

HOW SEVERE FIRES IMPACT OUR SOIL

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California's forestland has experienced a dramatic increase in the number of high-intensity forest fires. In the past few years, the acreage of severely burned landscape has increased from an average of 20 percent to more than 30 percent since the mid-1980s. Severe high-intensity fires (<http://www.northernrockiesfire.org/effects/soilrate.htm>) can destroy the foundation of a healthy ecosystem: the soil.

While low-intensity fires, which are natural to the landscape, can help renew a forest by providing nutrients to the soil, spreading seeds for regrowth, and replenishing vegetation, severe fires accomplish none of these things.

Healthy soil absorbs water and much-needed nutrients to grow plants and trees. When soil is burned at high intensity, organic matter, which recycles nutrients and binds soil particles together, is incinerated and lost. The waxy residues created by these high-intensity fires increase runoff, allowing rain to carry away vulnerable topsoil. Severe fires can impact the soil's water-holding capability and coniferous regeneration potential for decades.



(<http://calforests.org/wp-content/uploads/2015/09/soil.png>)

During the past two years, high-severity wildfires have been increasing. The 2013 Rim Fire (<http://wildfiretoday.com/wp-content/uploads/2013/09/Rim-Fire-Vegetation-Severity-9-16-2013.jpg>) burned at 38 percent high severity. For a fire to be considered "high severity" for soil, the temperature must exceed 950 degrees Fahrenheit; the Rim Fire burned at more than 1,450 degrees. Nearly half of the 97,000-acre King Fire (http://inciweb.nwcg.gov/photos/CAENF/2014-10-01-2029-King-PostFire-BAER/picts/2014_10_11-18.58.04.040-CDT.pdf) in 2014 burned at high severity, much of it in a few hours in the Rubicon River watershed about 50 miles from Sacramento.

Severely burned soil not only impacts vegetation growth in the area, it also impacts habitats and infrastructure downstream. Since burned soil repels water instead of pulling it into the ground, the soil is no longer absorbent and stable, dramatically increasing the potential for landslides and sedimentation. In King Fire-impacted areas, the U.S. Forest Service predicts that

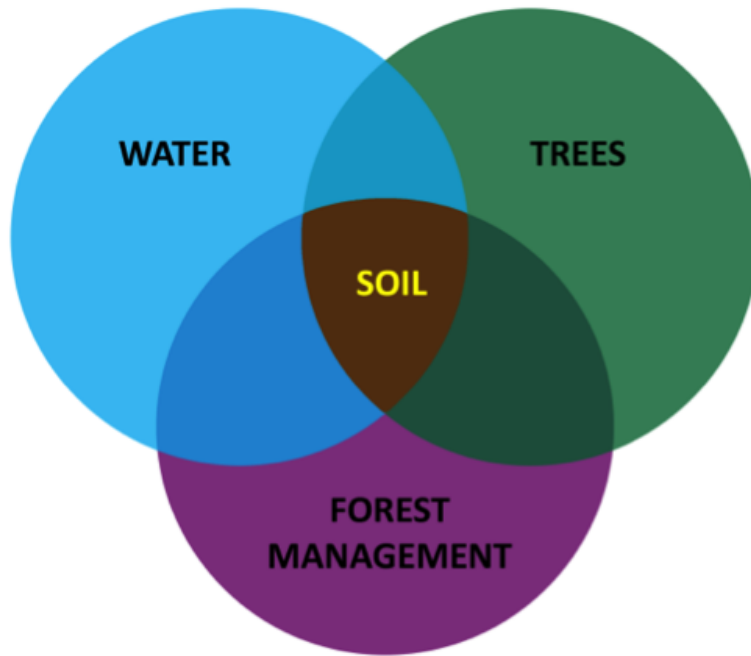
more than 300,000 tons of topsoil will ultimately erode into the Rubicon River, causing siltation of prime aquatic habitats and water storage infrastructure. With California in its fourth year of drought, we cannot afford to let our reservoirs be filled with silt that contaminates drinking water systems and destroys vital wildlife habitat.



(<http://calforests.org/wp-content/uploads/2015/09/river.png>)

Soil may look lifeless, but it is actually filled with life. Soil supports trees, animals and insects, and it filters our water. Without healthy soil, trees cannot grow and waterways will run brown. Healthy soils are a necessity for forest ecosystems and human life, and they represent just one more reason why California must continue our fight against high-intensity wildfires.

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(<http://calforests.org/wp-content/uploads/2015/09/graph.png>)

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