

Weeds in High Desert- Revised

Because of the December rains and January snows expect a bumper crop of weeds this spring. Weed seeds prefer moist soil, light, and bare ground or newly disturbed soil. If you want to reduce the number of seeds germinating, then you need to manage these variables by reducing the light reaching the soil, reducing the moisture to the location, not disturbing the soil, and removing bare spots. Note that in a location where weeds flourish if the variables aren't changed, weeds will continue to grow there.

Practices that encourage weeds include: raking soil or gravel, using blowers to remove plant debris (mulch) exposing bare spots, cutting native grasses below 3 inches as this also opens up the bare spaces, low depth of gravel or other mulch, and allowing water to sit e.g. along sidewalks and curbs (maybe turf overspray or missing drip emitters).

Weeds are the pioneer plants appearing early in the natural succession of plant growth from lichen to mature forest. Their primary function is to break up the soil so the next stage of plant growth can occur, usually grasses and soft stemmed plants. As weeds grow they provide shade and wind protection for the followers and even some organic matter as they die. Over time the next stage plants will shade out the weeds and weeds will move on.

Weeds also typically generate huge amounts of seed each year (e.g. 70,000 for a tumbleweed) and most of that seed is viable, meaning it **will** germinate. The period of viability may be decades so they are very difficult to eradicate. In fact, the new word is to "manage" not "control" or "eradicate" weeds - which makes sense because they do have an important function.

Weeds may be annual meaning they go from seed to plant to seed in one season. The game with annuals is to keep them from going to seed. If you let them go to seed, over time they will form a bank of seed that increases yearly. Also, seeds have coatings or other slowing mechanisms so they don't all germinate in one year. If all the seeds of a plant were set to germinate in one year, then an unfavorable event could wipe out the plant -- and weeds are survivors! Biennial plants take two years to develop and generate seed. Perennials last almost indefinitely putting out seed every year, but also often spread by other non-seed mechanisms such as runners above or below ground, bunching, air layering, nutlets, etc. To manage perennial weeds, you need to keep them from going to seed **and** you need to physically remove the non-seed mechanisms to keep them from spreading.

There are a number of ways to reduce your weed population. Mulch, an above ground layer like gravel or bark, keeps light from reaching the soil and slows moisture from evaporating which helps the plants you want. You can also use a pre-emergent (before the seedling emerges) herbicide, the most organic of which is corn gluten meal. Note that a pre-emergent herbicide doesn't kill existing weeds, it just keeps seed from germinating. For that reason, don't use a pre-emergent in a vegetable bed you intend to seed or in an area where you want to seed wildflowers. Newspaper or cardboard can also be used under bark and will decompose very slowly over time. Another way to reduce your population is to pull the weeds. This is done most easily right after a rain. I would suggest torching them, but this can be dangerous and for weed seeds that like to germinate after a fire it encourages rather than discourages them.

Another less toxic approach, the use of vinegar to remove weeds, has been shown with USDA research to prove effective. They hand-sprayed the weeds with various solutions of vinegar, uniformly coating the leaves. The researchers found that 5- and 10-percent concentrations killed the weeds during their first two weeks of life - A bottle of household vinegar is about a 5-percent concentration. Older plants required higher concentrations of vinegar to kill them. At the higher concentrations, vinegar had an 85- to 100-percent kill rate at all growth stages.

If you have acres of weeds, you might want to consider solarization during summer. Water the area, cover it with clear plastic and then let the sun's heat help germinate the seed. After germination the continued heat under the plastic dehydrates and kills the plants. The downside of solarization is that some deep seated weeds like bindweed are too deep to kill all the roots, and soil microorganisms (the life in the soil) are killed as well.

The use of weed block fabric is prevalent, but doesn't always work the way you think. Weed block prevents the seeds under the fabric from germinating (no light); weed seeds above the fabric germinate easily. Gravel in particular acts as a seeding medium collecting fine dust/soil then providing nooks and crannies for the weed seeds. Condensation off the rocks helps provide some moisture. My thoughts are that if you like lots of new plants you'll spend serious time cutting holes in the fabric for them and then increasing the hole size as they grow. I only use weed block under my dry stream or under pathways for this reason – places without added plants. Who needs the extra work?

The most important part of weed management is plant ID. You need to know what the plant is, whether it's annual or perennial, and how it spreads. There are some really creative ways plants spread e.g. vetch creates little pillows that explode throwing the seed away from the parent so they don't compete for resources, seeds with wings that fly away, seeds that catch on animal fur or clothing or shoes to be transported elsewhere. Vetch is a nitrogen fixer so it provides additional benefits to surrounding plants that absorb the nitrogen.

Since we first moved to High Desert in 1999 I've noticed the weeds have changed over time. The early weeds, right after construction when the soil was disturbed, included primarily tumbleweed and kochia. Later in time hairy golden aster became invasive and London Rocket, a mustard, showed up in winter. The next weed/grass to appear included cheat grass, foxtail, and purple three awn. More recently I've seen weeds like spurge, black medic, silver nightshade, and purslane. Spurge and purslane are opportunistic weeds that appear in a wet area so allowing the area to dry out should help reduce their number.

Other weeds I've seen in High Desert include bindweed (Academy entrance), pepper weed, barnyard grass, and horseweed. I've also seen thread grass and pink muhly in the arroyos.

Color photos of a number of the weeds mentioned above can be found on the High Desert website in the presentation on Weeds. If you are hand pulling, learn to recognize weeds when they're small. It's less effort and sometimes the prickly parts (tumbleweed) haven't developed yet.