WESTERN ASPEN ALLIANCE

TREMBLINGS

NEWSLETTER & BULLETIN BOARD

Vol. 13(3), August 2022

Partnering to preserve and restore healthy aspen ecosystems

MEMBER PARTICIPATION: The WAA is a virtual science-based community. Send us aspen-related publications, management plans, and media mentions and we'll help spread the word. Contact Paul Rogers, Director: p.rogers@usu.edu.

Share *Tremblings* with your friends and colleagues.

New members welcome! Sign up here

WAA HAPPENINGS

Western Aspen & Fire Webinar Available—World Wood Day (March 21) and the USDA Forest Service (Rocky Mountain Research Station; RMRS) are hosting a series on fire in the western U.S. WAA Director Paul Rogers and RMRS scientists emeriti Stanley Kitchen and Wayne Shepperd address fire ecology, management, and climate futures. This one-hour installment addresses basic aspen ecology, fire sciences, restoration methods, and climate influences. The full-length video is now available here.

Northern Arizona Aspen Volunteers Needed—Friends of Northern Arizona Forests is in need of helpers for aspen restoration and fencing projects. Many or most aspen stands in this region require protective fencing from wild and domestic ungulates and you can help! Since Covid has been around the past few years several of their regular volunteers have stopped coming. Help replenish the FoNAF's ranks and give local aspen a boost, too! Contact Dave Downes to become a member.

Spring Fund Drive Report—Well, we had a very low response to the WAA spring fund drive, but a little is better than none! Our records show a total of $1,315 from four separate donors during this period. (The 2021 Fund Drive yielded $2,065.) If you were planning to donate and forgot, among myriad other "to do" items, don't fret. We're happy to take donations anytime it is convenient for you. As a reminder, the WAA relies on agency partners and member donations to keep afloat. Last year's member poll showed that most members (61%) favored a personal donation over other mechanisms for supporting the organization. We hope modest contributions from many will continue to power the WAA's annual administrative costs. Thank you!

Alongside heat, drought, and pandemic the whimsy of summer brings aspen in a clown's visage at this Wilson, Wyoming home. Perhaps this is a sign that we all take advantage of a chuckle when those tiny moments of respite come along during wearying times (Photo: Paul Rogers).

New Oystershell Scale Brief Available—WAA Brief #8 addressing the burgeoning oystershell scale (*Lepidosaphes ulmi*; OSS) issue in the American West is now available. WAA members can help us by reporting new sightings outside Arizona by taking photos and

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carefully documenting the location of OSS. Report OSS outbreaks to your USFS Regional office Forest Health Protection staff or to the WAA Director, who will relay the information. You may find new and old WAA Briefs by visiting our website.

WAA Director Email Change (last call)—WAA Director, Paul Rogers, has a new email address. Please update your address book and change his email contact information to p.rogers@usu.edu.

UPCOMING EVENTS

Upcoming Aspen Naturalist Hike—Swaner Preserve & EcoCenter will host an educational excursion with Paul Rogers, WAA Director, on August 25, 2022 beginning at Bloods Lake Trailhead, near Park City, Utah. Organizers anticipate a moderate-level hike, as well as discussions of aspen, fire, and climate in wildland and developed forest areas. You may find details about this event, as well as how to register, on the Swaner EcoCenter website.

Wildfire Near Home—Summit County (Utah) Open Space and Swaner Preserve & EcoCenter will present a panel discussion on "Wildfire and Local Landscapes: Impacts of a Changing Climate" Sept. 20, 2022 from 6:30-8:00 p.m. at the Swaner EcoCenter. Specifics are still in the works, but a panel of experts will engage the public on living with fire in a changing world.

Humanities in the Wild—Oct. 1, 2022 at the Pando Aspen Clone. Drs. Nalini Nadkarni and Paul Rogers will lead a walk and talk addressing one of the most amazing organisms on the planet. If interested, visit the Humanities in the Wild Facebook site for more details. This event is hosted by Utah Humanities and SUU's Center for Diversity and Inclusion.

Summer 2022 Aspen Workshops:

- The Colorado Aspen Summit will take place Aug. 9-11 near Granby, Colorado. Contact Gloria Edwards if interested.

We're open to future proposals for aspen workshops in your area. Please contact WAA Director Paul Rogers.

COMMENTARY

Aspen seedlings for boreal mine reclamation

Bradley Pinno, PhD, RPF, Associate Professor of Silviculture, University of Alberta

Trembling aspen is a major component of the forests in Alberta. Aspen is an early successional species which occurs in both pure and mixed stands. It also provides the timber for pulp mills and oriented strand board mills with a harvest rate of nearly 12M m^3 (5.08 BBF) of aspen timber annually in Alberta. Aspen normally regenerates vigorously after disturbance from root suckers in the range of 10,000–100,000 stems per hectare. However, after industrial disturbances such as mining or the creation of well sites where the soil has been removed, root suckering is not a viable regeneration option. Given the large areas to be reclaimed and reforested after these industrial disturbances, understanding the techniques to encourage regeneration from seed are important.

Aspen was previously thought to regenerate almost exclusively from suckering but recent examples have shown that when the conditions are right, aspen seedlings can be abundant. In the context of land reclamation, the conditions determining aspen establishment are mainly a function of the reclamation soil type. Mine reclamation soils are created from the natural soils salvaged during the mining operations. In northern Alberta, these soils are mixtures of mineral and organic material derived from either upland or wetland forests. In terms of aspen seedling regeneration, the peaty wetland-derived reclamation soils tend to have higher aspen seedling densities of up to 20,000 stems per hectare compared to 2,000 stems per hectare on sites reclaimed with upland-derived soils.

Successful seedling regeneration of any species depends on having an adequate seed supply, a suitable microsite, and an appropriate environment. Aspen tends

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to produce abundant seed crops in most years, with millions of tiny seeds capable of long-distance dispersal. The local timing of seed rain in June also matches local rainfall patterns so, provided the aspen seeds find an appropriate microsite, spring rains help them become established in most years. Industrial reclamation is done with large equipment and the wetland-derived soils tend to be rougher after reclamation compared with the upland-derived soil. Increased roughness captures more seeds and provides a variety of potential microsites for seedling establishment. These peaty soils also have a higher water holding capacity and lower levels of initial vegetative competition . The result is the perfect microsite and environmental conditions for aspen seedlings which cannot tolerate competition and need continuous moisture when young. Once established, aspen seedlings grow at a similar rate between reclamation soil types, but the regeneration density tends to be very different.

Aspen seedling naturally established on a reclamation site in northern Alberta.

The general goal for forest land reclamation in Alberta is to create self-sustaining forest ecosystems after industrial developments are completed. Regardless of the environment you work in or the specific land management goals of your organization, I think this example of aspen seedling regeneration on reclaimed industrial sites provides a great lesson in putting ecological knowledge toward practical application. For naturally establishing aspen seedlings, this means thinking about seed supply, suitable microsites, and appropriate environmental conditions.

WAA *Creates*

"WAA Creates" requests geographically diverse artistic aspen-related contributions. We encourage fiction, folklore, poetry, drawings, paintings, photography, and other artistic expressions. Send your stuff to share with WAA readers.

Untitled
(marker and paint with Q-Tip on paper)

Desmond Wolf
Coeur d'Alene, Idaho

From the artist: *Desmond created this artwork in Kindergarten art class where the kids were asked to draw trees. "It's fall and the leaves are falling off the trees." Desmond chose to draw aspen because he likes to play in the aspen patch in his backyard. Desmond was 6 at the time he drew this and is now 8 years old. (By permission, Desmond's mom, Laura Wolf.)*

RECENT ASPEN PUBLICATIONS

A word on Open Access: The Western Aspen Alliance strongly supports open access publishing (CC-BY). Articles with hyperlinks below are available for download and sharing following Creative Commons rules for attribution.

Bjelanovic, I., P. Comeau, S. Meredith, and B. Roth. 2022. Emulating Succession of Boreal Mixedwood Forests in Alberta Using Understory Protection Harvesting. Forests **13**:533.

Braziunas, K. H., D. C. Abendroth, and M. G. Turner. 2022. Young forests and fire: Using lidar–imagery fusion to explore fuels and burn severity in a subalpine forest reburn. Ecosphere **13**:e4096.

Cahoon, S. M., P. F. Sullivan, and A. N. Gray. 2022. Interactions among wildfire, forest type and landscape position are key determinants of boreal forest carbon stocks. Journal of Ecology **00**:1-18.

DeRose, R. J., R. S. Gardner, R. L. Lindroth, and K. E. Mock. 2022. Polyploidy and growth—defense tradeoffs in natural populations of western quaking Aspen. Journal of Chemical Ecology **48**:431–440.

Foster, A. C., J. K. Shuman, B. M. Rogers, X. J. Walker, M. C. Mack, L. L. Bourgeau-Chavez, S. Veraverbeke, and S. J. Goetz. 2022. Bottom-up drivers of future fire regimes in western boreal North America. Environmental Research Letters **17**:025006.

Gaur, R. K., I. N. de Abreu, and B. R. Albrectsen. 2022. Compensatory phenolic induction dynamics in aspen after aphid infestation. Scientific Reports **12**:9582.

Goessen, R., N. Isabel, C. Wehenkel, N. Pavy, L. Tischenko, L. Touchette, I. Giguère, M. C. Gros-Louis, J. Laroche, and B. Boyle. 2022. Coping with environmental constraints: Geographically divergent adaptive evolution and germination plasticity in the transcontinental Populus tremuloides. Plants, People, Planet:1-17.

Kozlov, M. V., and V. Zverev. 2022. Suitability of European Aspen (*Populus tremula*) for Rehabilitation of Severely Polluted Areas. Russian Journal of Ecology **53**:181-190.

Marchais, M., D. Arseneault, and Y. Bergeron. 2022. The rapid expansion of Populus tremuloides due to anthropogenic disturbances in eastern Canada. Canadian Journal of Forest Research **52**:1-11.

Novák, J., A. Kusbach, J. Šebesta, and P. C. Rogers. 2022. Soil macrocharcoals reveal millennial-scale stability at the Pando aspen clonal colony, Utah, USA. Forest Ecology and Management **521**:120436.

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

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