

Utah Forest News

USU Forestry Extension Volume 18, Number 3, 2014

Beaver Reintroduction Looks Positive for Stream Restoration in Northern Utah

Stream restoration is alive and well in the mountain streams of northern Utah – with an added twist – the restoration is largely being done by beavers (*Castor canadensis*). USU Watershed Sciences PhD student Nate Hough-Snee is working alongside the Utah Division of Wildlife Resources and in cooperation with anonymous private landowners to restore a roughly 3-km stretch of two small streams so they can support diverse vegetation, fish, macroinvertebrates, and, of course, beaver. Yes, beaver will be reintroduced here with the hope that their natural dam building activities will restore presently degraded streams to a more resilient and diverse state. Over the course of three days in mid-September, roughly 30 beaver dam analogs (BDA) were installed across the study area. Beaver dam analogs are man-made “beaver dams” constructed from bales of weed-free straw, pine or juniper posts, and willow cuttings. These dam analogs were set up in carefully selected sites along the creek with the goal of mimicking the impacts that a natural beaver dam would have if it

were present. When functioning correctly, beaver dams naturally impound water on the upstream side of a bank, creating a meandering and resilient riverine system that is beneficial not only to the creek, but to all the biota in the watershed.



This beaver was one of the four individuals reintroduced to the impacted watershed; photo courtesy of UDWR.

Hough-Snee, under the guidance of Dr. Joe Wheaton, has partnered with UDWR (funded in part by the Watershed Restoration Initiative and the Sage Grouse Initiative) along with a pair of generous landowners to undertake this effort to reintroduce

beaver into the impacted watershed. The last beaver was removed from this area several years prior. Since beaver removal, through a combination of land use

INSIDE THIS ISSUE:

- Mobile pyrolysis demonstration in WA
- Sage-grouse and pinyon juniper expansion
- The Utah Forest News is going digital!

Utah Forest News

2

practices, geologic characteristics, and variable water years, the streams being restored have become impaired and are ripe for this restoration project. The stream restoration, while beneficial to wildlife, will also help to maintain groundwater-dependent wetlands that improve forage for livestock grazing, and slowly release water to downstream water users during the dry season.

It's Hough-Snee's hope that the two beaver pairs introduced to this watershed following BDA construction will occupy the structures and eventually maintain and expand them over-time. Hough-Snee is optimistic that their natural dam building abilities will have positive impacts on the diversity of instream and floodplain habitats. The geomorphic change Hough-Snee is gunning for is the creation of more physical complexity in the stream, increasing the capacity of the creek(s) to hold water in the riparian

area for longer periods of time (which will elevate the groundwater table), and the expansion of the riparian

corridor and floodplain (which will increase the range and biodiversity of riparian vegetation). These changes are not only beneficial to the beavers and the creeks they occupy, but they also positively impact the upland species that inhabit the watershed: mule deer, elk, sage-grouse, songbirds and fish, just to name a few.

Beaver dam analog design: Two (+/-) bales of hay are laid across the width of the creek, they are secured in place on both sides using fence posts. After the posts are securely pounded, willow cuttings are woven through the posts to incorporate native vegetation into the structure. Here's the catch: the pine fence posts used for Hough-Snee's project came from Grand Rapids, MI – despite his effort to source them locally. Utah forest producers have an opportunity to become a source for projects such as this one.

* **LOCALLY**



Elijah Portugal constructs a beaver dam analog. The intent is that beavers released will expand and maintain structures over time; photo courtesy E. Portugal.



Tracy Wing and Kent Sorensen releasing a beaver in the impacted watershed; photo courtesy of UDWR.



Another beaver is released into the watershed in Northern Utah; photo courtesy of UDWR.

SOURCED FENCE POSTS NEEDED! *

For example many pinyon-juniper thinning projects are currently underway throughout Utah. Often the juniper are never utilized and left onsite following a treatment. Future riparian restoration projects could source local posts from forest producers looking to offload juniper. Juniper is a durable heartwood species that has a natural resistance to decay. In some studies, juniper posts have lasted for 30+ years as fence posts. Obviously if they were used for projects like this one, they would be submerged in water, thereby shortening their lifespan. However if beaver take to an area, they would be the ones maintaining the dam and reinforcing it with new materials over time. When river restoration and building temporary beaver dam analogs is the goal, juniper just might be an excellent alternative to importing pine posts from other states. If you or someone you know has access to underutilized juniper, please contact megandettenmaier@gmail.com.

By: Megan Dettenmaier and Nate Hough-Snee

Utah Forest News is Going Digital!

After long and careful consideration, USU Forestry Extension has decided to make Utah Forest News available (primarily*) online. This decision was made because online publications allow us to:

- Save on money, for other educational pursuits
- Stay current and report on news as it happens
- Make our publications easily accessed by readers with the click of a button

*If you still want to receive a printed copy of Utah Forest News, **you must opt in** by filling out (and mailing back) the green colored, enclosed prepaid postcard. If you would like to receive the online version, we need your contact information, so fill out and mail the enclosed, prepaid, orange colored postcard or go to: <https://forestry.usu.edu/htm/subscribe>.

This was a difficult, but necessary decision made by our leadership team. We appreciate your feedback and continued support. If you have comments / questions about this process, please email Darren McAvoy darren.mcavoy@usu.edu or Megan Dettenmaier.

Do Pinyon Juniper Woodlands Impact Greater Sage-Grouse?

The conservation status of greater sage-grouse (*Centrocercus urophasianus*; hereafter “sage-grouse”) has recently been on the minds of state and federal wildlife officials. So, it’s no wonder sage-grouse were a key topic at the Eastern Nevada Landscape Coalition workshop held in Sparks, NV this July. Their status has landowners and state and federal agencies paying close attention to any news pertaining to this species of concern. Since 2010, the sage-grouse has been determined to be a candidate species for consideration by the Endangered Species Act, however its official listing has been precluded by other species of higher conservation concern.



A hen sage-grouse, photo courtesy of Tom Koerner,

Dr. Peter Coates and his team at the USGS Western Ecological Research Center in Dixon, CA have studied sage-grouse extensively across NV and parts of CA including the Bi-State Distinct Population Segment (DPS). He presented an overview of his findings on how the expansion of pinyon-juniper (hereafter “PJ”) woodlands impact this species. The range of PJ has expanded by 3 to 10 fold across the Intermountain West. This increase has been attributed to fire exclusion, over-grazing, favorable climate conditions and recovery from historical harvesting practices. It’s believed that the expansion of PJ into sagebrush-steppe ecosystems may be a factor in declining sage-grouse populations. Sage-grouse are a sagebrush obligate species, meaning that to survive they must have access to large tracts of contiguous sagebrush. Additionally, they require a variety of perennial grasses and

forbs to survive, especially during the brood-rearing season (summer). Coates studies sage-grouse habitat selection across large spatial scales and at finer spatial scales such as nesting, brood-rearing and winter locations. Using VHF radio-collars and GPS transmitters, the team tracked sage-grouse movements across

west central Nevada and eastern California. They investigated how the colored birds used different cover classes of PJ woodlands: class I, II, III early (I), mid (II), and late successional (III). They found that sage-grouse avoid class II woodlands and that class II woodlands were correlated with a lower sage-grouse survival probability.

Data collected from GPS transmitters, which transmit each bird’s location 10 times per day via satellite, was used to analyze the bird’s movements across the landscape, including their rate of movement and how long they remained in a specific area. Using these data, they found that sage-grouse move very quickly through class II and class III woodlands. The findings indicate that sage-grouse avoid dense stands of PJ and suggest that any efforts to slow or reduce PJ expansion into sagebrush-steppe habitat(s) may be beneficial for the overall health of sage-grouse populations in the West. Coates and his team hope that their results can help land managers focus their conservation efforts in the most effective way possible. The final listing decision on the sage-grouse will be delivered in late 2015.

By: Megan Dettenmaier and Dr. Kristy Howe

Fall Forest Stewardship Coordinating Committee Meeting Summary

For two days in September, state and federal forestry officials and others committed to forest stewardship gathered in Price for their biannual Forest Stewardship Coordinating Committee Meeting. The purpose of these meetings is to give forestry professionals an opportunity to discuss stewardship issues, share what programs are being implemented in their areas, exchange information about potential partnerships and forge plans for the future. There are big projects occurring around the state as it relates to forestry stewardship. Here's just a sample of what's being done:

Utah's Forest Legacy Program, coordinated by the Division of Forestry, Fire and State Lands, will send three Utah projects to compete for USFS Forest Legacy Program conservation easement funding in FY2016. Each year numerous private landowners apply for conservation easements through the Forest Legacy Program to protect the conservation values on their land in perpetuity. Landowners compete for federal dollars by creating active Forest Stewardship Plans that highlight ways they will manage their forest in the coming years. If funded, the Utah projects nominated will benefit forest resources, the federally listed California condor and Mexican spotted owl and public recreation opportunities. The overarching goal of the Forest Legacy Program is to protect environmentally important private forest lands that are threatened by

conversion to non-forest uses and to allow for the continuation of traditional forest uses, such as forest management activities and outdoor recreation. A Forest Legacy conservation easement limits development

rights while allowing landowners the ability to continue to manage their forests and natural resources. To date the Utah Forest Legacy program has protected 71,357 acres of valuable Utah forest lands.

Managed by Wildlife Biologist Nicole Nielson, Cold Springs Wildlife Management Area in Carbon County and Ridge Valley



Aspen regeneration (foreground) from mechanical removal.

Ranch are actively managing their aspen forest by mechanically removing conifer encroached aspen forests to allow for regeneration of younger aspen suckers. This new growth provides much needed nutrients for ungulates and other wildlife species. Since 2012, these two adjacent properties have successfully treated 100 acres of aspen. These restoration projects were made possible through active partnerships between the Utah Watershed Restoration Initiative, The Mule Deer Foundation, Sportsmen for Fish and Wildlife, National Wild Turkey Federation, Rocky Mountain Elk Foundation, and UDWR sportsmen's dollars.

Several Tavaputs Plateau area landowners are interested in generating healthy forests on their land.

Because of this, a partnership was formed between one landowner in particular, DFFSL, the Watershed Restoration Initiative, and the Division of Wildlife to conduct prescribed fires for aspen regeneration. Because wildfires have been traditionally suppressed in forests across the West, prescribed fires have become an effective way to actively manage for wildlife habi-

tat, forest and ecosystem health. These fires allow for forest regeneration, nutrient cycling, and encourage a multi-age forest structure. This cooperative effort has allowed for two successful controlled burns (2010, 2014) totaling 500 acres, with plans for future burns.

By: Megan Dettenmaier

Waste Wood: What's the Best Way to Utilize It? We Think We Have an Answer

For two days in October, USU Forestry Extension's partner, Amaron Energy from Salt Lake City demon-

strated the ability of its new mobile pyrolysis machine to convert woody biomass into valuable products. The demonstration took place at the Willis Enterprise Chip Plant in Cle Elum, WA where more than 100 onlookers watched closely as woodchips were thermally decomposed inside the machine, creating three high-value products. The unique process that occurs inside the pyrolysis unit creates the following: biochar, a charcoal-like substance that can be used as a soil amendment; bio oil, which can be used in furnaces for heating and steam; and syngas, which can be used to power the mobile pyrolysis machine, thus creating a nearly self-sustaining cycle.

Pyrolysis can be conducted with any input product that contains carbon, including trees, grasses and in-

vasive weeds. This state of the art machine can convert 20 tons of biomass / day.



Biochar, a product of pyrolysis.

described above, the costs associated with managing these lands could be diffused. Even more appealing is the ability to bring this new technology onsite, into the forest being thinned. This will allow for more efficient and cost-effective process where waste wood can be utilized and processed in the forest.

By: Megan Dettenmaier and Darren McAvoy

Why go mobile?

It's simple...cost. The problem facing Utah forests is not a unique one: dense forests become highly vulnerable to large-scale wildfires and disease outbreaks. Because of this, many landowners and land managers are faced with the costly task of thinning their stands in strategic locations to reduce these risks. If there were a market for these thinned trees such as converting them to the energy products

New Report on Ponderosa Pine Genetics in the Wah Wah Mountains

A collaborative effort between the Wyoming BLM and the National Forest Genetics Laboratory of the USDA Forest Service have completed genetic sampling and analysis of 104 ponderosa pine (*Pinus ponderosa*) populations across the range of the species in the western United States. Of particular interest are two ponderosa pine populations in the Wah Wah Mountains in western Utah. It's in the Wah Wah Mountains where the oldest known living ponderosa pine individuals in the world are found (some date back to the year 1075). Recent findings suggest that the ponderosa in the Wah Wahs may be undergoing localized extinction. Scientists discovered that this ancient stand had a low rate of reproduction. This could be attributed to a lack of disturbance in the area, thus causing less than ideal conditions

for successful reproduction of the species. One bright spot was highlighted – researchers predict that this area of Utah will become more climatically conducive to ponderosa pine in the near future (2030.) This



Ponderosa pine, nearly 1,000 years old, in the Wah Wah Mountains; photo courtesy Doug Page.

highlights the need for proactive management to maintain the Wah Wah ponderosa pine population on the landscape, so it can occupy the niche that scientists say may become available.

The full report by Kevin Potter (North Carolina State University), Valerie Hipkins (USFS), and Robert Means (Wyoming BLM) can be found on our website: https://forestry.usu.edu/files/uploads/Research%20Pubs/WahWahMts_assessment_report_final_1.pdf

By: Megan Dettenmaier and Darren McAvoy

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.

Do you have a story idea for UFN? Email darren.mcavoy@usu.edu or megandettenmaier@gmail.com or for more information please call Darren McAvoy at Utah State University, 435-797-0560.

Utah Forest News

8

UtahStateUniversity FORESTRY EXTENSION

NONPROFIT ORG
U.S. POSTAGE
PAID
UTAH STATE
UNIVERSITY

Forestry Education Program
Quinney College of Natural Resources
5230 Old Main Hill
Logan, UT 84322-5230



This newsletter is produced cooperatively with the Utah Division of Forestry, Fire & State Lands and is partially supported by USDA Forest Service State and Private Forestry.

Utah State University is an affirmative action/equal opportunity institution.

COMING EVENTS & NEWS!

USU Forestry Extension is looking for potential partners to help ensure a **consistent supply of pinyon and juniper (PJ) wood for biomass utilization**. A team of USU researchers and Extension personnel are seeking to upscale USU's biomass utilization research capacities. We need letters of commitment from landowners and contractors with a large or steady supply of PJ material. If you are interested in pursuing this opportunity please contact Darren McAvoy at darren.mcavoy@usu.edu or by calling 435-797-0560.

2015 Utah Green Industry Trade Show: January 26-28, Sandy, Utah. Visit <http://www.utahgreen.org/events.htm> for more information.



Photo courtesy of Darren McAvoy.