

THE ROLE OF ARIZONA STATE FORESTRY AND FIRE MANAGEMENT IN THE 21ST CENTURY

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Modern forestry, our national forests, and the U.S. Forest Service were created in the early 1900s as a means to conserve the nation's natural resources.¹ Reactions to disasters and misunderstandings of forest systems resulted in flawed management practices that persisted throughout the 20th century resulting in critically unhealthy forests across the Western United States.² Unhealthy forests threaten watersheds, are prone to disease, insect infestation, and catastrophic wildfire.³ Arizona State Forestry (AZSF) is part of the solution to these issues. AZSF and our partners have the ability to engage the public and private sector to implement a Cohesive Wildland Fire Strategy to achieve resilient landscapes, fire adapted communities, and safe and effective wildfire responses.

BACKGROUND

In the late 19th century, influential members of the public began advocating for more control over and conservation of the nation's forests.⁴ These efforts were supported by President Theodore Roosevelt who is credited with the establishment of 230 million acres of public land and 150 million acres of national forest during his presidency.⁵

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1. See *Our History*, U.S. FOREST SERV., <http://www.fs.fed.us/learn/our-history> (last visited Mar. 11, 2016).

2. See Eric Bibel, *Climate Change and the Future of Fire Policy*, BERKELEY BLOG (Oct. 5, 2015), <http://blogs.berkeley.edu/2015/10/05/climate-change-and-the-future-of-fire-policy/comment-page-1/>.

3. ARIZ. FORWARD, THREATS TO FOREST HEALTH PUT ARIZONA AT RISK: WHY HEALTHY FORESTS MATTER TO OUR HEALTH, ENVIRONMENT, ECONOMY & QUALITY OF LIFE 1–2 (2015), <http://arizonaforward.org/pdf/FINAL.HFE.PRIMER.pdf>.

4. *The Evolution of the Conservation Movement, 1850–1920*, LIBRARY CONG., <http://www.loc.gov/teachers/classroommaterials/connections/conservation/history.html> (last visited Feb. 12, 2016).

5. *The Conservationist*, THEODORE ROOSEVELT ASS'N, http://www.theodoreroosevelt.org/site/c.eIKSiIdOWIiJ8H/b.8344385/k.114A/The_Conserationist.htm (last visited Mar. 2, 2016); *Theodore Roosevelt and Conservation*, NAT'L PARK SERV., <http://www.nps.gov/thro/learn/historyculture/theodore-roosevelt-and-conservation.htm> (last updated Feb. 11, 2016).

When President Roosevelt established the U.S. Forest Service in 1905, Gifford Pinchot, known as the father of American forestry, became its first Chief.⁶ Pinchot was born into a well-to-do upper-class family of merchants in Connecticut and was able to travel abroad as well as obtain an education from prestigious eastern schools.⁷ At the suggestion of his father, Pinchot made forestry his profession.⁸ Like Theodore Roosevelt, Pinchot wanted to conserve forests for continued use.⁹ Both men recognized the importance of utilizing the Nation's resources, and insuring the sustainability of those resources through planned use and renewal.¹⁰



Theodore Roosevelt and Gifford Pinchot

THE POLICY IS SET

In late summer of 1910 the perfect conditions for catastrophic wildfire existed in Idaho, Montana, and Washington.¹¹ The fires started in April, set by lightning, railroads, and forest crews; the spring and summer were

6. *Gifford Pinchot* (1865–1946), FOREST HISTORY SOC'Y, <http://www.foresthistory.org/ASPNET/People/Pinchot/Pinchot.aspx> (last updated May 1, 2015).

7. *Id.*

8. *Id.*

9. *Id.*

10. *Id.*

11. *The 1910 Fires*, FOREST HISTORY SOC'Y, <http://www.foresthistory.org/ASPNET/Policy/Fire/FamousFires/1910Fires.aspx> (last updated Dec. 18, 2014).

unusually hot and dry, and the fledgling United States Forest Service was underfunded and understaffed.¹²

On August 10, 1910, fire activity in the Clearwater, Lolo, Cabinet, Flathead, Blackfeet, and Kaniksu National Forests caused President Taft to deploy some 4,000 federal troops supplement the civilian fire fighters and within a short time the situation appeared to be under control.¹³

Then, beginning on August 20, 1910, hurricane-force winds fanned the remaining fires and embers to new life across the Northern Rocky Mountains resulting in a fire that was impossible to stop or contain.¹⁴ Then Forester Edward G. Stahl reported flames hundreds of feet high that consumed towns and timber alike at horrific speeds.¹⁵

The Great Fire of 1910 became known by many names, including the Big Burn and the Big Blowup.¹⁶ The official report estimated that over 1,700 fires burned over three million acres of federal and private land, killed at least eighty-five people, and destroyed several small towns.¹⁷ The Great Fire of 1910 also resulted in a forest management policy that still impacts our forests today.¹⁸



Newspaper clippings and burned valley in Montana

As a result of the Great Fire of 1910, the use of fire as a forest management tool was called into question and the advocates of aggressive fire prevention as the best way to protect the nation's forests and economic well-being prevailed.¹⁹

12. *Id.*

13. *Id.*

14. *Id.*

15. *Id.*

16. *Id.*

17. *Id.*

18. *Id.*

19. *Id.*

Proponents of eliminating fire from the forests were successful in convincing congress and the public that the only way to prevent catastrophic wildfire was total fire suppression.²⁰ To this end, a network of forest roads, a public information campaign featuring Smokey Bear, and a policy requiring the extinguishing of all fires by 10:00 A.M. the next day were created.²¹

The fire suppression model of forest management has resulted in completely altered forest ecology. Historically, in the Southwest United States regularly occurring fires kept the forest free of excessive undergrowth and resulted in large, widely spaced trees that were resistant to fire.²² Today many of our forests contain over 500 trees per acre.²³ These overstocked forests are conducive to high intensity crown fires that destroy hundreds of thousands of acres and permanently alter the landscape.²⁴



Unhealthy overgrown vs. healthy forest

Today's unhealthy forests also impact watersheds. In Arizona, ponderosa pine forests are the source for a large portion of the state's water.²⁵ The closed canopies of Arizona's forest intercept too much precipitation resulting in

20. *Id.*

21. *Id.*

22. Michael A. Battaglia & Wayne D. Shepperd, *Ponderosa Pine, Mixed Conifer, and Spruce-Fir Forests*, in ROCKY MOUNTAIN RESEARCH STATION—GENERAL TECHNICAL REPORT—202: FIRE ECOLOGY AND MANAGEMENT OF THE MAJOR ECOSYSTEMS OF SOUTHERN UTAH 7, 7 (Sharon M. Hood & Melanie Miller eds., 2007), http://www.fs.fed.us/rm/pubs/rmrss_gtr202/rmrss_gtr202_007_037.pdf.

23. WASH. STATE UNIV., EXAMPLES OF THE DESCRIPTIVE PORTIONS OF THE FOREST INVENTORY/TIMBER/WOOD PRODUCTS SECTION (RESOURCE CATEGORY 4), http://forestry.wsu.edu/wp-content/uploads/Timber_Examples.pdf (last visited Mar. 10, 2016).

24. U.S. FOREST SERV., INFLUENCE OF FOREST STRUCTURE ON WILDFIRE BEHAVIOR AND THE SEVERITY OF ITS EFFECTS 1–2 (2003), http://www.fs.fed.us/projects/hfi/docs/forest_structure_wildfire.pdf.

25. ARIZ. DEP'T WATER RES., ARIZONA'S NEXT CENTURY: A STRATEGIC VISION FOR WATER SUPPLY SUSTAINABILITY 47, 54 (2014), http://www.azwater.gov/AzDWR/Arizonas_Strategic_Vision/documents/OpportunitiesandChallengesforArizona.pdf.

excessive evaporation, and burned over areas are highly erosive and do not provide stable, healthy stream channels and riparian areas necessary for water quality.²⁶ Burned over areas also result in the much higher rates of evaporation and sublimation of snowpack.²⁷

Fortunately, today we understand the importance of fire in a healthy forest ecosystem. Using prescribed fire, a team of experts can, under specific conditions, apply fire to aid in the restoration of fire adapted environments.²⁸ Prescribed fire can be used to safely reduce the excessive amounts of growth—both native and invasive—and reduce the hazard of catastrophic wildfire.²⁹

By the time Arizona became a state in 1912, it had already been granted several million acres of Trust land for the benefit of schools.³⁰ The federal act that granted Arizona statehood, known as the Arizona New Mexico Enabling Act, granted several million acres more for the benefit of schools and other public institutions.³¹ In all, the new state held over ten million acres in trust.³²

Prior to 1966, when the Arizona State Legislature created the office of the State Forester and authorized participation in federal cooperative forestry programs, the U.S. Forest Service handled timber management and fire protection services for the state.³³ For the past 50 years, AZSF has provided protection and management of 30% of Arizona.³⁴

Arizona law (A.R.S. §§ 37-622 through -661) details some of the duties of the State Forester including:

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26. GEORGE W. KOCH & LUCY P. MULLIN, THE ECOHYDROLOGY AND MANAGEMENT OF PINUS PONDEROSA FORESTS IN THE SOUTHWEST 5–7 (2010), <https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/PinusPonderosaForestManagementProject.pdf>.
 27. RALPH E. CAMPBELL ET AL., WILDFIRE EFFECTS ON A PONDEROSA PINE ECOSYSTEM: AN ARIZONA CASE STUDY 1 (1977), http://www.fs.fed.us/rm/pubs_rm/rm_rp191.pdf.
 28. *Prescribed Fires*, SMOKEY BEAR, <http://www.smokeybear.com/prescribed-fires.asp> (last visited Mar. 10, 2016).
 29. *Id.*
 30. Lisa Irish, *Trust Lands: Arizona's Biggest Little-Known K-12 Funding Source*, AZ ED NEWS (Sept. 29, 2015), <http://azednews.com/2015/09/29/trust-lands-arizonas-biggest-little-known-k-12-funding-source/>.
 31. Arizona New Mexico Enabling Act, ARIZ. REV. STAT. ANN. § 28 (1910).
 32. Timothy M. Hogan & Joy E. Herr-Cardillo, *100 Years of Keeping the Trust: The Historic Role of the Judiciary in Protecting Arizona's State Land Trust*, 44 ARIZ. ST. L.J. 589, 590 (2012).
 33. See John S. Spencer, Jr., *Arizona's Forests*, U.S. FOREST SERV. RESOURCE BULL. 22, 35 (1966), http://www.fs.fed.us/rm/ogden/pdfs/historic_pubs/arizona66.pdf.
 34. See ARIZ. STATE FORESTRY DIV., ARIZONA STATE FORESTRY DIVISION 5 YEAR STRATEGIC PLAN FY 2016–2020 1–3 (2015), https://azsf.az.gov/sites/default/files/editors_choice/attachments/AZ-State-Forestry--Strategic-Plan-2016-2020.pdf.

- The state forester is designated as a fiscal agent of the state of Arizona³⁵
- The State Forester must perform all management and administrative functions assigned or delegated to Arizona by the United States relating to forestry and financial assistance and grants relating to forestry.³⁶
- The State Forester must identify sources of information relating to forest management, including wildfire suppression and recovery and administrative and judicial appeals and litigation with respect to timber sales and forest thinning projects in Arizona.³⁷
- The State Forester must take necessary action to maximize state fire assistance grants, including establishing timelines for using grant monies and reallocating lapsed grant monies to other projects.³⁸
- The State Forester must conduct education and outreach in forest communities explaining the wildfire threat to private property caused by lack of timber harvesting and thinning.³⁹
- The State Forester must monitor forestry projects and wildfire activities.⁴⁰

AZSF provides resources for forest restoration and the management of wildland fire on Arizona's remaining 9.2 million acres State Trust Land and 12.8 million acres of private property located outside incorporated communities.⁴¹ The agency provides services for fire prevention, urban and community forestry, forest stewardship, forest health, utilization and marketing, and has a wide variety of grants available.⁴² All of these resources are aimed at creating healthier forests and communities.

35. ARIZ. REV. STAT. ANN. § 37-622 (2012).

36. *Id.*

37. *Id.*

38. *Id.*

39. *Id.*

40. *Id.*

41. ARIZ. STATE FORESTRY DIV., ARIZONA FOREST RESOURCE ASSESSMENT 8–9 (2010), <https://azsf.az.gov/sites/default/files/documents/files/Arizona%20Forest%20Resource%20Assessment-2010.pdf>.

42. *What We Do*, ARIZ. ST. FORESTRY DIVISION, <https://azsf.az.gov/what-we-do-0> (last visited Feb. 6, 2016).



1966 presentation to Governor Goddard in recognition of the passage of a bill that established the position of State Forester and Deputy State Forester. (Left to right) Robert Courtney, Tonto National Forest Supervisor; Kel Fox, Rancher; O.B. Lassen, State Land Commissioner and State Forester; Norman Johnson, Deputy State Forester; Robert Dunstan, U.S. Forest Service; Sam Goddard, Arizona Governor; and William D. Hurst, Regional Forester.

The AZSF Forest Health Program is a cooperative forestry program funded by the USDA Forest Service to assist state and private forest and woodland landowners.⁴³ The program provides staff, professional foresters, private landowners, and other stakeholders information, education, technical assistance, and integrated management strategies to prevent insect and disease outbreaks, and achieve healthy forest and woodland stand conditions.

AZSF conducts surveys, evaluations, to monitor insects and diseases that affect forest and woodland on state and private lands.⁴⁴ AZSF provides advice and support for forest and woodland management projects to prevent and suppress native insect and disease outbreaks.⁴⁵ In addition to on the ground surveys, annually we conduct statewide aerial detection survey flights in collaboration with the USDA Forest Service, Forest Health Protection program to provide land managers and the public with information about landscape level forest and woodland health conditions.⁴⁶

43. *Forest and Woodland Health*, ARIZ. ST. FORESTRY DIVISION, <https://azsf.az.gov/forestry-community-forestry/forest-health> (last visited Feb. 6, 2016).

44. ARIZ. STATE FORESTRY DIV., *supra* note 41, at 13.

45. *Id.*

46. *Aerial Detection Survey*, ARIZ. ST. FORESTRY DIVISION, <https://azsf.az.gov/aerial-detection> (last visited Feb. 6, 2016).

We also focus on implementing measures to prevent, retard, or suppress damaging and non-native invasive insects, diseases, and plants.⁴⁷ The Forest Health program is also involved in local community outreach and education programs.⁴⁸

In order to insure healthy forests in the future, it is important to treat our forests and woodlands as a sustainable natural resource. The development of a forest product industry is a major component of this strategy and AZSF works

to facilitate the enhancement of the economic and intangible benefits that forest resources provide to society by [p]roviding technical and marketing assistance to forest based industries, [c]reating new opportunities that can enable cost effective methods of reducing hazardous forest fuel levels, and [i]dentifying emerging markets for forest resources through collaborative work with state and federal agencies, and industrial organizations.⁴⁹

AZSF continues to work with the public and private sector in support of the efforts of the Wildland Fire Leadership Council (WFLC) to implement a National Cohesive Wildland Fire Management Strategy (Cohesive Strategy CS) to achieve resilient landscapes, fire adapted communities, and safe and effective wildfire response.⁵⁰ AZSF also supports the collective vision: “To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a nation, to live with wildland fire.”⁵¹

AZSF provides resources to wildland/urban interface communities (WUI), including providing FireWise presentations and training, wildfire protection education and resources, and grants to assist WUI communities in protecting themselves against unwanted wildfire.⁵²

Of greatest importance, AZSF supports a robust network of wildland firefighters, drawn from local, state, and national partners to address wildland fire issues and opportunities in Arizona.⁵³ AZSF provides wildland fire dispatch services that coordinate response on lands under AZSF’s jurisdiction, provide support to our partners within their areas of

47. ARIZ. STATE FORESTRY DIV., *supra* note 41.

48. *Id.*

49. *Utilization and Marketing*, ARIZ. ST. FORESTRY DIVISION, <https://azsf.az.gov/forestry-community-forestry/utilization-marketing> (last visited Feb. 6, 2016).

50. *Building a Cohesive Strategy*, FORESTS & RANGELANDS, <http://www.forestsandrangelands.gov/strategy/building.shtml> (last updated Aug. 13, 2015).

51. *Id.*

52. See *Fire*, ARIZ. ST. FORESTRY DIVISION, <https://azsf.az.gov/fire> (last visited Feb. 6, 2016).

53. *Arizona Interagency Dispatch Center*, ARIZ. ST. FORESTRY DIVISION, <https://azsf.az.gov/fire/dispatch> (last visited Feb. 6, 2016).

responsibility, and provide support to neighboring states. This last fire season, AZSF dispatched hundreds of state and local wildland fire resources to states across the nation.

Wildland fire has been a physical reality since the dawn of time. Fire as an ecological process is vital to the maintenance in many natural ecosystems.⁵⁴ One in nine Arizonans live in the WUI.⁵⁵ As we further expand into the WUI, we increase the risk overall to our citizens and place increasing demands on our fuels and fire management funding and response capability.

Past forest management policy and practice along with a well-meaning suite of environmental regulations have placed America's western forests in conditions outside of its ecological equilibrium. Fire and resource management must focus upon restoring resilience into our landscapes. This is a daunting task but one which we cannot avoid. It will require long term focus, dogged persistence, and an unstinting resolve in order to address existing natural resource conditions and wildfire threat.

This will only be feasible if there is a unified effort by all involved, including citizens, local states, tribal and federal institutions, along with business and industry in the public private partnership, to protect and enhance ecosystem services (soil, water, air) for ourselves and future generations.

54. See *supra* notes 25–26 and accompanying text.

55. Mary Jo Pitzl et al., *In Harm's Way Part 1: Homes, Firefighters in Peril*, AZ CENT., <http://www.azcentral.com/news/wildfires/yarnell/arizona-wildfires-homes-forests-risk/> (last visited Mar. 10, 2016).