

WEEDS: A COMMONS PROBLEM



This is typical of what visitors to the Santa Cruz Mountains come to see, for which few of the beneficiaries pay. Do you see a problem here? Well, in fact, this scene exhibits is a social problem that is the principal cause of the environmental problems we will now discuss. When these consequences manifest in our neighborhood, we have to deal with them in order to succeed with our restoration project. Unfortunately, those same social archetypes combined to destroy much of this beautiful scene.



Have you ever noticed how much time, money, and energy people expend to get away from where they pay a lot to live in order to "get in touch with Nature"? Whole industries are built upon this drive: clothing, travel, equipment, retailing, photography, publishing, and communications. So, what do the users spend to help maintain the thing they came to see? The answer is obviously, "Nothing, because, it's Natural." Do you really think that caring for land is free? Worse, the customers either don't know native from exotic, or don't care because it's not their responsibility. Effectively, they wouldn't know anything about the services for which they should be paying anyway. Most see weeds as something the County should mow if they get in their way.



“Oh, but the users didn’t have anything to do with the weeds being there in the first place.” Oh yes they did, and the landowner is paying for it. Traders have never taken responsibility for the cost of introduced pest species that entered the country with their products, nor therefore, have their customers, the vast majority of whom are urban. In fact, the very idea of such inspections is considered a “trade barrier.” As a consequence, landowners bear the full cost of managing those pests. The urban public also plays an important role, to this day, in accelerating the rate of introduction of unambiguously destructive pest species into the wild.



This is a more typical view along our typical rural-suburban bicycle path... er... County road. Humped shoulders channel water to eroding gullies that destabilize whole slopes, per County specification. The vegetation is dominated by various weed monocultures. On the right, is French Broom. On the left are patches of foxtail barley, tall oat, Italian thistle... They all share several things in common: They were introduced from abroad, they have crowded out native plants, they sit poised to spread into the surrounding woods after a fire, and it takes money and labor to get them under control and keep them from coming back.



Broom in bloom, about 12 feet tall

Which they do. This is French broom (*Genista monspessulanus*). It grows to 6-20 feet tall in as little as four years, depending upon soil and sun. As they grow they get top-heavy and lean into the roadway. The County cannot spray them because urban environmental activists (users of that scenic product), object almost violently to use of even the most benign herbicides. So the Department of Public Works dutifully mows every mile.

Each broom flower produces about eight seeds. These plants are yellow with flowers every spring (left). Each mature bush produces between 500 and 5,000 seeds every year. Unfortunately, the seed can remain viable in soil perhaps as long as 100 years. Thus, to introduce broom seed into a new area creates a need for annual control for as long as 100 years. County mowing spreads that seed along the roads for miles. It may be a terribly expensive thing to do, but it does help make for full employment for County road workers (and they have said as much to me).

Broom is a legume, so it fertilizes the soil with nitrogen. Nitrogen facilitates germination which favors other fast spreading annual weeds that are pre-positioned all along the roads, constrained only by competition and shade from existing overgrown forests.

Broom rapidly fills a forest understory with a dispersion of highly combustible fuel. Once the inevitable finally happens, the combination of sun, ash, and nitrogen provides a fertile seed bed for both broom and other weeds. With no vegetation to catch popping seed, deflect starving animals, or slow winter runoff, there would be no barrier or competition to constrain the rapid spread of every other weed in the region. This turns the prospect of a ground fire into a certain catastrophe, **even with a fire frequency of but a few years. Even if the frequency was annual, some of the broom would still breed.**





May 2008



This is leafy spurge (*Euphorbia esula*), which is so chemically aggressive it suppresses even broom germination. Little else grows in it. It can regenerate from roots that can extend thirty feet and has waxy leaves, making for a very difficult kill with herbicides. It produces a somewhat toxic and caustic sap. County mowers have spread it nearly a half mile since this photo was taken.



May 2008



This is Italian thistle (*Carduus pycnocephalus*), an annual that also forms monocultures. Italian thistle can breed while very small (see inset with flower). It also easily adapts to shade, making it capable of sparsely colonizing a forest until it gets to the next opening. It matures early enough that it is transported by roadside flail-mowers very efficiently, so this is yet another pest our neighbors and the County would inflict on us but for efforts I expend on other people's land, every year. I once took out two garbage bags of just the heads on our place from a patch that had blown in and colonized a bed of poison oak (see how small they are in the inset).



Most people recognize foxtail barley (*Hordeum murinum* red). We have almost eradicated this pest within our control boundary (even from our neighbors' land). There is rip-gut brome in here too (*Bromus diandrus* blue), which actually tends to be more aggressive. These grasses have very little forage value and are injurious to grazing animals.



Exotic grasses like these, particularly rip-gut, “poverty grass” (*Vulpia* spp.), and slender oat (*Avena barbata*), dominate much of California. The native grasses are so long gone **nobody** knows how those grasslands looked or even if they were grasslands at all. Annual burning might well have kept those landscapes in forbs, not grasses, a distinction with real consequences.



May 2010



Not a few of the exotic grasses on our property were introduced and spread as required by law for State road projects like this one. This brings us to the other problem with bare dirt: Bureaucrats and environmentalists have a multi-BILLION dollar “clean water” business enforcing books full of specifications to “control” erosion (you saw earlier how destructive that idea gets). Today, these rules mandate very expensive native plantings on all freeway projects, such as you see here. So, isn’t this an improvement? Well, it could be, but note the exotic weeds in the foreground across the road (still on State highway land): foxtails, starthistle, sow thistle, slender oat... This expensive grass monoculture will be wrecked in three to five years because capital budgets do not fund adequate weed control. The gas tax money for maintenance has been diverted (illegally) to fund mass transit to... “protect the environment.”



Here it is two years later (this is the slide from our discussion of Molate fescue).
Yes, they do weed it, once a year. The weeds breed faster than that, but at least you don't see them over summer.
Your tax dollars at work.





May 2010

This very spendy, artistically textured, and colored retaining wall is just up the hill a few miles, completed a bit over five years ago. On this slope the State planted wonderful (and expensive) lupines and grasses that are now long gone. Of course, they did nothing about the French broom above the retaining wall showering seed down the hill. Meanwhile, the Italian thistle is busy making its way up the hill. Eventually, as the perennials establish and the madrones above grow into decadence, the fuel load will just like this...



May 2008



If you let it all go, this is one form this system eventually takes: dying madrone (*Arbutus menziesii*) and broom. As time goes on, the fir moves in. This the top of a ridge, so fire coming uphill would be horrendous, after which there would be erosion anyway... "Oh, but that's an Act of God," as if nobody could have done a thing about the fuel. Interestingly, the reason the madrone looks so bad is yet another imported exotic pathogen by the name of *Botryosphaeria dothidea*.



May 2008

HOWEVER, removing such disastrous fuel loads is what made our weed problem such a big deal. Thinning put enough light on the ground to germinate that dormant seed. Unfortunately, weeds nearly always appear first. So, if what you want is native habitat, it's going to take careful, tedious, consistent, and sometimes arduous labor, no matter what. Lots of it. That's just how things are.



May 2008

When the highway is blocked with an accident, our tortuous one-lane road is the only alternative. Most of the pavement is less than an inch of oil and screens on bare dirt (hold that thought). There are few places to get cars off the road to allow emergency vehicles to get by or opposing traffic to pull over. Hence, I built three turnouts along the County road at a cost of less than \$2,000. No, I did not ask their permission. No, the pavement is not up to their driveway specifications (9" of compacted base with 3" of asphalt!!!), but the Department of Public Works appreciates them anyway when they need a place to load or park heavy equipment. So, why did I pave it? Paving almost eliminated the weeds that were coming off the trucks and workers that stop here. Behind this spot is that old road cut I got the DPW to fill with ditch cleanings. The problem isn't the DPW; it's the political players who order them around.

Public roads are a form of commons, or property “owned by everybody.” Commons are typically subject to over-use and under-investment because when “everybody” owns something, nobody takes direct responsibility for investing in its maintenance and improvement. So, the public is forced to construct ridiculously over-built driveways while paying for ridiculously expensive pothole filling, mowing and ditch cleaning along a road of completely inadequate and archaic design and construction. The County gets to repair the inevitable failures with monstrous retaining structures that do nothing to correct the flaws that caused the failures even if that would be vastly cheaper (Federal disaster funding guidelines prohibit improvements). Meanwhile, detailed vegetation management is obviously not on the list. It is left to the property owner to undo the damage done by the methods road workers MUST employ as ordained by people with little-to-no knowledge of or accountability for the outcome.



On this ridge, the driveway on the left limits how far over the road can go, while the slope on the right slipped out behind the guard rail. Instead of grading straight across the hump which would have widened the workable area, they built an expensive retaining wall with pilings into the weak substructure with rods connected at the top under the pavement anchored into concrete blobs on the other side. The net effect holds this spine of sand in the air because FEMA will not allow changing the grade because that is improving the road. The whole ridge is only 30 feet across at the top. The reason the County made the disaster application is that it is cheaper than the \$10-15 grand it would have cost to grade and pave it into a more stable configuration, but for one thing... What do you do with the dirt from grading off the ridge? They cannot just ask the people if they want it to solve some other problem like retiring an old road cut because of their own bureaucratic requirements to do a fill. So, they would have had to truck 300 yards of dirt 20 miles to a landfill, per environmental regulations. You can thank the County planners and lawyers for a waste like this.



May 2010

Here is one result. On County roads like this, scads of urbanites ride their bicycles for miles, dodging the potholes between retaining structures, never realizing that the reason the weeds are there is that environmentalists stopped the County from spraying the roadside. So the road crews use flail mowers, smearing the seed along the roadside for miles. Up come the weeds. The landowners didn't want them. So, whose plants are these now? Will the protesters pay to control them? Was this because they are afraid of poison?



June 2010

Well, apparently poison isn't a problem, as long as it is a **Natural** poison. This is hemlock (*Conium maculatum*). These plants are deadly. Children have died chewing on the stems for the numb sensation it brings or using the stems as a pea shooter. Even the pollen is harmful. Poison hemlock is far more toxic than Roundup®, but the chemical is feared because it is man-made. So here it is, poison spreading along roadsides pursuant to the demands of the Sierra Club, and poised to spread into every watershed if the conditions allow. All would take is a catastrophic fire. **The Sierra Club says those are Natural too.** I pull the flowers off these plants over two miles from my home, simply because I do not want them spreading down the creek from which humans and wildlife drink.

THE TRAGEDY OF THE COMMONS IS A MATTER OF COLLECTIVE UNCONSCIOUSNESS

Why this little digression about public roads? Public roads are commons, property owned by 'everyone' for which few individuals care because it is not their own. Road design, drainage, and vegetation all have a great deal to do with whether our plant restoration efforts succeed. Without roads, the effort would be impossible. Yet because of how they are managed, the spread and multiplication of weeds is abetted enormously. That's where you come in when it comes to taking action, both influencing politicians and doing the repair and maintenance work along your roadside yourself if you are a landowner.

Our County roads are in disastrous condition. Meanwhile, County specifications for private road design and construction are an outrage. I know one neighbor who had to provide a turnaround on his driveway for a hook-and-ladder fire truck that could NEVER make it up the County road to his property. One would think the politicians who approve these rules and the bureaucrats who enforce them were insane... until you realize how much money the local quarry operators and contractors make because of this "insanity" and how much those same vendors underbid jobs for the County.

The private dirt roads on our property (the ones the activists want to eliminate) could use a few improvements, but in general are no problem when it comes to weed propagation and drainage water quality, unlike the County roads. I spend considerable effort on "our" County roads against the onslaught of seed "our" road mowers brought into the area. Similarly, State revegetation specifications for erosion control on road construction projects have abetted the largest single cause of endangered plants and insects: exotic grasses and noxious weeds.

Please, make it stop. Nearly a quarter century of arduous work, developing the only parcel on the Central Coast fully restored to native plants, is in jeopardy because a distracted and uninvolved general public believes a bogus story about herbicides, silt, and drinking water without having checked it out carefully and objectively. Many of the weeds the mowers spread are more toxic than the pesticides. Pesticide bans have more to do with patent protection to increase corporate profits than they do with public safety anyway (if you don't believe that, do a little Googling on DDT and organophosphate). As to silt, both cases for listing anadromous coho and steelhead as endangered in this watershed are so fraudulent as to be laughable.

All of these decisions were made with the power of collective will, a distracted public badly informed with deliberately fraudulent data, ignoring the Constitutional limits of the powers of their agents. Once these powers are inculcated, there is no limit to their application. Collectivized ownership and control serve primarily those who have a significant and direct financial interest in deflecting public opinion because it is cheaper to control public opinion than to buy the assets. Once they can control the use of assets, they can control the people who own them. That means you. Is that what you want? Consider...



A BRIEF RANT ON DOGS, GUNS, & LARGE PREDATORS

Do you think landowners should be willing to die for the privilege of restoring their land? I don't plan to.

This is mountain lion country. There are also wild boar and packs of coyotes running about with rumor of bears. So, here I am in *very* steep country bent over or on my hands and knees, alone, weeding, carrying a 40 pound backpack sprayer, lugging wood, digging, bent over with a chainsaw... I'd bet you think that a big cat would give me a wide berth when running a chainsaw, but you'd be wrong; one came within 20 feet behind me running my 044 in broad daylight, in wide open spaces within 30 feet of the house, seemingly without a care. Let me guess that some might think there should be grizzly bears and wolves here too, because that would be "Natural." How about where you live? It's coming, and to a neighborhood near you.

If the original Americans who lived here had anything to say about it (as once they did) there wouldn't be *any* big predators. They had long extirpated *Canis dirus*. Mountain lions feared them. Coastal Indians did have a hard time with grizzly bears and they were overjoyed when the Spanish soldiers in Portolà's expedition shot them (cooked them up and ate them too). Crespi's diary of Portola's expedition rarely mentioned even a coyote. They went weeks without seeing any game at all, and at one time were forced to eat their mules to survive. There was *that* little game because the Indians were *very* proficient hunters. Little did the explorers know they were probably surrounded with food they didn't even recognize.

Of course the system needs predators, but with all the seed plants reproduce we actually need more herbivory, particularly of acorns, fir seed, and madrone berries. That means predation must be managed, a problem too dynamic and complex for remote control by bureaucrats. This isn't hunting; this is vegetation management with a rifle as a tool. I am the apex predator here, the keystone species on this land. Dogs and guns are among my tools. Please, let us do our job.

There are times when I wear a gun to protect myself. There are times when wearing one would be a serious impediment. Under either circumstance early warning and deterrence are important. Hence my dog.

She is a big Dutch Shepherd from a long line of **KNPV** cop dogs. I take her training seriously because she *must* remain under control if only for her own safety. Coyotes like to bait a dog to run into a pack and kill it; so I must be able to call her off a chase. I can tell her where to be to provide effective protection. She knows to stay on the property when I'm on the public road. She is not afraid of gunfire or a chainsaw. She knows where to go when I fall a tree. This is serious dog training, and yet another important aspect of what I do, one that does not occurred to most people as a part of managing plant habitat. This project has spanned the lives of three such dogs, for which there must be some overlap for the puppy to learn the job.

Without the foods that prey species consume, predators lack food. This is also true of birds that eat insects, for without forbs, insect productivity drops precipitously. If urban bureaucrats and activists go hog wild bringing in wolves before the biological food foundation is restored, they are screwing up the entire system, big time. **Fix the foundation first!** If you are unwilling to take these risks and do this arduous job, please be more circumspect exerting such control over how I do mine.