

## **Thinning New Mexico's Forest as a possible tool for increasing water supply**

Welcome to Earth Matters – field notes on the geology of New Mexico's Enchanting Landscapes. Celebrating Earth Science Week, I'm Talon Newton.

It is no secret that water is an important issue in New Mexico. The demand for this precious resource is increasing due to population growth, while the supply may be decreasing due to groundwater pumping and the effects of climate change. As New Mexicans implement many conservation efforts that prioritize water uses and minimize losses, we are also considering alternative ways to increase the water supply.

Thinning trees in the state's forests is currently being utilized to reduce the risk of catastrophic forest fires. There may be an additional benefit to this type of forest restoration. There is some evidence that a reduction in tree density in forests can significantly increase the water supply. An increase in the amount of precipitation that reaches the ground and a reduction of transpiration rates can result in more water available to feed streams and recharge local aquifers. However, the magnitude of this effect is highly variable and challenging for researchers to quantify. The impacts to stream flow and groundwater depends on many factors, including climate, and the local geology. Researchers are examining this topic in different areas of the state, with different geologic settings, including the Sacramento Mountains near Cloudcroft, and the Sangre de Cristo Mountains near Santa Fe. The major limitation to thinning trees specifically for the purpose of increasing the water supply in New Mexico is the high average annual temperatures and low average annual rain and snowfall. Tree thinning can be more effective for increasing streamflow and groundwater recharge in the high mountains, where precipitation rates are higher, and evaporation rates are lower due to lower temperatures. Tree thinning has many important benefits, including reduction in fire risk, and improved watershed health and wildlife habitat. Having healthier, thinned forests also may provide long term improvements to our water supply, depending on the underlying geology of New Mexico's mountainous terrain.

Celebrating Earth Science Week, I'm Talon Newton, Hydrogeologist, of the Bureau of Geology at New Mexico Tech.