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

FoNAF Report—Friends of Northern Arizona Forests are at it again. In cooperation with the US Forest Service, volunteers from FoNAF and Coconino Rural Environmental Corp are planting greenhouse-grown aspen suckers that are more resistant to browsers in experimental plots on the Coconino National Forest. Details of implementing this experiment may be found in a new report titled, "Propagating Aspen Clones: Survival in the 21st Century."

Polling All Members—Last fall the WAA co-sponsored an Aspen Regeneration webinar and it was very popular. You can replay that webinar here. We plan to put on a series of webinars in the coming year and we'd like your feedback on topics of interest or need. Please email the Director with your suggestions for an hour-long webinar and/or desirable speakers for addressing aspects of aspen sustainability.

New Aspen Website—Aspen Ecology features projects based in Dr. Sam St. Clair's research lab at Brigham Young University, as well as recent events and news items concerning aspen at large. St. Clair is a long-time collaborator with the WAA and has served on our Science Advisory Panel since its inception.

Aspen as "State Tree" Status—Utah State Senator Ralph Okerlund, R-Monroe, has officially submitted Senate Bill 41 "State Tree Change" for approval in the current legislative session. The legislative session in Utah runs from January - March, so we will follow-up on this proposal as it progresses. The current state tree for both Colorado and Utah - states with the first and second highest aspen cover, respectively - is the Blue Spruce (*Picea pungens*).

This December 2013 photo shows aspen logging residue deposited near an experimental harvest at Wolf Creek Ranch, Utah. Elk (Cervus elaphus) *tracks surround and cross the pile. Evidently, even masticated aspen retains desirable nutrients for this herbivore. (Photo: James Shuler).*

UPCOMING EVENTS

2014Aspen Field Workshops—Dates are not set yet, but we are now in the planning stages for two workshops in California, and one in each of the following locations: Platte River Valley Wyoming, Ashley National Forest (Utah), southern Colorado, and possibly Montana. All will be open to WAA members except the Colorado workshop (due to space limitations). Further details are forthcoming.

IUFRO 2014—Salt Lake City will host the 2014 World Congress of the International Union of Forest Research Organizations (IUFRO) in conjunction with the Society of American Foresters (SAF) and Canadian Institute of Forestry (CIF/IFC) annual

Western Aspen Alliance

TREMBLINGS

NEWSLETTER & BULLETIN BOARD

Vol. 5(1), February 2014

conventions October 5-11. Over 5,000 delegates from more than 100 countries are expected to attend this unique gathering. A convention that occurs at five-year intervals, **IUFRO has not been hosted in the U.S. since 1971!** Issues will range from biodiversity, to changing climates, to forest health, to sustainable silviculture and biomass production. We expect multiple aspen-centered field trips and special topic sessions lead by WAA members.

COMMENTARY

Did aspen decline go away?

John Guyon, Forest Pathologist, US Forest Service, Forest Health Protection, Ogden Field Office, Ogden, Utah

Biologists have been discussing "aspen decline" since the 1970's, but more recently events have led to increasing interest in the status of aspen forests. From around 2000 to 2010, almost 8 million acres of damaged aspen forest was documented from Canada to Mexico. Aerial surveys detected that the damage covered about 10% of the aspen host type in in the Intermountain West. Damage documented in aerial surveys has declined recently, but is still detectable. Episodic dieback and mortality appears to be part of the life history of aspen forests, but the scale of recent events seems unprecedented.

In the Intermountain West, we surveyed Utah, Nevada, Idaho, and Montana from 2006-2008. Overall, aspen stands surveyed in Nevada, Utah and western Wyoming were experiencing mortality of about a third of the overstory trees, and another third were rated as moderately to heavily damaged. Recruitment was greater than thresholds considered adequate for replacement in many areas, but varied widely in our surveys. Mortality and damage from insects and diseases were not as severe in Idaho and Montana. Damage has also been recorded in several other areas across the range of aspen in North America (e.g., Colorado, Alberta, eastern Canada), at varying levels of severity.

Two big questions remain: Will this damage occur again, and what caused it?

Additionally, there's been a lot of confusion about the meaning of terms like aspen dieback, decline, SAD (sudden aspen decline), and how these terms relate to aspen ecology. And, of course, all of this is occurring within the framework of grazing and browsing pressure and the disturbance history of aspen forests, or lack thereof.

I'll define them this way: Aspen dieback means something is killing aspen stems at a rate conspicuously higher than the normal rate of mortality. Aspen decline means that not only is the overstory dying, it's dying and replacement from new sprouts is not occurring. SAD is aspen decline as defined above, but quicker and associated with death of the clonal root system. There are a number of insect and disease agents that are commonly found in declining/dieback stands, most frequently canker diseases, wood borers, and aspen bark beetles. Some of these agents, most notably Cytospora canker, have exhibited a relationship with drought stress.

In the Intermountain West, the big pulse of dieback followed after a severe drought from 2000-2005. In Canada, researchers determined a key measure of drought stress (climatic moisture Index, CMI) that was associated with stands with heavy dieback. In Colorado, research shows drought-prone lower elevation sites and southern exposures showed the highest levels of SAD. In the Gila Mountains in Arizona a combination of a severe freezing event, drought, insect defoliation, and heavy browsing pressure has nearly eliminated low elevation aspen.

The interplay of multiple factors like grazing/browsing, advancing succession, and various damage agents can complicate the picture, but regional drought appears to be a critical factor leading to larger dieback/decline events. When will it occur again? The next drought will probably answer that question.

TREMBLINGS
NEWSLETTER & BULLETIN BOARD
Vol. 5(1), February 2014

RECENT ASPEN PUBLICATIONS

Bergqvist, G., R. Bergström, and M. Wallgren. 2014. Recent browsing damage by moose on Scots pine, birch and aspen in young commercial forests–effects of forage availability, moose population density and site productivity. Silva Fennica **48(1)**:ID 1077.

Couture, J., L. Holeski, and R. Lindroth. 2014. Long-term exposure to elevated CO2 and O3 alters aspen foliar chemistry across developmental stages. Plant, cell & environment **37**:758-765.

Edworthy, A. B. and K. Martin. 2013. Persistence of tree cavities used by cavity-nesting vertebrates declines in harvested forests. Journal of Wildlife Management **77**:770-776.

Hogg, E. H., A. G. Barr, and T. A. 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.

LeBlanc, P. A. 2014. Incorporating multi-cohort old aspen and mixedwood dynamics into a long-term forest management plan. The Forestry Chronicle **90**:50-58.

Man, R., H. Y. Chen, and A. Schafer. 2013. Salvage logging and forest renewal affect early aspen stand structure after catastrophic wind. Forest Ecology and Management **308**:1-8.

Mallik, A. U., D. P. Kreutzweiser, and C. M. Spalvieri. 2014. Forest regeneration in gaps seven years after partial harvesting in riparian buffers of boreal mixedwood streams. Forest Ecology and Management **312**:117-128.

Moulinier, J., F. Lorenzetti, and Y. Bergeron. 2014. Growth and mortality of trembling aspen (*Populus tremuloides*) in response to artificial defoliation. Acta Oecologica **55**:104-112.

Ripple, W. J., J. A. Estes, R. L. Beschta, C. C. Wilmers, E. G. Ritchie, M. Hebblewhite, J. Berger, B. Elmhagen, M. Letnic, and M. P. Nelson. 2014. Status and Ecological Effects of the World's Largest Carnivores. Science **343**:151-?.

Wachowski, J., S. M. Landhäusser, and V. J. Lieffers. 2014. Depth of root placement, root size and carbon reserves determine reproduction success of aspen root fragments. Forest Ecology and Management **313**:83-90.

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