Forests Health and Water Resources

Severe wildfires threaten water resources in many regions. Proactive forest management can improve water quality, protect built infrastructure, and in some locations enhance water supply.

**Forests & water resources are connected**

- Forest health is a key factor in water supply reliability, with **50% of water supply in the US originating in forested watersheds on average**.\(^1\)

- Trees reduce excessive runoff and erosion from precipitation by providing surface area for water to land and evaporate and soil conditions that support infiltration.\(^2\)

- By creating critical natural infrastructure for water resources, well-managed forests can provide "higher quality water, with less sediment and fewer pollutants" than water from poorly managed catchments.\(^3\)

- The economic value provided by healthy watersheds has been chronically unrecognized and underestimated.\(^4\)

**Wildfires threaten water resources**

- Legacy fire exclusion in the US has led to overgrown forests that are far departed from their historic conditions, with more and smaller trees.

- With climate change and increasing numbers of people in the forest, these higher fuel loads have led to elevated wildfire risk.\(^5\)

- **Severe, high-intensity wildfires alter basin hydrology and damage water resources infrastructure**,\(^6\) which can have serious implications for water resources planning and management.

- Wildfires can cause drinking water contamination by spreading bacteria, heavy metals, and volatile organic compounds in public and private water systems.\(^7\)
**Forest management can protect water quality & enhance water supply**

- Strategically managing forests for ecological health, including fuel reduction treatments, has a co-benefit of protecting water supply.

- Removing small-diameter trees and understory vegetation also decreases water use by plants, which under some conditions enhances water supply and groundwater recharge.

- From a water quality perspective, even treating a small portion of a watershed can provide water quality benefits that outweigh the costs of treatments if a severe wildfire should occur.

- **Environmental and economic benefits are not uniform**, as these impacts depend on the forest type, region, and climatic setting - requiring site-specific assessments.

**Environmental and economic implications of wildfire**

- After severe wildfires in 1996 and 2002, Denver Water spent $26 million to dredge 1 million cubic meters of sediment from a reservoir that supplied 80% of water for its 1.4 million customers. The agency now invests in proactive watershed management to mitigate wildfire risk for source protection.

- Severe wildfires in 2003 burned 376,000+ acres in San Diego County, leading to an estimated $47 million in watershed protection costs including erosion and flood control.

- Investments in forests as watershed protection are growing as utilities recognize that the benefits of forest restoration can significantly outweigh the costs of fuel reduction.

**The water resource benefits of forest restoration are unique to each forest.**

Reach out to learn about the benefits for a specific forest at connect@blueforest.org