



TREMBLINGS

NEWSLETTER & BULLETIN BOARD

Vol. 4(2), May 2013

"...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

Aspen Special Issue of *FEM*—*Forest Ecology and Management's* July issue will feature 10 review papers under the title, "**Resilience in Quaking Aspen: restoring ecosystem processes through applied science.**" This Special Issue is the culmination of a WAA initiative to provide state-of-the-science reviews to managers and scientists on aspen topics affecting long-term cover change and ungulate browsing. Citations marked with ● in this issue's **RECENT ASPEN PUBLICATIONS** are found in the Special Issue of *FEM*.

Aspen on the Radio—KRCL radio from Salt Lake City, Utah recently aired the first in a series of programs featuring interviews with WAA Director Paul Rogers. Topics include Pando Clone, ungulate impacts, and the status of aspen in the western United States. You may listen to this 3.5 minute interview here and look for future episodes under the Media tab on the [WAA homepage](#).

Engaging Aspen Wildlife Issues—The WAA has begun an outreach initiative to state, federal, and university wildlife professionals and scientists. In early May we presented materials at the Western States and Provinces Deer & Elk Workshop in Missoula, Montana. More broadly, improving communication and sharing responsibility for wildlife issues between land and wildlife managers is desirable, particularly in times of budget constraint. The WAA is here to listen, learn, and



Autumn colors of European Aspen (Populus tremula) in a conifer dominated forest in Sweden. This issue features a commentary on the evolution of aspen management as it pertains to key issues in Scandinavian forests (Photo: Lars Edenius).

work with all partners in an objective, science-based, manner. Wildlife managers, please consider attending or organizing a WAA field workshop in your area.

UPCOMING EVENTS

Aspen Session at NAFEW—The 9th North American Forest Ecology Workshop (<http://nafew.org/>) will be held June 16–20, 2013 in Bloomington, Indiana. **NAFEW will feature a**



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special session titled, "Applied Aspen Biogeography." The session will be hosted by Paul Rogers, Francine Tremblay, and Yves Bergeron. The conference allows forest ecologists, silviculturists, wildlife biologists, and other forest researchers and managers from Canada, Mexico, Central America, and the United States to gather and exchange current research and management approaches within this year's conference backdrop of the US central hardwood forests.

Southeast Idaho Aspen Field Tour—Idaho Fish and Game, in conjunction with the U.S. Forest Service, will be conducting a field tour of recent aspen treatments in southeast Idaho July 16-17. Details are still being worked out, but interested persons should contact [Terry Thomas](#), Idaho Fish and Game, Upper Snake Regional office, Idaho Falls.

New Mexico Aspen Workshop—The Sante Fe National Forest is hosting an aspen workshop and field tour at Jemez Springs, New Mexico July 30-31. Participants will be looking at stands on USFS and Valles Caldera National Preserve lands. Interested participants may find out more about Jemez Mountains collaborative restoration efforts through their recent [proposal](#). Please contact [Jeremy Marshall](#), SW Jemez Implementation Coordinator to RSVP and for other logistical questions.

Southwest Wyoming Aspen Workshop—[Kevin Spence](#), Wyoming Game & Fish, has organized a field workshop August 5-6, near Rock Springs, Wyoming. Dale Bartos, Bob Campbell, and Paul Rogers will lead discussions addressing aspen treatments, ungulate herbivory, regeneration monitoring, and disturbance ecology.

Restoring the West Features Aspen—As a follow-up to the 2012 "**Resilience in Quaking Aspen**" symposium, the WAA is co-sponsoring the annual [Restoring the West](#) conference at Utah State University October 16-17, 2013. Many of the same aspen topics published in the July 2013 edition of *Forest Ecology and Management* (see WAA

Happenings) will be covered here, but geared for a broader land manager audience. This year's RTW theme is, "Change Agents and Managing for Forest Resilience". The **WAA will host a welcoming reception** October 15 at 5:30 p.m. at the Caine House adjacent to Utah State University. All speakers and current WAA members are encouraged to attend, discuss aspen issues, and enjoy free refreshments.

COMMENTARY

Aspen management in Sweden – from pest to keystone species

Lars Edenius, Professor in Wildlife Ecology, Senior Lecturer and Extension Specialist, Department of Wildlife, Fish & Environmental Studies, Swedish University of Agricultural Sciences, Umeå, Sweden



I am honored to be the first Scandinavian scientist to author a *Tremblings* commentary. I will take this opportunity to briefly outline the recent history of aspen and the problems facing today's aspen management in Sweden.

Recent decades have seen a dramatic change in aspen management in Sweden. With the introduction of large-scale clear-cutting forest management practices after World War II, aspen was intensively combated by mechanical and chemical clearing, which lasted until the early 1980s. Exponential moose (*Alces alces*) population growth occurred during the same time period, but surprisingly the overall density of young aspen (<10 cm DBH) increased. After the peak in the early 1970s density of young aspen have remained stable at pre-modern levels. It is therefore a bit puzzling that the total



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volume of aspen has doubled since the early 1950s.

With the advent of biodiversity issues in Swedish (and European, more broadly) forestry in the 1980s, aspen has become recognized as one of the most valuable trees for biodiversity conservation, and there is growing concern over conservation of the many specialized species, invertebrates and lichens in particular, associated with aspen. Considering the positive trend in aspen volume growth, this concern may seem unwarranted. A closer look at the National Forest Survey data however reveals that most aspen today occurs along forest-farmland and other open land edges. This is a recent phenomenon related to changes in disturbance regime, including loss of wildfire, reduced browsing pressure from livestock around settlements, and abandonment of marginal farmland. In other words, there has been a spatial re-distribution of aspen in the landscape away from forest interiors towards forest edges. Conservation studies show that many of the red-listed (a.k.a., threatened or endangered) species dependent on aspen thrive better on aspen growing in forest interiors. Management thus is faced with the dilemma of having lots of aspen but not where it is optimal for species conservation.

Thus, a major concern in present day aspen management in Sweden is promoting aspen regeneration in forest interiors. Where moose densities are high, recruitment into larger size classes are seriously hampered. My own research suggests that recruitment to heights safe from browsing may be delayed 14-35 years dependent on the levels of browsing. It also has become clear that regeneration niches for aspen have been seriously reduced due to the near elimination of fire as disturbance factor.

Reintroduction of fire with prescribed burning after cutting and local management of ungulate populations provide potential avenues to restore aspen in interior forests. However, we still have a long way to go to restore pre-modern aspen conditions in the interior forests of Sweden.

RECENT ASPEN PUBLICATIONS

Anderegg, W. R. L., L. Plavcová, L. D. L. Anderegg, U. G. Hacke, J. A. Berry, and C. B. Field. 2013. Drought's legacy: multiyear hydraulic deterioration underlies widespread aspen forest die-off and portends increased future risk. *Global Change Biology* **19**:1188-1196.

Edworthy, A. B. and K. Martin. 2013. Persistence of tree cavities used by cavity-nesting vertebrates declines in harvested forests. *Journal of Wildlife Management* **77**:770-776.

● Eisenberg, C., S. T. Seager, and D. E. Hibbs. 2013. Wolf, elk, and aspen food web relationships: Context and complexity. *Forest Ecology and Management* **299**:70-80.

● Kulakowski, D., M. W. Kaye, and D. M. Kashian. 2013. Long-term aspen cover change in the western U.S. *Forest Ecology and Management* **299**:52-59.

● Lindroth, R. L. and S. B. St Clair. 2013. Adaptations of quaking aspen (*Populus tremuloides* Michx.) for defense against herbivores. *Forest Ecology and Management* **299**:14-21.

Man, R. and K. J. Greenway. 2013. Effects of soil moisture and species composition on growth and productivity of trembling aspen and white spruce in planted mixtures: 5-year results. *New Forests* **44**:23-38.

● Mock, K. E., B. A. Richardson, and P. G. Wolf. 2013. Molecular tools and aspen management: A primer and prospectus. *Forest Ecology and Management* **299**:6-13.

Musselman, R. C., W. D. Shepperd, F. W. Smith, L. A. Asherin, and B. W. Gee. 2012. Response of Transplanted Aspen to Irrigation and Weeding on a Colorado Reclaimed Surface Coal Mine. RMRS-RP-101. USDA, Forest Service, Rocky Mountain Research Station, Fort Collins, CO.



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● Pelz, K. and F. W. Smith. 2013. How will aspen respond to mountain pine beetle? A review of literature and discussion of knowledge gaps. *Forest Ecology and Management* **299**:60-69.

Reyes-Hernandez, V., P. G. Comeau, and M. Bokalo. 2013. Static and dynamic maximum size–density relationships for mixed trembling aspen and white spruce stands in western Canada. *Forest Ecology and Management* **289**:300-311.

● Rogers, P. C., C. Eisenberg, and S. B. St. Clair. 2013. Resilience in Quaking Aspen: recent advances and future needs. *Forest Ecology and Management* **299**:1-5.

● Seager, S. T., C. Eisenberg, and S. B. St. Clair. 2013. Patterns and consequences of ungulate herbivory on aspen in western North America. *Forest Ecology and Management* **299**:81-90.

● Shinneman, D. J., W. L. Baker, P. C. Rogers, and D. Kulakowski. 2013. Fire regimes of quaking aspen in the Mountain West. *Forest Ecology and Management* **299**:22-34.

● St. Clair, S. B., X. Cavard, and Y. Bergeron. 2013. The role of facilitation and competition in the development and resilience of aspen forests. *Forest Ecology and Management* **299**:91-99.

● Worrall, J. J., G. E. Rehfeldt, A. Hamann, E. H. Hogg, S. B. Marchetti, M. Michaelian, and L. K. Gray. 2013. Recent declines of *Populus tremuloides* in North America linked to climate. *Forest Ecology and Management* **299**:35-51.

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