



CALIFORNIA'S FADING WILDFLOWER LEGACY

Richard A. Minnich
Department of Earth Sciences
University of California Riverside

THE GOLDEN STATE

WHY THE NAME?

**FOUR REASONS RELATED TO
WEALTH AND BIOLOGY**

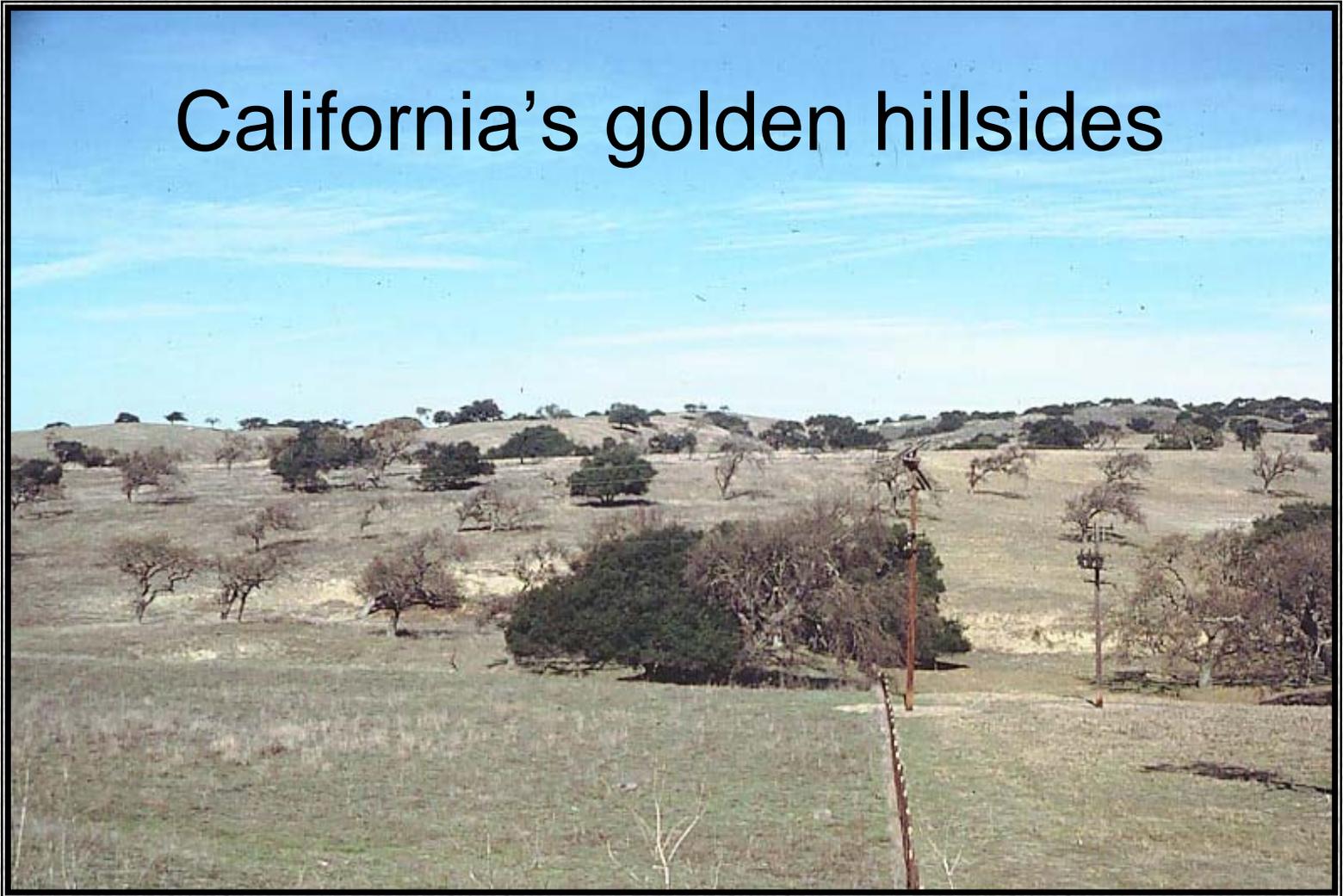
The Gold Rush.

The Washington Navel Orange

The California poppy

and.....

California's golden hillsides



A note to irony

Crespi May 7, 1770. Near Pt. Arguello. "We[kept] on a northwesterly course..... We...find the fields all abloom with different kinds of wildflowers of all colors, so that, as many as were the flowers we had been meeting all along the way and on the [Santa Barbara] Channel, it was not in such plenty as here, for it is all one mass blossom, great quantities of white, yellow, red, purple, and blue ones; many yellow violets or gilly flowers of the sort that are planted in gardens [of Europe], a great deal of larkspur, poppy, and chia [*Salvia columbarie*] in bloom, and what graced the fields most of all was the sight of all the different sorts of colors together.



OTHER QUOTES OF SPANISH MISSIONARIES

CRESPI April 18, 1770: Near Carlsbad. “We met the villages at all of the spots, all of them engaged in plucking the seeds of their grasses. It is a pleasure to see how the fields are abloom everywhere,....”

ANZA March 18, 1774). Valley San Joseph [San Jacinto Valley]. “All its plains are full of flowers,

CRESPI April 23, 1770): Placentia. The entire countryside, all over this great plain, is full of chia that is very good for refreshment, so much of it that I thought it impossible for the heathen folk, a great many of them though there are, to gather even half of it. It was in bloom at present: purple-colored bloom.

FONT February 11, 1776. Orange County plains. “Among the infinite variety of flowers, such as tulips [California poppy] and others of very diverse colors and very pretty, with which from now on the fields, groves, and valleys of those lands begin to be clothed....”

ANZA April 14, 1774. Santa Barbara Channel. “fields as verdant as they are flower-covered [*como floridas*] touch the very waters of the sea.”

FONT April 1, 1776. Oakland. “....all the country was very green and flower-strewn, with an abundance of lilies. In view of Carquinez Strait, “the fields are as green with herbs and as thickly covered with various wildflowers as those [areas] farther back.”

ANZA (April 2) Richmond/Concord. saw “ten heathen came adorned with plumes and garlands of flowers.”

How many societies have garlands of flowers, a culture trait?

QUOTES OF 19TH CENTURY EXPLORERS

Fremont. Sacramento Valley in 1844 “The higher prairies between the rivers presented unbroken fields of yellow and orange colored flowers, varieties of *Layias* and *Eschscholtzia Californica*, and large bouquets of the blue flowering *nemophylla* nearer the streams.”

Clarence King. 1864 Central Valley, “.....a broad arabeque surface of colors. Miles of orange-colored flowers, cloudings of green and white, reaches of violet which looked like the shadow of a passing cloud, wandering in natural patterns over and through each other, sunny and intense along near our range, facing in the distance into pale, bluish-pearl tones...”

Muir 1867. “The Great Central Plain of California, during the months of March, April and May, was one smooth, continuous bed of honey-bloom, so marvelously rich that, in walking from one end of it to the other, a distance of more than 400 miles, your foot would press about a hundred flowers at every step. Mints, gilies, nemophilas, castileias, and innumerable compositae.....one sheet of purple and gold....”

Hittell 1874. “Along the railroads on either hand runs continuously the rich radiant bloom. Your sight becomes pained, your very brain is bewildered, by watching the galloping rainbow. There are great fields in which flowers of many sorts are mingled in a perfect carnival of color; then come exclusive family gatherings where the blue, crimsons, or the purples, have it all their own way; and every now and then you come across great tracts, resplendant with the most gorgeous of all wild flowers, the yellow or orange poppy, ...long ago some poetic Spaniard....christened it *El Copo de Oro* [the golden cup].”

Brewer and Watson. *Eschscholzia californica*. “This is the most conspicuous flower of the state flora and sometimes large areas are made painfully brilliant by its intense glow in the bright sunshine.”



THE CAST OF CHARACTERS



Fiddleneck



Popcorn flower



Cream cups



Penstemon



Tidy Tips



Poppy



Lupine



Baby blue eyes



Blue bells



Chia



Penstemon



Altadena in the 1890s, C.F. Saunders



San Gorgonio Pass in the 1890s, C.F. Saunders

QUOTES OF WILDFLOWERS IN THE RIVERSIDE PRESS AND HORTICULTURALIST.

April 27, 1886. ... in a day resplendent with bright sunshine, myriads of beautiful flowers...The church teaches us to live and revere the beautiful flowers that bedeck the fields.

April 14, 1888. A drive through the plains... the purity and sweetness of the innocent and simple flower blossoming in timidity, and perfuming the air with its honeyed fragrance everywhere meets the eye.... On the abrupt rocky hills, are beds of yellow and blue flowers, but momentary in life, yet offering up incense at the alter of season.

March 9, 1889. The wildflowers have no so abundant this winter as last, The rains were not continuous enough.

Feb 28, 1891. This has been a beautiful, warm spring day, noting it a delight to be out of doors. Vegetation of all kinds is springing up and the hills are taking on a delightful greenish tint...In a few days, the golden poppy will tint the hillsides with a warm, rich yellow, and beautiful flowers of a hundred different varieties and hues will deck the bar plains in a more fanciful garb of Joseph's coat of many colors.

March 28, 1891. The Box Springs hills are covered with masses of golden poppies, which gleam and glimmer in the sunlight, with a yellow radiance that must be seen to be appreciated.

March 23, 1893. Wildflowers are becoming very abundant, especially the beautiful golden poppy.

April 1, 1893. The drive down the valley, following the canal, is one of great beauty at this season of the year. The hills are covered with a carpeted of emerald green bedecked with beautiful wildflowers. The air is sweet with the fragrance of new mown hay and the exhalations of blossoms so numerous as to be seen like solid beds of yellow, and blue and white,....

March 31, 1895. The hillsides were never so gorgeously beautiful with wildflowers

March 25, 1897. West Riverside seems to have quite an attraction for wild-growing flowers.

Feb 26, 1901.dainty wildflowers on the hills.

March 6, 1903. The golden poppies are again in bloom; also cream cups, baby blue eyes and several other small varieties.

April 3, 1903. [Corona]. The mesa is covered with wildflowers.

March 6, 1905. Yesterday a lover of nature hied himself to the hills hereabouts, and enjoyed the beauties. Those going to Coldwater Canyon report that they were amply repaid for....for there they found such a profusion of wild flowers as they had never seen before.

March 18, 1905. It has been many days [years] since there has been such an abundance of wild flowers, as there there are now to be found in this neck of the woods. This morning, crowds of school children and tourists were out on Rubidoux Hill, where they were gathering the beauties by the handful and the armload.

March 20, 1905. Spare the poppies. But if the crowds of people and children who have been engaged in pulling up these beautiful flowers do not show more discretion, the poppies will not be there next year...Therefore, all persons who want Riverside to have these poppies in great profusion are urged not to pick the flowers now making Rubidoux Hill so attractive,....



ARRIVAL OF OLD WORLD EXOTIC ANNUALS

SCIENTIFIC NAME	COMMON NAME	YEAR
<i>Erodium cicutarium</i>	filarie	1769
<i>Brassica nigra</i>	black mustard	1769
<i>Malva parviflora</i>	cheese mallow	1769
<i>Trifolium, Medicago</i> spp.	clovers	1770s
<i>Avena fatua</i>	wild oat	1800
<i>Festuca megulara</i>	fescue	early 1800s
<i>Hordeum murinum</i>	wild barley	early 1800s
<i>Erodium moschatum</i>	filarie	1840
<i>Bromus rubens</i>	red brome	1860, 1890s
<i>Bromus diandrus</i>	ripgut brome	1862, 1890s
<i>Brassica geniculata</i>	mustard	1900
<i>Avena barbata</i>	slender wild oat	1900
<i>Schismus barbatis</i>	split grass	1950
<i>Brassica tournefortii</i>	Sahara mustard	1980s

Parish 1909. In the San Bernardino Valley, these bromes were first noticed in the spring of 1888. The diffusion of both bromes continued with increasing rapidity, and in a very few years large patches of either could be found in all parts of the valley and the surrounding hills. They are now among the most wide-spread, abundant and well established grasses of the region. *B. rubens*..... completely chokes out the native spring annuals..... Both [bromes] are nearly valueless for forage, as animals will eat only the youngest growth, and both are injurious in hay.... by reason of its greater height and long stiff awns.

Parish 1920.being vernal in their growth Bromes [occupy] the dry soils of plains and hills,..... to the exclusion of the native vegetation. As a result, some delicate indigenous herbs, formerly abundant, are now rare. The [Bromes].....are practically worthless as forage, and soon drying up they become a serious fire menace.



Box Springs Mountains, 1980



TWO TREES CANYON, SITE 1

1991, 10.38''

2.5 tons ha⁻¹

phacelia, popcorn flower



1989, 6.44''

1.6 tons ha⁻¹

phacelia, mustard,
cream cups





**1992, 11.05''
1.8 tons ha⁻¹**

phacelia



**1993, 20.79''
3.3 tons ha⁻¹**

**brome, phacelia,
mustard**



1993

**BURN IN
NOVEMBER**



1994, 9.34''
2.5 tons ha⁻¹

Brome, sahara mustard
mustard, oats



1995, 18.90''
2.9 tons ha⁻¹

Brome, oats



**1996, 7.33”
2.7 tons ha⁻¹**

brome, oats



**1997, 11.38”
3.6 tons ha⁻¹**

oats, brome



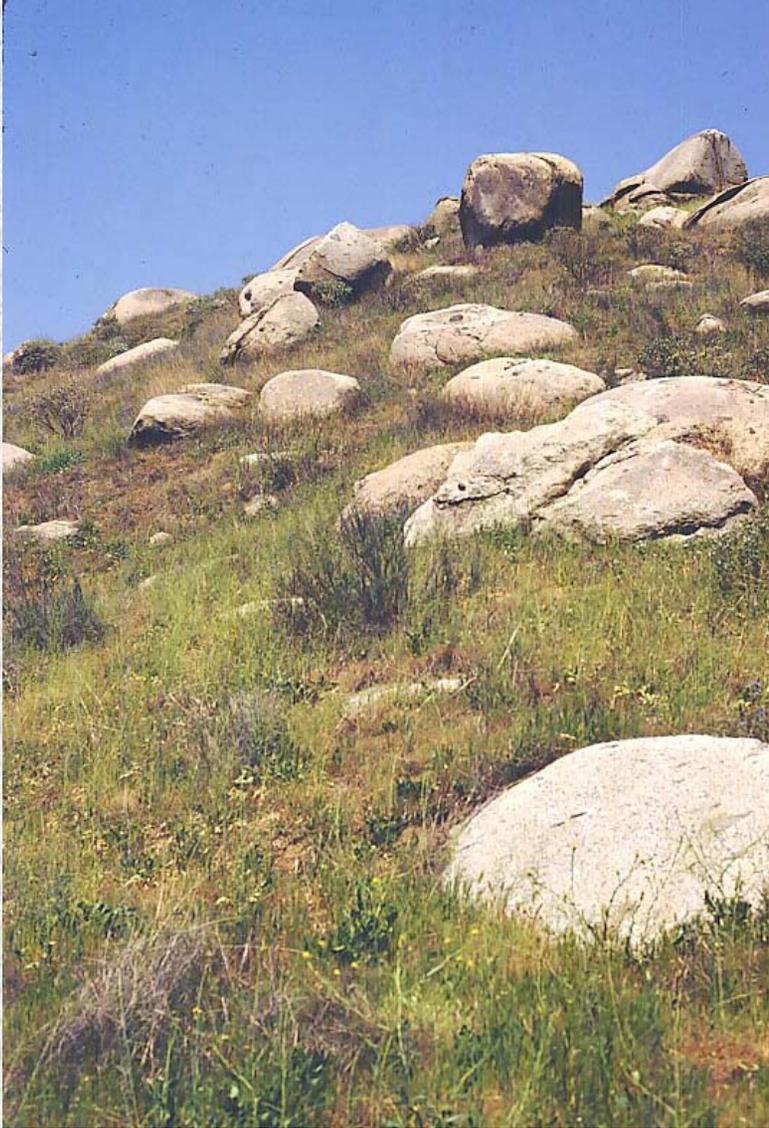
1998, 25.30''
4.8 tons ha⁻¹

oats, brome

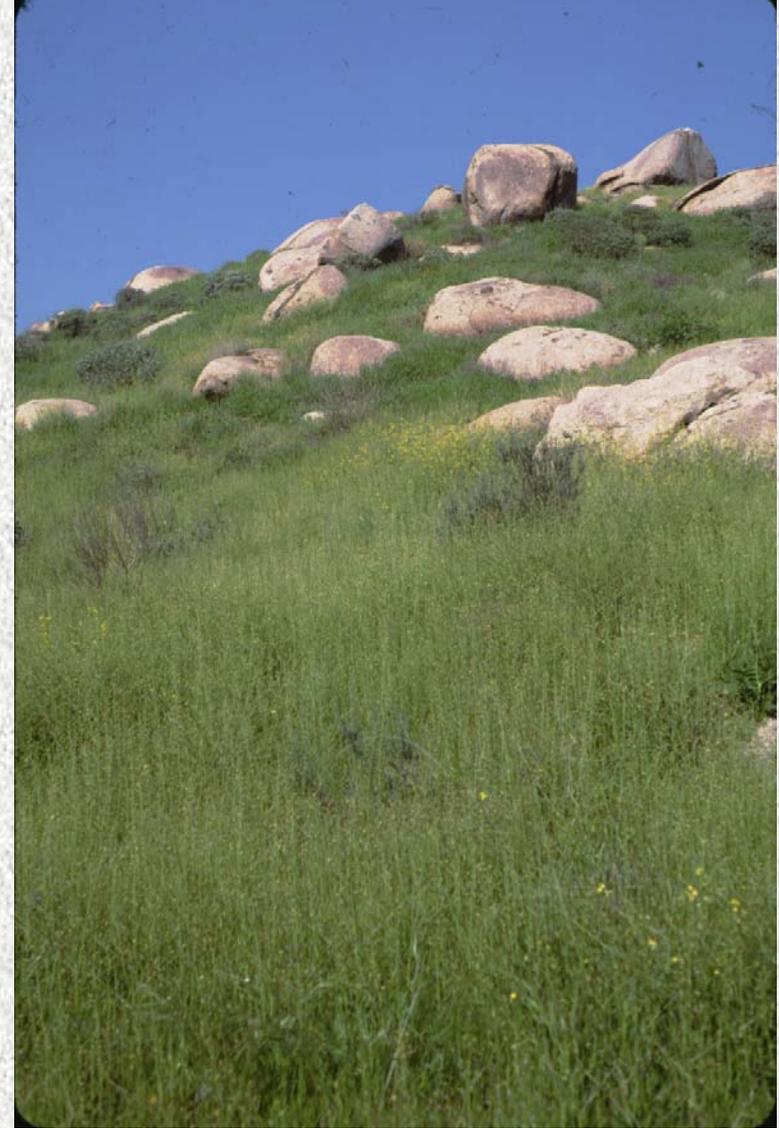


1999, 5.77''
0.7 tons ha⁻¹

oats, brome



2000, 6.29"
1.1 tons ha⁻¹
brome, Sahara mustard



2001, 8.47"
2.0 tons ha⁻¹
Sahara mustard, brome



**2002, 3.46''
0.1 tons ha⁻¹**

brome, 2001 biomass



**2003, 12.60''
3.3 tons ha⁻¹**

**Sahara mustard,
Phacelia, brome**



TWO TREES CANYON, SITE 2

**1991, 10.38”
3.3 tons ha⁻¹**

Sahara mustard



**1992, 11.05”
2.3 tons ha⁻¹**

Sahara mustard, oats



**1993, 20.79”
2.5 tons ha⁻¹**

**Sahara mustard, oats,
brome**



BURN, NOVEMBER



1994, 9.34''
2.4 tons ha⁻¹

**Sahara mustard, oats,
brome**



1995, 18.90''
2.3 tons ha⁻¹

**brome, oats,
Sahara mustard**



**1996, 7.33”
2.6 tons ha⁻¹**

**brome, Sahara mustard,
oats, phacelia**



**1997, 11.38”
2.5 tons ha⁻¹**

brome, Sahara mustard



1998, 25.30''
4.1 tons ha⁻¹

brome, oats,
Sahara mustard



1999, 5.77''
0.4 tons ha⁻¹

Sahara mustard,
brome



2000, 6.29''
0.8 tons ha⁻¹

Sahara mustard



2001, 8.47''
3.8 tons ha⁻¹

Sahara mustard



**2002, 3.46''
0.0 tons ha⁻¹**

2001 biomass



**2003, 12.60''
2.7 tons ha⁻¹**

**Sahara mustard,
phacelia, filarie**



CONCLUSIONS

- **Competitive pecking order in annuals--GRASSES, MUSTARDS, WILDFLOWERS**
- **Wildflowers declined along the coast in the mission period with the invasion of black mustard and wild oats**
- **Wildflowers declined in the interior in the 20th century with the invasion of bromes**
- **Wet years select for grasses**
- **Dry years select for mustards, filarie and wildflowers**
- **Spring burns select for wildflowers**
- **Summer and fall burns select for grasses.**