NATIVES FOR CLAY SOIL

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Natural Landscape Design

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Agenda

- Do you really have clay soil?
- What can you do to “fix” the clay?
- What natives can handle clay soil?
- References
“Hard soil” may not be clay

– Sand, gravel and silt can be very hard
– You can easily test your soil
  • Remove leaves/twigs, dig 6” deep and get 2 cups of soil (mix of different areas in yard)
  • Put in mason jar, fill with water, add ½ tsp detergent
  • Shake and let sit. Check after:
    – 30 seconds = sand
    – 30 minutes = silt
    – 2 days = clay
  • Divide height of each layer by total height to get % sand, silt, clay
The “hand test” also determines if you have clay soil.

- Squeeze handful of moist soil between thumb and forefinger to make a vertical “ribbon”. How long is it before breaking?
  - $< \frac{1}{2}” = $ sand
  - $\frac{1}{2}$ - $1” = $ sandy or silty loam
  - $1 - 2” = $ clay loam
  - $2 - 3” = $ CLAY

- How does soil feel when you squeeze it into a ball?
  - If can’t make a ball, you have sand
  - If feels sandpapery, you have sand
  - If feels slippery, you have clay
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What is “wrong” with clay soil?

– Clay holds extra water and nutrients but they may not available to the plant (too tightly bound)
– Clay soil can draw water out of the rootball of recently planted plants, making it difficult for them to establish
You can’t add enough sand to “fix” the clay. Instead:

– Add 2” of compost and dig it in
  • Home made compost or composted manure (eg from Wheeler Farms in Portola Valley)
  • Potting soil (eg from Lyngso in San Carlos)
– Add humic acid (Leonardite)
  • It restructures the soil by getting the flat platelets of clay to expand and separate
    • John’s and Bob’s brand from Urban Farmer Store
– Mulch heavily with arbor mulch and replenish periodically. Mulch breaks down into compost.
Some plants tolerate clay, especially on berms or slopes.

- Berms and slopes provide good drainage
- Construct berms with:
  - Sod cut off soil (if removing grass)
  - 2” of soil scraped off yard (if adding compost)
  - Purchased “topsoil” plus compost
- Plants requiring more drainage planted on top of berms, plants tolerating wet soil planted at bottom
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Trees for clay

- *Acer - A. circinatum (Vine maple) and A. macrophyllum (Big leaf maple)
- *Aesculus californica (Buckeye)
- *Cercis occidentalis (Redbud)
- Corylus cornuta californica (Hazelnut)
- Forestiera pubescens (Desert Olive)
- *Prunus ilicifolia lyonii (Catalina cherry)

*if on berm or slope
Acer circinatum (Vine maple)
Aesculus californica (California Buckeye)
Cercis occidentalis (Redbud)
Prunus ilicifolia (Holly-leaved Cherry)
Trees for clay

– *Quercus - Q. agrifolia (Coast Live Oak) and Q. lobata (Valley Oak)
– *Sambucus nigra caerulea (Elderberry)
– *Sequoia - S. sempervirens (Coast Redwood) and S. giganteum (Giant Redwood)
– *Umbellularia californica (California bay)

*If on berm or slope
Quercus agrifolia (Coast Live Oak)
Sambucus nigra caerulea (Elderberry)
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Shrubs and Vines for clay

– Clematis lasiantha (Riparian clematis)
– Cornus sericea (Redtwig dogwood)
– Lepichinia calycina (Pitcher sage)
– Lonicera – L. hispidula (Vine Honeysuckle), L. involucrata (Twinberry)
– Physocarpus capitatus (Ninebark)
Cornus sericea (Red twig dogwood)
Physocarpus capitatusus (Ninebark)
Shrubs and Vines for clay

- Ribes - R. aureum (Golden current), R. sanguineum (Canyon gooseberry), R. sanguineum glutinosum (Pink flowering current)
- Rosa californica
- Rubus – R. parviflorus (Thimbleberry), R. spectabilis (Salmonberry)
- Spiraea douglasii (Steeplebush)
- Symphoricarpos albus (Snowberry)
Ribes sanguineum glutinosum (Pink-flowering Currant)
Spiraea douglasii (Steeplebush)
Symphoricarpus albus (Snowberry)
“Grasses” for clay

– Calimagrostis foliosa (Leafy reedgrass)
– Carex (most sedges)
– Elymus californicus
– Festuca californica (California Fescue)
– Juncus (most rushes)
– Leymus condensatus (Giant Ryegrass)
– Melica (most melic grasses)
– Muhlenbergia rigens (Deer grass)
– Nassella pulchra (Purple Needlegrass)
– Scirpus cernuus (Dwarf sedge)
Calamagrostis foliosa (Leafy Reedgrass)
Carex pansa (used as lawn)
Festuca californica (California fescue)
Muhlenbergia rigens (Deer grass)
Perennials & Ferns for clay

– Anemopsis californica (Yerba mansa)
– Aquilegia Formosa (Red columbine)
– Artemesia douglasiana (Mugwort)
– Athyrium filix-femina (Lady fern)
– Blechnum spicant (Deer fern)
– Epilobium canum
– Fragaria – F. chiloensis (Beach strawberry), F. vesca (Woodland strawberry)
– Grindelia stricta prostrata (Dune gumplant)
Aquilegia formosa (Columbine)
Blechnum spicant (Deer Fern)
Epilobium canum (California Fuschia)
Perennials & Ferns for clay

- Helianthus californica (California sunflower)
- Heracleum lanatum (Cow Parsnip)
- Heterotheca sessiflora bolanderi (Golden Hairy Aster)
- Heuchera maxima (Island alumroot)
- Iris longipetala (Coast iris)
- Lilium pardilinum (Leopard lily)
- Lobelia cardinalis (Cardinal lobelia)
- Oenothera elata hookeri (Hooker’s evening primrose)
Heterotheca sessiliflora (Golden aster)

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Heuchera maxima (Island Alum Root)
Oenothera elata (Hooker’s evening primrose)
Perennials & Ferns for clay

- Satureja douglasii (Yerba buena)
- Scrophularia californica (Bee plant)
- Scutellaria californicum (California skullcap)
- Sidalcea malviflora (Checkerbloom)
- Sisyrinchium californicum (Yellow-eyed grass)
- Smilacina stellata (Starry false Solomon’s seal)
- Solidago (most goldenrods)
- Tanacetum camphorum (Dune tansy)
- Viola adunca (Dog violet)
- Whipplea modesta (Modesty)
Sidalcea malvaeflora (Checker Bloom)
Sisyrinchium californicum (Yellow eyed grass)

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Solidago (Goldenrod)

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Reference

– Plants and Landscapes for Summer Dry Climates of the San Francisco Bay Region, East Bay Municipal Utility District
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