NEW MEXICO WATER RESOURCES RESEARCH INSTITUTE

Evaluation of impacts of silvicultural operations such as thinning treatments on water quality and quantity in New Mexico forests

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Purpose of Study

The goal of this study is to determine the effects of forest thinning treatments in New Mexico forested watershed uplands on infiltration, runoff, sediment yield, and vegetative cover with simulated rainfall from both gentle and steep slopes.

Study Underway

In order to understand the effect of rainfall on soil properties under various conditions, using a rainfall simulation is a significantly effective method. A reliable, accurate, and portable rainfall simulator is needed to evaluate infiltration, runoff, sediment yield, and vegetative cover at forested watershed lands. This simulator should be designed to be easily set up and maintained as well as able to create a variety of rainfall regimes. In this research, a portable tripod-style rainfall simulator will be placed for one hour rainfall and rainfall simulations to evaluate the effects of the silvicultural treatment, utilizing the thinned and un-thinned strips on the test sites and to investigate the effects of thinning and burning treatments on the amount of runoff, and sediment yield on the burn and thin study plots.

Benefits

The study will assess the short-term effects of increased tree density on water consumption. It will help determine how forest management activities influence water quality and will provide improved scientific knowledge to land and water managers on how to better manage our water sources.

Onur Beyazoglu is a graduate student from Turkey and is pictured her at the Walker Flat Research Area at Mora, New Mexico.

Yasser Almalki is a graduate student from Saudi Arabia and is pictured here at Santa Fe Ranch.