



“When dirt comes alive it is called soil”

A California soils map looks like a kid went crazy with colored pencils. If it's a named soil type, we have it. And a rich flora to match! Not to mention so many varied climate zones and wildlife species!

Diversity. It's what California is all about. We've got the most of just about everything.

So why do we often hear the big question, “Which native plants will work in this or that soil?” Natives should do really well in just about any soil, right? Right. Problem is that usually the person asking the big question is staring down at sub-soil... leftovers from some huge grading project... the inside of a hill, now exposed on the surface. It's really a “non-soil” problem, that is, the problem is that it's not soil. Real topsoil will support native plants, (and other plants) just fine. In fact, a good indicator for a healthy soil is the presence of healthy plants including weeds. If your vacant yard or jobsite is barren, no weeds, you may have a soil (or a non-soil) problem. Do you want healthy native plants, even in poor or in “non” soil?

Here's a basic rundown on California plants and the soils they grow in:

1. Think of two criteria for plants. Requirements and tolerances.

Requirements. Plants with very exacting requirements usually have few tolerances. (i.e., *Carpenteria* - prefers cool, moist, organic, acidic soil and hence is limited in its natural distribution) These plants will not do well in a wide variety of soils.

Tolerances. Plants that have few requirements have greater tolerances (i.e., *Toyon*, which grows in many different soil types throughout its wide range.) They will do well in a wide variety of soils.

Once again, we get our clues from the natural history, the ecology, and the distribution of the plant type. The more we can know about the plant in its natural habitat, the better we will do with it in a horticultural setting. Learn as follows: Read, hike, study, take pictures, draw, journal, experiment, hike some more, visit gardens, enjoy the outdoors.

2. Think of three factors for your garden. Soil. Conditions. Plant.

Soil. For natives, the most important issue is usually drainage, that is, percolation. Waterlogged soils are not good for plants from dry places. You want water to go into and through the soil, and air to follow in the spaces, with moisture nicely retained on the soil particles. A perfect sandy loam will do this. Only in extreme cases do you worry about soil fertility, salinity, pH, ECe, TDS. The data always look good on a report, but the most important thing is still STRUCTURE. In the case of the graded slope, the goal will be to build soil with amendments, plant diversity and time.

Conditions. This describes how slope, terrain, sun, wind, irrigation, foot traffic, weed seed, run-off, use and other environmental factors affect the soil. In a landscape situation the key issue is irrigation; quantity, frequency, duration, water quality and method. Different soil types and plantings will obviously require different watering regimes.

Plant. Match the plant to the soil type and to the conditions. You can alter the conditions you have control over, especially irrigation to match the plant's needs. Choose plants with high tolerances in poor soil situations. You can choose unique plants with exacting requirements in special situations and distinctive conditions and soils.

3. Think of all the ways you can modify the soil, the conditions, and the plant choices until you have the perfect match.

Specifically regarding modifying soil:

To change the soil structure (usually the most important) use well composted organic material. Avoid manures and straw-based products. Look for composted forest humus, leaf mulch, or green waste. The coarse texture will help break up tightly compacted soils. Where amendment is needed, a good ratio is one-third compost to two-thirds native soil, well blended in the planting hole and in the material around the plant root ball. Do not add sand to clay soils unless you want the makings for adobe bricks. Sand does not improve structure. Organic compost does, physically with its coarse structure and in the long run, chemically by creating humic acid.

To change soil fertility, use all-purpose plant food. Many people prefer organic fertilizers as they help build the soil for the long haul. For most native plantings, half –strength from whatever is the recommended rate will suffice.

To change soil pH use lime to increase. It is very difficult to lower soil pH. Better to choose a plant that will tolerate the higher pH. Organic amendments will act as an effective buffer, stabilizing the pH. That's why forest soils are so good. Better to build soil than to constantly provide amendments. Gypsum will help chemically aggregate clay particles in poor soils for improved percolation. It is frequently recommended but really only necessary in special cases, for instance, growing turf-grass in clay soil.

In summary, always try to match the soil, the conditions, and the plant for great success every time. You can only alter the qualities of the soil to a certain extent. The same goes for the site conditions. But plant choices...ahhh, you have hundreds! As you become very familiar with many native plants your “soil problems” (or “non-soil” problems) will become minimal. Amend to improve structure as needed. Remember to build soil with amendments, plantings, and uses that are compatible to the site.



Strive for sustainability in both design and planting. When dirt comes alive, it is called soil. It's a beautiful thing.

The colorful California soils maps never allowed for the massive grading we have seen in our housing tracts and home sites. For the most part, the natural topsoil in those cases has been blended, buried, lost. Landscaping with natives in the poor left-behind sub-soils can be quite a challenge, but we can create beautiful, sustainable gardens if we don't forget the basics.