



# TREMBLINGS

## NEWSLETTER & BULLETIN BOARD

Vol. 7(4), November 2016

*“...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 or rebuttals to Paul Rogers, Director/Editor: [p.rogers@usu.edu](mailto:p.rogers@usu.edu). We encourage you to share *Tremblings* with your friends and colleagues. **New members welcome!**

### WAA HAPPENINGS

**Aspen in Education**—For the second year, Ogden (UT) International Baccalaureate students visited the Pando clone near Fish Lake, Utah Oct. 14-15 to conduct their own experiments as well as initiate a new monitoring program at this unique single-organism forest. For many urban students this field trip represents their first time ever in a wild setting. Not a bad choice for the first time out.

**Recent Webinar Available Online**—WAA Director Paul Rogers recently presented a webinar examining aspen, fire, and climate change for the 21<sup>st</sup> century. The webinar was sponsored by several [Landscape Conservation Cooperative](#) units centered on western U.S. states. If you were unable to attend the webinar you may access the full [presentation online](#).

**Like us on Facebook**—Don't forget to check in with happenings, events, and cool photography with the WAA on social media. Become a friend [now on FB](#) and pass it on!

**Montana Workshop Reinvigorates Working Group**—In late August the WAA cosponsored a workshop with the U.S. Forest Service and Bureau of Land Management at Red Lodge, MT. Twenty-eight participants shared discussions and toured aspen sites on the Custer Gallatin NF in southcentral Montana. A subgroup visited a BLM project site as an optional portion of the workshop. Participants agreed to reinstate the region-wide (including northern Idaho) Northern Rockies aspen working group as one

byproduct of this gathering. Contact [Tim Benedict](#), Helena National Forest, if you have interest in this aspen working group.



*The giant Pando aspen clone in central Utah from an alternate perspective – the rear window of a Prius under full glow of Pando's autumnal foliage. The circular object in the reflection is a bicycle wheel lying inside the vehicle (Photo: Dennis Hinkamp, Utah State University Extension).*

**Help Forming an Aspen Working Group**—Thinking of forming an aspen working group in your region? Working groups are comprised of diverse agency and interest groups to spur professional education, management, or research actions. The WAA can help get things started. Contact the [WAA Director](#).

**Restoring the West Online**—If you missed the 2016 Restoring the West conference, you can access archived presentations at the [USU Forestry Extension website](#). This year's theme is, "[Climate, Disturbance, and Restoration in the Intermountain West](#)." RTW 2016 will gather experts in climate science, landscape restoration, and forest ecology to describe restoration techniques for an uncertain future, and to give examples where these techniques are working.



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### UPCOMING EVENTS

**2017 Aspen Workshops**—Each year we anticipate co-hosting 2-3 summer aspen workshops. In 2017 we will once again collaborate with Wyoming Game & Fish for the Aspen Days series August 16-18 in Buffalo, WY (details to follow). Tentative plans are also formulating for our first workshop in Alaska, date TBD. Please contact the [WAA Director](#) if you would like to organize an event in your area or have questions about planned workshops. Typically these events will involve science primer presentations and case studies, followed by greater emphasis on field-based discussions with diverse agency, NGO, and private landowner participants.

**NAFEW 2017**—The University of Alberta is hosting the 11<sup>th</sup> North America Forest Ecology Workshop June 19-22, 2017 in Edmonton, Alberta, Canada. The theme will be: *Sustaining Forests from Restoration to Conservation*. There will be a Special Session on the great North American aspen transect, as well as many other aspen-related posters and presentations. The conference will include one-day in-conference field trips to see both natural and industrial landscapes. Further details and regular updates can be found at the [conference website](#).

### COMMENTARY

#### **A search for browse-resistant aspen**

**Ralph Baierlein**, Friends of Northern Arizona Forests, Flagstaff, Arizona



Here and there on the Coconino National Forest, some stands of young aspen thrive. Without fences, steep slopes, especially rocky terrain, or natural jack-strawing from a jumble of knee-high fallen aspen, regrowth can be successful (first photo).

Friends of Northern Arizona Forests ([FoNAF](#)) asked itself, could these genotypes possess natural resistance to browsing by elk and deer, perhaps because they have high concentrations of bitter chemicals (such as salicin)? More importantly, if we could generate saplings with the same genome and then plant them elsewhere on the forest, would the saplings deter browsing and thrive? We set out to answer that question.



In the years 2011-2014, FoNAF collected 119 roots from six locations within 20 miles of Flagstaff and at elevations ranging from 6850' to 8750' (2088-2667 m). After a disastrous first year in a respected greenhouse, we turned to the Research Greenhouse of Northern Arizona University. Manager Phil Patterson skillfully produced some 2,000 saplings—many a meter tall—from 86 different root cuttings.

From 2013 to 2015, FoNAF planted at three test sites: 347 “control” saplings went into exclosures and 745 “test” saplings were planted outside. For a year we provided protective cones and mesh sleeves—to facilitate root growth despite a tendency for elk to pull up plants wantonly. Then the protection was stripped off in mid-July and the real test began.

The second photo (below) shows a crew watering the 2013 planting and illustrates the scale of the project.

In August 2016 I made inventories of each test site. The criterion for a “healthy sapling” was “leaves all the way to the top of the original stem.” By that standard, the control exclosures from 2013-2015 showed healthy saplings at percentages of 26%, 82%, and 67%, respectively.



In contrast, I could not find a single healthy sapling among the 745 test plantings. Those saplings were in one of three conditions: 1) heavily browsed, 2) stem dead or heavily browsed, but some leaves at the base, or 3) dead or missing.

FoNAF had set out to answer the question, if we could generate saplings with the same genome and then plant them elsewhere on the forest, would the saplings resist browsing and thrive? The results of the study provide a clear answer: No. That’s not the answer that we had hoped for, but at least it’s unequivocal. Our results from all three test sites show that elk and deer would destroy any saplings from the 86 root segments that we tested if those saplings were planted on a landscape scale on the Coconino NF.

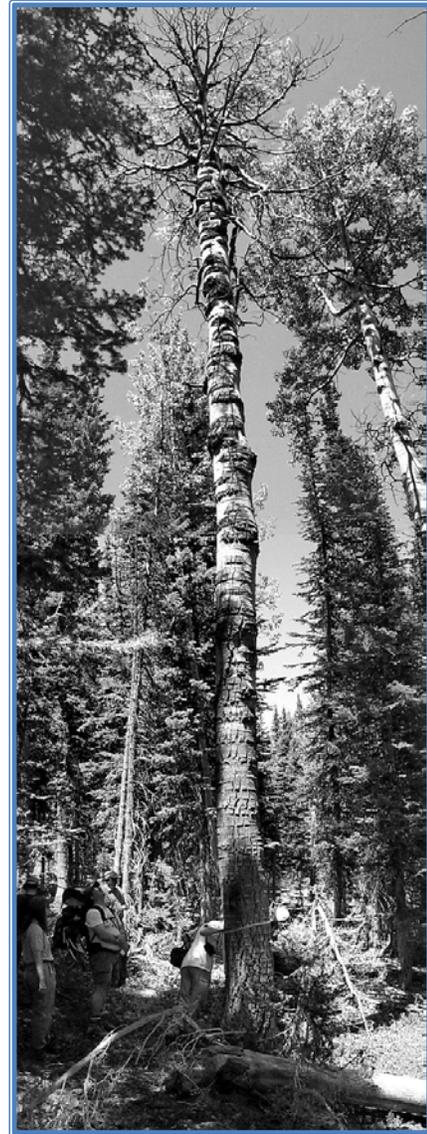
Here’s another way to state the outcome. The apparent resistance to browsing that the genotypes show in their original sites does not carry over to planting at other sites on the national forest.

Of course, one then wonders what provides the “apparent resistance to browsing” in the original sites. Suggestions have been offered, but I will avoid speculation and will propose no explanation here. A complete report documenting the experiment can be found via [this link](#) to FoNAF’s website.

### WAA Creates

“WAA Creates” showcases creative aspen-related contributions. We encourage fiction, folklore, poetry, drawings, paintings, photography, and other artistic expressions that may be captured in a brief-form newsletter. Please [contact the Director](#) with suggestions or feedback on this feature.

Standing for Three Centuries  
(photography)



Doug Page, Cedar City, Utah

*This composite of two photographs was taken with an early model low-end digital camera. Two photos were needed to capture the entire tree. The original was color but this black and white version blends the exposures better. The merge was done manually several years ago without the aid of a computer merge program.*



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Editors Note: *This image is a follow-up to our August 2016 Tremblings 7(3) commentary where this 297 year old tree was the focal point of a discussion about long-term persistence of scattered aspen among spruce-fir forests.*

### RECENT ASPEN PUBLICATIONS

- Barker, H. L., D. Smith, G. Stanosz, and R. L. Lindroth. 2016. Host genetics and environment shape fungal pathogen incidence on a foundation forest tree species, *Populus tremuloides*. *Canadian Journal of Forest Research* **46**:1167-1172.
- Berrill, J.-P., C. M. Dagley, and S. A. Coppeto. 2016. Predicting Treatment Longevity after Successive Conifer Removals in Sierra Nevada Aspen Restoration. *Ecological Restoration* **34**:236-244.
- Boonstra, R., H. P. Andreassen, S. Boutin, J. Hušek, R. A. Ims, C. J. Krebs, C. Skarpe, and P. Wabakken. 2016. Why Do the Boreal Forest Ecosystems of Northwestern Europe Differ from Those of Western North America? *BioScience* **66**:722-734.
- Britton, J. M., R. J. DeRose, K. E. Mock, and J. N. Long. 2016. Herbivory and advance reproduction influence quaking aspen regeneration response to management in southern Utah, USA. *Canadian Journal of Forest Research* **46**:674-682.
- Curzon, M. T., A. W. D'Amato, and B. J. Palik. 2016. Bioenergy harvest impacts to biodiversity and resilience vary across aspen-dominated forest ecosystems in the Lake States region, USA. *Applied Vegetation Science* **19**:667-678.
- Flesher, K. N., M. F. Jurgensen, and O. Gailing. 2016. Comparison of phenotypic and genetic clone delineation in quaking aspen, *Populus tremuloides*. *Trees* **30**:1657-1667.
- Harvey, B. J., D. C. Donato, and M. G. Turner. 2016. High and dry: post-fire tree seedling establishment in subalpine forests decreases with post-fire drought and large stand-replacing burn patches. *Global Ecology and Biogeography* **25**:655-669.
- Kabzems, R., P. G. Comeau, C. N. Filipescu, B. Rogers, and A. F. Linnell Nemec. 2016. Creating boreal mixedwoods by planting spruce under aspen: successful establishment in uncertain future climates 1. *Canadian Journal of Forest Research* **46**:1-7.
- Keefover-Ring, K., K. F. Rubert-Nason, A. E. Bennett, and R. L. Lindroth. 2016. Growth and chemical responses of trembling aspen to simulated browsing and ungulate saliva. *Journal of Plant Ecology* **9**:474-484.
- Lewandowski, T. E., J. A. Forrester, D. J. Mladenoff, A. W. D'Amato, and B. J. Palik. 2016. Response of the soil microbial community and soil nutrient bioavailability to biomass harvesting and reserve tree retention in northern Minnesota aspen-dominated forests. *Applied Soil Ecology* **99**:110-117.
- Newman, J. R., D. Wagner, and P. Doak. 2016. Impact of extrafloral nectar availability and plant genotype on ant (*Hymenoptera: Formicidae*) visitation to quaking aspen (*Salicaceae*). *The Canadian Entomologist* **148**:36-42.
- Nlungu-Kweta, P., A. Leduc, and Y. Bergeron. 2016. Climate and disturbance regime effects on aspen (*Populus tremuloides* Michx.) stand structure and composition along an east-west transect in Canada's boreal forest. *Forestry* 1-12, *doi: 10.1093/forestry/cpw026*.
- Rogers, P. C., and S. B. S. Clair. 2016. Quaking Aspen in Utah: Integrating Recent Science with Management. *Rangelands* **38**:266-272. [45-day open access here!](#)
- Shinneman, D. J., A. A. Halford, C. Howell, K. D. Krasnow, and E. K. Strand. 2016. Management of aspen in a changing environment. Pages 60-67 in J. C. Chamvers, editor. *Great Basin Factsheet Series 2016*. Great Basin Fire Science Exchange, Reno, NV.
- Small, B. A., J. K. Frey, and C. C. Gard. 2016. Livestock grazing limits beaver restoration in northern New Mexico. *Restoration Ecology* **24**:646-655.
- Stringer, A. P., and M. J. Gaywood. 2016. The impacts of beavers *Castor* spp. on biodiversity and the ecological basis for their reintroduction to Scotland, UK. *Mammal Review* **46**:270-283.



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### CONTACT WAA:

**Paul C. Rogers**, Director, Western Aspen Alliance,  
Utah State University: [Email](#)

**Emmon H. Rogers**, *Tremblings* Reviewer/Editor

**Mary Anne Hedrich**, Guest Reviewer/Editor

Website: <http://www.western-aspen-alliance.org/>

