

Utah Forest News

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Cedar Mountain Aspen Study Reveals Widespread Lack of Regeneration

For over a decade, forest landowners, managers, and researchers have observed the extensive aspen stands on southern Utah's Cedar Mountain dying off without any new regeneration (see *UFN* Summer 2005, Summer 2007, Spring 2008, and Summer 2008). Most of this large, high elevation forest area is privately owned, and for the families who have lived and worked on Cedar Mountain for generations, the decline of these stands is distressing on a very personal level. As concerns about the future of the aspen stands in this beautiful area grew, so did concerted efforts to understand exactly what was going on.



An aging aspen stand on Cedar Mountain with no young aspen. These forests may not regenerate when old age, disease, and/or drought remove the overstory.

The Cedar Mountain Initiative was launched in the early 1990s to study aspen health and diversity on the plateau. In 2008, a large, landscape-scale study was conducted there to examine the extent of the aspen decline and to determine what factors might be influencing the health of Cedar Mountain aspen. The study area was broad, encompassing 83 aspen stands over a 106 square-mile area – all lands above

8,200 feet elevation and generally west of Webster Flat. The results were published last January in

Forest Ecology and Management and offer important landscape-scale perspectives about what is happening to aspen stands on Cedar Mountain. Utah State University researchers Paul Rogers, Joshua Leffler, and Ron Ryel were the authors.

Of particular interest to the researchers, managers, and landowners on Cedar Mountain was whether Sudden Aspen Decline (SAD) could explain what was going on there. SAD is gaining notoriety

as a cause of rapid aspen mortality in areas throughout the West. It is defined as a quick die-off of mature aspen (occurring in 1 to 3 years), coupled with a lack of new

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aspen regeneration. Aspen regeneration is defined as new “suckers” (sprouts arising from extensive root systems), or occasional true seedlings, that constitute the next generation of an aspen stand. According to these criteria, SAD was not found to be a major driver on Cedar Mountain aspen stands. Rapid die-off was found on only a few of the sampled stands. However, a lack of viable aspen regeneration was found to be a significant problem on Cedar Mountain. Over half of the studied plots had limited regeneration. Even without the SAD “diagnosis,” the lack of aspen regeneration on Cedar Mountain is a cause for concern. According to Rogers, “the end product of this scenario is that we have maturing and vulnerable forests, with almost no ‘next generation’ to back them up when inevitable disturbance takes place.” Further, “warming climate and/or drought are heightening the probability of large-scale aspen die-off.”

The causes of the limited regeneration occurring in Cedar Mountain aspen stands could not be definitively determined by the study. However, the authors believe that ungulate browsing of new aspen suckers by both wildlife and domestic livestock is probably the cause, based on anecdotal evidence about Cedar Mountain and the results of several similar studies in other areas. (For another perspective on the causes of limited aspen regeneration on Cedar Mountain, see the guest editorial by Chad Reid and Jim Bowns in the Summer 2008 issue of *Utah Forest News*.) Rogers says that the take-home message of the study for forest managers and landowners is that good wildlife and livestock management is crucial to the future of



Jim Bowns strategizes with USU students Richard Gardner, Cody Mittanck, and John Rentschler prior to surveying aspen on Cedar Mountain.

Cedar Mountain aspen stands. “Problems are arising,” he says, “when animals ‘camp out’ in a single location for too long, thus depleting viable aspen suckers.” Another major concern is “chronic, year after year

browsing” in areas where aspen regeneration should be taking place. Though deer and elk numbers are disputed, it appears that these species are also placing pressure on aspen regeneration on the plateau. While browsing wildlife is more difficult to control than livestock, fencing of recently disturbed aspen stands has proven effective for small areas. On larger landscapes such as Cedar Mountain, a key strategy for both wildlife and livestock is to keep animals on the move and limit total numbers where possible.

The findings of this study have added a few more pieces to the puzzle of what is happening to the aspen stands on Cedar Mountain.

While it is encouraging that Sudden Aspen Death (SAD) is not occurring there, the lack of aspen regeneration on Cedar Mountain is a serious problem with long-term implications for the future of aspen stands in the area. Further study is also being planned for Cedar Mountain aspen. Rogers says, “After completing this first step of assessing aspen conditions across this large landscape, our next job will be to determine genetic variability in small, medium, and large trees within stands. We hope this information will tell us whether certain aspen suckers (genetically identical to parents whose roots they sprout from) are better than others at surviving and growing to maturity.

by Olivia Salmon

Voluntary Carbon Market Available to Utah Landowners

Utah forest landowners might wish to join the growing number of governments, corporations, and individuals who are participating in the voluntary carbon market. This market buys and sells greenhouse gases, and can help participants reduce – and offset – their own carbon footprint. It can also provide funding for projects and activities that decrease or remove carbon dioxide (CO₂) from the atmosphere.

Landowners have various reasons for wanting to engage in the voluntary carbon market. Some enroll in the market solely to generate additional revenue. Many others enjoy the personal, ecological, and recreational values of their land, and are seeking economic incentives to help their forests remain forests over the long term. Participation in the carbon market may also be a suitable option for those considering planting trees where they have not existed before.

The voluntary carbon market uses a standardized measure called the CO₂ equivalent (CO₂e). Trees that have sequestered 1 ton of carbon have absorbed 3.67 tons of CO₂ from the atmosphere. The Chicago Climate Exchange (CCX) provides a platform for buying and selling CO₂ equivalents, or “carbon credits.” The CCX is a voluntary but legally binding trading platform (similar to a stock market for carbon) with relatively transparent rules and regulations. It is currently the only carbon credit market in North America that trades emission allowances gained

through verified net increases in forest carbon stocks. An over-the-counter market also exists, but it is generally composed of organizations and companies that sell offsets (that are not necessarily real, additional, or verified) on a project-by-project basis. The most streamlined and straightforward opportunities for private forest landowners currently exist through the CCX.



U.S. forests sequestered a net 309 million tons of carbon per year from 1952 to 1992, offsetting approximately 25% of U.S. human-caused emissions of carbon during that period, according to the U.S. Forest Service.

Before diving into the nuts and bolts of the CCX, a bit of background on the forest/carbon connection may be in order. Trees store, or “sequester,” carbon in the soil and in their biomass (trunks, branches, foliage, and roots) through the process of photosynthesis. A standing forest can be thought of as a carbon “bank account” that accumulates interest in the form of carbon as it grows. Younger forests

sequester carbon more rapidly, and older forests contain greater amounts of carbon. Forests also release carbon, however, through natural biological processes or when they are disturbed (i.e., through harvesting, fire, and death and decay). Employing sustainable forest management practices can help increase forests’ ability to sequester carbon and reduce atmospheric carbon concentrations.

Although trees store carbon as they grow, sustainably produced timber can also be a very environmentally friendly building material, and wood-based bioenergy and biofuels can be used as alternatives to fossil

fuels. Whereas the production of steel and concrete generates significant greenhouse gas emissions, forest products continue to store carbon even after harvest. Therefore, to maintain an ongoing supply of trees with this important ability, it is vital to prevent the conversion of forests to nonforest use. A next step would be to determine whether a particular forest is best suited to long-term protection, sustainable harvest for wood products, bioenergy production, or some other alternative or combination.

So how can you take advantage of your forest's ability to reduce your carbon footprint? If you are interested in participating in the CCX, you must meet a few criteria:

- Forest size should be at least 100 acres. The initial investment and transaction costs involved generally make it uneconomical for those owning fewer than 100 acres of forestland to enroll in the voluntary market at the present time.
- The forest must be sustainably certified. Certification can be obtained through the Sustainable Forestry Initiative (SFI) Program, Forest Stewardship Council (FSC), or American Tree Farm Group (see the following article). The Utah Division of Forestry, Fire and State Lands can help you create a Forest Stewardship Plan, which will also help satisfy the certification requirement.
- You must make a long-term commitment (a minimum of 15 years) to keeping your forest as forest; harvesting may occur, as long as carbon stocks are not reduced below the baseline enrollment level.



Carbon sequestration rates for Douglas-fir are estimated at 5 tons of carbon (or just over 18 tons of CO₂) per hectare per year.

- Currently, the only way for a private forest landowner to engage in the CCX is to work through an aggregator. Aggregators pool carbon (and risk) and sell verified credits over the exchange in large quantities.

Both (fixed) start-up and (variable) ongoing costs are associated with participating in the CCX. Start-up requirements and costs include creation of a management plan (if not already established),

and inventory and certification costs.

Each of these can range widely in price, making an estimate difficult. Ongoing participation costs include the aggregator fee (typically 10 percent of total revenue), verification fee (\$0.25 per ton of CO₂), and trading fee (\$0.20 per ton of CO₂).

The amount of revenue that your forest generates ultimately depends on how much carbon it sequesters annually, less

the costs of enrollment, participation, and annual verification of carbon stocks. The amount of carbon sequestered depends on a number of factors, including enrolled acreage; condition, age, and class of forest; and the risk of carbon loss through catastrophic events (fire, insect and disease outbreaks, blowdowns). Generally, carbon credits have been trading on the CCX for between \$2.50 and \$7.00 per ton.

Further information about the CCX can be found at <http://www.chicagoclimatex.com>.

This article was excerpted from National Woodlands Magazine.

Going Green with Forest Certification

Forest landowners with an interest in forest certification might well echo Kermit the Frog's lament, "It's not easy being green." The title of a recent *National Hardwood Magazine* article by Ron Lovaglio and Scott Berg, "The Green Maze of Forest Certification – How to Find Your Way," also suggests that the path of sustainability is not always a walk in the park. The article goes on to say that "forest certification is an alphabet soup of standards and labels." So why bother trying to find your way through this "green maze?"

Lovaglio and Berg gave a forestry webinar on this topic in December 2009, in which they explained the details of certification standards and talked about current issues. This article summarizes portions of the webinar, which is viewable online at <http://forestrywebinar.net>.

First of all, what does forest certification entail? Basically, it exists in two forms: (1) certification requiring an inspection of the forest and its management practices by a third party to ensure that it passes criteria of good management, and (2) chain of custody certification that can be given to companies that manufacture or trade certified products. This guarantees that materials are tracked from the time they leave the forest until they become products for an end user, so the products can be labeled as having come from a sustainable source. Such a label can be used only if the originating forest is certified, and if any non-certified wood

present in the product comes from "controlled" or "non-controversial" sources. As defined by the Forest Stewardship Council standard, controlled wood excludes the following categories: (1) wood from genetically modified trees, (2) wood derived from illegal logging, (3) wood harvested in a way that violates traditional or civil rights, (4) wood from forests being converted to non-forest use, and (5) wood from forests where high conservation values are threatened by management activities. If a product contains a mix of certified and controlled wood, as well as an element of post-consumer waste, a "mixed sources" label can be used.



Douglas-fir boards with a certified fiber sourcing label from the Sustainable Forestry Initiative.

The main reason for certification is simple economics – the green maze could end in a bigger pile of green cash. People care more than ever about sustainable sources for the wood products they buy, and products that have been certified by a recognized forest certification system are likely to be preferred over others. A certified label on a product will tell environmentally conscious consumers that the company behind it shares their values. Further demand for certification is created by green building rating systems that reward the use of certified wood. As discussed in the previous article, it is also possible for certified forest landowners to earn income from trading carbon credits on the Chicago Climate Exchange (CCX).

Aside from the benefits of certification, neglecting to obtain it could possibly result in undesirable

publicity for a company. The Lacey Act, enacted in 1900 to restrict traffic in illegally harvested species, was amended in 2008 to specifically prohibit trade in illegally sourced wood products. The media reported the first use of this amendment in November 2009, when the Tennessee manufacturing facility of Gibson Guitars was searched by U.S. Fish and Wildlife Service agents. The investigation was targeting wood harvested illegally from Madagascar's national parks following political turmoil there. Even if the manufacturing facility wasn't directly responsible for the illegal act, its reputation could still be tainted if it could be determined that someone there should have known about the problem.

Only about 15% of the 514 million timberland acres in the United States are currently certified. These acres are distributed unevenly across the country, with the most certified forests in Maine, Minnesota, Wisconsin, Michigan, and Louisiana. In areas such as Utah where certified forests are few or nonexistent, certification may lead to a market advantage.

There are four major sustainable forestry management standards in the United States (and this is where we dive into the "alphabet soup"). They are described briefly below.

Programme for the Endorsement of Forest Certification Schemes (PEFC)

- Has a greater presence in Europe
- Is dominant worldwide (by area)
- Endorses both Sustainable Forestry Initiative and American Tree Farm System standards



Forest Stewardship Council (FSC)

- A growing international standard
- Does not accept certification from any of the other standards



Sustainable Forestry Initiative (SFI)

- A North American standard with twice the certified acreage in the United States as either the FSC or the ATFS



SUSTAINABLE FORESTRY INITIATIVE

American Tree Farm System (ATFS)

- The oldest certification program
- Focuses on the family forest owner
- Recognized by both the PEFC and the SFI



The FSC, SFI, and ATFS standards have all been recently revised or are currently in the process of revision. Although there are differences among the standards, all four aim to promote and ensure sustainability, and to bring more acreage under certification. A single standard would no doubt simplify the maze, but it could be argued that healthy competition between standards encourages good forest management. It is even possible to certify under more than one standard at a time. Lovaglio and Berg recommend implementing a triple FSC/SFI/PEFC chain of custody, since it doesn't cost any more than doing just one. These three standards even have pre-packaged certification templates to streamline the process.

Lovaglio and Berg cautioned against trying to navigate the certification maze without the help of a qualified consultant, since many people may not have the necessary time and expertise. Although a consultant is an added cost, the assistance in achieving certification in a timely and efficient manner is likely to be well worth it. In the end, if costs are weighed against the benefits of "going green," certification could be a valuable choice for Utah forest landowners.

by Laurel Anderton

Creation of State-Wide Aspen Management Plan in the Works

The Utah Forest Restoration Working Group (UFRWG) is a multi-party working group that was chartered by the U.S. Forest Service and others to address forest management issues in the state. Some of the groups represented in the UFRWG are the U.S. Forest Service, Grand Canyon Trust, the Utah Environmental Congress, the Rural Life Foundation Stewardship Center, the Utah Division of Wildlife Resources, the Utah Division of Forestry, Fire, and State Lands, Trout Unlimited, the Western Aspen Alliance (WAA), and the Utah Cattlemen's Association. The first mission of this diverse working group is to come up with a set of guidelines for managing aspen on the five National Forests in Utah.

According to Paul Rogers, WAA Director, the group has made "tremendous progress by focusing on what we can agree on, rather than what we disagree on." So far the group has developed several general recommendations for aspen restoration in Utah, which include the establishment of "reference condition" aspen stands that fence out livestock and wildlife, the development of an "aspen success story" database that individuals and agencies can draw lessons from, and the creation of a set of clearly defined monitoring protocols. The group has also outlined a decision-making process for aspen restoration projects in Utah that focuses on adaptive management and careful monitoring. The complete aspen management guidelines are due out later this spring. More information on the WAA can be found on their Web site: <http://www.western-aspen-alliance.org/>.

Forestry Education Assistant to Commute Electronically from Africa

Olivia Salmon will not be at her desk on the USU campus in Logan any longer, but will still be helping us out as needed from Ethiopia. She is now working there for International Development Enterprises (IDE), a non-governmental organization with the mission of creating income opportunities for poor rural households in the developing world, mainly through improved access to small-scale, low-cost irrigation systems and technologies. She'll be working as a writer and editor for their reports, publicity materials, and training manuals.

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

Intermountain Society of American Foresters. Genetics of Ponderosa Pine, a West-Side Study of Isolated Populations; April 13, Salt Lake City, UT. Visit www.usu.edu/saf/meetings.html for more information.

Inland Empire Society of American Foresters Annual Meeting. 1910 Fires: Century Later; May 20-22, 2010, Wallace, ID. Visit <http://www.iesaf.org/> for more information.

Intermountain Society of American Foresters. Stewardship of the Henry Mountains Site Visit; McMillan Spring Stewardship Project; August 27-28, 2010 (tentative), Hanksville, UT and McMillan Spring. Visit www.usu.edu/saf/meetings.html for more information.



Limber pine cones decorated with rime. Rime appears when supercooled water droplets freeze on a solid surface and form deposits into the wind.