TREMBLINGS

NEWSLETTER & BULLETIN BOARD

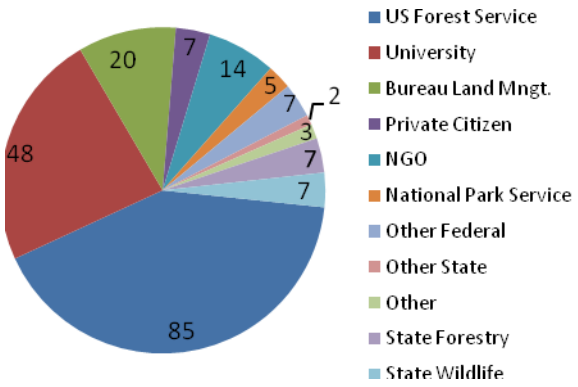
Vol. 1(3), Nov. 2010

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

The WAA is a user-driven organization. *Tremblings* will attempt to capture the greater aspen user group's wants and needs. Please send suggestions, contributions, recent publications, photos, and commentary to Paul Rogers (p.rogers@usu.edu).

WAA HAPPENINGS

WAA Membership Landmark—The Western Aspen Alliance has surpassed 200 members. Diversity within the organization is also increasing. **Membership by Institutional Category** is shown:



Aspen Bibliography Reaches Milestone—Student workers at the Quinney Natural Resources Research Library have completed entry of the +7,000 record aspen citation database obtained from the Aspen Delineation Project (thank you David Burton!). The fully functional database can be accessed from the WAA website. Depending on your location (e.g., many universities), citations may be linked to actual articles. Future plans include creating PDFs from older agency documents and other non-published materials. *Your contributions of published and non-published documents are welcome at any time*.

Pando Clone—A field trip sponsored by the Utah Forest Restoration Working Group yielded a call for needed restoration on "the world's largest living organism" at the earliest possible date. The Pando clone is functionally a pure aspen stand 43 hectares (106 acres) in size located on the Fishlake National Forest in central Utah, USA. As the attached photo shows, there is widespread mortality of mature trees and very limited regeneration or recruitment. Lack of sprouting is thought to be largely from native ungulates, but there is also some livestock grazing in the area. See the WAA website, Media tab, for several recent stories addressing the current situation in the Pando clone.

Cody Mittanck (USU Graduate Student) and Robert Campbell (Fishlake National Forest, Ecologist) examine portions of the Pando clone where canopy mortality was estimated to reach 75% (Photo: Paul Rogers).

Aspen Expertise Database—All members should have recently received notice of initiation of the WAA Expertise Database. The basic purpose of this program is to provide an online data bank of research and management skills from within our membership. On a voluntary basis, we wish to put you in direct contact with the expertise you need to address aspen issues, be they applied problems in your administrative district or research networking to form regional-level consortia. Please feel free to give us feedback for improving the system as you

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put it into practice. We'd love to hear your success stories, as well!

UFRWG Guidelines Update—Utah Forest Restoration Working Group is working out the final kinks in the "Guidelines for aspen restoration on the National Forests in Utah" (see Vol. 1[2] *Tremblings*). A key element of this work has been finding middle ground with state wildlife interests over the topic of large herbivore browsing of aspen shoots. Many western U.S. states, as well as land managers internationally, are tacking this difficult subject in their various conservation efforts, so we hope that this final product will have broader applications.

New Science Advisory Panel Members—In our effort to diversify disciplinary interests among WAA technical advisors we have added two new members in recent months. Please welcome Drs. Cindy Swanson (US Forest Service, Economics/social science) and William Ripple (Oregon State Univ., wildlife sciences) to the SAP.

UPCOMING EVENTS

Mountain Pine Beetle and Aspen Dynamics Update—The field trip scheduled for Oct. 7 was rescheduled for June 2011 due to wildfires in the area at that time. Stay tuned for information updates as this important meeting develops.

Restoring the West Follow-up— If you missed this conference, PowerPoint presentations and audio will soon be posted on the conference website. There were several presentations by leading scientists addressing ungulate herbivory of aspen. Visit http://restoringthewest.org/ to view these presentations in the near future.

COMMENTARY

Aspen (*Populus tremuloides*) and biodiversity

Robert L. Beschta is an Emeritus Professor, Forest Ecosystems and Society, Oregon State University, Corvallis, Oregon.

Many years ago, as an undergraduate, I took a range course in which the concept of "increaser" and "decreaser" plants was presented. That is, on sites where significant herbivory by large mammals occurs, either from livestock or high densities of wild ungulates, plants that are more palatable or less tolerant of herbivory tend to decrease over time. Whereas other plants may increase if, for example, they are relatively unpalatable, have features that allow a plant to resist herbivory (e.g., thorns), or are simply capable of establishing, growing, and reproducing in the presence of significant herbivory.

At the time, this concept seemed to have some merit for understanding plant responses to ungulate herbivory and led to the conclusion that more herbivory simply reshuffled the relative frequency of various plants in a given area. However, if the foraging pressure on a site continued to mount (e.g., more large herbivores or longer duration of foraging), this could potentially lead, over time, to the local extirpation of "decreasers" and an abundance of "increasers."

Aspen, it seems, doesn't neatly fit into the increaser versus decreaser dichotomy. It often grows in individual stands with high densities of suckers (i.e., root sprouts) along the edges of the stand that can withstand some level of herbivory. However, aspen recruitment (i.e., the

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growth of sprouts into tall saplings and eventually trees) in many stands across the American West is no longer occurring since they have been experiencing relatively high levels of herbivory. In contrast, where ungulate browsing of aspen suckers has been significantly reduced or eliminated (e.g., exclosure fencing), they are normally capable of growing above the browse level of the dominant herbivores.

Aspen is obviously an important species and worthy of efforts to improve/recover recruitment in herbivory impacted stands. However, often lost in such discussions is concern about understory vegetation—the native shrubs, forbs, and grasses that are normally associated with aspen stands—which may be unable to survive high levels of herbivory.

After riparian areas, aspen plant communities are typically some of the most biodiverse and may be associated with as many as 100+ vascular species. Where aspen are in decline from long-term herbivory, has the plant community composition changed significantly for palatable species with much shorter life histories? Have understory plants that decades ago were characterized by range managers as "decreasers" been locally or regionally extirpated? What's the ramification of changing species composition to a myriad of wildlife species that normally utilize aspen plant communities for food and habitat requirements? What has been happening to understory vegetation has been little studied or discussed, as land managers, researchers, and the public instead focus on the iconic aspen. Thus, any desire to "recover" degraded aspen stands in the western US needs to be broadened to include the full range of understory species—species crucial to maintaining the biodiversity of these ecosystems.

RECENT PUBLICATIONS

Currit, N.; St. Clair, S.B. 2010. Assessing the impact of extreme climatic events on aspen defoliation using MODIS imagery. Geocarto International 25(2):133-147.

Darbaha, J.N. T.; Kubiskec, M.E.; Nelsonc, N.; Ketsd, K.; Riikonene, J.; Soberd, A.; Rousea, L.; Karnosky, D.F. 2010. Will photosynthetic capacity of aspen trees acclimate after long-term exposure to elevated CO2 and O3? Environmental Pollution158(4):983-991.

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Pierce, A.D.; Taylor, A.H. 2010. Competition and regeneration in quaking aspen-white fir (*Populus tremuloides-Abies concolor*) forests in the northern Sierra Nevada, USA. Journal of Vegetation Science 21:507-519.

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(Populus tremuloides) leaves in relation to extrafloral nectaries and epidermal leaf mining. Journal of Chemical Ecology 36(4):369-377.

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