TREMBLINGS

NEWSLETTER & BULLETIN BOARD

Vol. 7(3), August 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. We encourage you to share *Tremblings* with your friends and colleagues. **New members welcome!**

WAA HAPPENINGS

Pando in the News—A article by Emily Benson in *New Scientist* (28 July, 2016) chronicles recent restoration activities at the giant Pando aspen clone in central Utah. The research, authored by Paul Rogers and Jody Gale, was presented at the North American Congress for Conservation Biology, July 18, in Madison, Wisconsin. Preliminary results indicate that aspen regeneration was not significantly different between treatment types. However, regeneration was slightly more robust when treatments were compared to no treatment where browsers were excluded on all sites. All fenced areas produced enough stems to replace dying overstory trees. A link to the article can be found here. A technical publication supporting this work is in preparation.

Like us on Facebook—For those tuned in to Facebook this is an excellent way to get updates, see intriguing photos, and join the discussion regarding aspen in the West. We're now on FB, so pass it on!

Arizona Aspen Restoration—Friends of Northern Arizona Forests are up to their old tricks again—assisting the U.S. Forest service with aspen protection from herbivory through exclosure construction and maintenance! See a progress report on their activities from summer 2016 here.

WAA Website Changes—If you're experiencing difficulties at the WAA website it may be due to some changes going on in the background this summer/fall. In particular, new members since June 2016 may have been lost in this change. If you did not receive this edition of *Tremblings* (perhaps your colleagues have) please let us know and we will manually enter your email address and other information until things are functioning properly again. Our apologies to anyone who is inadvertently left out or otherwise inconvenienced.

The USGS in Fort Collins, Colorado, led by researcher Tim Assal, is assessing aspen cover change with methods for digitizing canopy cover using "fish-eye" photography in conjunction with remote sensing techniques – see Vol. 7(2), 2016, for publication. Here Tim (kneeling with laptop) documents attendees 'outstanding in their field' at the 2016 Aspen Days in Lander Wyoming (Photo: Timothy Assal).

UPCOMING EVENTS

Aspen Workshop—The remaining 2016 aspen workshop is scheduled for Red Lodge, Montana August 30 - Sept. 1 (Organizer, Tim Benedict, USFS). This workshop is co-sponsored by the U.S. Forest Service, Bureau of Land Management, and the Western Aspen Alliance.

Restoring the West—Join us Oct. 18-19 at Utah State University for this annual conference targeting

Western Aspen Alliance

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the crossroads between science and management. 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.

NAFEW 2017— The University of Alberta is hosting the 11th 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 significant focus on aspen research and management issues in addition to other topics. The conference will include one-day in-conference field trips to see both natural and industrial landscapes. A call for special session proposals is now open. Further details and regular updates can be found at the conference website.

COMMENTARY

Can aspen persist in conifer dominated forests?

Douglas H. Page, retired federal forester/silviculturists, Cedar City, Utah
John D. Shaw, Analysis Team Leader, US Forest Service, Rocky Mountain Research Station, Ogden, Utah

In 1998 we measured a large, old aspen in a mixed spruce-fir-aspen forest on the Utah State University T.W. Daniel Experimental Forest in northern Utah. The tree was 297 years old – about the same age as the oldest spruce in the stand. A search of the forestry literature revealed that the oldest published age for an aspen came from a tree in the Sierra Nevada Range in California, and that tree would have been had been 266 years old, if it was still alive at the time the Daniel Forest aspen was cored. Subsequently, a graduate student in Colorado described aspen in the 275-year range, and those stands were much like the Daniel Forest stands – mostly spruce-fir with scattered aspen.

Although the Sierra aspen was in a pure pocket of aspen, the Utah and Colorado examples raise a question about the conventional wisdom of aspen being considered a seral species to spruce and fir in western forests. In the Utah stand there were at least two other strongly-represented cohorts of aspen -- about 90 and 190 years of age – alongside smaller aspen. It was clear that aspen was successfully recruiting (albeit slowly), though the stand was dominated by more shade-tolerant conifers.

How does aspen persist in such situations when it is the classic example of a shade intolerant species? The answer has important implications regionally because aspen is present as a minority component on more acres than it is dominant. In Utah for example, aspen is dominant on only 46% of the acres on which it is found. The other 54% are generally thought of as being on the road to "successional doom". That may not be the case on all acres.

It is possible that aspen can remain as a component of mixed stands for very long periods, and perhaps indefinitely in the absence of stand-replacing disturbance. Aspen may persist by regenerating in gaps created by conifer mortality, which can create enough space for individual aspen to regenerate. Aspen suckers from older tree roots can exploit gaps quickly.

The figure below shows how this mechanism might work in comparison to the conventional idea of aspen as a "remnant" in mixed stands. The conventional sequence would be A to B to D, where a previously aspen-dominated stand would eventually be succeeded by conifers, eventually leaving only remnants of the original aspen stand. Without stand-replacing disturbance, the remnant aspen would eventually die out and aspen would be eliminated. Under the alternative scenario (gap-replacement, or A to B to C) a stand could start out as aspen-dominated, but aspen is never fully displaced by conifer species.

We suggest that both scenarios may exist, but more research is required to tell which mechanism operates on specific sites. Genetic analysis may

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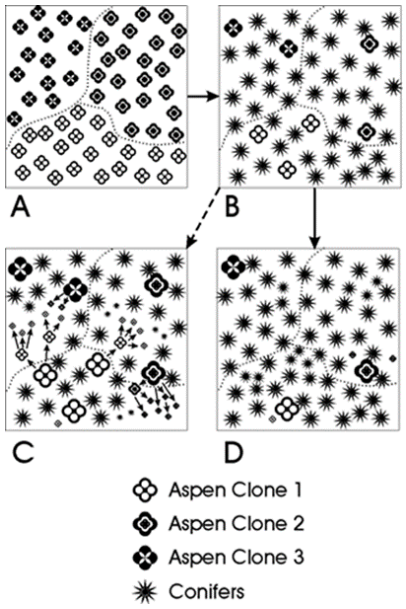
provide clues; instead of patches of clones, ramets of a single parent might have "wandered" through the stand over time as they exploited gaps in different directions. The two scenarios should therefore produce different patterns of genes within a stand.

The "persistence" mechanism suggests alternatives for managing aspen in the Interior West.



Explanation:

A – Aspen stand initiation (conventional model)

B – Conifer establishment in understory of aspen (conventional model)

OR

Conifer establishment concurrent with aspen (alternate model)

C – Conifer dominance, aspen persistence in gaps (alternate model)

D – Conifer dominance, remnant aspen stems (conventional model)

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.

Untitled (oil painting)

This painting was completed in 2011 at the Aspen Guard Station near Mancos, Colorado, on the San Juan National Forest while Frank Cope was an Artist in Residence.

Frank Cope, Cortez, Colorado

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RECENT ASPEN PUBLICATIONS

Bandau, F. 2016. Importance of tannins for responses of aspen to anthropogenic nitrogen enrichment. Umea Plant Sciences Center, Umea University, Umea, Sweden. [Dissertation]

Bradshaw, L., and D. M. Waller. 2016. Impacts of white-tailed deer on regional patterns of forest tree recruitment. Forest Ecology and Management **375**:1-11.

Beschta, R. L., and W. J. Ripple. 2016. Riparian vegetation recovery in Yellowstone: The first two decades after wolf reintroduction. Biological Conservation **198**:93-103.

Cole, C. T., M. T. Stevens, J. E. Anderson, and R. L. Lindroth. 2016. Heterozygosity, gender, and the growth-defense trade-off in quaking aspen. Oecologia **181**:381-390.

Couture, J., C. Mason, C. Habeck, and R. Lindroth. 2016. Behavioral and morphological responses of an insect herbivore to low nutrient quality are inhibited by plant chemical defenses. Arthropod-Plant Interactions **10**:341-349.

Gagné, C., J. Mainguy, and D. Fortin. 2016. The impact of forest harvesting on caribou–moose–wolf interactions decreases along a latitudinal gradient. Biological Conservation **197**:215-222.

Jung, T. S., and P. M. Kukka. 2016. Influence of habitat type on the decay and disappearance of elk *Cervus canadensis* pellets in boreal forest of northwestern Canada. Wildlife Biology **22**:160-166.

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