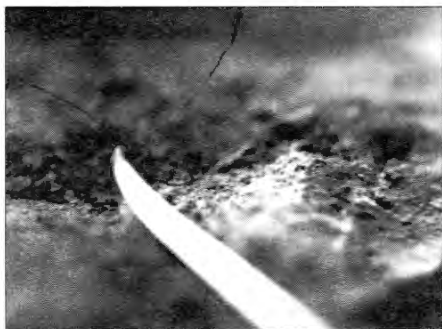


Oregon State University researchers report finding that many of the shrubs and trees in a massive area of southwest Oregon and northern California actually depend upon water drawn from solid rock by tiny roots deep in stone. Their study, which suggests that millions of acres of vegetation would be near desert without the plants' ability to extract water from more than 10 feet deep into seemingly impenetrable stone, could dramatically alter conventional wisdom about growth patterns and characteristics of many plants in a wide area of the western United States.

Michael Newton, a professor of forest science, describes finding that "after certain shrubs or trees are a few years old, they can and do draw 70 to 80 percent of their water from roots in bedrock during the summer months." Highly competitive shrubs such as manzanita have among the most vigorous capability to send minuscule roots about the thickness of a thread into rock cracks a few thousandths of an inch wide. After a heavy rain, soils can contain from 10 to 35 percent water, Newton said. The typical density of rock is about double that of soil, and rock has fewer pores, but different types of rock can hold from 12 to 22 percent water, and plants may be able to tap into as much as half of that liquid reservoir, the study indicates.



Tiny hairlike roots are shown here growing out of solid rock excavated from about 10 feet below ground surface. They are seen in this close-up photo in comparison with the point of a pair of tweezers.