



Garden Learning – Coastal Prairie Plant Community

The Garden Learning program is a monthly publication that provides volunteers information about a specific area in the Forrest Deaner Native Plant Botanic Garden. As we learned in the September edition, there are six demonstration gardens and 5 plant community areas. This month we will focus on the Coastal Prairie community area.

The Coastal Prairie community is located in the Center of entire Garden, shown in the chart below.



As the name suggests this area should be a blend of plants that like the coast and plants that are suited for prairies, but the in Solano County? Well, a piece of Solano County does sort of touch the bay. To get a more scientific appreciation for the Coastal Prairie let's start with the definition of a basic Prairie and look at its structure/components.

From Wikipedia:

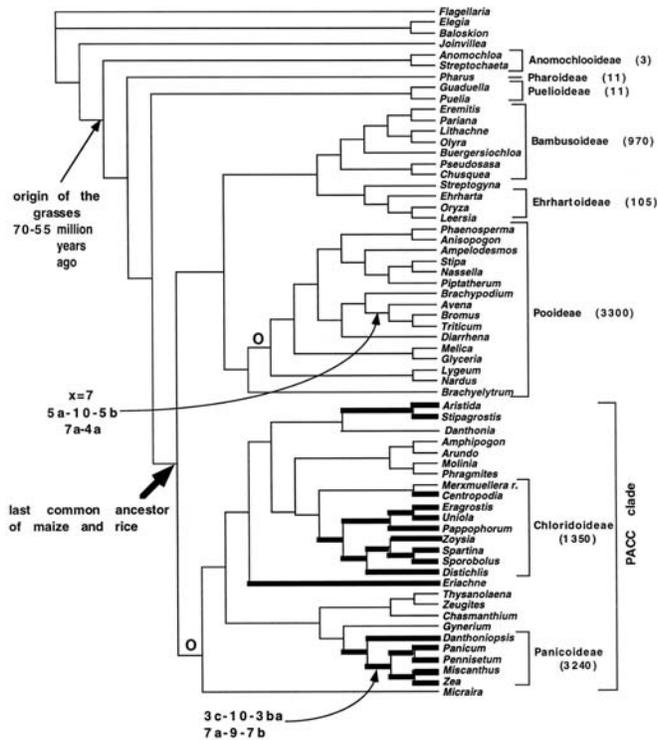
“California coastal prairie, also known as northern coastal grassland, is a grassland plant

community of California and Oregon in the Temperate grasslands, savannas, and shrublands Biome. It is found along the Pacific Coast, from as far south as Los Angeles in Southern California up into southern Oregon.” Unlike many other Mediterranean climate grasslands, the mostly perennial bunch grasses stay green all summer

Grass land prairies have been around for a very long time. The earliest records of grass pollen are from between 60 and 55 million years from parts of South America and Africa. There is also no evidence that Dinosaurs ever ate grasses so they appear to not have existed before 60 million years ago! This is lucky for us since the grass family of plants provides important foods like rice, wheat, and maize and domestic animals are raised on grasses.

While reviewing the grasses that would be found in a coastal prairie, you will find that many of them are actually sedges. What is the difference between sedges and grasses? Don't they look the same? It turns out they are actually in completely different plant families.

- Sedges have sharp edge and triangular cross sections
- Grasses are round and smooth



The above figure shows the phylogeny of the grass family. You will not find a single sedge listed here. Phylogenetics is the study of change (relationships) among groups of organisms which is discovered by looking at their molecular sequencing data and morphological data matrices. These chart types were started for biologic studies and now have been applied to plants!

So by studying the molecular structure of plants it automatically divides them into family lines. At times in the field you will not have a microarray molecular scanner so looking at the edges and cross section of the plant can be useful.

Some other interesting facts about the plants that grow in the Coastal Prairie:

70-80% of the bio mass is underground. This allows the plant to survive long dry hot periods and the effects of animal grazing.

There are an abundant number of annual flowers that grow alongside the grasses of the prairie. These plants often have tall flowers that rise above the grassland landscape as a strategy for dispersing seeds.

Another related grass like plant you on the edges of prairies where it is wetter are the rushes. Do you know an easy way to tell rushes from sedges and grasses?

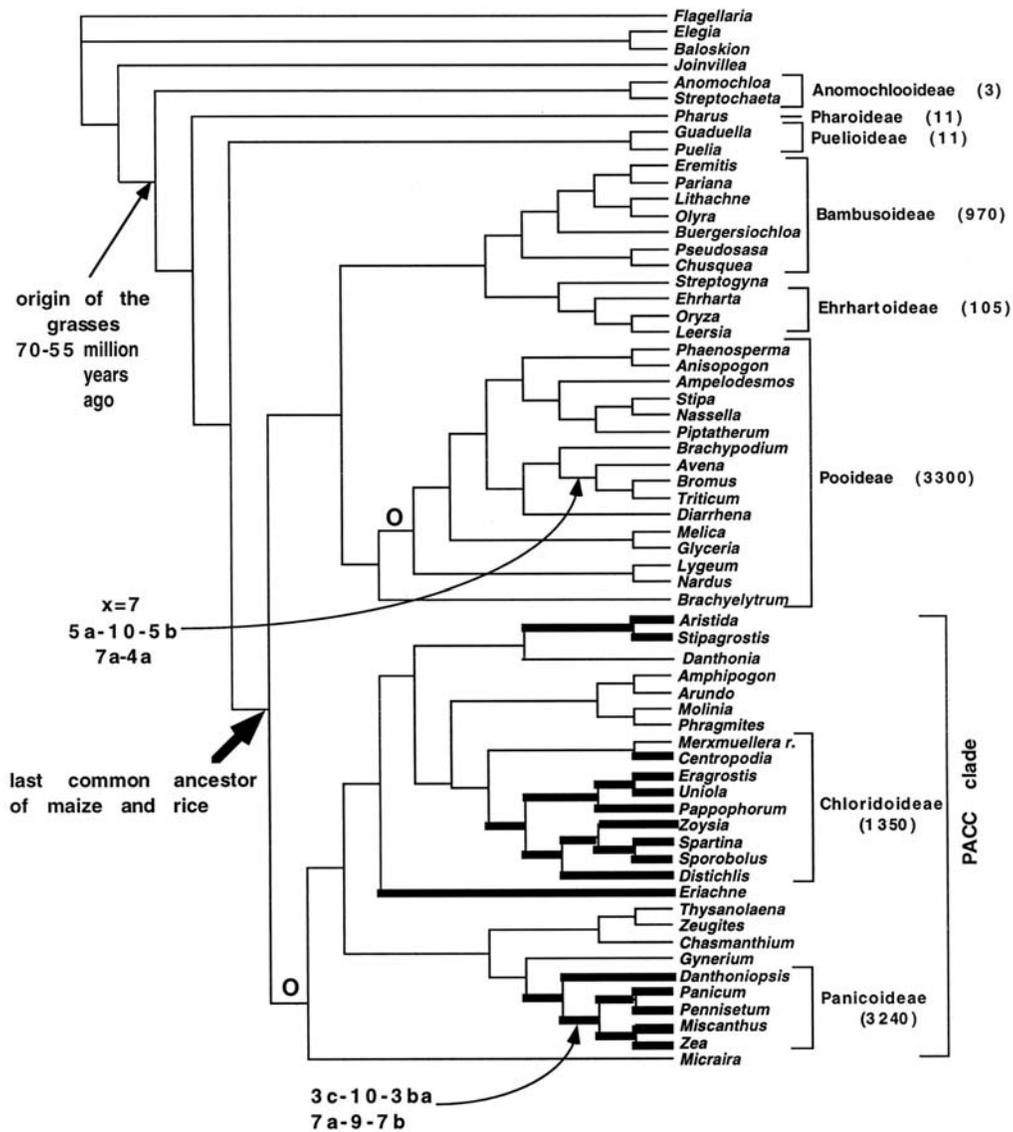


© 2011 Dylan Neubauer (CalPhotos)

Phylogeny of the grass family based on combined data from chloroplast restriction sites, *rbcL*, *ndhF*, *rpoC2*, phytochrome B, ITS, GBSSI, and morphology (GPWG, 2000).

©2001 by American Society of Plant Biologists

Kellogg E A *Plant Physiol.* 2001;125:1198-1205



Native Plants of the Coastal Prairie Plant Community

The Coastal Prairie community consists of **30** species of annuals, grasses, and perennials native to Solano County. Several are special in that they are only found in California or the western region of North America. These are notated in the lists below with the following symbols:

- C** Found in California Only
- C+** Found in California and only slightly beyond the borders of CA
- W** Found in western North America Only **N** Found in North America & beyond

Annuals:

Scientific Name	Common Name	Family
Castilleja rubicundula ssp. lithospermoides	C+ Cream sacs	Scrophulariaceae
Collinsia sparsiflora	W Spinster's blude eyed Mary	Scrophulariaceae
Eriogonum luteolum var. caninum	C Tiburon buckwheat	Polygonaceae
Gila capitata	W Blue Field Gilia	Polemoniaceae
Lasthenia californica	W California Goldfields	Asteraceae
Lupinus nanus	W Valley sky lupine	Fabaceae
Microseris douglasii	W Douglas's silverpuffs	Asteraceae
Minuartia californica	W Sandwort	Caryophyllaceae
Sidalcea diploscypha	C Fringed checkerbloom	Malvaceae
Streptanthus glandulosus	C Jewelflower	Brassicaceae
Trifolium albopurpureum	W Indian clover	Fabaceae
Trifolium albopurpureum var. dichotomum	C Brunched indian clover	Fabaceae
Trifolium barbigerum	C Bearded clover	Fabaceae
Trifolium barbigerum var. barbigerum	C Bearded clover	Fabaceae
Trifolium bifdum	W Pinole clover	Fabaceae
Trifolium microdon	C Thimble clover	Fabaceae
Trifolium variegatum	W Whitetip clover	Fabaceae
Triphysaria eriantha	W Butter 'n' eggs	Scrophulariaceae

Grasses and Sedges:

Scientific Name	Common Name	Family
<i>Aristida oligantha</i>	N Prarie threeawn	Poaceae
<i>Carex barbarae</i>	W Santa Barbara Sedge	Cyperaceae
<i>Carex praegracilis</i>	N Slender Sedge	Cyperaceae
<i>Deschampsia cespitosa</i>	N Tufted Hairgrass	Poaceae

Perennials:

Scientific Name	Common Name	Family
<i>Cardamine californica</i>	W Milk maids	Brassicaceae
<i>Eriophyllum lanatum</i>	W Common Woollysunflower	Asteraceae
<i>Euthamia occidentalis</i>	N Western Goldenrod	Asteraceae
<i>Iris douglasiana</i>	W Douglas Iris	Iridaceae
<i>Ligusticum apiifolium</i>	W Lovage	Apiaceae
<i>Nassella lepida</i>	W Small flowered needlegrass	Poaceae
<i>Perideridia kelloggii</i>	C Kellogg's yampah	Apiaceae
<i>Ranunculus occidentalis</i>	W Western buttercup	Ranunculaceae



Carex praegracilis (Slender Sedge)
 © 2008 Steve Matson (CalPhotos)

Native Plant Featured

This month's Native Plant of Month is the *Sidalcea diploscypha* known as the fringed checkerbloom. This annual herb (flower) can be found among the prairie grasses. Note the Bloom Period wheel which is new to CALFLORA this year and shows the months you would expect this plant to bloom.

Sidalcea diploscypha (Torrey & A. Gray) Benth.

Fringed sidalcea, fringed checker mallow, fringed checkerbloom

Sidalcea diploscypha, a dicot, is an **annual herb** that is **native** to California and is endemic (limited) to California alone.

Communities:	Valley Grassland, Coastal Prairie, Northern Oak Woodland, Foothill Woodland
Affinity to serpentine soil:	2.6 (strong indicator) [Safford et al 2005]
Habitat:	slopes [Walker]
Elevation:	between 0 and 3000 feet
Family:	Malvaceae (TJM2 Treatment)
Related:	See a list of other species in the genus Sidalcea found in California.



Bloom Period



Plant Distribution



Puzzlers Page

Plant Riddle: What Plant am I?

Word Search:

Test your Learning

Question 1: What is the difference between sedge and grass?

Question 2: How many years have grasses been on the earth?

Question 3: Why is it important that plants living on a prairie have the majority of their bio-mass (structure) underground?

Question 4: How are grasses and rushes different?

Question 5: What type of flowers tend to grow on the Coastal Prairie?

Read more about this Month's Topics at these References:

CALFLORA: <http://www.calflora.net/botanicalnames/plantcommunities.html>

Jepson Prairie: <http://www.solanolandtrust.org/CalendarList.aspx>

History of the Prairie: <http://www.sonoma.edu/preserves/prairie/index.shtml>

Evolution of Grass: <http://www.plantphysiol.org/content/125/3/1198.full>

Sedges Grasses and Rushes: <http://www.helium.com/items/1440510-sedges-and-grasses>

A Complex Prairie Ecosystem:
<http://www.nps.gov/tapr/naturescience/a-complex-prairie-ecosystem.htm>

<http://www.laspilitas.com/nature-of-california/communities/coastal-prairie/plants>

<http://www.laspilitas.com/nature-of-california/communities/coastal-prairie>

<http://www.nwrc.usgs.gov/factshts/019-00.pdf>

Answers to Last “Test your Learning”:

Answer 1: Mediterranean shrublands dominate California’s landscapes covering 8.5 % of the state. Globally, they hold more than 20% of the Earth’s plant diversity

Answer 2: The word sclerophyllous originates from the combination of the Greek words “sclero” which means “hard” and “phyllon” which means leaf. The word is also used to describe the inter-node spacing between the leaves on the stem. Sclerophyllous plants have short spacing between leaves on the stem.

Answer 3: To get chaparral plants for your own Garden you can:

- a) contact Becky at rfivem@pacbell.net
- b) Local Nursies that sell Native Plants.
- c) There are books and publications devoted to propagation methods like the “Seed Propagation of Native California Plants” by Dara E. Emery

Answer 4: The Coast Aster is a perennial herb that grows primarily on the coast of California and in a very interesting place in Solano County: the Jepson Prairie Reserve (Solano Land Trust).

Answer 5: Convolvulus Arvensis has pretty pink flowers and that is good even though it is a weed.