

Fire And Aspen



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Aspen has conventionally been thought of as "fire dependent," meaning that it requires forest fires to thrive. The quick-sprouting root system of an aspen clone rapidly regenerates after all types of disturbance (i.e., landslides/avalanches, insects, disease, drought, tree harvest) including burning. Moreover, recent discoveries of high genetic diversity in aspen communities and common occurrences of seedling (sexual reproduction) establishment following fire is leading practitioners to question traditional aspen management. Fire suppression during recent decades is thought to be partially responsible for long-term aspen decline, however several experts have questioned this assertion. Likely, there are several causes for the lack of fire, most notably long periods of climatic moisture that increased the number of conifer trees in some aspen forests over the past century. Stable (nearly pure) aspen is much less conducive to wildfire or prescribed burning; rejuvenation in these forests is dependent on more continuous, low-level, tree mortality and regeneration.

Use of fire for restoration is a viable means of reducing conifers and promoting aspen suckers and seedlings in seral forests. Where disruption of fire cycles due to past fire suppression is evident, using fire to restore aspen is recommended. Some managers favor a combination of harvest and burning, particularly where the possibility of escaped fires can damage property.

Further Reading

- Krasnow, K. D. and S. L. Stephens. 2015. Evolving paradigms of aspen ecology and management: impacts of stand condition and fire severity on vegetation dynamics. *Ecosphere* 6:1-16.

- Kulakowski, D., T. Veblen, T., and S. Drinkwater. 2004. The persistence of quaking aspen (*Populus tremuloides*) in the Grand Mesa area, Colorado. *Ecological Applications* 14:1603-1614.

- Kurzel, B. P., T. T. Veblen, and D. Kulakowski. 2007. A typology of stand structure and dynamics of Quaking aspen in northwestern Colorado. *Forest Ecology and Management* 252:176-190.
- Long, J. N. and K. Mock. 2012. Changing perspectives on regeneration ecology and genetic diversity in western quaking aspen: implications for silviculture. *Canadian Journal of Forest Research* 42:2011-2021.
- Rogers, P. C., S. M. Landh?usser, B. D. Pinno, and R. J. Ryel. 2014. A Functional Framework for Improved Management of Western North American Aspen (*Populus tremuloides* Michx.). *Forest Science* 60:345-359.
- 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.