

# Protecting Bare/Disturbed Soils and Slopes from Fire-Fighting Effort Following Wildfire

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**Some Basic Concepts and Tips to restoring bare and disturbed soils/slopes from dozer and other fire-fighting activities following wildfire include:**

- Less is more. Be careful NOT to add insult to injury. Sometimes doing nothing at all is best. Also be extremely careful not to address one resource concern with an improper restoration practice at the expense of causing a new and potentially worse natural resource issue (such as causing a debris flow/landslide or larger and more widespread erosion problem)
- Respect the laws of nature. Work with natural processes not against these processes. Remember when you control runoff (water bars, diversion ditches, etc.) you control nature and we all know what happens when we think we can control nature.
- If restoration work is deemed necessary then regrade and/or perform handwork to prevent runoff from concentrating on bare and disturbed ground, including fire breaks, dozer trails and access routes so that it is kept and/or returned to “sheet” flow (note: the opposite concept of installing water bars and leaving berms on regraded roads and dozer trails).
- One size does not fit all that is why water bars might be the right thing in one case and the absolute wrong thing in another. If water bars are right then they need to be located and installed properly to function as intended without causing new problems. They will also require a great deal of maintenance as well. Rolling dips are a much better alternative to water bars especially if on roadways that will be used in the future.
- Burned and removed brush surrounding fire breaks can and has been used in a “lop and spread” technique to cover exposed soil area on fire breaks but there is a right place and way to accomplish this as well. Lopped brush height when used to protect bare and disturbed soil should be below your knee cap. If it can be crushed in place then even better because it will make better contact with soil and help prevent runoff from eroding the soil under the brush.

- Seeding is typically no longer recommended in wild fire areas, but when it is recommended (usually around home sites and on soil/slopes severely disturbed by the fire-fighting effort) we prefer that the seed be from locally collected native sources which means these plants won't play a role (if they succeed) until the second winter following fire because most all are perennial that are slow to establish and don't provide quick cover. Studies also show that seed germination success is consistently less than 30% even under the most favorable conditions. Seeding usually does better when timed with impending rainfall and when covered with the thin layer of straw mulch (1-2" thick). Weed-free or rice straw has been specified for this use on other fires. Non-reseeding cereal grains such as barley, wheat and cereal rye have also been used in these areas but it's still a site specific call. Although many feel that straw, even weed free varieties may still contribute to the spread of weeds or other invasive plants having bare disturbed soil unprotected will also make it susceptible for invasive plants growing in the near vicinity to invade.
- Degree of disturbance of soil by dozers or other equipment in the fire-fighting effort is also a factor as well as what type of vegetation was present before the disturbance. In some cases the equipment operations merely cut the plants off at the ground surface while in other locations deep excavations took place with way more soil disturbances. Knowing the degree of disturbance is important in planning the proper treatment measure(s). In fact, where disturbances were minimal then little or no treatment may be necessary.
- In most cases, fire breaks and fire-fighting dozer trails as well as many of the hand crew trails are constructed on ridges with very little drainage area on either side of the break which is good because, for the most part, the only rain water accumulating on fire breaks is what is coming from the sky and the fire break/trail itself. That is why protecting the soil from the direct impact of raindrops is the first order of business. *Note: a single raindrop hits unprotected soil at a speed in excess of 35 miles an hours and can displace soil particles 5 feet in any given direction.* If we stop this from happening then we have half the battle licked.