# TREMBLINGS

NEWSLETTER & BULLETIN BOARD

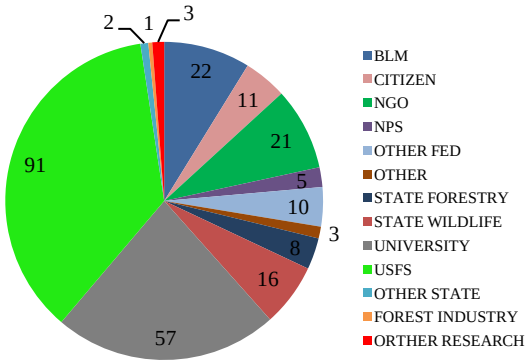
*Vol. 2(4), November 2011*


***"…partnering to preserve and restore healthy aspen ecosystems."***

**NOTICE:** The WAA is a user-driven organization. *Tremblings* will attempt to capture the greater aspen user group's wants and needs. Please send news items and announcements, contributions, **recent reports & publications**, photos, and commentary ideas to Paul Rogers (p.rogers@usu.edu). We encourage you to share *Tremblings* with your friends and colleagues!

## WAA HAPPENINGS

***WAA Membership Reaches 250***—The Western Aspen Alliance continues to reach out to a wide audience. As our membership builds, we encourage participants to give us your thoughts on what we are doing well and no so well. If you would like to become a more active member – by writing an article, hosting a field trip, or filling a board seat – please contact us. Thanks to long time members and recent recruits for contributing to our success!




**Wildland Fire and Aspen Recruitment**—One of the recent priorities of the WAA has been to visit large wildfire areas around the region. The success of aspen ecosystems is highly dependent on fire; not the immediate mortality, but what happens next – the recruitment opportunity itself and the survival of both suckers and seedlings over time. This past field season WAA Director Paul Rogers visited burn sites across Utah and Arizona (photo below). Typically, regeneration is prolific, but where severe fires eliminate overstory and new aspen stems are browsed heavily, there is high potential of complete stand loss. Monitoring at stand- and landscape-levels, along with measures to reduce pressure from post-fire browsing are critical elements in aspen community stewardship. Feel free to contact the WAA if, or when, fires in your area threaten aspen health.

*Aspen suckers grow through a layer of wheatgrass three months after the Wallow Fire (217,720 ha) was extinguished. While rapid growing annuals may reduce erosion, anecdotal evidence suggests that aspen suckering – and likely seedling establishment - is inhibited (Photo: Paul Rogers, Apache-Sitgreaves National Forest, Arizona, USA).*

**Aspen Database Adds Rare Documents** —WAA's online Aspen Bibliography has begun adding

TREMBLINGS
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*Vol. 2(4), November 2011*

historic, government, and gray literature documents. Scanning and entry of these works in digital form began in September 2011 and will continue through the coming year. Several hundred items, previously unavailable in digital form, are part of Dale Bartos' professional collection. The effort is being managed by Utah State University's Digital Commons archive and includes regular updates to the +7,000 records from **Recent Aspen Publications** (below). The database is accessible by clicking on "Search Aspen Literature" on the WAA website.

## UPCOMING EVENTS

***Aspen Ecology & Management Session***—The Society of Range Management (SRM) will be hosting a special session on aspen ecology and management, Jan. 29 – Feb. 3, 2012 in Spokane, WA, USA. Speakers will address a variety of topics, including successional development, disturbance interactions (fire, pathogens, herbivory etc.), regional scale change detection, conservation strategies, genetics, ecophysiology, climate change, and wildlife habitat studies. Come participate in this stimulating discussion. You can find details here: http://www.western-aspen-alliance.org/pdf/SRM_aspen.pdf.

## COMMENTARY

### Importance of Aspen Stand Structure to Avian Abundance and Diversity

**Dr. Susan Earnst**, Research Wildlife Biologist, USGS Forest and Rangeland Ecosystem Science Center, Snake River Field Station, Boise, Idaho

Aspen provide the only deciduous woodland habitat for nesting songbirds in much of the Great Basin and semi-arid West. Because intact aspen woodlands are structurally diverse and provide a relatively moisture- and invertebrate-rich environment, avian abundance and diversity are expected to be greater in aspen than surrounding habitats, and available research supports that expectation. In fact, there is a suite of cavity-, overstory-, understory-, and ground-nesting species—including Warbling Vireos, Western Wood-Pewees, House Wrens, Mountain Bluebirds, Red-naped Sapsuckers, and MacGillivray's Warbler—that are substantially more abundant in aspen than surrounding montane shrublands or coniferous forests. Studies of avian habitat relationships, including those of aspen-associated species, repeatedly confirm that a species' preference is tied to horizontal and vertical vegetative structure. In classic, multi-tiered, montane aspen stands that include large diameter trees and patches of understory shrubs and forbs, all avian nesting guilds are usually well represented. In contrast, at high elevations where conditions are harsh and tree growth is stunted, the resulting dense, low stature stands are typically depauperate in cavity- and overstory-nesters.

Given natural variation in stand structure across the landscape, and avian response to this structure, we expect threats to aspen persistence and structural diversity to affect avian communities. For example, there is concern that some aspen stands are experiencing decades of intensive browsing on young trees by wild or domestic ungulates, resulting in little recruitment to medium-aged trees, and substantial loss of large, old trees which are dying but not being replaced. The cavity-nesting avian guild, whose abundance appears tied to the availability of large diameter trees, is also expected to decline. A decade after cattle were removed at Hart Mountain in south-central Oregon, co-investigators Jen Ballard, David Dobkin, Jeannie Heltzel, and I witnessed an increase in shrub cover, an increase in

TREMBLINGS
NEWSLETTER & BULLETIN BOARD
*Vol. 2(4), November 2011*

recruitment into medium-sized aspen, and a dramatic increase in avian abundance across most foraging and nesting guilds. The striking exception was cavity-nesters, which along with large diameter trees, exhibited a minor decrease. Even several decades after a stand-replacing fire, we see high densities of medium-sized trees, but a lack of large diameter trees and light-gaps that promote understory shrub growth, resulting in a low number of overstory- and cavity-nesters. This pattern suggests that, if prescribed fire is being considered as a management tool, landscape-scale planning is needed to maintain sufficient patches of large aspen and the current avian distribution and diversity, especially of cavity-nesters. In addition to disturbance-induced or natural variation in stand structure, shriveling or loss of leaves due to drought, frost, insect or disease outbreaks, as well as delayed leaf-out caused by late springs, are likely to affect avian nesting success, and could produce population-level effects if persistent over sufficient temporal or spatial scales.

In an ongoing study of vulnerability of aspen woodlands and associated avian species to global climate change in the Jarbidge, Ruby, and Santa Rosa mountains of northern Nevada, Doug Shinneman, Peter Weisberg, Jian Yang, and I are further quantifying avian habitat relationships such as those discussed above. We are also quantifying the distribution of aspen stand and age structure across the landscape, and using results of a landscape simulation model to predict aspen and avian distribution and abundance under various climate scenarios. Overall, aspen woodlands provide unique and important avian habitat in the Great Basin and elsewhere, and offer an interesting natural laboratory replete with variation in structural complexity, understory communities, patch sizes, and degrees of connectivity.

## RECENT ASPEN PUBLICATIONS

Cloutier-Hurteau, B., S. Sauvé, and F. Courchesne. 2011. Predicting Al, Cu, and Zn concentrations in the fine roots of trembling aspen (*Populus tremuloides*) using bulk and rhizosphere soil properties. Canadian Journal of Forest Research **41**:1267–1279.

LaRade, S.; Bork, E. 2011. Short Communication: Aspen forest overstory relations to understory production. Canadian Journal of Plant Sciences **91**:847-851.

Mana, R., J.A. Rice, L. Freeman, and S. Stuart. 2011. Effects of pre- and post-harvest spray with glyphosate and partial cutting on growth and quality of aspen regeneration in a boreal mixedwood forest. Forest Ecology and Management **262**:1298–1304.

Oukrop, C.M., D.M. Evans, D.L. Bartos, R.D. Ramsey, and R.J. Ryel. 2011. Moderate-scale mapping methods of aspen stand types: a case study for Cedar Mountain in southern Utah. RMRS-GTR-259, USDA, Forest Service, Rocky Mountain Research Station, Fort Collins, CO. http://www.fs.fed.us/rm/pubs/rmrs_gtr259.pdf

Rogers, P.C., D.L. Bartos, and R.J. Ryel. 2011. Historical patterns in lichen communities of montane quaking aspen forests. Pages 33-64 *in* J. A. Daniels, editor. Advances in Environmental Research, Vol. 15. Nova Science Publishers, Inc., Hauppauge, NY. https://www.novapublishers.com/catalog/product_info.php?products_id=30532

Royer-Tardif, S. and R.L. Bradley. 2011. Evidence that soil fertility controls the mixing of jack pine with trembling aspen. Forest Ecology and Management **262**:1054-1060.

Strong, W.L. 2011. Tree canopy effects on understory species abundance in high-latitude *Populus tremuloides* stands, Yukon, Canada. Community Ecology **12**:89-98.

Westbrook, C.J., Cooper, D.J., and Baker , B.W. 2011. Beaver assisted river valley formation. River Research and Applications **27**:247–256.

Zobel, J.M., A.R. Ek, and T.E. Burk. 2011. Comparison of Forest Inventory and Analysis surveys, basal area models, and fitting methods for the aspen forest type in

Minnesota. Forest Ecology and Management **262**:188–194.

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