

# ***NATIVES FOR CLAY SOIL***

By Patricia Evans

Natural Landscape Design

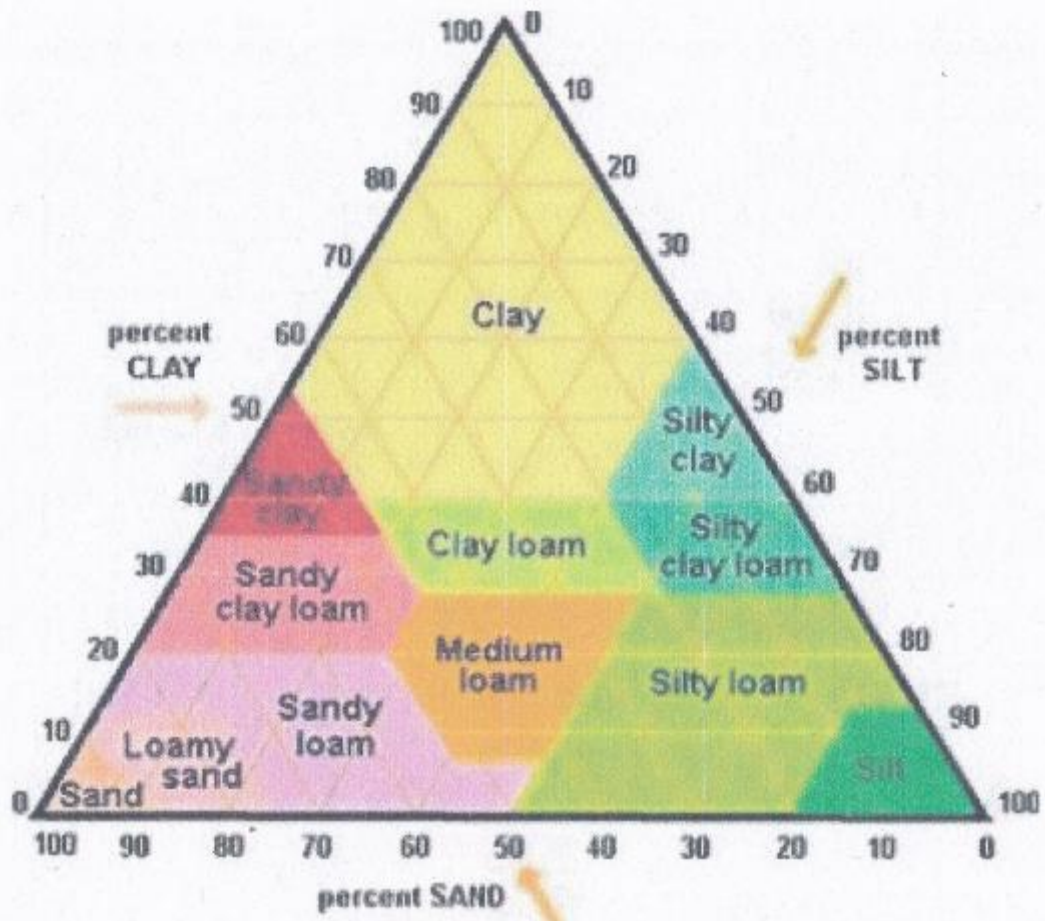
CNPS August 28, 2019

# *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 handfull 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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- Do you really have clay soil?
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# *What is “wrong” with clay soil?*

- Clay holds extra water and nutrients but they may not be 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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- Do you really have clay soil?
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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)**

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*Aesculus californica* (California Buckeye)







***Cercis occidentalis* (Redbud)**

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*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)

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***Sambucus nigra caerulea* (Elderberry)**

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***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 capitatus* (Ninebark)**

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# *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)

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***Symphoricarpos 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)



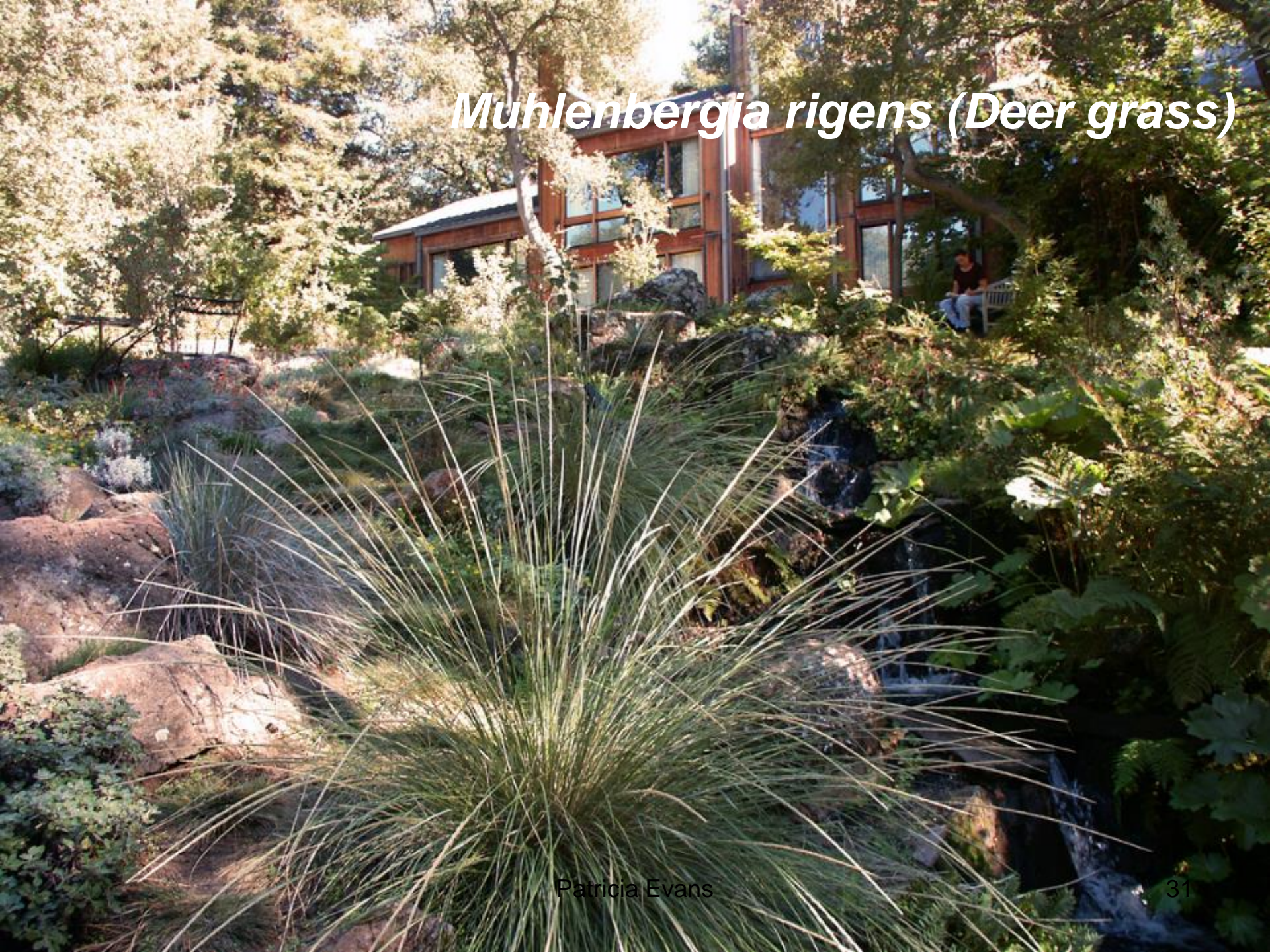
***Festuca californica* (California fescue)**



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*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)**



Barbara  
Bryant  
Nursery

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*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 pardalinum* (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**



*Oenothera elata* Hooker's Evening Primrose  
Santa Cruz Island, CA  
Dae Woong Photography

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# *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)





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***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



# *Photos contributed by:*

- Chris Todd
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