Mow grasslands once a month, and no lower than 8 inches high, to keep the weeds from making any new seeds…

and hundreds of millions of wildflowers will sprout from 100-250 year old dormant seeds still in the California soils! ...

Plus, burning or exotic animal grazing *will not get you there, as we can learn from Arana Gulch in Santa Cruz!*

Craig Carlton Dremann, owner.
The Reveg Edge, P.O. Box 361, Redwood City, CA 94064

Inventing grassland restoration methods since 1992.

www.ecoseeds.com/mow-once-a-month.pdf

(Updated 1/26/2022)

2022 is the 30th year anniversary of a remarkable ecological restoration discovery, by Michael Shaw and Craig Dremann--that California grasslands contain over 100 species of 100-250 year old dormant native seeds in the soil, still viable underneath the weeds!

NATIVE lilies & orchids

Brodiaea elegans
Calochortus luteus
Chlorogalum pomeridianum
Iris douglasiana
Piperia elegans
Piperia elangata
Sisyrinchium bellum
Spiranthes romanzoffiana
Trillium chloropetalum
Triteleia lutea

Native ferns & horsetails

Dryopteris arguta
Equisetum laevigatum
Pityrogramma triangularis
Polystichum munitum
Pteridium aquilinum

Native grasses

Agrostis diegoensis
Agrostis exarata exarata
Agrostis exarata pacifica
Bromus carinatus
Danthonia californica
Deschampsia elongata
Elymus californicus
Elymus glaucus
Hordeum brachyantherum
Melica torreyana
Nassella lepida
Nassella pulchra

Native broadleaf plants

Acaena californica
Achillea borealis
Actaea arguta
Alchemilla occidentalis
Artemisia douglasiana
Aster chilensis
Baccharis douglasii
Barbarea orthoceras
Boisduvalia densiflora
Callitriche sp.
Calystegia soldanella
Camissonia ovata
Cardamine oligosperma
Castilleja affinis
Cirsium brevistylum
Conyza canadensis
Corethrogyne filaginifolia
Caranopus didymus
Cryptanthia micromeres
Cynoglossum grande
Daucus pusillus
Epilobium ciliatum
Eriophyllum confertiflorum
Eschscholzia californica
Fragaria californica
Chamomilla suaveolens
Claytonia montia
Claytonia perfoliata
Claytonia rubra
Galium californicum
Galium porrigens
Gnaphalium californicum
Gnaphalium chilense
Gnaphalium purpureum
Gnaphalium ramosissimum
Gnaphalium species nova
Helenium puberulum
Heracleum maximum
Hesperocnide tenella
Heterotheca grandiflora
Horkelia californica
Lathyrus vestitus
Lotus formosissimus
Lotus micranthus
Lotus purshianus
Lotus scoparius
Lotus strigosus
Lupinus nanus
Madia exigua
Madia gracilis
Marah fabaceus
Microcala quadrangularis
Navarretia squarrosa
Orthocarpus densiflorus
Oxalis pilosa
Plantago coronopus
Plantago erecta
Polygonum punctatum
Potentilla glandulosa
Psilocarphus tenellus
Ranunculus californicus
Rumex salicifolius
Rupertia physodes
Sanicula bipinnatifida
Sanicula crassicaulis
Sanicula species nova
Satureja douglasii
Scrophularia californica
Smilacina stellata
Solidago canadensis
Solidago occidentalis
Stachys ajugoides
Stachys bullata
Trifolium bifidum decipiens
Trifolium ciliolatum
Trifolium gracilentum
Trifolium macraei
Trifolium microcephalum
Trifolium microdon
Triphysaria pusilla
Typha latifolia
Urtica holosericea
Verbena lasiostachys
Vicia americana
Wyethia angustifolia

Native Rushes & Sedges

Carex barbarae
Carex brevicaulis
Carex densa
Carex globosa
Carex harfordii
Carex subbracteata
Carex tumulicola
Cyperus eragrostis
Eleocharis acicularis
Eleocharis macrostachya
Juncus bufonius
Juncus effusus brunneus
Juncus effusus pacificus
Juncus occidentalis
Juncus patens
Juncus phaecocephalus
Luzula subsessilis

www.ecoseeds.com/shawlist.html

--> Note the two species that were found, that were new to science!

Releasing the Native Seedbank

An Innovative Approach to Restoring a Coastal California Ecosystem

by Craig C. Dremann with Michael Shaw

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2022 is the 20th anniversary writing about this discovery, published as the **June 2002 cover article** in the prestigious ***peer-reviewed scientific publication for native plant restoration - Ecological Restoration.*** Michael Shaw is on the cover, very happy to be laying on a nice, soft native Danthonia grass plant, instead of the original 6-foot tall thistles that infested his 74 acres at 300 Byers Lane, La Selva Beach. **We went from 99% weed covered to 95% native cover in 8 years.**

How to start--After the first inch of autumn rain gets the weed grass seedlings to sprout and grow about a foot tall…

Some time in December to January, start the monthly mowing with gas powered string trimmers! My current project at Kite Hill in Woodside in Year-7, mowing the last of the weed areas. The rest is 95% native.

This monthly mowing allows light, water and nutrients…
for the Clarkia seedlings to thrive and develop...

Keeping the weeds cut low, allows the *Layia* (Tidy tips) seedlings to get some air, light and moisture to survive…last year's thatch is gone and no new weed seedlings to interfere with the natives!

And the Calochortus lilies get a chance to grow back by the tens of thousands…

This is what the weed grasses usually look like, before you begin your monthly mowing…start when they are about a foot tall.

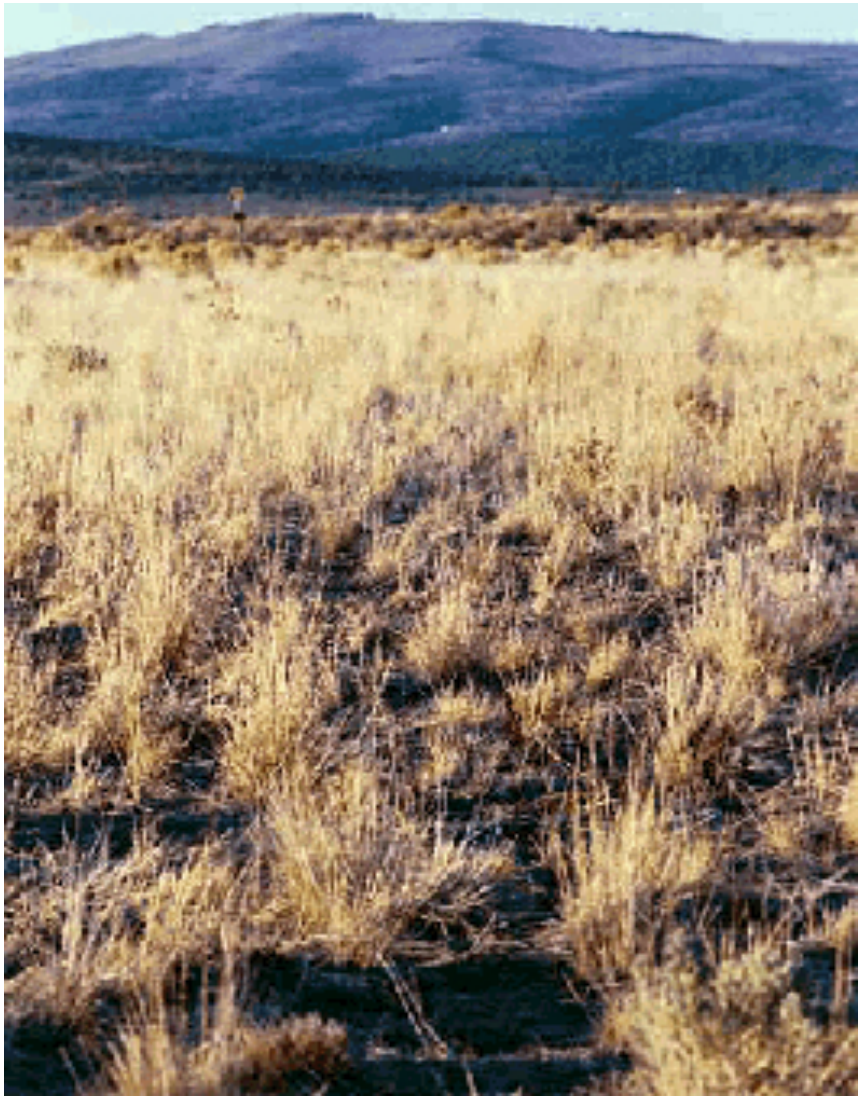
And once you have unearthed all of the weeds seeds in the soil, and never allowed any of those weeds to make new crops of seeds…
you can get a "primer-coat" of miner's lettuce to come up.
This is why you never use grazing, this is "cow-icecream"—they will eat these **critical pioneering natives and ruin your nice clean canvas.**

Arana Gulch in Santa Cruz has been trying to manage their weed grasses for **30 years, for the survival of the Endangered Santa Cruz tarplants.** After 30 years, 500 weed seedlings are still sprouting from one square foot of soil, after using fire and grazing as the main “weed management” tools.

By using monthly mowing-- you stop the weeds from producing any more viable seeds for one season, and you get most of the dormant weed seeds to germinate. If no dormant native seeds are in the soil, you still have a clean canvas to sow native seeds. *Arana Gulch weed grasses are 100% gone.*

And when working on old Spanish Rancho Grant lands, you may need to add soil nutrients that were removed by the cattle and sheep grazing over time. Frequently, those soils are so depleted, only weeds can grow and native seedlings cannot survive. **Photo shows part of the 3,000 lbs. fertilizers used last year at my Woodside project.**

I first learned about the need for fertilizers whenever restoring California native grasslands, when I successfully invented a method to replant the 100-mile Tuscarora gas pipeline north of Reno in the sagebrush desert in 1993. that today is still 95% native cover in a former cheatgrass area.



Without adding fertilizers we would have produced 100% cheatgrass cover, as the CH2M Hill test plots did, next to ours.

Today that pipeline to the east of US 395, is still 95% native cover in a former cheatgrass area. Without adding fertilizers we would have produced 100% cheatgrass cover, as the CH2M Hill test plots did, next to ours.

Photo shows solid Bluebunch wheatgrass plants to the horizon, without any cheatgrass!

I use the " A-17" test from Waypoint Lab in Anaheim, and ask for "data only in a bar graph format", to check where low nutrient issues exist and pH needs correcting, so that the native seedlings can survive to maturity. Example from the SC tarplant soil, not enough nitrogen and the pH is 100x more acid than normal—cows removed too much nitrogen and calcium.

Test	Result	Strongly Acidic	Moderately Acidic	Slightly Acidic	Neutral	Slightly Alkaline	Moderately Alkaline	Strongly Alkaline	Qualitative Lime
pH	4.8 s.u.								None

EXTRACTABLE NUTRIENTS

Test	Result	Sufficiency Factor	SOIL TEST RATINGS (Very Low / Low / Medium / Optimum / Very High)
Available-N	11 ppm	0.2	
Phosphorus (P) - Olsen	23 ppm	0.6	
Potassium (K)	248 ppm	1.2	
Potassium - sat. ext.	0.4 meq/L		
Calcium (Ca)	2223 ppm	0.9	
Calcium - sat. ext.	2.5 meq/L		
Magnesium (Mg)	357 ppm	1.0	
Magnesium - sat. ext.	1.0 meq/L		
Copper (Cu)	2.0 ppm	1.0	
Zinc (Zn)	7 ppm	0.9	
Manganese (Mn)	27 ppm	1.6	
Iron (Fe)	158 ppm	2.1	
Boron (B) - sat. ext.	0.05 ppm	0.2	
Sulfate - sat. ext.	3.0 meq/L	1.0	
Exch Aluminum			

NO3-N	NH4-N	Total Exchangeable Cations(TEC)
3 ppm	8 ppm	143 meq/kg

I voluteered at Arastradero Preserve, planting my “Poppy Project” in a 40x40 foot plot above the parking lot 2012 to 2016, where I learned the hard way -- ALL of our grassland soil need fertilizers for the natives to grow. Thousands of poppies seedlings were planted out-- they grew and bloomed, but not enough soil nutrients for their future survival. The medusa head issue there is only a poor soil issue, as is the same Brachypodium issue at Edgewood. By not adding enough nutrients for my project, there is no evidence today, that I was ever there.

However, in 2012, working with Kim Scott on her 2 acres in Los Altos Hills, corner of Anacapa and Viscano, we worked for 8 years-- monthly weeding, spot fertilizing and adding native seeds where needed, and finally got back to 100% native cover. A big part of our success was doing $1,000 worth of the A-17 tests over time with Waypoint Lab, to see where the nutrients were at. And ***NEVER being afraid of fertilizing the natives like crazy***.

Results when you mow monthly – you can convert the flammable weed grasses to wildflowers, and **permanently eliminate 98% of the fire fuels!**
My current project at the **Kite Hill 14-acre serpentine preserve in Woodside**, across from 144 Alta Mesa, is now in Year-7, and is open for visits.
Shaw's **74-acres** went from 99% weed cover to 95% natives in only 8 years.

Anyone can do this-- You start with small scale test plots, and get familiar with my monthly mowing method. Useful to restore all of our SF Peninsula grasslands that contain Endangered Species, like the **100 acres of serpentine grasslands at Edgewood Preserve, or for the San Bruno Mountain HCP.**

Test my method on any of thousands of grasslands acres owned by POST and Mid-Pen? Try mowing monthly, to bring back the wildflowers at Russian Ridge where they once bloomed in abundance, before the thistles and wild oats invaded--and at the same time--permanently reduce fire fuels by 98%!

Test my monthly mowing method on a small scale, and see if you are able to convert your flammable weeds back to wildflower meadows— these pictures show the "before-and-after" effects that you can achieve!

A visit to Kite Hill Preserve in Woodside across from 144 Alta Mesa may surprise you any time of the year, like the hundreds of thousands of rare Lessingias blooming along the trails all summer. **We only started with 100 Lessingia plants originally**. Everyone is invited to bring your friends and family, and enjoy one of Northern California's best restored wildflower areas!

See what 100% native cover could look like for the tens of thousand of acres of the other SF Peninsula grasslands, and how fire-safe we could be!

Website URL to view and share
this presentation*—If you test and find this method successful, please cite this PowerPoint as your source of information in any of your reports or documents.*

- www.ecoseeds.com/mow-once-a-month.pdf

- *2002 Ecological Restoration journal cover article, about inventing the method at the 74-acre Shaw property =* www.ecoseeds.com/shaw.pdf

- *List of the 100+ dormant native seeds unearth in the soil at Shaw's, including two that were new to science =* www.ecoseeds.com/shawlist.html

Craig is available to help get your project started, call 650-325-7333 or email craig @ecoseeds.com