

### *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](mailto:p.rogers@usu.edu).

Share *Tremblings* with your friends and colleagues.

**New members welcome!** [Sign up here](#)

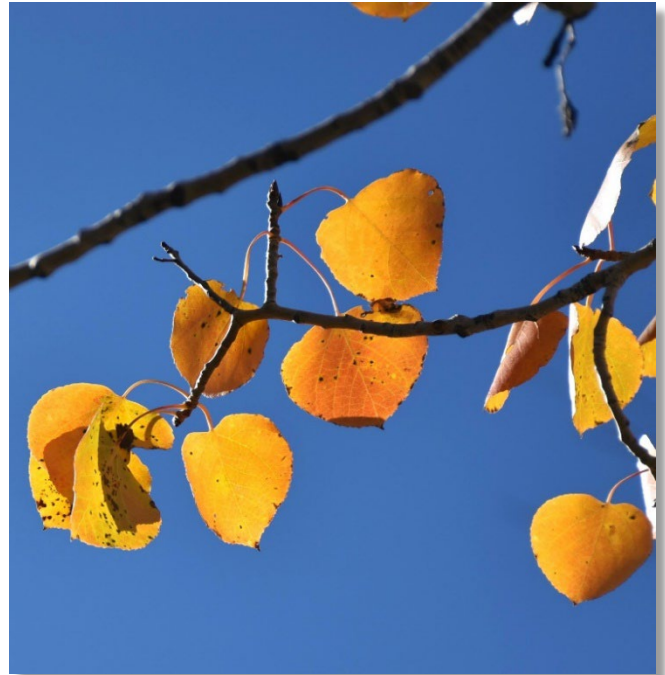
### WAA HAPPENINGS

**A Sappy Aspen Experience?**—The syrup industry is continually striving to diversify their sources due to limits of geography, climate, and appropriate species' sugar levels. Potential alternative tree syrups from western species such as American sycamore (*Platanus occidentalis*), birch (*Betula* spp.), walnut (*Juglans* spp.), and quaking aspen (*Populus tremuloides*) have not been widely explored. New research aims to 1) to evaluate the potential of tapping these species for syrup production and 2) to develop sound information for Extension programs to educate landowners in the region on sap collection and syrup production techniques. For more information on this project, contact Darren McAvoy, Utah State University Extension Forester, by [email](#) or phone [435-797-0560](tel:435-797-0560).

**Charting a New WAA Future**—The Western Aspen Alliance will be entering 2025 with limited financial resources and Director Paul Rogers easing into retirement. Perhaps you, as a WAA member, have linkages to individuals or institutions who may have the ability and resources to partner with Utah State University or even take a lead position in leading the WAA into a new phase? We regularly hear from members and workshop participants about the value of our programs, so now we'd like your ideas about maintaining this model. [Contact Director Rogers](#) with your suggestions.

**Aspen Art = Amazing**—Sobia Ahmad of Carnegie Mellon University, along with her colleagues Benny Shaffer and Jessica Fuquay, have produced a black &

white movie composed entirely of 16 mm film developed with sustainable processing techniques (using coffee-based developer!). The film is called "[A Quaking Song: One Big Eye Expanded](#)." Weaving scientific, folkloric, and mystical ways of relating to Pando, the project reflects on the underground network of roots to explore a shared ecology between humans and more-than-humans. The Pando aspen clone is a 106 acre (42 ha) single aspen clone on the Fishlake National Forest in southcentral Utah, USA.



*In the fall, aspen foliage tantalizes the realm between gold-yellow-peach-orange-rose-red. From the Scott River basin in northern California we witnessed all these shades and more while engaging with challenging management situations in diverse settings. A character not overlooked on this stage is the deep azure sky! (Photo: Paul Rogers).*

**New Clues On Pando's Age**—A team of scientists are zeroing in on giving Pando an age estimate using somatic mutations within the genetic code. While numerous questions remain, and the age range is quite wide (at least to the human eye), an article in [Nature magazine](#) suggest that Pando is from 16,000-80,000 years old. This

research has further ramifications for understanding within (giant) organism evolutionary history.

### UPCOMING EVENTS

**‘Watershed Moment’ Events**—Several events will be taking place over the next six months to highlight the new multi-authored series of essays titled “[A Watershed Moment: the American West in the Age of Limits](#)” (2024, University of Utah Press). This is an important contemporary look at place-based issues and solutions centered on the theme of recognizing limits facing the American West. Here is a short list from the current schedule: University of Wyoming, Nov. 18; University of Utah, Stegner Center Nov. 22; Westminster University, Salt Lake City, Nov. 22; Valley Bookstore, Jackson, WY Dec 7; Jackson Hole History Museum Feb. 27, 2025; Rocky Mountain Land Use Institute Conference (Univ. Denver), March 6&7, 2025. Additional book release events are being scheduled in Tempe, AZ, Durango, CO, Moab, UT, Boise, ID, and Cody, WY. Check with your local bookseller or consider scheduling an event in your area or contact (editor) [Robert Frodeman](#).

### **Summer 2025 Aspen Workshops:**

Interested in hosting an aspen science-management workshop near you? We can help! Please note, a new model for such events requires identifying support funding sources up front rather than the previous ad hoc approach. Please contact [WAA Director](#) Paul Rogers about potential workshops.

### COMMENTARY

#### **Aspen Stewardship With PBR**

**Paul C. Rogers**, Director, Western Aspen Alliance, Adjunct Professor (Environment & Society), Associate (Ecology Center), Utah State University.



How do we effectively piece together aspen science for better management? This question has been the nexus of the Western Aspen Alliance’s (WAA) mission since our 2008 inception. If you participated in one of more than 40 WAA field-based workshops you can attest that evolving research findings from numerous interlacing disciplines makes for a challenging science-management landscape. However, this clear departure from historical and linear ‘command and control’ approaches, though demanding, incorporates vital multi-dimensionality (e.g., social, cultural, institutional elements; plants, animals, soils, water, climate, etc.) into an adaptive framework. Process-based restoration (PBR) involves consideration of both science and institutional practices; physical and cultural elements are equally in play, so it’s best to acknowledge this up front.

By its very nature, we know that science shifts and evolves as new results emerge. And at some point managers must act, often with only partial ecological knowledge at hand. The foundation of PBR is in the wielding of ‘best available science.’ For more than fifteen years the WAA has used a variety of methods to make that research available to members via *Tremblings*, the [Aspen Bibliography](#), [WAA Briefs](#), Aspen Workshops, public events, and personal consultations. Making state-of-the-science aspen studies available, in both technical and non-technical forms, is meant to ease use by field personnel who may not have the time or inclination to access peer-reviewed works. While workshops, webinars, or Briefs may provide welcome inroads to aspen topics, a bit more effort will be required to read, speak with experts, and conduct field trials to develop sound action plans. To be clear, field learning

involves before-after data collection; monitoring as if it matters, because it does!

Policy, like science, is a moving target. The way we operate in our various institutions—the “what” and “how” of our jobs—comes with ever changing guardrails. Such accepted organizational procedures govern monitoring, treatment implementation, wildfire/wildlife decisions, and project funding. In many ways our agencies “grew up” with simple linear (i.e., unquestioned expertise) practices. But how do we steward aspen-related projects when we don’t carry “the answers” in our back pockets every day? The framework of adaptive-monitoring sets us up to change course, based



on site specific input, to best respond to system reactions. If we’ve learned one thing through this past century, it’s that we are

regularly surprised by post-treatment aspen responses; if not immediately, then in subsequent decades.

Biodiversity retention is a key goal of quaking aspen research and practice. As we think globally and act locally, both scholars and practitioners worldwide wish for aspen to flourish for the betterment of human, plant, animal, soil, and water communities. Integration of contemporary science and stewardship benefits from a PBR strategy. Monitoring acts as the glue to bring previously disparate elements into a single management collage. Anticipating surprises institutionally, as well as adopting humility personally, positions us to change course without either policy or ego encumbering ecosystem resilience. Our flexibility in guiding research-to-action will be central to future successes for aspen here, there, and everywhere.

### WAA Creates

“WAA Creates” requests diverse aspen-related art from across our membership. We encourage fiction, folklore, poetry, drawings, paintings, photography, and other artistic expressions. [Send your stuff](#) to Tremblings.

### Quaking Color in Motion

(photo sequence)



**Dick Spencer**

Preston, Idaho

From the artist: *I love photographing aspens. They are part of one big family that share their shimmering shaking leaves with me!*

Learn more about Dick’s wildlife and landscape photography by email at [muddyspencer@yahoo.com](mailto:muddyspencer@yahoo.com)

### 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.*

Ayres, G. A., P. Z. Fulé, and W. T. Flatley. 2024. Response of aspen to a warming climate along a latitudinal gradient in the Rocky Mountains, USA. *Canadian Journal of Forest Research* [54:1282-1295](#).

Brice, E. M., E. J. Larsen, D. R. Stahler, and D. R. MacNulty. 2024. The primacy of density-mediated indirect effects in a community of wolves, elk, and aspen. *Ecological Monographs*. n/a:[e1627](#).

Crouch, C. D., A. M. Grady, N. P. Wilhelmi, R. W. Hofstetter, M. M. Moore, and K. M. Waring. 2024. Extent, impacts and



- drivers of oystershell scale invasions in aspen ecosystems. *NeoBiota* [95:1-33](#).
- Dixit, A., and O. Burney. 2024. Nursery cultural practices influence morphological and physiological aspen seedling traits: implications for post-fire restoration. *Canadian Journal of Forest Research* 54:1076-1084.
- Jiang, Y., Z. Wang, Z. Zhang, X. Ding, S. Jiang, and J. Huang. 2024. Enhancing forest insect outbreak detection by integrating tree-ring and climate variables. *Journal of Forestry Research* [35:106](#).
- Larocque, G. R., F. W. Bell, E. B. Searle, S. J. Mayor, T. Schiks, and P. Kalantari. 2024. Simulating the Long-Term Response of Forest Succession to Climate Change in the Boreal Forest of Northern Ontario, Canada. *Forests* [15:1417](#).
- Lindroth, R. L., M. R. Zierden, C. J. Morrow, and P. C. Fernandez. 2024. Forest defoliation by an invasive outbreak insect: Catastrophic consequences for a charismatic mega moth. *Ecology and Evolution* [14:e70046](#).
- Maleki, K., P. Marchand, D. Charron, and Y. Bergeron. 2024. Seedling recruitment in response to stand composition, interannual climate variability, and soil disturbance in the boreal mixed woods of Canada. *Journal of Vegetation Science* [35:e13237](#).
- Nesbit, K. A., L. Yocom, A. M. Trudgeon, P. C. Rogers, D. J. McAvoy, E. Lane, and R. J. DeRose. Stand composition and development stage affect fuel characteristics of quaking aspen forests in UT, USA. *Canadian Journal of Forest Research* (In press).
- Semper, C. 2024. Stand Dynamics and Stand Development of Conventional and Mixedwood Aspen Systems in Northern Minnesota. University of Minnesota, Minneapolis, Minnesota. 63 pp, [[MS Thesis](#).]
- Sharma, M. 2024. Modelling Climate Effects on Site Productivity and Developing Site Index Conversion Equations for Jack Pine and Trembling Aspen Mixed Stands. *Climate* (2225-1154) [12:114](#).
- Spei, B. A., P. C. Goebel, D. M. Kashian, E. Strand, and G. Harley. 2024. Relative potential for stand persistence of riparian and upland aspen stands of a semi-arid montane landscape of the Southern Rocky Mountains. *Canadian Journal of Forest Research*. (In press).
- Wang, D., M. Zhang, M. Gong, and Y.-H. Chui. 2024. Evaluation of Major Physical and Mechanical Properties of Trembling Aspen Lumber. *Materials* [17:2952](#).
- Wright, T. E., Y. Chikamoto, J. D. Birch, and J. A. Lutz. 2024. Remote Sensing Detection of Growing Season Freeze-Induced Defoliation of Montane Quaking Aspen (*Populus tremuloides*) in Southern Utah, USA. *Remote Sensing* [16:3477](#).

### CONTACT WAA:

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

**Emmon H. Rogers**, *Tremblings* Reviewer/Editor, Lewis & Clark Co. Library, MT

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



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