen information to interested managers, researchers, the public and other entities.

Current advances in aspen genetics, interactions with wildlife, understanding of historic conditions and relations to a changing climate make it imperative that contemporary land managers stay abreast of dynamic changes in the aspen sciences. But many practitioners say they are too busy to stay informed about research in aspen, much less the other topics important to fulfilling their duties. The WAA was formed to increase the accessibility of this information by offering a number of venues for attaining current science in this field.

As an example of what the WAA does, it has been actively engaged for the last two years with the Utah Forest Restoration Working Group (UFRWG) developing a set of "Guidelines" for aspen restoration on National Forest lands throughout Utah. The collaborative process of the UFRWG has involved focusing on solutions — as opposed to getting hung up on disagreements — for aspen sustainability derived from often opposing interest groups.



Members of the Utah Forest Restoration Working Group discuss appropriate responses to conifer overtopping in seral aspen on the Dixie National Forest, Utah.

The UFRWG has now moved from developing guidelines to implementing restoration practices on the Ashley, Fishlake, and Dixie National Forests. State and private interests, which are also members of this group, may use advances developed through this process to monitor, improve or maintain their respective aspen forests. One key to success of the

UFRWG's first major initiative, aspen restoration, has been the involvement of the WAA in the form of bringing relevant, objective aspen science to the discussion.

In addition to consultation in ongoing land management issues, the WAA provides assistance in organizing field workshops and conferences. It has actively supported and participated in the

annual Restoring the West Conference at Utah State University for the past several years. Field presentations have been given in Utah, Colorado, Idaho, Montana, and Arizona. Of course, addressing aspen conditions on the ground is the best way to communicate with those who are charged with resolving issues such as excessive browsing of sprouts, diminished fire cycles and rapid overstory die-offs.

The WAA also offers online consultation, the richest aspen bibliographic database in the world, featuring over 7,000 records and a newly created “expertise database” where members may query leading scientists about particular disciplinary problems in regard to their own locales.

The best thing about the WAA is that membership

is free. Members can remain tuned into the latest science and aspen-related events by joining our mailing list. Additionally, a quarterly newsletter, *Tremblings*, is emailed to each WAA member. Just go to our homepage and click on the “Become a Member” box to take advantage of this internationally renowned resource that’s located right here in Utah. For more information about the Western Aspen Alliance, visit its website: www.western-aspen-alliance.org

The Utah Forest Restoration Working Group’s Guidelines are available here: www.western-aspen-alliance.org/pdf/AspenRestoration.pdf

by Paul C. Rogers, WAA Director



These two photos, taken at the same location, document one example of the extensive road damage from this year's run-off in northern Utah. This culvert in Providence Canyon on the Uintah Wasatch Cache National Forest became plugged and overwhelmed just before the photo on the left was taken on June 21st. The photo on the right is the same spot on July 1st. Within these nine days the stream had eroded the entire road away and now flows in a deep ravine below the culvert. Now the road is impassable and expensive repairs are required. An even more concerning result, however, is the damage to water quality that occurs when large amounts of silt are washed into the stream. This year's runoff was a good warning to forest landowners that culverts are easily plugged and damage to roads and water quality can be considerable.

Pinyon-Juniper Paleoecology Revealed

Research Range Scientist Dr. Robin Tausch of the U.S. Forest Service Rocky Mountain Research Station in Reno, Nevada, presented a brief summary of Great Basin pinyon-juniper woodlands at the 2nd annual Woody Biomass Field Day. Tausch's presentation was based upon nearly a decade of research into the ecology of Great Basin sites.

Tausch began his presentation by discussing juniper's long history in the Great Basin. Paleoecological data collected from a site in the Great Basin demonstrates a detailed vegetation history for stretching back over thirty thousand years. According to Tausch, juniper has maintained a continuous presence in the area, although varying in abundance during the climate changes of the subsequent millennia.

Juniper populations in the Great Basin have successfully adapted to climate shifts that have occurred throughout geologic ages. Tausch attributes this adaptability to hybridization of Utah juniper and western juniper.

Western juniper's historical range is the cooler and wetter mountainous areas of the Sierra Nevada mountain range through the southern Cascade Range. Western juniper has been known to thrive at elevations from above 6,700 feet to around 9,000 feet.

In contrast, Utah juniper can be found intermingled with pinyon generally on drier sites from around 6,800 to 4,500 feet in Utah, and 6,000 to 9,000 feet in Nevada.

According to Tausch, over the course of 2 million years, westerly winds have carried western juniper pollen into the Great Basin, resulting in a gradual

hybridization with Utah juniper. Tausch and others have found evidence that western juniper genes are present in populations of Utah juniper across the Great Basin.

Because of the influence of western juniper genetics, these juniper hybrids are able to survive in wetter locations and at higher elevations than pure Utah juniper, leading to the establishment of populations of hybrid

juniper on sites formerly too cool or too moist for Utah juniper.

According to Tausch, junipers at the site of the Woody Biomass Field Day's optional pinyon nut tour west of Modena, at an elevation of 8,000 feet, showed characteristics of western juniper hybridization. Tausch says that the hybrid populations are able to shift their genetic composition to adapt to climate changes.

During his presentation, Tausch also referenced the northward expansion of pinyon. He said that over the



Pinyon-juniper woodlands have been an essential part of Great Basin ecology for thousands of years, according to a presentation by Dr. Robin Tausch.



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course of around 5,000 years, pinyon expanded from the valley floor of the northern Mojave desert near present-day Las Vegas to southern Idaho, moving north at an average rate of about one football field per year.

"So in some ways, if you take a broader ecological view, pinyon is an invasive species in the Great Basin," Tausch said. "Pinyon is the one that comes in when it's warm and disappears when it's cold."

Tausch and others have conducted research that demonstrates a spike in pinyon-juniper establishment during the late nineteenth and early twentieth centuries, followed by a decline since the mid-twentieth century. Tausch attributes the increase in establishment to a possible climate shift following the Little Ice Age that facilitated the rapid expansion of pinyon-juniper woodland during this period. Warming climate conditions from the mid-twentieth century to present have contributed to the cessation of this period of rapid expansion.

Implications of this rapid expansion are the suppression of understory by mature pinyon and juniper trees as they mature, increased fuel loads, and the potential for larger and more intense wildfires that are often followed by the establishment of invasive exotic annuals.

At the end of his presentation, Tausch emphasized the importance of management on pinyon-juniper woodlands. "...we're breaking up these fuel loads, we're rebuilding these [sagebrush] communities, we're restoring their functionality, and getting our habitat and watersheds back."

by Rose Wiarda, Extension Forestry Intern

A video of Dr. Robin Tausch's presentation can be found on the USU Extension YouTube site under the "Biomass Field Day" playlist.

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.

To get on our list for email delivery of this newsletter go to <http://forestry.usu.edu> and click on Join Our Mailing Lists. For back issues visit <http://forestry.usu.edu> and click on Publications and Utah Forest News.

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.



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COMING EVENTS

**Restoring the West Conference 2011: Sustaining
 Forests, Woodlands, and Communities Through
 Biomass Use**, October 18-19, 2011, Utah State University,
 Logan, UT

Society of American Foresters National Convention,
 November 2-6, 2011, Honolulu, HI

**University of Minnesota Extension Woody Biomass
 Webinar Series**, Fall schedule available at [www.myminnesotawoods.umn.edu/2011/07/extension-fall-2011-woody-biomass-webinar-series](http://myminnesotawoods.umn.edu/2011/07/extension-fall-2011-woody-biomass-webinar-series)



Walnut Worries: A USDA Forest Service insect trap hangs on a pole next to a black walnut tree on the USU campus. Black walnut trees in Utah are being attacked by the walnut twig beetle.