



WHAT'S A NATIVE PLANT, REALLY?

JOAN PONT, AVID GARDENER

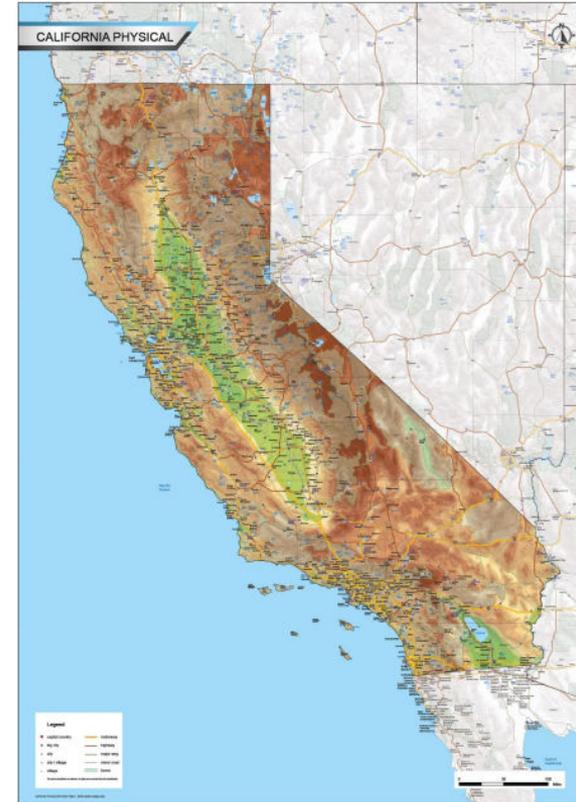
Sloat Webinar 11/13/2021

What is a native plant, how are you so sure, and what is so special about them?

CALIFORNIA - THE STATE IN THE SHAPE OF A SOCK

Natural borders: Pacific coast, Colorado River

Political borders: those straight lines between us and Oregon, Nevada, and Mexico



IT IS ALSO A FLORISTIC PROVINCE

The California Floristic Province

3,000 species of vascular plants,
60% endemic

California, the state, has 6,500
species of plants, one third
endemic

Island like, barriers to enter and
exit

Summer-dry Climate - hot dry
summers with cool wet winters

One of 36 Biologic Hotspots IN THE
WORLD



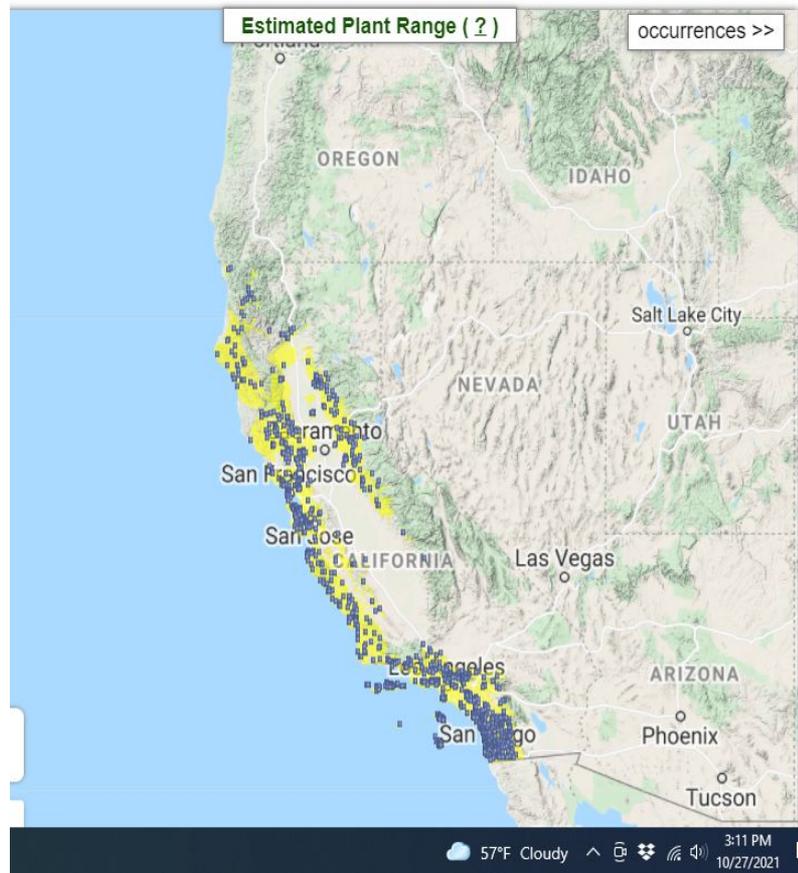
RANGE OF TOYON

Heteromeles arbutifolia

Common names: Toyon, Christmas berry, California Holly

From calscape.org, the range mimics the California Floristic Province

Translation: “Other” “apple”
“leaves like *Arbutus unedo*”, the European Strawberry Tree



IN THE FIELD - TAXONOMY

Once you leave a nursery or botanical garden, there are no plant labels.

Just how many flowers are “pretty and pink”?

The details, some microscopic, differentiate species

A Few Bay Area Endemic Plant Species



HELP ON THE WAY

iNaturalist

Seek by iNaturalist

CNPS - California Native
Plant Society

Calscape.org

Calflora.org

Picture This



Alexandr Podvalny

CONCENTRIC CIRCLES

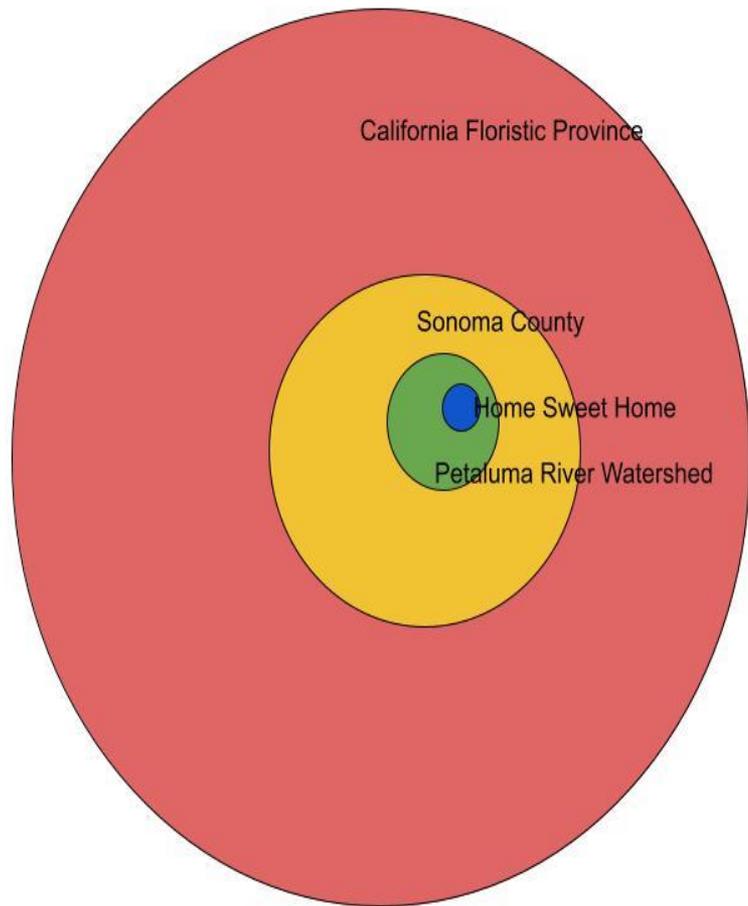
California - the state

California - the Floristic
Province

Your County

Your watershed

Your home



CHRISSY FIELD RESTORATION PROJECT

Originally wetland with shellfish and bird stopover, to dumping ground and airfield, back to wetland!

Native plants identified, seeds collected and germinated, 150,000 plants planted



NPS GOLDEN GATE NATIONAL RECREATION AREA

Marsh overlooking bridge

View of the Golden Gate Bridge behind Crissy Marsh

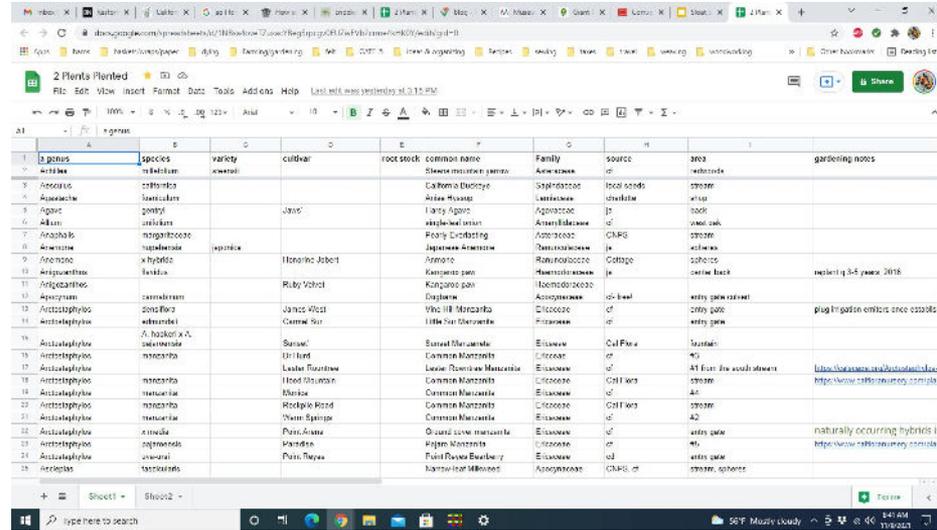
LESS AMBITIOUS RESTORATION

My backyard plant list

Some ornamentals and non-native edibles

At #25, I'm not even through the A's

Sources: nurseries, locally collected seeds, CNPS native plant sales, weeding around extant natives



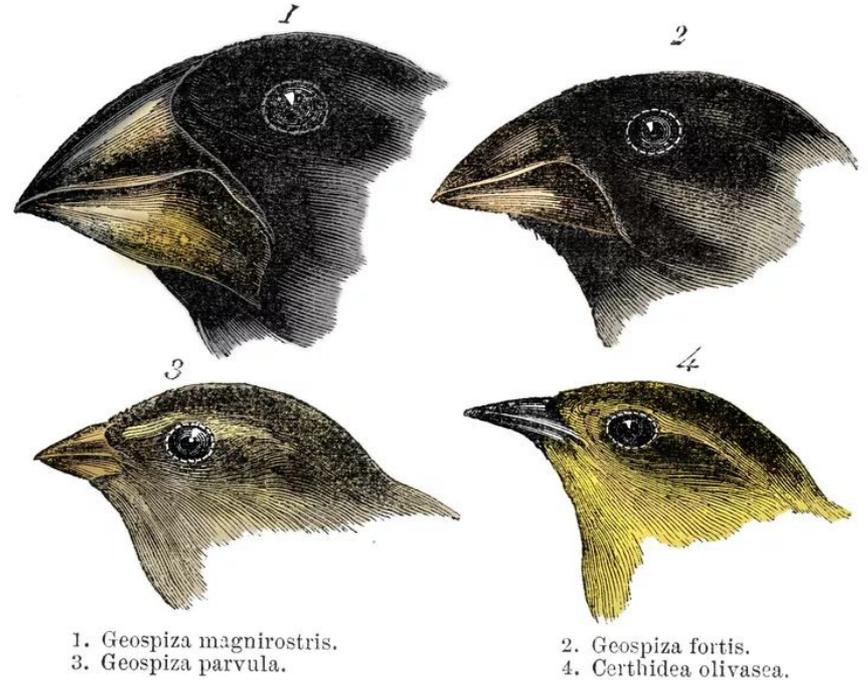
	A	B	C	D	E	F	G	H	I	J
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
1	genus	species	variety	cultivar	rootstock	common name	family	source	size	gardening notes
2	artichoke	artichoke	variegata			Stemless artichoke	Asteraceae	US	medium	
3	artichoke	artichoke				California Artichoke	Asteraceae	local seeds	medium	
4	artichoke	artichoke				Artichoke	Asteraceae	seedling	medium	
5	artichoke	artichoke		Janus		Large Artichoke	Asteraceae	US	large	
6	artichoke	artichoke				Artichoke	Asteraceae	US	large	
7	artichoke	artichoke				Artichoke	Asteraceae	US	large	
8	artichoke	artichoke	artichoke			Artichoke	Asteraceae	US	large	
9	artichoke	artichoke	artichoke	Honorific Jobert		Artichoke	Asteraceae	US	large	
10	artichoke	artichoke	artichoke			Artichoke	Asteraceae	US	large	
11	artichoke	artichoke	artichoke	Ruby Torch		Artichoke	Asteraceae	US	large	expecting 3-5 years 2018
12	artichoke	artichoke	artichoke			Artichoke	Asteraceae	US	large	
13	artichoke	artichoke	artichoke	Janus		Artichoke	Asteraceae	US	large	
14	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	plug in garden center since espalier
15	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
16	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
17	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
18	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
19	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
20	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
21	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
22	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
23	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
24	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	
25	artichoke	artichoke	artichoke	Artichoke		Artichoke	Asteraceae	US	large	naturally occurring hybrids in

1491 AND ALL THAT

Before European contact, new species of plants and animals were introduced very infrequently

They stuck around a long time and had divergent evolution

Think Darwin's Finches



14 species evolved on the islands of the Galapagos. Different beaks optimized available foods. Print Collector / Getty Images

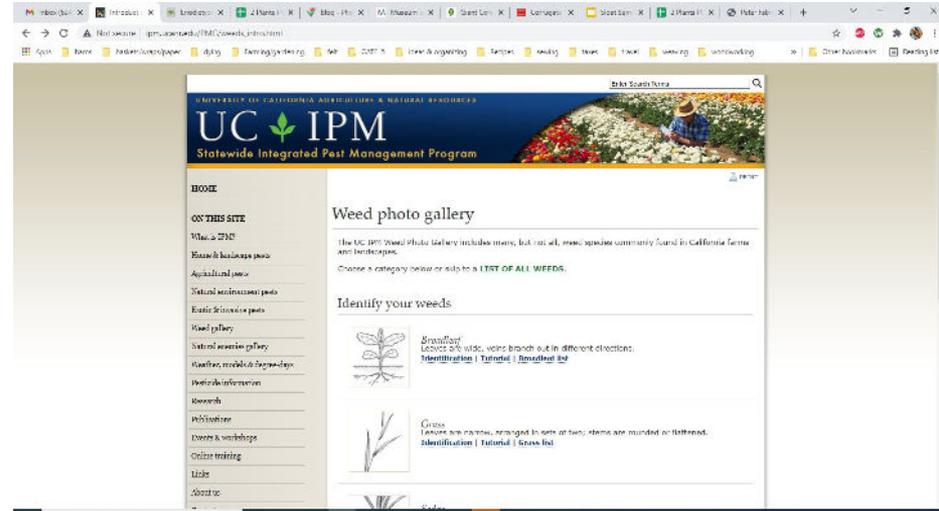
AFTER 1492, ACCELERATED INTRODUCTIONS

Seeds on clothing and animals

Introduced crops and ornamental plants

Accidentally introduced

Not every plant becomes invasive, but some rise to pest status, at least 4%



UC Integrated Pest Management Program

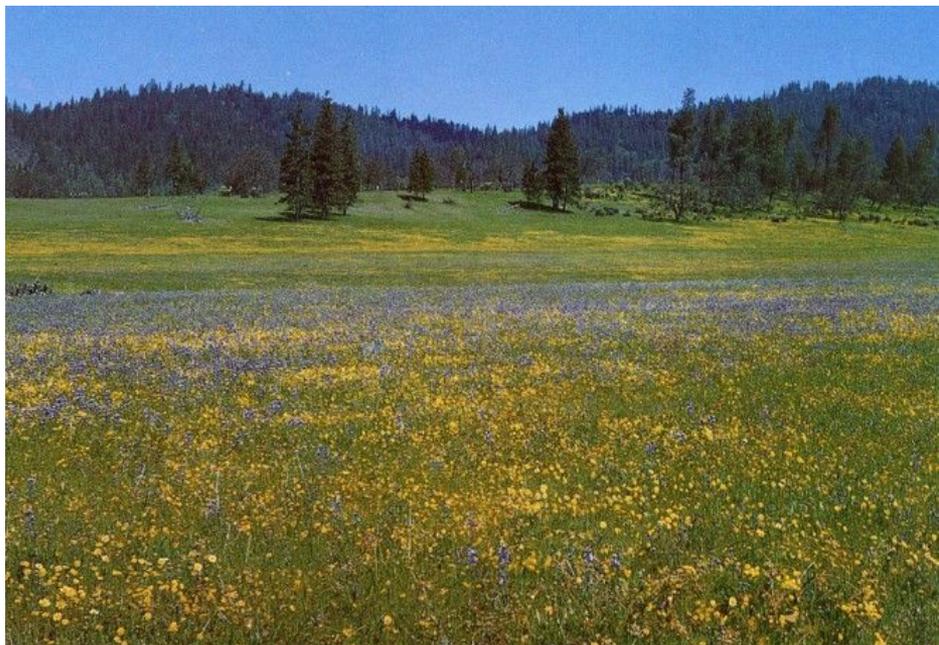
EARLY RECORDS

From Pacific Horticulture:

“The West, especially California, very early became known as a flowery region. Plant exploration began in the 1500s, with the period between 1750 and 1850 known as the golden age of plant discovery on the Pacific Coast.”

Explorers, with their fabulous descriptions of early California, include

David Douglas, John Muir, Alice Eastwood



Wildflowers in Hayfork Valley, California. Marjorie Schmidt, Pacific Horticulture

SCIENTIFIC SCRUTINY

Electron micrographs of pollen embedded in the Spanish Missions adobe bricks identify native and introduced plants as they marched up the coast.

First mission built in 1769, a continuation of settlement since conquering Mexico City 250 years earlier

Currently, alien plants make up 80–90% of grassland coverage



Mission Sonoma, the last of 21
ALI GIAUDRONE

MARCHING UP THE COAST

“Plantains – *Plantago major* – seem to have arrived with the very first white settlers and were such a reliable sign of their presence that the Native Americans referred to them as ‘white men’s footsteps.’” – Elizabeth Kolbert (**The Sixth Extinction**)

Plenty of native plantains from specialty seed nurseries, larval food for butterflies



Plantago major, or plantain, unrelated to bananas!

COOPERATION, NOT DOMINATION

Native landscape: many species for resilience to diseases or weather extremes

100 species on a hillside, a few succumb, still have 90+ for food, erosion control, water retention, carbon sequestration, everything that plants do!



Calscape.org planting guide

NON-NATIVE PLANTS EXHIBIT "ENEMY ESCAPE"

Common Tansy in Europe has 169 insects nibbling it. Those insects become nutritious bird food. They also provide control of its extent (less weeding!).

In Europe.

Here, non-palatable to local insects, it became a noxious weed.



Washington State Noxious Weed Control Board

NATIVE SUBSTITUTE

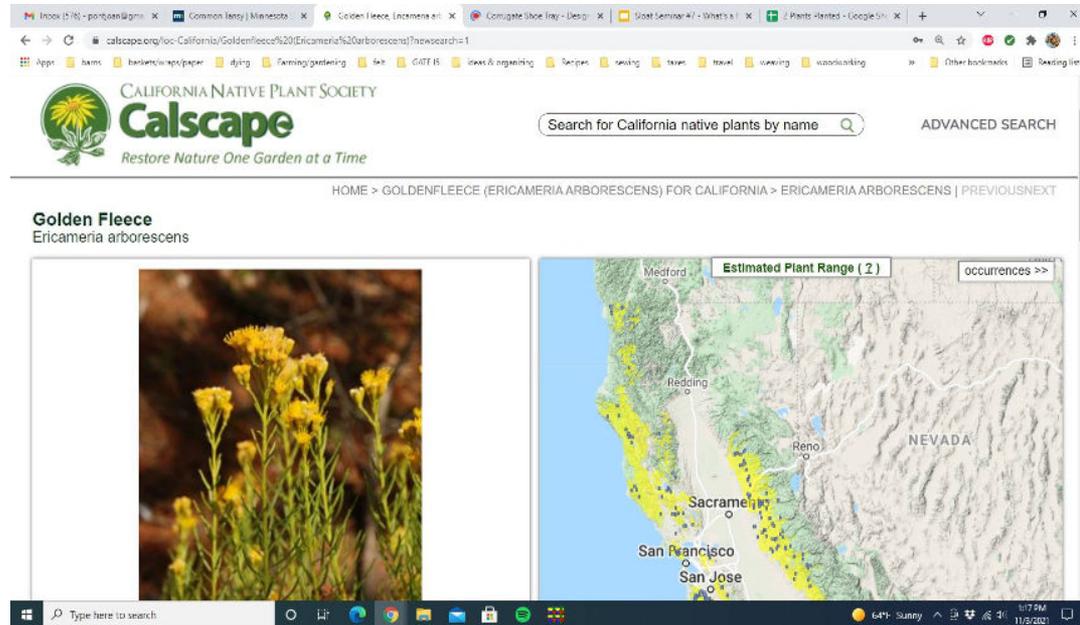
Many choices

Calscape.org

Golden Fleece, *Ericameria arborescens*, supports Checkerspot butterfly

Advanced Search to explore options

Sloat will not be listed as nursery option, inventories changes with seasons



The screenshot shows a web browser window displaying the Calscape website. The browser's address bar shows the URL: [calscape.org/loc-California/Goldenfleece%20\(Ericameria%20arborescens\)?thesearch=1](https://calscape.org/loc-California/Goldenfleece%20(Ericameria%20arborescens)?thesearch=1). The website header features the Calscape logo with the text "CALIFORNIA NATIVE PLANT SOCIETY" and "Restore Nature One Garden at a Time". A search bar is present with the text "Search for California native plants by name" and a magnifying glass icon. To the right of the search bar is a link for "ADVANCED SEARCH". Below the header, the page title is "Golden Fleece" and the scientific name "Ericameria arborescens" is displayed. The main content area is split into two panels: on the left, a close-up photograph of yellow flowers on a green stem; on the right, a map of California with yellow dots indicating the "Estimated Plant Range (2)". The map includes labels for cities like Medford, Redding, Reno, Sacramento, San Francisco, and San Jose, and the state of Nevada. The browser's taskbar at the bottom shows the search bar, several application icons, and system tray information including "64° Sunny" and the date "11/9/2021".

ANOTHER EXAMPLE

Giant Coreopsis, *Leptosyne gigantea*

Not locally native but adaptable to our Sunset zones

Native to areas with only 7” average annual rainfall!

The screenshot shows a web browser window displaying the Calscape website. The page title is "Giant Coreopsis" and the subtitle is "Leptosyne gigantea". On the left, there is a photograph of the plant, which is a large, bushy shrub with bright yellow flowers. On the right, there is a map of California with a red outline indicating the "Estimated Plant Range (2)". The map shows the range extending from the Central Valley down to the South Coast. The website header includes the Calscape logo and the tagline "Restore Nature One Garden at a Time". A search bar is visible in the top right corner, and a navigation menu is located at the bottom of the page.

HERBACEOUS INSECTS - GOOD OR BAD?

Wait a minute, do you want 169 species of insects nibbling in your garden?

Yes! 169 little gardeners weeding away

Yes! Those little gardeners become bird food

Yes! Re-establishing and maintaining the entire ecosystem before we messed it up



Non-native weeds I'll have to pull before they set seed, largely European winter annuals dry by April

GREEN DESERT

The structured and curated Berkeley Rose Garden and the abandoned lot share characteristics

Neither supports a plethora of animal life, insects, birds, fungi and other microorganisms

Introduced plants and escaped weeds did not co-evolve with local fauna



COPY NATURE

From Yosemite to the Florida Keys, get inspiration

Drifts of plants merging into one another, each situated in its happy place

Beyond Wild: Gardens and Landscapes,
book by Raymond Jungles



Coccoloba Garden, Islamorada, FL; photo by Stephen Dunn

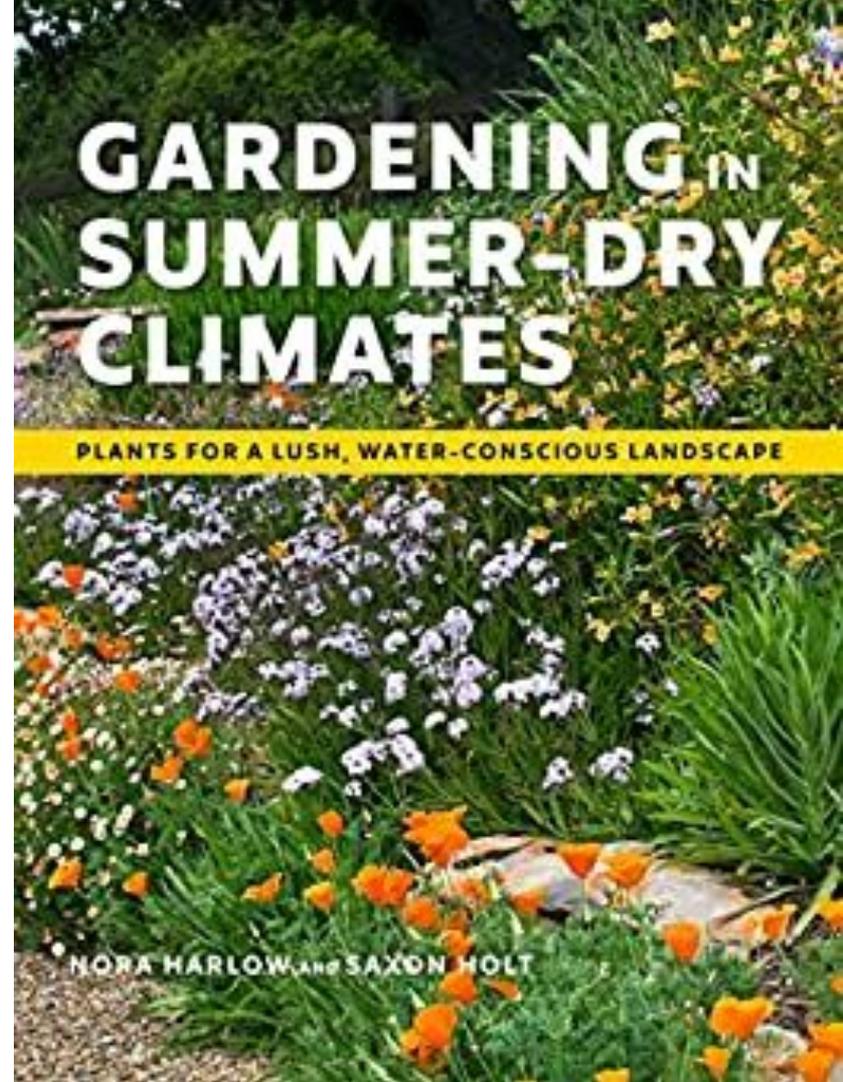
WEST COAST INSPIRATION

Saxon Holt, new book:

Gardening in Summer-Dry Climates

Cruise the blog for more
eye-candy

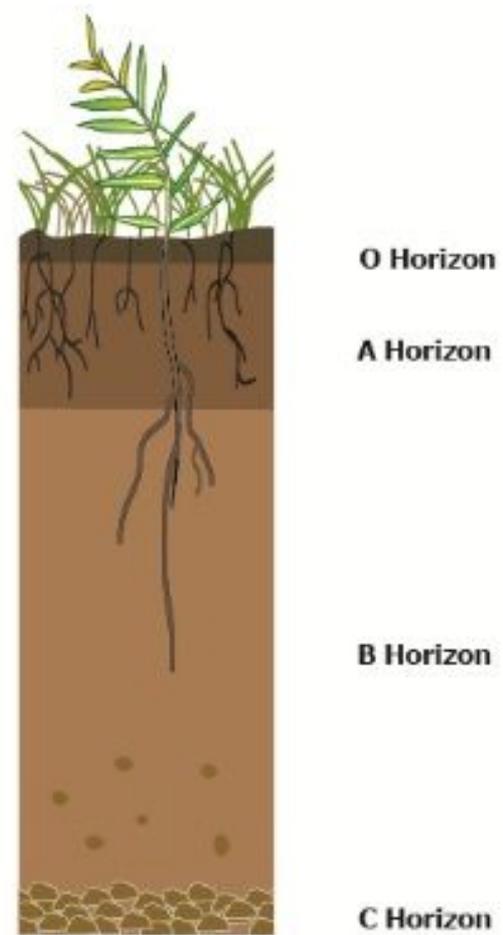
<https://photobotanic.com/blog/>



SUPPORT YOUR LOCAL 6-LEGGED FRIENDS

Besides helping us directly by pollinating fruits and vegetables, insects are key to a sustained healthy environment

Plants are recycled to form new soil for next generation, largely through the work of insects and microorganisms



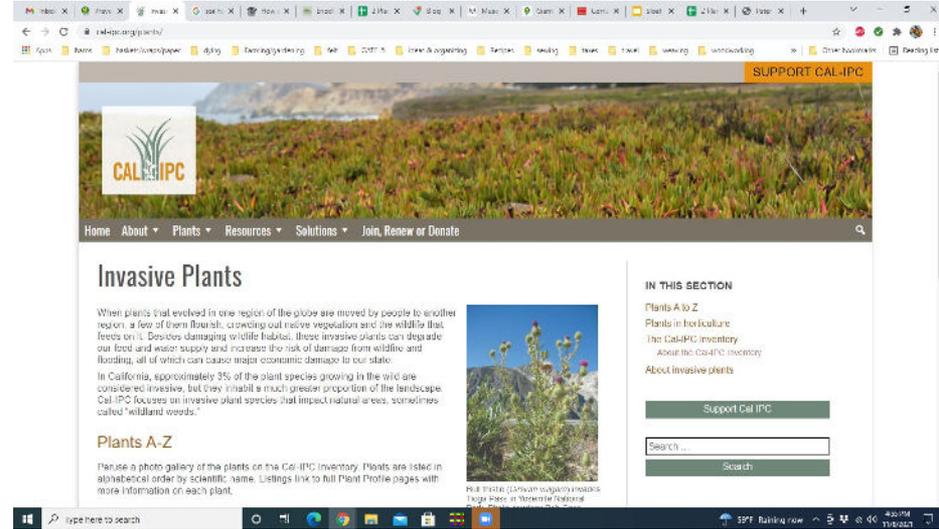
Soil profile showing the different layers or horizons. Queensland land management

CO-EVOLUTION

Plants and animals, bacteria and fungi co-evolved and bring resilience and longevity

Wild swings in populations and actual extinction occur with some introduced species

3% of non-native plants that have escaped to the wild are considered invasive



BEYOND SURVIVAL OF THE FITTEST

The mighty Great White Shark is the top predator in the ocean. Besides mankind. If they ate all the other fish, they would starve.

To balance for sustainability, they have very few offspring, compared to other fish spawning thousands of eggs in their reproductive cycle.



Shark in [Guadalupe Island Biosphere Reserve](#), Mexico, estimated reproduction is a few pups every other year



Salmon: Up to Ten thousand eggs laid up river

PLANT COOPERATION

No monoculture

Multiple species in close proximity

Flowers, seeds and fruit in succession throughout the year

Stable environment for 3-5 million years and low extinction rate is credited for impressive diversity



From UC Santa Cruz: 5,500+ native plant species, 40 percent of which are "endemic" (occurring nowhere else), California has more species and more endemic species than any other U.S. state, and is more species rich than most other places on Earth. Pictured Coyote Ridge, Santa Clara County

SIT BACK AND RELAX BUT KEEP WEEDING

Backbone of native shrubs,
tree, vines, grasses

Native Seeds, long
hibernating in the seed bank,
may erupt

Weeds in the seed bank will
germinate for many years

Weeds from your neighbors
will blow in



Sisyrinchium bellum, blue-eyed grass

START YOUR JOURNEY

Take a hike

Tilden, Mt Tam, Mt Burdell, SF
Botanical Garden

Photograph what stops you in
your tracks (besides a
mountain lion)

Imitate freely

But start with an oak



Quercus agrifolia, Coast Live Oak

AND IN NO TIME...

Oaks are keystone species, supporting hundreds of species of birds and insects

Calscape.org lists 36 species of *Quercus*, or oaks, some small shrubs!

Collect acorns or get small plants to establish great root system



SPRINKLE *ARCTOSTAPHYLOS* THROUGHOUT

Manzanita and friends

Fabulous evergreen shrub

Many species to fill specific
niches

January flowers, berries
birds enjoy

No supplemental water once
established



GO BLUE

Ceanothus, many species

Stunning blue flowers on evergreen shrub

Many size options

Nitrogen fixer with symbiotic bacteria Frankia in their root nodules



California Lilac, *Ceanothus 'Julia Phelps'*
Sloat Garden Center

SHADE TOLERANT

Understory plants

North-facing slopes

Heuchera, many species and hybrids

Festuca californica

Polystichum munitum for the Jurassic Park look



STYLE OPTIONS

Mimicking Nature/Summer-Dry Climate

Contemporary

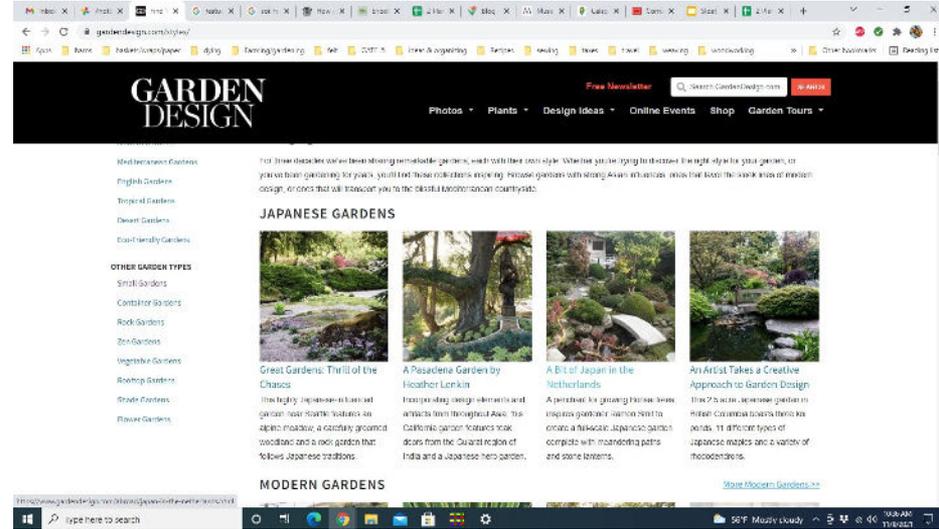
Traditional/Cottage

Southwestern

Mediterranean

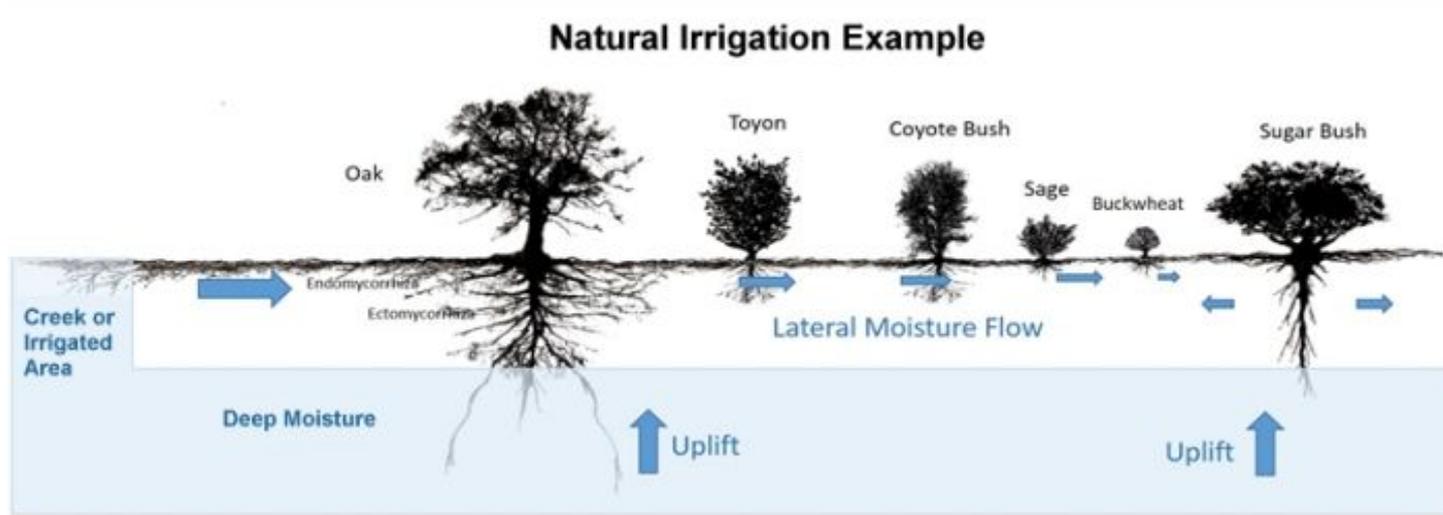
Japanese

Anything but forever plastic, please



Funny, the magazine Garden Design lists 7 types, but not ours, the Summer-dry climate. We need better PR!

NATURAL IRRIGATION



From calscape.org planting guide

Deep rooted trees pull up water and donate to neighbors

PLANTS MENTIONED WITH THEIR MAGIC QUALITIES

Heteromeles arbutifolia - Toyon - shrub, berries for birds, great screen

Ericameria arborescens - Golden Fleece - shrub, bright cheerful yellow flowers

Sisyrinchium bellum - blue-eyed grass, iris family wakes up spring

Arctostaphylos - Manzanita and relatives sturdy and beautiful

Ceanothus - California "Lilac" but much better

Oaks - Oaks - Oaks - you keystone species

Heuchera, many species and hybrids, shade niches

Festuca californica - california fescue, happy under oaks

Polystichum munitum - Sword fern, dry shade champion