

Utah Forest News

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An Unhealthy Forest Is a Forest at Risk

Active forest restoration and wildlife habitat improvement go hand in hand, especially in the eyes of Mule Deer Foundation (MDF) Habitat Stewardship Coordinator Stan Baker. Since joining MDF in 2013, Baker has initiated many conservation stewardship agreements for mule deer habitat management in the West and currently MDF has more stewardship agreements in Utah than any other entity. Many people are most familiar with conservation stewardship contracts which are usually held by sawmills or logging contractors. Stewardship agreements differ from contracts in that they are more fluid and are based on a “mutual interest and mutual benefit” understanding for both parties involved (in this case, MDF and the U.S. Forest Service). Any profits derived from the conservation agreement (i.e. timber from fuel reduction projects) are recirculated back into the project and used for service work items.

Scale matters

As a whole, the amount of forest restoration required across the Intermountain West can seem insurmountable. Beetle infestation, drought-stressed trees and invasive species are just a few of the threats currently facing forest managers. Compounding this issue is the increasing financial burden associated with protecting communities from wildfires year after year. In 2015 for the first time in history, more than (*continued on page 4*)

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Winter range enhancement, Uncompahgre Plateau, Colorado. | Photo credit: Mule Deer Foundation

In This Issue

- Communal root systems impact aspen health
- Insects and fire in Washington and Oregon
- Results of UCFC Tree Climbing Challenge

Communal root systems impact aspen health

While trying to verify if the decline of aspen stands in western Canada was due to diseased root systems, we carried out large-scale excavations that allowed us to discover something of utmost importance for these forests: old parental roots were present in the majority of tree root systems, confirming their sucker-origin, and these roots still connected trees with each other through stand maturity.

Moreover, trees that were not originally connected through their parental root had formed root grafts with each other, further increasing the level of interconnection between trees. We also noticed that these connecting roots were quite large and must have represented a large energy demand on the trees for their maintenance. One might guess that if they constituted too large of an energy sink, trees could simply shed them, but their large woody nature and central position make them a foundation of their root system, not easily abandoned.

Even after the death of above ground stems, large connecting roots kept most roots of dead trees alive; showing that they were still functional and able to carry water and sugars resulting from the photosynthesis of residual live trees of the stand. These root connections between live and dead trees could also explain why roots of dead trees were not suckering, because suckering-inhibiting hormones continued to be transferred from the crowns of live trees to

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- Dr. DesRochers



Mature aspen stems with connected root systems. | Photo Credit: Annie DesRochers

Save the Date

August 30, Webinar

Estimating How Projected Increases in Wildfires Would Change Erosion Throughout the West

Speaker: Joel Sankey, USGS, Flagstaff, Arizona.

September 20, Webinar

Lands, Fire and Everything in Between, LANDFIRE Data and Models Characterize Your World

Speaker: Jeannie Patton, Randy Swaty, The Nature Conservancy.

October 18-19

Restoring the West Conference:

Climate, Disturbance, and Restoration in the Intermountain West

www.restoringthewest.org

30th Western Agencies Sage & Columbian Sharp-Tailed Grouse Workshop

For three days in June a multitude of grouse biologists, experts and researchers convened in Lander, Wyoming, for their biannual WAFWA (Western Association of Fish and Wildlife Agencies) workshop. This meeting provided a forum for wildlife professionals to interact with each other and share what's working on the ground. Currently there are 10 WAFWA workshops sanctioned to occur across the West, information from these workshops is used to promote better management of species as a whole. Here is a list of upcoming WAFWA meetings (all are welcome to attend):

- Black Bear, 2018, Colorado
- Deer and Elk, May 2017, Sun Valley, Idaho
- Desert Bighorn Council, 2017, Utah
- Mountain Lion, May 2017, Colorado
- Northern Wild Sheep and Goat Council, 2018, Location TBA
- Pronghorn, August 29 - September 1, 2016, Anaconda, Montana
- Western Wild Turkey Technical Committee, Date and Location TBA
- Human/Wildlife Conflicts, 2017, Wyoming



Dead aspen stem with live roots connected to a root from another tree, bearing newly formed suckers. | Photo Credit: Annie DesRochers

the communal root system. Slowly, all the energy is spent on maintaining this large communal root system, with fewer and fewer live trees, and portions of the root system start deteriorating and dying. Rapid clear-cutting of all residual stems is then necessary to regenerate declining stands, before too much of the communal root system is lost.

Recent advances in genetics have revealed that aspen stands are more genetically diverse than previously thought. Some have put forward the idea that regeneration by seed was more common than we previously thought. We have also seen stands where the number of clones has more than quadrupled after, compared to before, harvesting, again suggesting that seed regeneration is rather frequent. However, every time that we have excavated mature aspen stands originating from harvest or fire, nearly all stems have been of sucker origin. So how can this high genetic diversity be explained?

We hypothesized that clonal diversity maintenance in aspen was facilitated by integration of different clones through natural root grafting into aspen's communal root system. Large-scale excavations indeed revealed many living roots on trees that had been dead for several years, some of them with no other root connections but root grafts to living trees of different clones. Moreover, these roots from dead stumps all had newly formed suckers growing on them, thus carrying over their genotype to the next generation of trees. Acquiring roots of dead trees thus help to maintain extensive root systems, which increases the chances of clone survival, beyond the death of individual trees. Substantial interconnectivity both within clones, as well as between clones, results in formation of genetically diverse but integrated physiological units. Such a clonal structure can significantly affect interpretations of diverse physiological processes taking place in aspen forests.

*By: Annie DesRochers, Professor,
Forest Research Institute, University of Quebec,
Abitibi-Témiscamingue, Canada
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(continued from page 1)



Aspen coppice harvests completed with stewardship partnerships with the MDF. | Photo credit: Keith Gustafson, USFS.

half of the U.S. Forest Service (USFS) budget was dedicated to wildfire suppression. The overwhelming number of acres that have been impacted by fire and beetles can make active forest restoration feel akin to filling a bathtub while the drain is open. It's hard to get anything substantial accomplished if resources that could be used for forest management and advancing our understanding of our forest ecosystems are constantly being diverted to fight fire. That's where utilizing the permanent stewardship authority through the tools of stewardship agreements and stewardship contracts come in.

What is a stewardship agreement?

In short, a stewardship agreement allows the USFS and conservation organizations to conduct active, on the ground management through unique cost-share partnerships where both parties benefit from the stewardship action.

The USFS has identified key restoration projects that will benefit forests, rangelands, water, fish and wildlife habitat, and reduce hazardous fuel loads. Here's how stewardship contracting works: 1) A project is identified for implementation; 2) The USFS develops non-competitive agreements with conservation groups (in this example the MDF); 3) The MDF provides a match of at least 20% of

the total project costs; 4) The project is completed with shared oversight from MDF.

Conservation agreements are unique in that they leverage the financial power and the expertise of both organizations to increase the reach of the already squeezed USFS budget. This partnership and others like it create buy-in from the public, a sense of investment in conservation, and a shared vision for the nation's forests. When considered as a whole, the outlook for forest health can seem dire, but conservation stewardship agreements facilitate unique partnerships where projects of any size can be completed effectively.

Untapped resource

Baker believes there may be opportunity to partner with private landowners, especially in Utah. Increasing forest resilience will require actions targeted at improving wildlife habitat, promoting aspen regeneration, protecting watersheds, and removing fuel hazards. His vision includes large-scale restoration projects that include other organizations such as the NRCS, and those working on habitat improvement projects for other species. In the meantime, Baker is committed to completing the current MDF projects while generating new stewardship agreements that incorporate a variety of stakeholders in Utah. He can be reached at stan@muledeer.org.

By: Megan Dettenmaier, USU Forestry Extension Educator

(continued from page 4)

Stewardship Agreements

- Often used in the Intermountain West where low timber value doesn't bring in money, therefore both parties can use outside funding sources and volunteers to supplement.
- Can be administered anywhere within a NEPA approved and defined area of the same National Forest, not limited to defined boundary of a timber sale area.
- Changes can be made easily to the agreement, less rigid than a stewardship contract.

Stewardship Contracts

- Often used in the Southeast and Northwest Regions where high timber values bring in money.
- Specific to a designated timber sale area using one contractor.
- Profits from timber sale are used to pay for contractor's work.

Insect outbreaks reduce fire severity in Washington and Oregon

University of Vermont forest scientist Garrett Meigs and colleagues recently published a paper in *Environmental Research Letters* suggesting a new understanding between two disturbances threatening forest health: insect outbreaks and wildfires. Insect disturbances studied here (primarily from bark beetles and defoliators) and their interaction with fire susceptible forests (due to climate change and drought) are a prime example of a disturbance interaction. Disturbance interactions are defined as disturbances that influence the likelihood, extent, or severity of another disturbance. Is it possible that insect outbreaks in forests in Oregon and Washington are reducing forest vulnerability to fire? It seems so. Meigs and his colleagues measured 81 fires over 25 years. They used before and after satellite imagery and measured burn severity and vegetation loss on forests that been impacted by numerous large fire events, following outbreaks of defoliators and bark beetles.

Their findings indicate that the insect damaged forests burned at a lower intensity than non-impacted forests. They attribute this observation to forest thinning. Forest thinning occurs when insects kill some trees and leave others. This vegetation removal effectively reduces the fuel available to burn, thereby reducing the burn intensity when wildfires occur. The authors acknowledge that specific mechanism of this interaction varies with the timing and type of insect is unknown, thus they suggest a need for further investigation. Because insects were demonstrated to have a fire dampening impact in these impacted forests, the authors highlight the need for discretion when implementing forest and fuel management policies, specifically following insect outbreaks. The study can be read [here](#).

Meigs, Garrett W., et al. "Do insect outbreaks reduce the severity of subsequent forest fires?." *Environmental Research Letters* 11.4 (2016): 045008.

By: Megan Dettenmaier, USU Forestry Extension Educator

Tree Climbing Challenge 2016

Thirty-three competitors gathered in American Fork, Utah, in early June to take part in the annual Utah Community Forest Council Tree Climbing Challenge. The event was designed to simulate a regular (and fun) day on the job for these local arborists. Participants exchanged new climbing techniques and participated in a little friendly competition. The event was filled with family-friendly activities that included a chance for kids to harness up and climb a tree like a professional. Top competitors have the opportunity to compete in the national tree climbing championship in Niagara Falls, Ontario, on October 1-2. Congratulations to all the Utah Community Forestry Council Tree Climbing participants.



Competitors participate in the secured footlock (left) and aerial rescue (right) at the Utah Community Forest Council Tree Climbing Challenge.

**Master Challenge
Climb**

- 1st - Ryan Torcicollo
- 2nd - Jake Bleazard
- 3rd - John Dallinga
- 4th - Kevan Tolman

Aerial Rescue

- 1st - Jake Bleazard
- 2nd - Ryan Torcicollo
- 3rd - Johnny Atkin

Belayed Speed Climb

- 1st - Ryan Torcicollo
- 2nd - David Thunell
- 3rd - Kevin Oxley and
Johnny Atkin

Secured Footlock

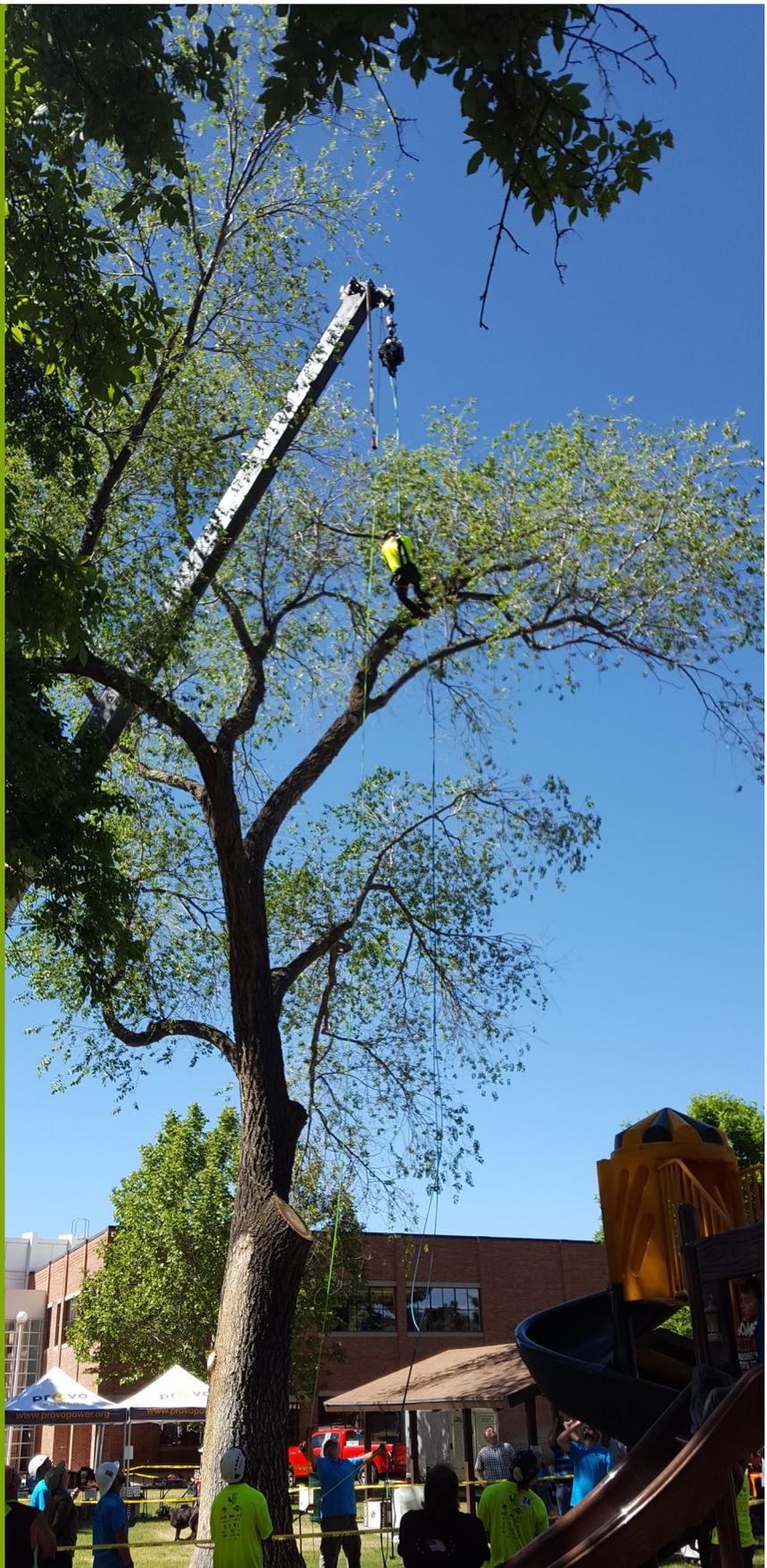
- 1st - Kevan Tolman
- 2nd - Johnny Atkin
- 3rd - Kevin Oxley and
John Dallinga

Throwline

- 1st - Ryan Torcicollo
- 2nd - Sandro Maguna
- 3rd - Gary Pratt

Work Climb

- 1st - Kevan Tolman
- 2nd - Ryan Torcicollo
- 3rd - John Dallinga



One competitor participates in the work climb at the Utah Community Forest Council Tree Climbing Challenge.



Dr. Karen Mock plants aspen seedlings along the Blacksmith Fork River with second graders from Edith Bowen Elementary, Logan.

Contact Us

Do you have a story idea for the next edition of Utah Forest News? Have feedback about any story in this issue? Send us an email or give us a call.

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