TREMBLINGS

NEWSLETTER & BULLETIN BOARD

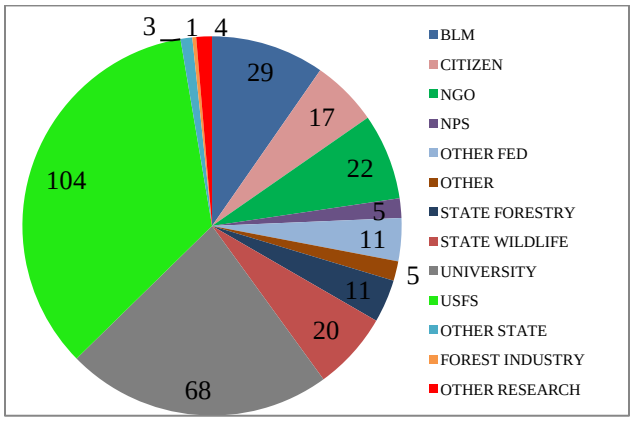
Vol. 3(3), August 2012

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

NOTICE: The WAA is a user-driven organization. *Tremblings* will attempt to capture the greater aspen user group's wants and needs. 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!

WAA HAPPENINGS

WAA membership reaches 300—The Western Aspen Alliance now has 300 members. Participants hail from a variety of organizations and institutions. Here is a current look at membership by institutional category:



Feedback on WAA Forum—The online Aspen Forum has been active for most of the summer with little use. Please check out the discussion topics, or add your own, but let us know what you think. Our intent is to air your perspectives and to, hopefully, advance our collective understanding on aspen issues. If the Forum continues to have low use, we may cancel this feature from the website and move on to other outreach projects.

New work on avian diversity and grazing—USGS researcher, Dr. Susan Earnst (*Tremblings* Vol.2[4], commentary) and USFWS are collaborating on the 20-year anniversary aspen and bird surveys of Hart Mountain National Antelope Refuge, Oregon. Permanent plots in riparian and snowpocket aspen were surveyed immediately after cattle were removed(1991-1993), a decade later (2000-2002), and now the first of 3 years of surveys 20 years after cattle removal (2012-2014). Comparisons of the initial surveys to one decade later indicate changes in aspen stand structure and substantial increases in avian abundance. (See Earnst, et al., **Recent Aspen Publications**)

Survey crews from Wyoming Game & Fish and US Forest Service remeasure 1970s-era prescribed burn recovery plots for aspen regeneration and recruitment. These locations were among the first intentionally set fires for aspen improvement in the western US. Grand Teton National Park is in the background (Photo: Paul Rogers, Jackson Hole, Wyoming, USA).

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WAA Aspen Symposium follow-up—The June 27-28 "Resilience in Quaking Aspen" symposium held at High Lonesome Ranch in western Colorado was a great success. Review papers were presented addressing functional types, cover change, fire ecology, bark beetle/aspen interactions, defenses from herbivory, aspen-ungulate impacts, trophic cascades, facilitation/competition, recent mortality and climate, genetics, and human dimensions of aspen topics. For those who were not in attendance a copy of the program, with paper abstracts, is now available at the WAA website. Stay tuned for an upcoming Special Issue of Forest Ecology and Management where these works are expected to be published in the coming year.

UPCOMING EVENTS

Pando clone tour and discussion—Jason Brown and Paul Rogers will host a public tour of the giant Pando aspen clone in central Utah on Saturday, Sept. 8. The group will explore general aspen ecology, as well as the current issues surrounding Pando's future. All are welcome, though there is an RSVP deadline of Sept. 5. Further details about the event can be found at Utah Interfaith Power & Light.

"Aspen Days" in Jackson, Wyoming—This event has been rescheduled The US Forest Service, Teton Science School, Wyoming Game & Fish, and WAA are cosponsoring a week of aspen-related activities in western Wyoming September 25-26. Events will include field workshops and an evening of public presentations addressing local, regional, and national aspen topics. Dale Bartos, Paul Rogers, and other area experts will be speaking and participating in these activities. For more information click here.

COMMENTARY

No simple answer to "What killed the Aspen?"

Mary Lou Fairweather, Plant Pathologist, Arizona Zone Forest Health Protection, US Forest Service, Flagstaff, Arizona

The recent impacts to aspen in central Arizona are so apparent that I even get questioned at social gatherings: "Tell me again, what is killing the aspen?" The answer is complicated, and harkens back to a muddled media interview. I met the reporter at the Arboretum at Flagstaff and rambled on about drought, spring frost, fire suppression, forest succession, secondary insects and diseases, and ungulate browsing. "But what killed the aspen?" the reporter asked. Nearby an Arboretum docent led a group of visitors to a small aspen grove and simply explained drought had killed large trees and young trees are being lost to herbivory. So, the docent made the evening news.

Although this incident illustrates the power of simple explanations, the complex story portrays the gravity of Arizona's aspen and associated species; one that continues to evolve. The Arboretum is surrounded by a sturdy fence, so young aspen groves there are an aberration to the surrounding forest. Across much of central Arizona aspen recruitment has been limited for the past 100+ years to fenced exclosures or steep terrain. Gus Pearson, one of the first US Forest Service researchers, constructed fences here in the early 1900s to keep sheep and cattle out of aspen study plots. Later, as Rocky Mountain elk (*Cervus elaphus*) became established, fencing became more costly to build and maintain. On some National Forests an army of dedicated volunteers (e.g. Friends of Northern Arizona Forests) aids in the success of aspen recruitment projects.

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Since the mid-1990s, fire suppression and late successional species are no longer an issue in sizable burned areas. Aspen suckers rise and allow an opportunity for recruitment to larger sizes, but with unaltered ungulate impacts they are often quickly consumed. This is particularly evident right after fire, because aspen is one of the few food sources available. In one area we observed 95% aspen sprouts browsed the year following fire, with only elk implicated.

Climate change outlooks further challenge collaboration between land managers and state game managers to reduce game populations. The expression "aspen is doomed anyway" sometimes slips out. However, the status of quaking aspen in Arizona is not uniform across the state. The decrease in aspen dominant forests in central Arizona is not found to the north and south where stand replacing fires have successfully allowed recruitment and expansion of aspen dominant stands, even in flat and gently sloped areas. This includes the Kaibab Plateau in northern Arizona (detached by the Grand Canyon), and the southern Arizona sky islands (surrounded by desert). Successful recruitment is partly due to low to absent elk populations.

Fortunately, we have observed copious aspen seed and subsequent seedlings in burned areas across the state (photo at right). Combined with natural selection processes toward drought tolerant plants, perhaps aspen can remain a minor component of Arizona's forests, if even more minor than before. Regrettably, we still lack explanatory sounds bites for the evening news.

Aspen is thought to regenerate primarily from vegetative root sprouting. Here true aspen seedlings (new genotypes) are shown following a wildfire in central Arizona, USA. (Photo: Mary Lour Fairweather).

RECENT ASPEN PUBLICATIONS

Anyomia, K. A., F. Rauliera, D. Mailly, Martin P. Girardinc, and Y. Bergeron. 2012. Using height growth to model local and regional response of trembling aspen (*Populus tremuloides* Michx.) to climate within the boreal forest of western Québec. *Ecological Modeling* **243**:123-132.

Dixon, G.B. 2012. Relationships between genetic diversity, clonal structure, and sudden aspen decline in Kaibab National Forest, Arizona. Western Carolina University [MS Thesis], 103 p.

Earnst, S.L., Dobkin, D.S., and Ballard, J.A. 2012. Changes in avian and plant communities of aspen woodlands over 12 years after livestock removal in the northwestern Great Basin. *Conservation Biology* DOI-10.1111/j.1523-1739.2012.01903.

Endress, B. A., M. J. Wisdom, M. Vavra, C. G. Parks, B. L. Dick, B. J. Naylor, and J. M. Boyd. 2012. Effects of ungulate herbivory on aspen, cottonwood, and willow development under forest fuels treatment regimes. *Forest Ecology and Management* **276**:33-40.

Kebli, H., S. Brais, G. Kernaghan, and P. Drouin. 2012. Impact of harvesting intensity on wood-inhabiting fungi in boreal aspen forests of Eastern Canada. *Forest Ecology and Management* **79**:45-54.

Kelleher, C. T., J. Wilkin, J. Zhuang, A. J. Cortés, A. L. P. Quintero, T. F. Gallagher, J. Bohlmann, C. J. Douglas, B. E. Ellis, and K. Ritland. 2012. SNP discovery, gene diversity, and linkage disequilibrium in wild populations of *Populus tremuloides*. *Tree Genetics & Genomes* 8:821-829.

Kulakowski, D., C. Matthews, D. Jarvis, and T. T. Veblen. 2012. Compounded disturbances in sub-alpine forests in western Colorado favour future dominance by quaking aspen (*Populus tremuloides*). *J. Vegetation Science*. DOI: 10.1111/j.1654-1103.2012.01437.x

Meneses, N., J. K. Bailey, G. J. Allana, R. K. Bangert, M. A. Bowker, B. J. Rehill, G. M. Wimp, R. L. Lindroth, and T. G. Whitham. 2012. Arthropod Community Similarity in Clonal Stands of Aspen: A Test of the Genetic Similarity Rule. *Ecoscience* **19**:48-58.

Stevens, M. T., A. C. Gusse, and R. L. Lindroth. 2012. Genotypic Differences and Prior Defoliation Affect Re-Growth and Phytochemistry after Coppicing in *Populus tremuloides*. *J. Chemical Ecology* **38**:306-314.

Way, D. A., J.-C. Dome, and R. B. Jackson. 2012. Elevated growth temperatures alter hydraulic characteristics in trembling aspen (*Populus tremuloides*) seedlings: implications for tree drought tolerance. *Plant, Cell & Environment*: DOI:10.1111/j.1365-3040.2012.02557.x

Zegler, T. J., M. M. Moore, M. L. Fairweather, K. B. Ireland, and P. Z. Fule. 2012. *Populus tremuloides* mortality near the southwestern edge of its range. *Forest Ecology and Management* 282:196-207.

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