TREMBLINGS

NEWSLETTER & BULLETIN BOARD

Vol. 5(3), August 2014

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

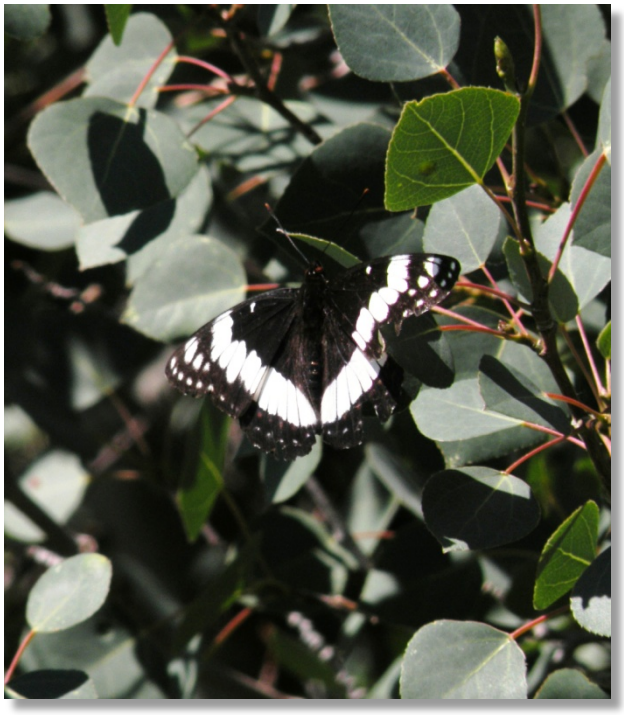
NOTICE: The WAA is a user-driven organization. Please send news items and announcements, contributions, **recent reports & publications**, photos, and commentary ideas to Paul Rogers: p.rogers@usu.edu. We encourage you to share *Tremblings* with your friends and colleagues. **New members welcome!**

WAA HAPPENINGS

WAA Membership Drive—The Western Aspen Alliance continues to grow and thrive, but we need your help in getting the word out to your colleagues. Between August and October 2014 we are initiating a membership drive culminating in our information table and member sign-up at IUFRO's World Congress (see **Upcoming Events** below). Please remind your associates working in forest management, monitoring, or research about our aspen-related services and free membership. New members can register at the WAA website.

Elk-Aspen, Southern Rockies—In late June, the WAA, Western Landowners Alliance, Trinchera Ranch, and Wyoming Wildlife Federation co-sponsored an aspen science-policy workshop at the Trinchera Ranch in Colorado. While the workshop addressed a number of topics it is fair to say that most visitors were surprised at the level of elk impacts on aspen and surrounding vegetation types. Attendees from other ranches along the Colorado-New Mexico bordered confirmed similar conditions. It is difficult to overstate the browsing pressure: nearly all disturbances or treatments in these areas require fenced protection to sustain aspen regeneration and, likely, future forests. We expect to follow-up with additional workshops, research, monitoring, and multi-agency/party collaborative actions in these highly impacted aspen ecosystems. Stay tuned.

WAA Director Down Under—Paul Rogers, WAA Director, will be on a Visiting Fellowship to the University of Queensland Aug. - Nov, 2014. Paul will guest-lecture in Biogeography, as well as conduct forest monitoring research. WAA activities will proceed as usual, but some "eucalyptus knowledge" may seep into the WAA community.



White admiral butterfly (Limenitis spp.) *rests on quaking aspen leaves in Grouse Creek Range of northwestern Utah, USA (Photo: Paul Rogers).*

UPCOMING EVENTS

Fall 2014 Aspen Field Workshops—Plans are in place for field workshops addressing aspen and forest management in the Custer National Forest, Montana (Oct. 6-7, contact Barb Pitman) and Lake Tahoe Basin, California (Oct. 28-29, contact Bobette Jones). We will announce additional details as they become available.

Western Aspen Alliance

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Restoring the West 2014—The WAA remains an perennial co-sponsor of the *RTW* series. This year's theme is, "Down by the River: managing for resilient riparian corridors." The conference takes place Oct. 21-22 on the Utah State University campus. Additional details may be found at the *RTW* website.

IUFRO World Congress—Salt Lake City will host the 2014 (Oct. 5-11) World Congress of the International Union of Forest Research Organizations (IUFRO) in conjunction with the annual conventions Society of American Foresters (SAF) and Canadian Institute of Forestry (CIF/IFC). 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

Rethinking aspen regeneration: the case for a bright future

Simon M. Landhäusser, Professor, Alberta School of Forest Science and Management, Dept. Renewable Resources, University of Alberta

Over the last 25 years, I have devoted most of my research to understanding the ecology of aspen. Much of the published science on aspen regeneration over recent decades has focused on its ability to reproduce vegetatively from root suckers and what factors influence its suckering success. This regeneration mechanism is a remarkable adaptation and displays aspen's formidable resiliency to disturbance. However, here I would like to take the opportunity to explore the much lesser known side of aspen regeneration: seeds.

In my interactions with researchers, managers, and practitioners involved in aspen regeneration, I have often come across beliefs that aspen does not reliably produce seeds, that its seeds have the longevity of a mayfly, and that they cannot be stored. These statements appear to be "aspen myths"; perhaps a result of misinformation or ignorance, as one can easily lose sight of the seedlings for all the suckers. The more recent literature, however, indicates aspen is commonly able to sexually reproduce and establish successfully. In my research on landscape-scale restoration of boreal forests, I often come across naturally establishing aspen seedlings, sometimes in numbers (>1000 stem ha^{-1}) sufficient for the development of closed canopy aspen forests. Moreover, some of these sites represent the harshest and most exposed conditions found in the boreal forest. Here, the success of aspen seedling establishment often appears to be dependent on specific micro-topographical features and substrates.

Over the last few years we have increased our knowledge about aspen seedlings and how they grow and establish naturally. In its early life, an aspen seedling is clearly root-focused; natural seedlings have root to shoot ratios of 8 or higher in their first year and can grow lateral roots over 2-3 m in length within the next growing season. This leads to my second point related to the planting of aspen. In Alberta alone 1,000,000 aspen seedlings are commercially produced and planted each year, mostly for boreal forest restoration. The misconception regarding the planting of aspen may have arisen from past studies and observations about the performance of aspen seedlings when planted in the field. I clearly remember about 20 years ago when I used commercially grown aspen seedlings in a

greenhouse study; the supposedly happy control seedlings died. Since then great strides have been made in understanding aspen seedling ecology, and with that, the quality of aspen seedling stock in nursery application. Applying this knowledge to nursery settings will take time, particularly since different metrics for assessing seedling quality will need testing. Further, I would like to remind people involved in forest regeneration and restoration how long it took nurseries to grow and produce good quality conifer seedlings.

We have just started with aspen. Being able to produce quality aspen planting stock will provide managers and practitioners with a whole new range of tools that may allow for the establishment of aspen in areas where it has been lost through disturbance, or its introduction in new areas where it is expected to thrive under changing climate scenarios. With the incredible genetic variation present in the wide ranging aspen, the possibility of establishing a large pool of genotypes through planting aspen of seed origin is also an important aspect to consider, as different genotypes might be better suited for the new climatic conditions. Maintaining existing aspen clones is important; however, new ones can be initiated. Bear in mind, at one time all clones began as a single seedling.

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**:ID 1077.

Beschta, R. L., J. Boone Kauffman, D. S. Dobkin, and L. M. Ellsworth. 2014. Long-term livestock grazing alters aspen age structure in the northwestern Great Basin. Forest Ecology and Management **329**:30-36.

Binkley, D., A. Alsanousi, and W. H. Romme. 2014. Age structure of aspen forests on the Uncompahgre Plateau, Colorado. Canadian Journal of Forest Research **44**:836-841.

Bose, A. K., S. Brais, and B. D. Harvey. 2014. Trembling aspen (*Populus tremuloides* Michx.) volume growth in the boreal mixedwood: Effect of partial harvesting, tree social status, and neighborhood competition. Forest Ecology and Management **327**:209-220.

Bose, A. K., B. D. Harvey, and S. Brais. 2014. Sapling recruitment and mortality dynamics following partial harvesting in aspen-dominated mixedwoods in eastern Canada. Forest Ecology and Management **329**:37-48.

Coop, J. D., K. J. Barker, A. D. Knight, and J. S. Pecharich. 2014. Aspen (*Populus tremuloides*) stand dynamics and understory plant community changes over 46years near Crested Butte, Colorado, USA. Forest Ecology and Management **318**:1-12.

Kirkey, J. 2014. Rapid Assessment of Ecological Resilience in Aspen Communities. Prescott College. [Thesis] 194 p.

Liu, J., M. A. Equiza, A. Navarro-Rodenas, S. H. Lee, and J. J. Zwiazek. 2014. Hydraulic adjustments in aspen (Populus tremuloides) seedlings following defoliation involve root and leaf aquaporins. Planta:1-12.

Mittanck, C. M., P. C. Rogers, R. D. Ramsey, D. L. Bartos, and R. J. Ryel. 2014. Exploring succession within aspen communities using a habitat-based modeling approach. Ecological Modeling **288**:203-212.

Nunneley, J., O. Van Auken, and J. Karges. 2014. Outlier Stands of Quaking Aspen in the Davis Mountains of West Texas: Clone or Clones? American Journal of Plant Sciences **5**:2298.

Painter, L. E., R. L. Beschta, E. J. Larsen, and W. J. Ripple. 2014. After long-term decline, are aspen recovering in northern Yellowstone? Forest Ecology and Management **329**:108-117.

Runyon, M. J., D. B. Tyers, B. F. Sowell, and C. N. Gower. 2014. Aspen Restoration Using Beaver on the

Northern Yellowstone Winter Range under Reduced Ungulate Herbivory. Restoration Ecology **22**:555-561.

Wan, H. Y., A. C. Olson, K. D. Muncey, and S. B. St Clair. 2014. Legacy effects of fire size and severity on forest regeneration, recruitment, and wildlife activity in aspen forests. Forest Ecology and Management **329**:59-68.

Wilde, T. 2014. The Effect of Large Fire on Aspen Recruitment. Journal of the NACAA **7**(1): May.

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