

in fire's aftermath, a new worry emerges -- water

Sierra slopes burned in California's third-largest wildfire are primed for flooding and debris flows in a big winter storm.

By David R. Boyd, Los Angeles Times, 11-3-13

Yosemite National Park, Calif.— As autumn turns to winter and rain falls over the charred landscape left behind by a wildfire, forest rangers and emergency planners have a new worry: water.

More than 100,000 acres of the blaze burned in the Tuolumne River watershed, where more than 2,600 miles of stream flow through steep, now-burned slopes of the Sierra Nevada. Those mountains are primed for flooding and debris flows in a big storm.

The 100,000-acre blaze — California's third-largest on record — ignited on Aug. 17 in the Stanislaus National Forest and burned into the northwest part of Yosemite National Park. More than two months later, it is finally contained, but some of the most serious hazards are just now presenting themselves.

Washed roads are at risk of washing away, cutting off access to world-class white-water rapids. Burned debris will almost certainly be flushed downstream, fouling irrigation water supplies.

California officials are closely monitoring hydroelectric facilities, soil conditions and water quality in the Hetchy Reservoir, where the fire crept around the edges of the city's drinking water supply. Steep slopes more prone to erosion.

The Forest Service has rushed to prepare culverts, stabilize roads and trails, and put mulch and straw over burned soil to keep it from sliding away in heavy rain. Rangers have closed roads and campgrounds and signs to warn of falling rocks and trees.

"The emergency's not over when the fire's out," said Jason Carkeet, utility analyst for the Turlock Irrigation Agency. His agency has purchased extra boom to capture logs and woody debris that the Tuolumne River dumps into 24-mile-long Don Pedro Reservoir, which stores water to irrigate more than 200,000 acres of Central Valley farmland.

In dry years, officials would welcome rain and snow, but they shudder at the thought of a storm dumping too much at once. Scientists predict that 15 minutes to an hour of intense rainfall — the type of storm that occurs about every 10 years — would be enough to unleash a slurry of boulders, fine mud and brush.

Normally, rain bounces off trees and brush, slowly percolating through the soil. But after a fire, the earth is exposed, and rain can wash away the topsoil. Wildfires can also burn away the protective layer of organic matter that helps hold soil in place.

of debris barreling down the Tuolumne River into Don Pedro Reservoir clogging its marinas.

the area could use a wet winter to fill the reservoir, "we don't want gully-washers," said Carol R of the Don Pedro Recreation Agency. "If we could just have a little bit of rain all winter long, w . Of course, California doesn't really do that.'

the routes most at risk of being obliterated is Lumsden Road, a steep, narrow dirt road that drop foot canyon to the banks of the Tuolumne River and provides access to the area's most popular r king run

elch, general manager of Groveland-based American River Touring Assn., a nonprofit that chart ater trips, dispatched employees down that road in August with inflatable rafts to ferry firefighte e river as the blaze raged.

ur lifeline," Welch said. "It's how everyone gets to the launch point. It is now the most tenuous ave, looking forward.'

ny significant rainfall, portions of roads and trails this fall have already been covered with dirt th n. Trees, roots and underbrush that once held soil in place were burned away

rain, it's already showing high rates of erosion," said Jeffrey Mount, founding director of the UC or Watershed Sciences, who has studied, rafted and hiked along the Tuolumne for more than thre Once debris is set loose by rain, it could take years to work through the watershed's channels, h

ave a dry winter, you're better off because you allow some slope-stabilizing vegetation to get in aid. "The re-colonization of the slopes takes place amazingly fast after that."

ve shown that in many areas, the soil was not as scorched as initially feared

cludes the steep, granite valley around Hetch Hetchy Reservoir, a priority during the firefighting e it stores 85% of the drinking water supply for 2.6 million people in the Bay Area, including San o and Hayward. Though some of the Rim fire burned so hot it could take away the soil's ability t ater, scientists for the Hetch Hetchy Regional Water System do not believe areas near the reser rched enough to be prone to major slides

's toll is more evident downstream, where hundreds of wooden utility poles were destroyed by th nd are being replaced by helicopter. In more severely burned areas, public utility officials worry ows could take out key roads used to access hydroelectric facilities that power San Francisco's a hts and city buildings

oughn a recreation specialist for the Stanislaus National Forest's Groveland Ranger District ha