

BEE ATTITUDE



April 2009

Blue curls (*Trichostema lanceolatum*) are another post-disturbance plant that germinates relatively late in the rainy season, around mid-March (this photograph was taken at the beginning of April when these seedlings (2) were about an inch across). When weeds dominate the landscape, tiny seedlings starting in late season don't have a chance, so much so that this species was listed in the botanical record as belonging in our County, but the local herbarium collection didn't have a single specimen.



April 2014

Here, blue curls (*Trichostema lanceolatum*) get started among other annual plants that obviously bloom earlier. These are red maids (*Calendrinia ciliata*). Interestingly, both red maids and their relative miner's lettuce (*Claytonia spp.*) seem to keep the surface soil unusually moist underneath. The thing that keeps this area under a regimen of regular disturbance is gopher activity. Once the red maids are done, the blue curls and skunkweed (*Navarretia spp.*) take over.



August 2009

As you can see, by late August the red maids are long gone. These amazing plants can germinate, grow to nearly two feet tall, and stay green until August on 2" of rain, despite many days over 100°F. So, besides drought tolerance, why are blue curls a big deal?



Insects (and especially bees) go nuts for blue curls, because they are one of the few local native sources of pollen almost all summer.



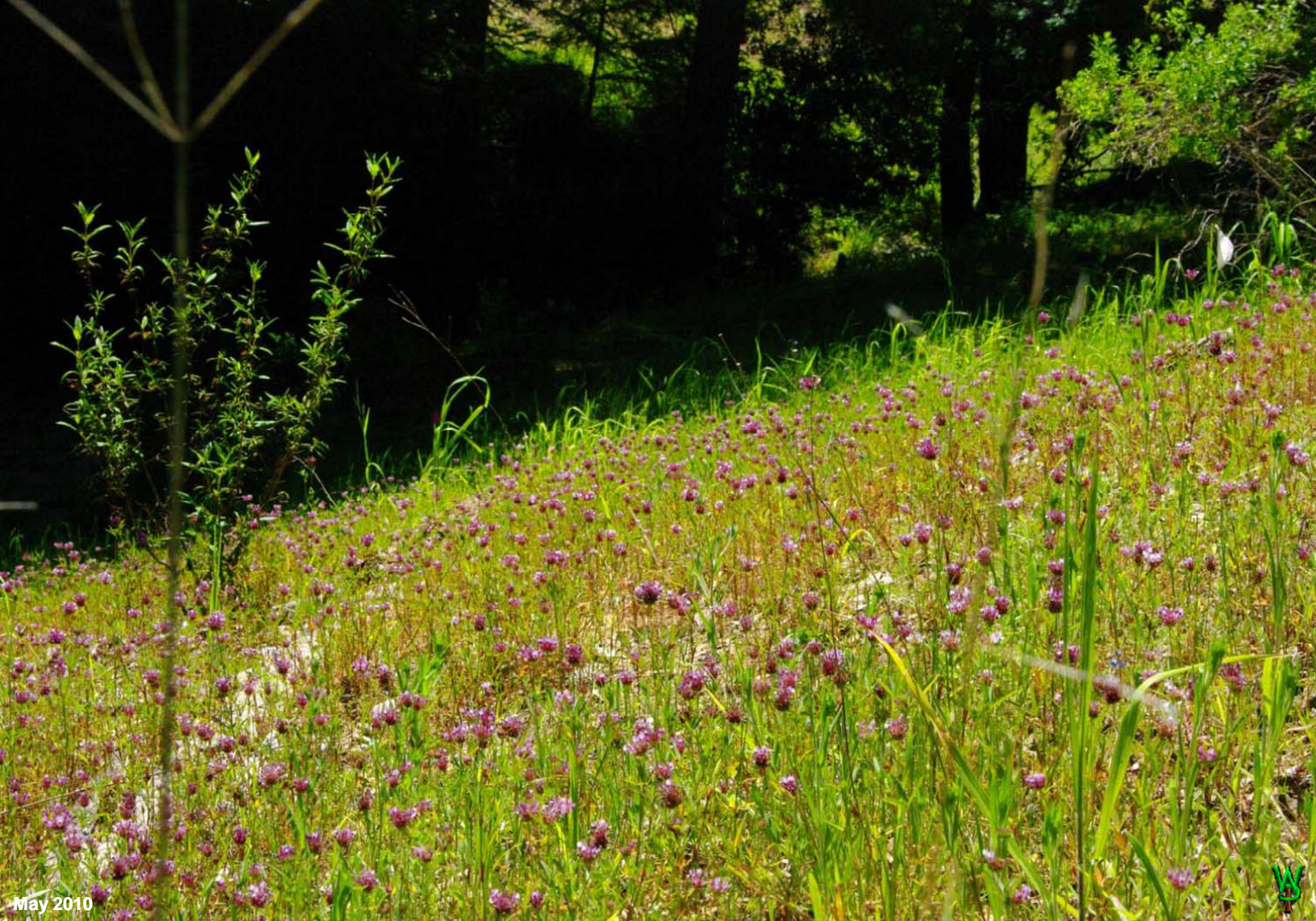
Ceanothus papillosus, and a friend
April 2010

People need bees to pollinate food crops. California has 1,200 species of native bees. Unlike European honeybees, native bees do not make honey. While this may sound like European honeybees are superior, the natives have a survival advantage in that, as solitary insects living in burrows, they are less subject to the hive diseases and parasites which now threaten European honeybees. Native bees need pollen all year to survive and breed. Weeds and development crowd out the plants they need to survive.



Ceanothus papillosus, and a friend
April 2010

When we got here, there was not a single *Ceanothus papillosus* bush left alive on the entire property. Those we have today came up from around burn piles. I transplanted this one. As long as I prune them back about 25% every few years, they stay productive. If not, they go woody and slowly die, as one would expect in a system adapted to frequent low-temperature fires. In spring, they are alive with bees and smell heavenly. People need bees to pollinate food crops. Pollinators need plants that make pollen.



May 2010



When the Ceanothus is done, the bees hit the clover, (especially bumble bees). These are tomcat and few-flower clovers (*T. wildenovii* and *T. ogliganthum*). Among the non-native plants, native bees do seem to like vetch (which we remove anyway).



Skunkweed
(*Navarretia atractyloides*)



Verbena lasiostachys

June 2008

By June, verbena is bee-heaven. It is a wonderfully hardy plant, flowering like this until August. It grows to about ten feet across in spring and then dies back during winter freezes. Root die-back is fantastic for soil and the verbena cover keeps it moist. My guess is that the way the system worked was that forbs grew and set seed around it, then to get covered later in the spring. Unfortunately, weeds love it under there too. Weeding a plant full of bees in 90°F+ heat is a bit touchy for a guy with an allergy to stings.





February 2013

Indians used to raise “farewell to spring” (*Clarkia rubicunda*) for seed as a dietary staple. Reports are that there were once massive fields of *Clarkia* all over California. Today, *Clarkias* are relatively rare because they are not competitive with weeds.



July 2012



By mid July, not only are they still alive...



June 2011



They get together with old friends.



September 2011

But by September, few plants are so attractive to bees as blue curls. Most plants in domestic gardens make a poor substitute source of pollen as native insects show a marked preference for native plants. Without late-season flowering plants, such as blue curls, the bees upon which we may have to depend for food have a harder time. Interestingly, in spring the bees are out all day, but in late summer when blue curls bloom, only in the evening. Bees are shy and tough to photograph. I have to push the limits of the camera to get one.



September 2011

The blue curls are attractive to me too, but do you really know why?





August 2009

Similar to the first blue curls photo, you can see that there is bare dirt around these plants. Blue curls need bare dirt because they germinate late in the spring; they are a post-disturbance annual. They do have the unpleasant property of smelling strongly like vinegar when you bruise them, which is why these plants are intact at the end of August despite the animals. Another plant with the same defense is the brown, dead stuff around them: "skunkweed" (*Navarretia spp.*), of which we have three species on this property.



May 2010

This is the same “orchard” area as the prior photo, the next spring. We not only have lots of both skunkweed and blue curls, but red maids, native clovers, native grasses, and toad rush are also making their way in. Left alone, I suspect the natives will exclude the blue curls. So, what to do? Do I exclude the grasses, skunkweed, and toad rush to keep blue curls?



April 2014

Well so far, it is turning out that the grasses have been relatively uncompetitive because of all the gopher activity. Unfortunately for me, that means more work because the bank is a fill of an old road up to what was once a house site and said fill is therefore full of weed seed. In this case, regular gopher disturbance means I get to spend at least a week per year weeding it to see what happens.



July 2003



If we have bare dirt, we get a lot of skunkweed. Skunkweed can be aggressive if you've got bare dirt. So, we use it along with those equally stinky blue curls in places where we do want bees but don't want browsing animals to eat our fruit trees. Unfortunately, what you'll need to grow either skunk weed or blue curls is truly short in supply around here: Bare dirt. Bare dirt is open for weeds.



July 2009

Skunkweed, although native, is truly an unpleasant plant. Like the name suggests, it smells of “L’air du skunk” from quite a distance. The spines break off in your skin and fester painfully, so I **hate** weeding in it. Then why have it? Well, there are scads of tiny “sweat bees” (*Halictus spp.*) that visit it in July. So, skunkweed is a big deal too, although nobody in his right mind would like weeding in it.

TABLE OF CONTENT

Each line in the TOC is a link that opens the corresponding chapter in a new file.

Part I - Introduction

1. Wildergarten
2. Why Native Plants?
3. Native Is Not Enough
4. Site History
5. Repeat Photography
6. Germination of Native Annuals
7. Project Overview

Part II – Forestry

1. Phased Thinning of Broadleaf Forest
2. Control of Understory Weeds
3. Conifer Forestry
4. Drainage
5. Roads
6. Aerial Photographs over 25 Years

Part III - Grasslands

1. War, Famine, Disease, and... What?
2. Colonization Behavior of Native Annual Forbs
3. Sand Hills
4. Meadow Variety
5. Grassland Restoration and Soils Rehab
6. Weeding Technique
7. Cleansing the Weed Bank
8. Pre-Emergence Selection for Native Germination
9. Drought Tolerance

Part IV - Miscellaneous

1. The Vegetable Garden as a Research Tool
2. Pollinators and Native Forbs
3. Fungi (not yet)
4. Specialized Tool Development (not yet)

Part V – Project Context

1. Periodic Disturbance and Feed-Forward Stability
2. Weeds: A Tragedy of the Commons
3. Control Boundaries
4. Central Planning
5. Our “Ownerless” Backyard

Next

