Southwest Climate Adaptation Science Center

CULTURAL BURNING AND THE RELATIONSHIP WITH FIRE

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This information brief summarizes and synthesizes the current state of knowledge regarding cultural burning, from research funded by the Southwest Climate Adaptation Science Center (SW CASC). SW CASC works to coordinate and collaborate with users and providers of climate information to ensure that the research pursued by CASC-affiliated scientists results in tools, techniques, and actionable information to inform robust decision-making by resource managers, policy makers, and other stakeholders. Additional cultural burning resources can be found here: https://www.swcasc.arizona.edu/tribal-related-projects.

Cultural burning is the intentional use of fire by Indigenous people to benefit local ecosystems and lifeways. Through years of application, Indigenous peoples accumulated knowledge and understanding of the benefits of fire, such as removing dead plant material, rejuvenating plant growth and abundance, increasing wildlife richness and abundance, decreasing forest density, and reducing risk for high severity wildfires. Other Indigenous use and benefit include clearing land for farming, hunting strategies, and reducing the risk of catastrophic fires for cultural and traditional purposes.

Cultural burning has influenced the landscapes of the Southwest from time immemorial, especially near Indigenous seasonal homes and along travel corridors. Indigenous peoples have developed a deep understanding of the natural world and the many species that compose an ecosystem. Indigenous people learned to live with fire. This knowledge comes from generations of trial and error. Through repeated application, Indigenous peoples attained the knowledge to strengthen their relationship with the land and with fire.

HOW DOES CULTURAL BURNING BENEFIT ECOSYSTEMS?

Throughout the Americas and across the world there are fire-prone environments. Through their long relationships with fire-prone environments, Indigenous peoples have gained a deep understanding of ecosystem stewardship practices and the integral role of fire in the maintenance of ecosystems. They understood that fires, particularly when applied with low to moderate burn intensity, could clear forest floor vegetation and promote vegetation regrowth. Intentional burns support ecosystems by creating fire-adapted vegetation communities and habitats that become resilient to un-intentional fires such as lightning fires.

The Southwest U.S. is made up of different ecosystems such as desert, chaparral, pinyon-juniper and ponderosa pine, all of which contain many vital resources for survival. The Indigenous peoples that have occupied these ecosystems since time immemorial have used fire extensively for many broad purposes to ensure not only their survival but the prosperity of the ecosystem on which they depend and with which they have a relationship.

Historically and into the present, the use of fire holds many benefits for Indigenous peoples. An example is the Apache use of fire not only for hunting and warfare survival and control, but their understanding that fire brought rain. Fire has played an intrinsic role for Indigenous peoples across the Southwest region and world, as they lived in balance with the available resources and maintained their relationship with the land. This demonstrates the profound understanding of ecological processes by Indigenous peoples of the Southwest.

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BARRIERS AND OPPORTUNITIES TO RESTORING CULTURAL BURNING

Forced removal of Indigenous people from their ancestral homelands has led to a severe reduction in Indigenous stewardship practices, especially cultural burning. As settlers moved west, land was needed and taken from tribal nations for economic development and agriculture. The absence of fire as an Indigenous management practice became more apparent from the 1800s into the 1900s due to the concerns of settler communities of the risks of natural fires impacting their homes and livelihood. In the early 1900s, the U.S. Forest Service was created and put into action in an effort to suppress wildfire activity. From this effort emerged the “10 a.m.” rule, stating that all wildfires had to be extinguished by 10 a.m. In the coming decades, the Smokey Bear campaign reinforced public attitudes that viewed fire as a threat. In an effort to avoid destructive wildfires, forest density increased for many decades. The increase in vegetation created prime conditions for frequent, high severity wildfires to occur across the landscapes. Over the course of a century, Indigenous people have experienced the detrimental impacts of destructive wildfires.

Indigenous people have understood and acknowledge the strength and healing power of fire. For many generations, Indigenous peoples have used fire to heal and restore the many ecosystems which they live. Each generation saw a change in the natural world especially pertaining to the forests and fire regimes with the increase of vegetation and an increase in wildfire frequency, intensity and severity. These changes have had profound effects on both Indigenous and non-Indigenous peoples, due to the destruction of property and ecosystems by wildfires occurring within the wildland-urban interface; damages from destructive fires, originating in overly dense forests, have cost hundreds of millions of dollars each year. Acknowledgement by western fire managers of the value of Indigenous land and forest stewardship knowledge, practices, and involvement in fire management has come gradually. The gradual increase in understanding has opened opportunities for agencies to learn from and collaborate with Indigenous fire managers to reduce fire danger and increase the beneficial uses of fire for forest and ecosystem management.

CULTURAL BURNING AS A CLIMATE ADAPTATION STRATEGY

The SW CASC is currently engaging in several projects focused on the use of cultural burning in building ecosystem and cultural resilience. Through a series of collaborative, multi-stakeholder cultural burning efforts, and an evaluation and synthesis of sociopolitical and ecological outcomes, investigators and tribal community partners aim to understand and contribute to decision-making and governance mechanisms that facilitate the application of Indigenous fire science as an adaptive strategy. Investigators will also conduct a synthetic research assessment of 1) the state of the science and practice on how climate change is currently affecting and projected to transform fire processes in the Southwest; 2) how projected changes fit within the context of national patterns and trends; 3) the implications of these changes for natural resource management and climate change adaptation efforts in the Southwest, and 4) Indigenous perspectives on the application of fire in the context of a changing climate.

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