From Forest Nursery Notes, Winter 2010

90. © Reforestation after the Fountain fire in northern California: an untold success story. Zhang, J., Webseter, J., Powers, R. F., and Mills, J. Journal of Forestry 106(8):425-430. 2008.

Reforestation after the Fountain Fire in Northern California: An Untold Success Story

Jianwei Zhang, Jeff Webster, Robert F. Powers, and John Mills

ABSTRACT

Forest fires have been burning "hot" across the United States and particularly in the West in recent years. So, too, will the debate on postfire management strategies. In this article, we present a successful reforestation project after a catastrophic fire in 1992. Sixteen years later, most lands are covered with vigorous young forest stands. These regenerated stands have sequestered a large amount of atmospheric carbon, although still not to the level of previous stands. Furthermore, these managed stands will provide wood to consumers and support the local economy in the future. In contrast, adjacent lands without reforestation are fully occupied with shrubs and a few hardwood tree species, going through a long process of natural succession. We conclude that in this particular case active reforestation is the most effective method to quickly restore forest cover.

Keywords: forest fires, reforestation, carbon storage and sequestration, plant diversity

Wildland fire has annually affected about 4.2 million ac of forests across the United States since 1980, with rates increasing in the last 10 years (National Interagency Fire Center [NIFC] 2007). In California alone, an average of 7,000 wildfires have occurred and about 154,000 ac of forestlands have burned annually since 1980 (California Department of Forestry 2007). Land managers face the challenge of land restoration while the controversy over salvage logging and forest recovery continues. Proponents of salvage logging favor harvesting useable wood and planting tree seedlings if a fire kills trees but does not completely consume them. This has been a long-standing forestry practice that helps support local economies and ensures rapid reforestation. Furthermore, wildfire hazard is lowered if logging residues are treated and competing vegetation is controlled as plantations develop. Opponents argue that logging operations interrupt natural recovery by removing dead, standing structures with wildlife value. Still, others argue that natural regeneration may be sufficient to preclude the need for site preparation and planting (Donato et al. 2006). Regardless of postfire management pros and cons on both sides, regeneration is inevitable, but differences in rates of tree recovery can be substantial. Landowner decisions and actions are based on management goals. If wood production is a primary goal, decisions must follow quickly and be based on regulations and management knowledge to avoid wood decay in salvageable material and site occupancy of aggressive shrub vegetation. Here, we report a successful reforestation project after a 1992 wildfire devastated 64,000 ac of forests in northeastern California. Sixteen years later, after salvage logging, site preparation, and planting, forest canopies have closed and precommercial thinning has been conducted. In contrast, adjoining untreated lands are fully occupied with naturally regenerating shrubs and a few hardwoods. In this article we briefly present the reforestation processes and focus mainly on stand productivity using Roseburg Forest Products' (Roseburg, thereafter) measured and modeled growth and yield from previ-

Received May 7, 2008; accepted August 1, 2008.

Jianwei Zhang (jianweizhang@fs.fed.us) research forester, US Forest Service, Pacific Southwest Research Station, 3644 Avtech Parkway, Redding, CA 96002. Jeff Webster (jeffw@totalforestry.net) is consultant forester, Total Forestry, 19905 Hirsch Court, Suite 1, Anderson, CA 96007. Robert Powers (bpowers@fs.fed.us) is emeritus scientist, US Forest Service, Pacific Southwest Research Station, 3644 Avtech Parkway, Redding, CA 96002. John Mills (johnm@wmbeaty.com) is forest analyst, formerly at Roseburg Forest Products, 98 Mill Street, Weed, CA 96094, and currently at W.M. Beaty & Associates, Inc., PO Box 99048, Redding, CA 96099. *The authors gratefully acknowledge Roseburg Forest Products for allowing use of their inventory data and Mr. Ted Silbersteins for providing some pictures. The comments from Ed Fredrickson, Gary Nakamura, Martin Ritchie, and Carl Skinner are greatly appreciated. Use of trade names in this article is for information only and does not constitute endorsement by the US Forest Service.*