TREMBLINGS

NEWSLETTER & BULLETIN BOARD

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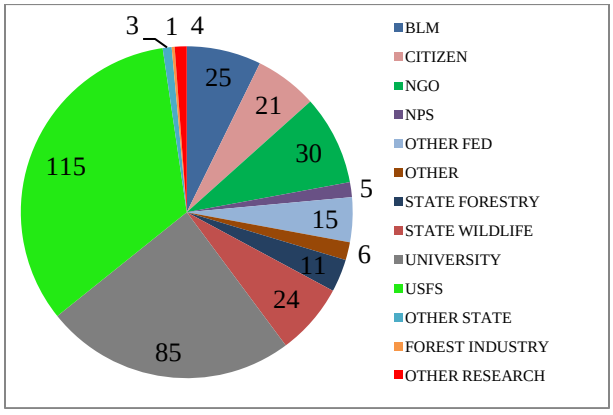
"…partnering to preserve and restore healthy aspen ecosystems."

NOTICE: The WAA is a user-driven organization. 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. **New members welcome!**

WAA HAPPENINGS

Who's Found the WAA?—Membership often jumps after WAA events and 2013 has been a very busy year for field workshops, conferences, and web activities. We currently have **345 members** and have had a steady increase among all institutional groups, with notable recent growth in NGO membership:



Aspen Genetics Webinar—An aspen genetics webinar, titled "Western Aspen Restoration Ecology" was held Oct. 29 featuring presentations by Karen Mock, Mary Lou Fairweather, and Jim Long. Judging by attendance, this was one of USU Forestry Extension's most popular webinars ever. If you missed it or would like to revisit some points, you may do so online at WAA Aspen webinar.

Recent fencing at the Pando Clone, central Utah, USA, shows sprouts up to 0.5 m height after only two months of protection *(left side photo). In 2014, experiments to stimulate additional regeneration within this protected portion of the 43 ha clone will begin. To learn more about the Pando Clone check the WAA Media link. (Photo: Paul Rogers).*

Agency Reports and Management Plans—A reminder that we are looking for all types of aspen-related documents for the electronic Aspen Bibliography. State and federal agency members: please send unpublished works such as reports, management plans, monitoring results, "white papers," or miscellaneous aspen-related document to p.rogers@usu.edu. These government documents, which do not fall under copy write protections, make an electronic database particularly rich as they are often unavailable elsewhere. Let others learn from your successful and not-so-successful projects!

Aspen Nominated as "State Tree"—A bill is being proposed in the Utah state legislature to change the "state tree" from the Blue Spruce (*Picea pungens*) to the quaking aspen. We will follow the progress of this bill as it advances during the state legislative session in 2014. In addition to aesthetic and scientific values, aspen brings economic benefits to Utahns in several ways, including water conservation, fire protection, ski industry attraction,

TREMBLINGS
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Vol. 4(4), November 2013

wood fiber, livestock forage, premium campsites, and wildlife viewing revenues.

UPCOMING EVENTS

***Restoring the West* Follow-up**—It was great to see so many WAA members who made the pre-conference reception, Steering Committee meeting, and information table at *RTW*. If you'd like to listen to archives of presentations from this conference go to the USU Forestry Extension website here and choose from the menu of speakers.

IUFRO 2014—Salt Lake City will host the 2014 World Congress of the International Union of Forest Research Organizations (IUFRO). Over 5,000 delegates from more than 100 countries are expected to attend this unique gathering. Issues will range from biodiversity, to changing climates, to forest health, to sustainable silviculture and biomass production. We expect multiple aspen-themed field trips and special topic sessions lead by WAA members.

COMMENTARY

Does Aspen Need Fire?

Douglas Shinneman, Research Fire Ecologist, U.S. Geological Survey, Forest and Rangeland Ecosystem Science Center, Boise, Idaho

It is commonly accepted that aspen needs fire or other stand-replacing disturbance to persist on many landscapes. The prevailing aspen-fire model, in a nutshell, could be stated as follows: After fire, aspen resprouts vigorously, often forming even-aged stands that dominate for decades, as long as browsing animals or other factors don't impede regeneration. Historically, periodic fire created cycles of aspen and conifer dominance, and produced shifting mosaics of different forest types across landscapes. Too long without fire (e.g., due to fire suppression and moist climate), and conifers extend their dominance, as aging and disease-prone aspen trees deteriorate and die with little or no replacement.

Because lack of fire is often cited as a primary cause for aspen decline, emulating natural disturbance patterns and processes has become a conventional management practice on many aspen landscapes. This approach is in accord with the prevailing model of aspen-fire ecology, in which aspen is considered to be a *fire-dependent* tree species. But, is it?

As with many complex dynamics in forest ecology – it depends. Although the above model may be appropriate for some landscapes, species relationships with natural disturbance agents such as fire are not constant across time and space. Various factors influence these relationships, including environmental setting, competition with other species, interaction among different disturbance agents (e.g., insects) and climate variability. Some early foresters suspected this, including Frederick Baker, who surveyed forests throughout the western U.S. during the early 20th century. Although he promoted the role of fire in aspen, Baker also noted in 1925: "From the many uneven-aged stands which exist in the Rocky Mountains, pointing to *repeated regeneration without the agency of fire*, it is evident that sprouting can remain sufficiently active to regenerate the stand with normal density, even at the maximum ages reached by aspen.'' [emphasis added]

In fact, depending on environmental setting, climate, and the relative abundance and species of conifers, aspen ecosystems can be shaped by different *fire regimes*, a term used to characterize fire attributes (e.g., frequency, size, severity) in a given landscape over time. This shouldn't be surprising, given the broad range of aspen in North America and its myriad environmental settings: including boreal aspen-conifer forests of the far north, aspen parklands of the northern Great Plains, aspen-cloaked slopes of the Rocky Mountains, and scattered groves of aspen in the arid Great Basin. In the western U.S. alone, different aspen forests may support fire regimes ranging from fire-independent,

TREMBLINGS
NEWSLETTER & BULLETIN BOARD
Vol. 4(4), November 2013

in which multi-aged, pure aspen stands perpetuate themselves without fire, to fire-dependent aspen-conifer communities, in which aspen persists primarily because periodic fire kills conifer competitors and promotes aspen regeneration.

Given the importance of aspen to society and to biodiversity, scientists and forest professionals are working together to identify and manage different roles of fire in aspen. Knowing how interactions among fire, climate, and environment helped to shape and support specific aspen community types in the past can help managers to more effectively maintain those aspen communities into the future, even as climate-fire-vegetation dynamics change and land use practices evolve.

RECENT ASPEN PUBLICATIONS

Beschta, R. L. and W. J. Ripple. 2013. Are wolves saving Yellowstone's aspen? A landscape-level test of a behaviorally mediated trophic cascade: comment. Ecology **94**:1420-1425.

Hogg, E., A. Barr, and T. Black. 2013. A simple soil moisture index for representing multi-year drought impacts on aspen productivity in the western Canadian interior. Agricultural and Forest Meteorology **178-179**:173-182.

Kauffman, M. J., J. F. Brodie, and E. S. Jules. 2013. Are wolves saving Yellowstone's aspen? A landscape-level test of a behaviorally mediated trophic cascade: reply. Ecology **94**:1425-1431.

Moran, E. V. and M. E. Kubiske. 2013. Can elevated CO_2 and ozone shift the genetic composition of aspen (*Populus tremuloides*) stands? New Phytologist **198**:466-475.

Morris, J. L., A. Brunelle, A. S. Munson, J. Spencer, and M. J. Power. 2013. Holocene vegetation and fire reconstructions from the Aquarius Plateau, Utah, USA. Quaternary International **310**:111-123.

Moulinier, J., F. Lorenzetti, and Y. Bergeron. 2013. Effects of a Forest Tent Caterpillar Outbreak on the Dynamics of Mixedwood Boreal Forests of Eastern Canada. Ecoscience **20**:182-193.

Parsons, E. W. R., J. L. Maron, and T. E. Martin. 2013. Elk herbivory alters small mammal assemblages in high-elevation drainages. Journal of Animal Ecology **82**:459-467.

Rai, H. S., K. E. Mock, B. A. Richardson, R. C. Cronn, K. J. Hayden, J. W. Wright, B. J. Knaus, and P. G. Wolf. 2013. Transcriptome characterization and detection of gene expression differences in aspen (Populus tremuloides). Tree genetics & genomes **9**:1031-1041.

Rogers, P. C., A. Jones, J. Catlin, J. Shuler, A. Morris, and M. Kuhns. 2013. Wolf Creek Ranch aspen monitoring report. Western Aspen Alliance, Utah State University, Logan, Utah. 21 p. PDF HERE

Schei, F. H., H. H. Blom, I. Gjerde, J.-A. Grytnes, E. Heegaard, and M. Sætersdal. 2013. Conservation of epiphytes: Single large or several small host trees? Biological Conservation **168**:144-151.

Schreiber, S. G., C. Ding, A. Hamann, U. G. Hacke, B. R. Thomas, and J. S. Brouard. 2013. Frost hardiness vs. growth performance in trembling aspen: an experimental test of assisted migration. Journal of Applied Ecology **50**:939-949.

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