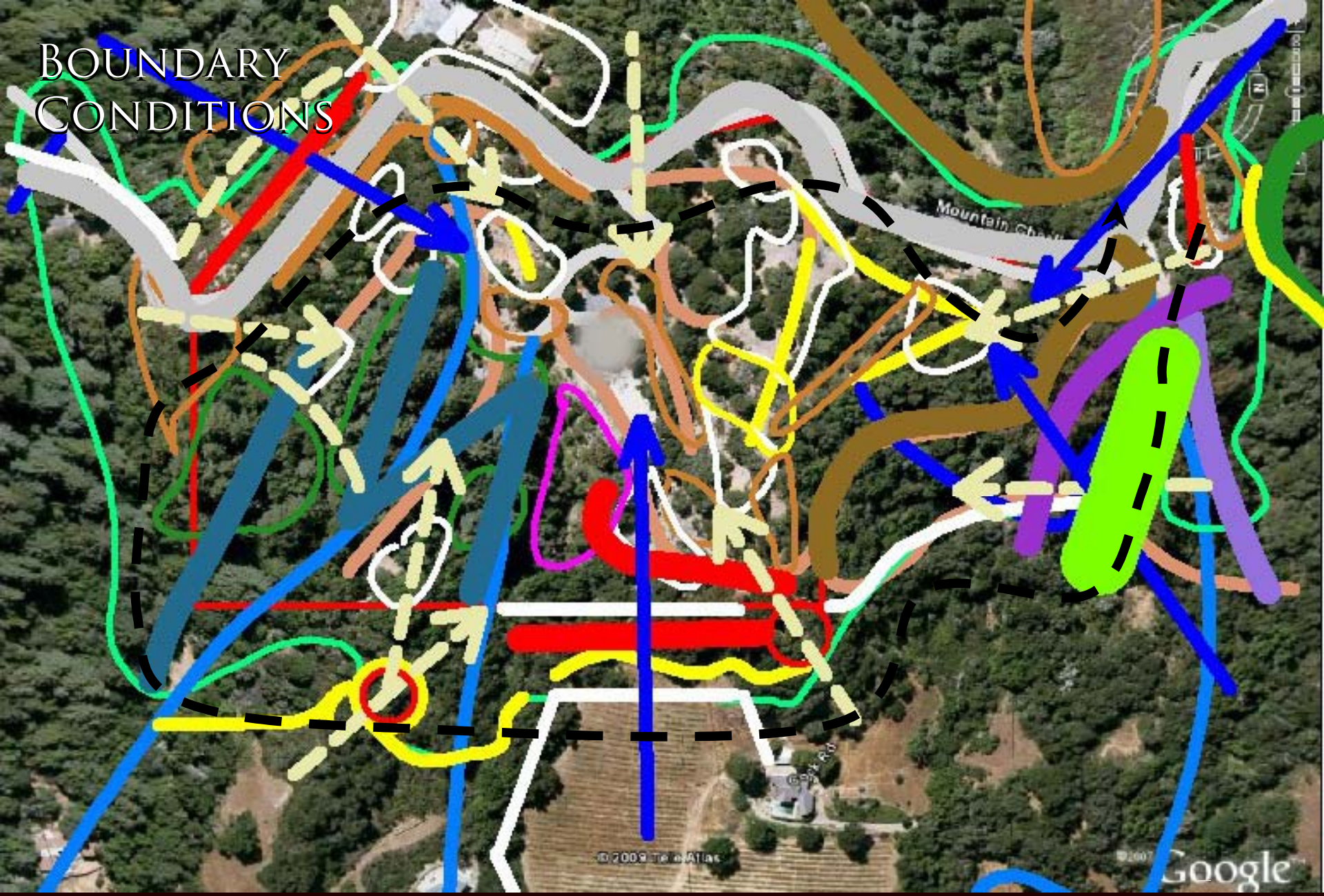
Boundary Conditions



No, this is not your brain on drugs; it is mine on weeds (no, not that one). So yes, this sketch represents the various sources and means by which weed seeds enter the property of which the primary vectors are two: wind-borne and those on the coats and muddy feet of animals. So in the interest of comprehension, I'll reduce it to those two layers and this will appear more meaningful.

Wildergarten 5.2

This book was originally produced under the name *The Responsible Party* for which there were two revisions, 1.0 & 2.0. Major revisions are for complete rewrites. Decimal revisions are for revised chapters or navigational changes and are not archived. Back revs are viewable by the numbered links below.

Revision History 1.0 2.0 3.0 3.1 3.2 3.3 3.4 3.5 4.0 4.1 4.7 5.2

Vande Pol, Mark Edward, 1954 –

Other writings by Mark Edward Vande Pol:

Natural Process: That Environmental Laws May Serve the Laws of Nature, ©Wildergarten Press, 2001, 454pp, ISBN: 0-9711793-0-1, LOC Control #2001092201.

Shemitta: For the Land is Mine: ©Wildergarten Press, 2009. Contains: 217pp text, 980pp overall, 14 picture books, 2 tables, 963 photographs, 9 maps, 2 drawings, 2 charts, 145 footnotes, 358 citations, and 216 other source references, not including external Internet links. ISBN 978-0-9711793-1-8

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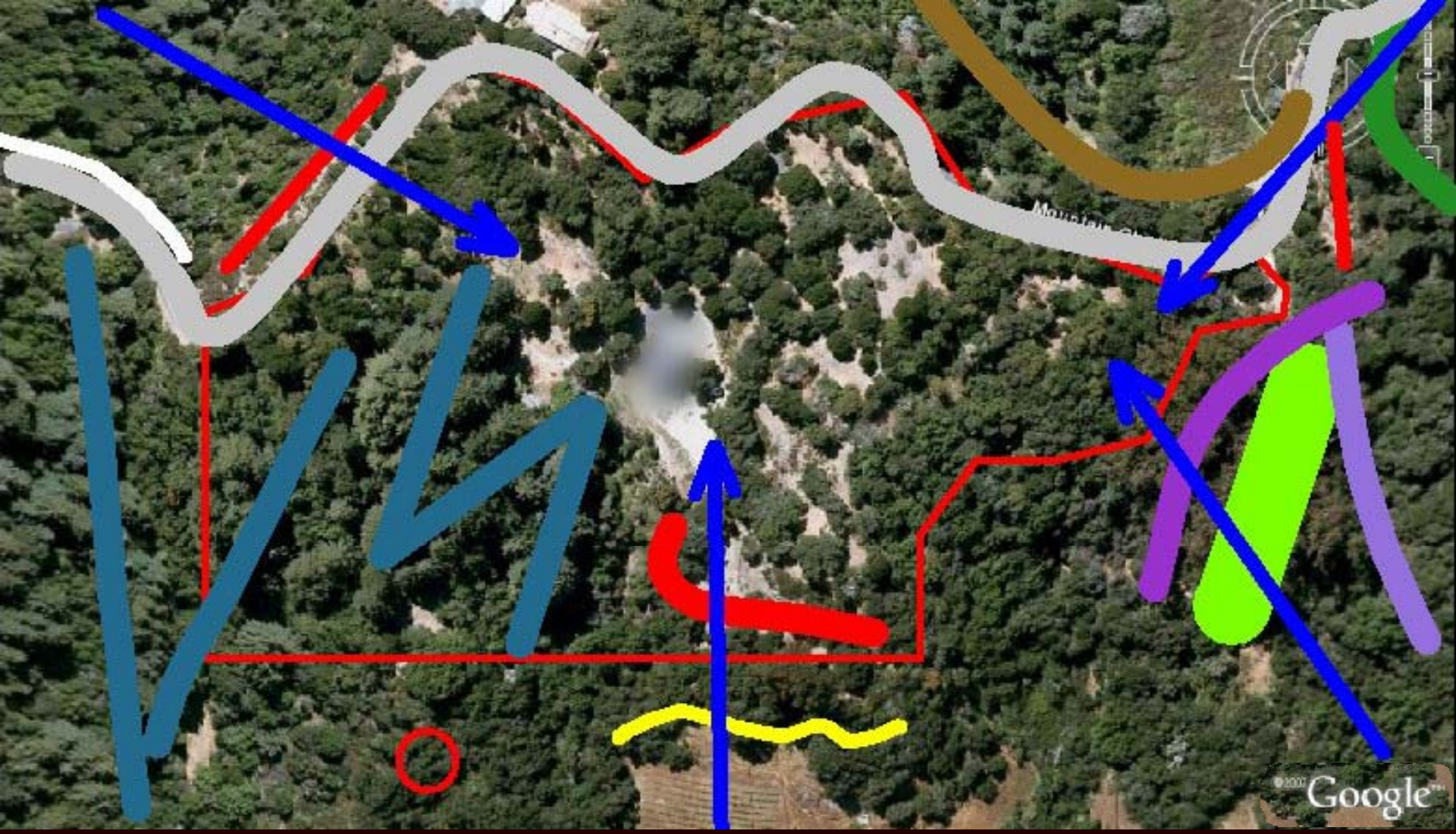
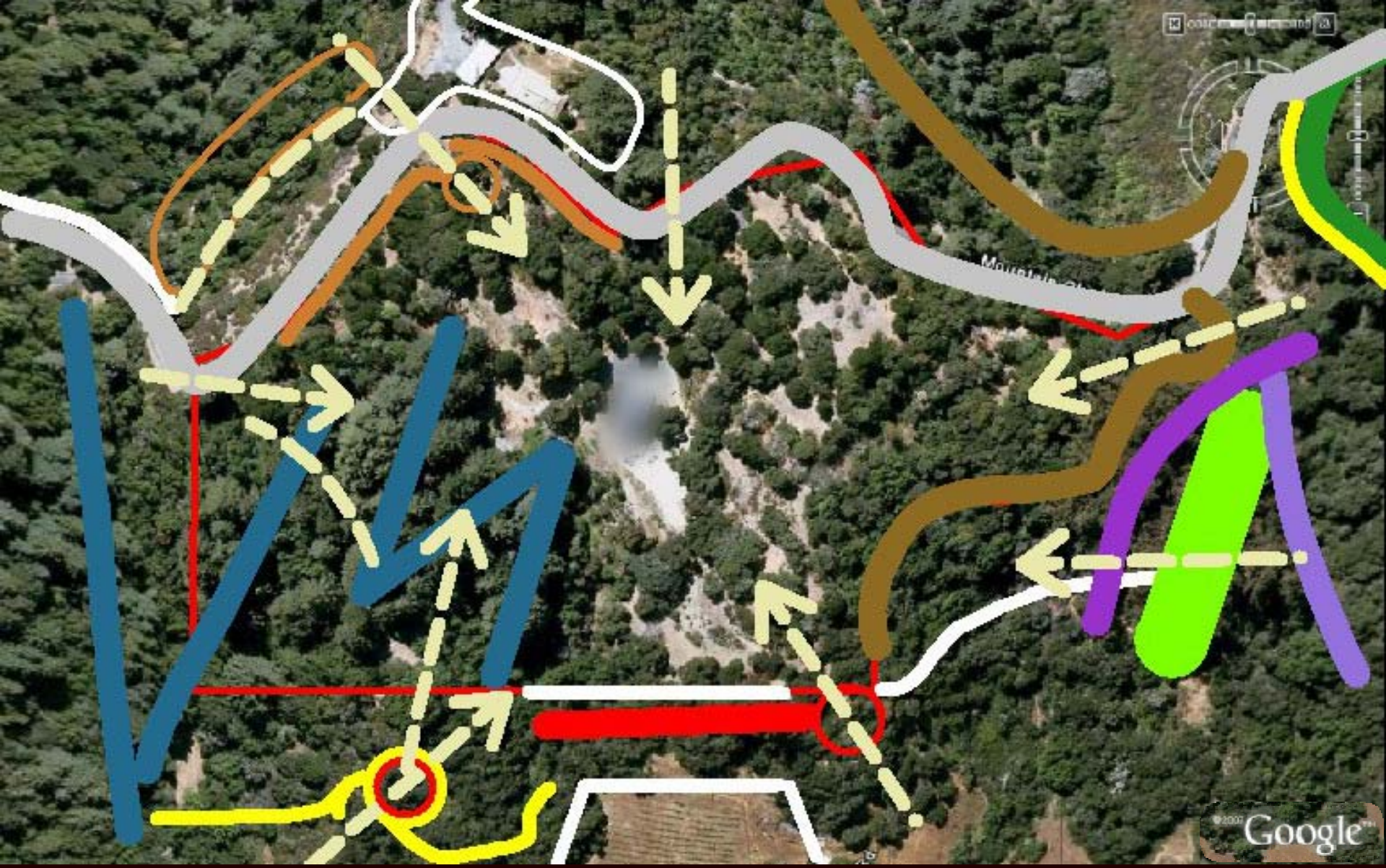
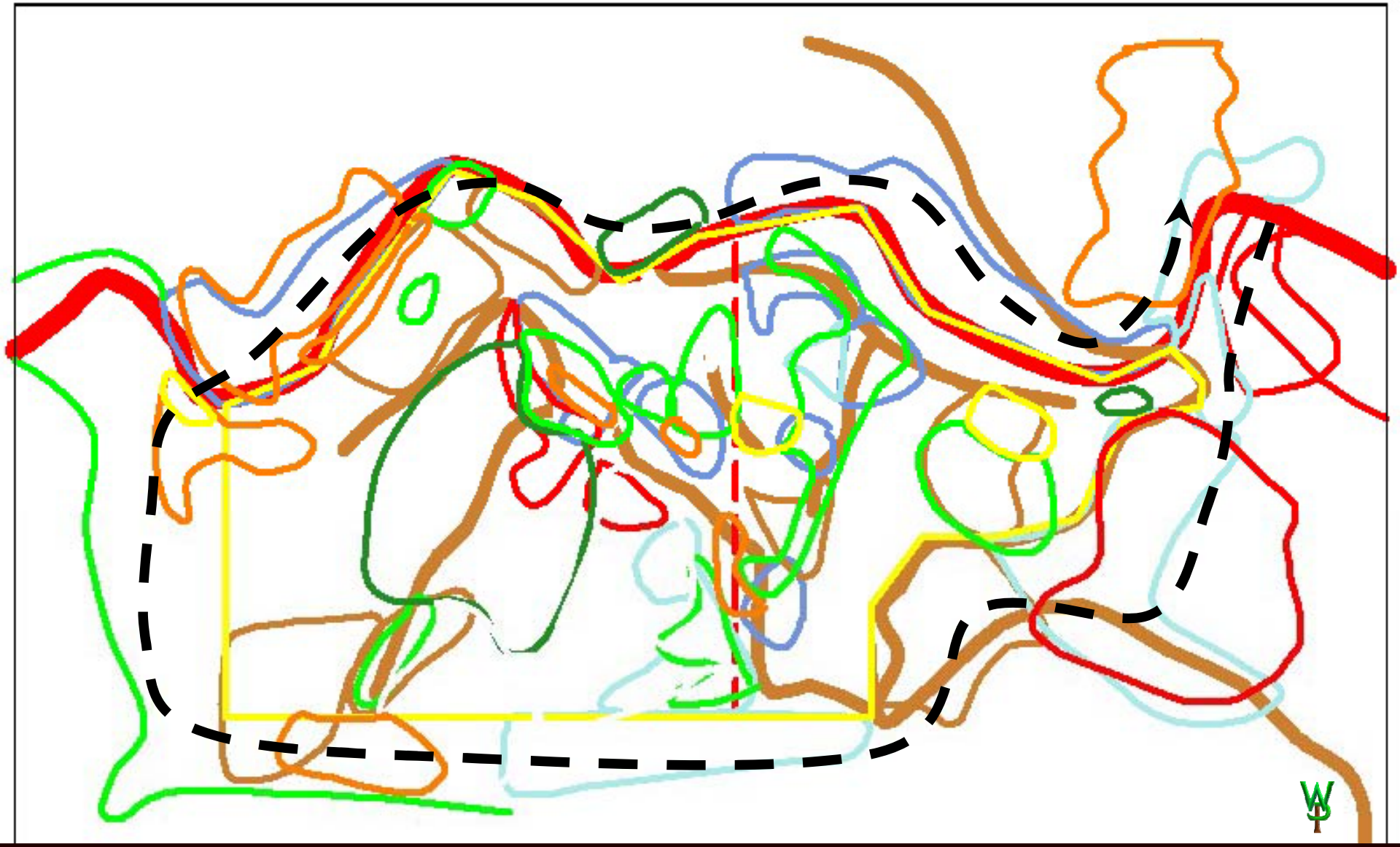


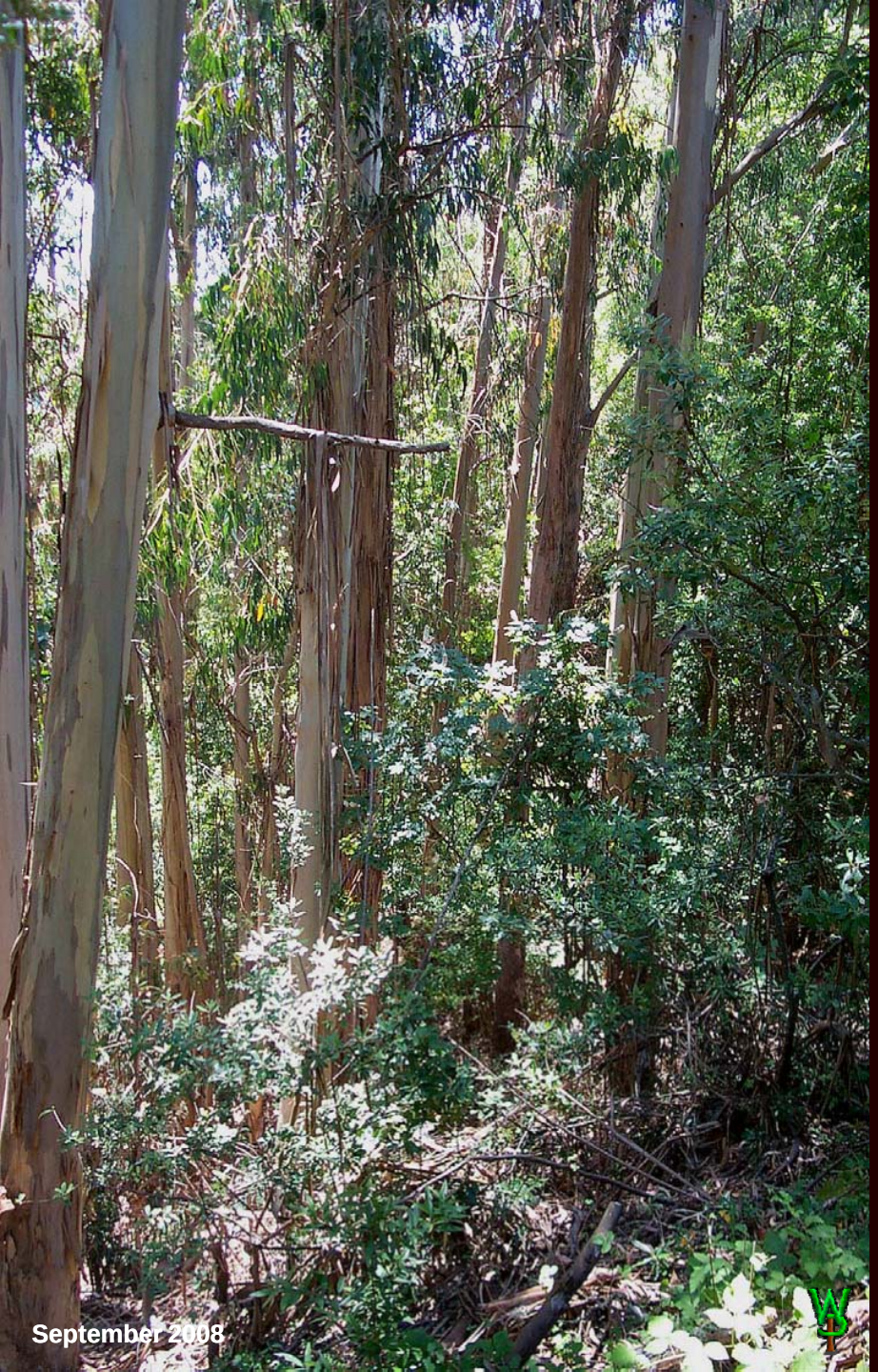
The blue arrows indicate the primary flows of wind-blown weed seed. The dark teal zigzag lines on the left are redwood stands, tall, dense, and dark underneath; hence, no blue arrows there. The fat lime green line on the right is a stand of eucalyptus, but deep in a draw. We did get Italian thistle from that direction (hence the arrow) but it is still an effective barrier. If we remove that stand, I'm wide open on that side for about 60 years until the redwoods we replant grow big. To the north *was* not much of a problem because that area *was* so overgrown. Not so much now. The two big hazards are an overlooking ridge on the northwest (red line) and the vineyard to the south. In the former case I have patrolled that strip vigilantly for over a decade. The vineyard I can do nothing about. The oak trees above it below the southern line have a filter (yellow) of broom to keep that seed from drifting underneath them. The fat red line on our property is the primary deposition area from that southerly vector. Those are the biggies.



This is the defense map for seeds borne by animals. The yellow dashed arrows represent general directions of ingress, primarily by deer. On the left, the dashed yellow lines without arrow heads are cliffs. The toxic duff of the eucalyptus (fat green line) is again an effective barrier. The brown lines represent steep walls above roads. The redwoods again form a weed barrier, due to their tannin loaded duff. The white lines at the bottom is the fence system around the vineyard. The yellow lines are walls of broom I maintain to deflect the animals to designed gaps in those lines that serve as entry points. The circles are “cleaning stations,” a larger concentration of shrubs in an opening that I maintain such that the dear wipe the seed off as they enter (don’t laugh, it works).



This drawing is meant to resemble what I did sketch when control-by-species was far more crude than is our comprehensive management today; each thin line color represented a particular weed infestation at the time (about 2005-6). This chapter will take us around the perimeter (black dashed line) of our property line (in yellow) as I have defended it for at least the last 14 years. To draw a plan like this for real use today would be a ridiculous exercise, so lacking in spatial resolution as to be useless. Still, maps do have their uses for purposes of communication. So from here, let's walk that boundary (the black dashed line) and see how I work out dealing with said continuing onslaught from without, as brought to me by the same public that hires agents to tell me what to do, and how.



Some say that I should have left part of our property alone as a legacy, yet there's no shortage of "Natural" left in this neighborhood! This grove of eucalyptus is just across a road that forms the northern boundary of our property. Eucalyptus was originally imported from Australia. They grow fast, but when it grows in California, it twists and cracks, making lousy lumber. The people who imported it, failed to test it first and certainly do not own any responsibility for the consequences. Thank you Harvard University.

These trees exclude almost all other plants with a hormone their roots inject into the soil as well as with the mass of bark and branches they drop. The only species that seem to survive in the understory are bay, broom, oxalis, and bedstraw, and not much of those. This five-acre grove grew considerably after Mr. Fenn's house burned down with just a few of these trees above it. Hence, when (not if) it blows up in a fire, the eucalyptus seed can easily spread a quarter mile. The prior landowner did nothing about the situation because the risk these trees pose on their surroundings does not impose a cost upon him, nor is there profit in getting rid of them. A fire would only spread them.

Much of the native seed that had a chance to express itself in the last fire is long dead. Even if it was still alive, it would have a hard time propagating because of the hormones in the soil and the presence of many other invasive exotic plants nearby. This model of introduction, establishment, disturbance, and further spread is what is usually seen with exotic species. This is despite the popular claim that fires are Natural and therefore will fix just about anything. Virtually nothing of the native groundcovers survives this kind of infestation for more than one or two disturbance cycles. In this area, introductions of exotic species usually represent the permanent conversion of native habitat.

Even so, this grove has a use for me. Its hostility to competition stops most anything from invading *through* it, so it serves as much of our northern "**control boundary**." If a weed does make it in, there is no compunction in just hosing it, as the trash on the ground from the eucalyptus means there is nothing native to be harmed.

To the southeast of the eucalyptus still on my neighbor's property is that acacia stand. While it too works somewhat as a barrier, redwood is more exclusive and not nearly the hazard of just blowing up in a fire and leaving me wide open to invasion from that side of the property. Hence, although this is somewhat effective, it is inside the control boundary. The reason is…

This is Maltese star thistle. We get lots of star thistle, sow thistle, cat's ear, and other weeds blown in every year from our neighbor's vineyard. These seeds disperse over about ten acres, sometimes inches apart over 300 yards from the fence. The cost of controlling them has been incalculable, but if I had to contract for it, it would have been in excess of $250,000 and maybe twice that (it is where the cat's ear came from in the first place). Why is there no law against this? Guess who is the biggest and most negligent weed owner anywhere? Government!

Note that deer like to munch on cat's ear (spot) but not star thistle. Deer are picky eaters, and useless for weed control.

Small vineyards are serious weed incubators because they are tilled annually and often with minimal weed control. This is just down the hill from me whence these airborne weeds originate. It is larger than our grasslands and heavily populated with annual exotic weeds. It is about seven years old, on land that had been grazed for decades.

To the average reader, this probably looks quite attractive. It is a beautiful area in general and this is fairly representative “rural suburban" development with the usual touch of agriculture. The grass, primarily slender oat *(Avena barbata)*, gets about four feet tall, yet it is sparse and without much food value. Before the vineyard was put in, it was grazed regularly and was primarily native perennial bunch grasses. From here, amid the annual grasses, it is hard to see the impact of cat’s ear, thistles, flax, and various bedstraws.

It is very hard to appreciate how much seed this represents, in part because some the majority of the seed heads are still yet to open. Go ahead and zoom on it and pan around to get a feel for how much there is, because for me, this is an annual headache.

Here, amid the morass of oat, rat-tail, and soft brome is a small cluster of “mule’s ears” *(Wyethia helenoides),* one of the half dozen or so remaining native species surviving amid this deepening infestation. This is the only specimen I have seen for miles. I have wanted to collect the seed and save it, but I get busy too. It can be tricky to propagate and transplant successfully.

The meadow above the vineyard is probably 1-2 acres. The prevailing winds come across the vineyard from the right hitting this slope. They once swept the seed into the air, and went *under* the trees, then impacting our *entire* property. So I decided to stop whacking the broom on the edge so that it would knock down the seed, much like a filter (I still keep the broom down under the trees). The tall grass also limits the seed flight somewhat. So, if I mow it or graze it, the seed goes farther. If I spray it, there will be erosion. So without the owner having a motive to do something on the rest of the field, there is little more I *can* do.

Within that front line of defense (the broom filter) the battle rages. Here is Italian thistle along with a mix of bedstraw and tall oat. The material on the right is a mat of bedstraw that collapsed the oat into the broom. What happens with the bedstraws was covered previously; the annual grasses in this area are simply beyond me at this point. I don't know how to do an open buffer in that case.

Trees do the rest of the job, both by shade and litter. Ranked behind the 'broom wall' is the area I use as a secondary buffer along our eastern property line. The shade keeps out the grasses. Sadly, the owner is losing some beautiful oak trees to "sudden oak death," (*Phytopthora ramorum*), an exotic pathogen, for which the bay trees in their midst are carriers. It is sad to see the old oaks lose, but many are nearing the end of their natural life span. The bays would have killed them anyway and will do a better job as a weed barrier.

I wish I had trees like these once were. By the way, one reason my dog is in so many of these pictures is for scale. The cat is a feral that the shelter believed was too fearsome to be tamed, ever. Accordingly, I dubbed him “Alger Hiss” (because that’s what he did). We needed a cat because the house had become something of a refugium for rodents. Alger’s job is to kill the mice and rats that eat our car wiring, gophers around the garden, and as a bonus, to take out ground squirrels that raid quail nests (it works). But the best part is that Alger has become the sweetest cat you’d ever want. He loves that dog and tracks us everywhere by scent.

Now, I *want* my neighbor to succeed with his vineyard, and he is obviously not made of money. If he would just stop dumping more seed on me from his vineyard every year, I just might be able to get control of the meadow and we'd be set. Unfortunately, his organic farming certification holds that he cannot use herbicides to kill weeds. So he tills them in when he can and doesn't where he can't. Further, he has been taught by "experts" that weeds are a way to reduce erosion (as if native plants would not do as well). In effect, weeds are cheap seed. Sheep can be taught to eat weeds without harm to the vines and I am willing to offer technical assistance and perhaps seed or grass plugs, so we'll see. What I don't want is to see this land abandoned. It is bad enough as it is.

Our southern property line (gold) is delineated by the posts on the right, so this is another neighbor's land that I maintain as a shaded fuel-break. Here are yerba buena, iris, sedge, pine grass, and snow-berry. It is very easy to maintain, but that does not mean it is not under serious attack. I must weed it, or in two to three more years it would be totally destroyed. Accordingly, the actual control boundary is another redwood stand nearby farther to the south. It has a graded road so it too has broom.

Just above the prior photo, is an enormous bay tree (the base is about eight feet across). Just above it there *was* a small patch of French broom, 30 yards from the County road or any other exotic infestation. I took it out in 2005 and return to pull the seedlings every year. The broom was probably brought in by rabbits, as there was evidence of them nibbling off the seedlings. Once here, it made a patch about thirty feet across, so I estimate the age of the infestation at three years. Seven years since first pulling it, it takes about fifteen minutes to weed it once a year. The vegetation here makes for a very pleasant visit. In and out and it's done, unless it is invaded by South African veldt grass (*Ehrharta erecta,* next slide).

This is along a browsing path for deer (red arrows). It is a nice bedding spot for them**:** level, sheltered, with three escape routes, a good view of the surroundings, and brush to rub on above it. How do I know they are using it? Deer get burs off them by rubbing on brush or slithering on the ground. Immediately after removing the broom, in came two weeds with bur seeds**:** bedstraw and hedge parsley. The thinned forest surrounding this spot is about an acre. As you will see in the next section, this entire area would be destroyed if I did not weed this bedding spot every year.

But there is more to this story. Above it is a decadent chaparral with a similar bedding spot I'll show on the next slide.

This is South African Veldt Grass (*Ehrharta erecta)* ¼ mile down the road. The County dumped some soil nearby and it started there and they then spread it with their roadside mowers. Ehrharta is dominant, relatively inedible, and shade tolerant, perfect for taking over the ground surface of the County's principal asset after the beaches: redwood groves (if you think a redwood would ever seed in *Eharharta*, forget it, no ferns, no blackberries nothing). When it first established here, I mistook it for native, *Melica imperfecta*, as it is very similar in appearance, at first, but once it started taking over... As you can see on the right, it does just dandy on vertical walls. This spot is the only infestation for about two miles (for now). So, who's going to do anything about it, for four years? Five?

Nothing grows in this stuff. Nothing eats it (here) either. The great botanical geneticist G. Ledyard Stebbins at UC Berkeley thought it might actually serve as an intermediate to bring back native grasslands, now known among some as “Stebbins folly.” The seed is tiny, and very sticky. Hence, it travels easily on animals. I hope I got it all, and did for some 100 yards off the road, but one never knows.

I contacted the landowners, sprayed it, and mowed it to keep the seed in one place. Anybody who thinks they can control this stuff manually, well, good luck with that. The first pass took about 15 gallons of mixed glyphosate. The next year the second took about two. The third less than one. Yet no one knows how long the seed will remain viable here, so how long will it have to be watched by a grass expert? The definition of an adequate control boundary varies by weed, habitat, and transmission mechanics.

Imagine trying to find that first *Ehrharta* in this! Recall those wacky “brain on weeds” maps at the beginning of the chapter, one showing the entry pathways of animal trails. Effectively, the way I once protected the entire southwestern quadrant of our property from weeds brought in by burs was to weed these two bedding spots along this browsing path amid with what is effectively a "dark barrier" above to the left and a dense chaparral above right. This glade takes about thirty minutes to weed. It is a precious example of the diversity of relatively undisturbed native vegetation in these mountains... Unfortunately to a degree, all of that has changed, and for the worse.

That precious little glade is only forty feet off the County road (the arrow is pointing at the opening). It lies beneath what ***was*** an open, rocky, sandy, slope that is so arid that the two seem completely alien. The wall of chaparral separating this slope and the glade might be only ten feet. So, I ask you: Even though that beautiful little opening is only forty feet from the county road, how would anyone else but an owner EVER know that there was an easy control point by which to protect a large area and contain an infestation? There is just no way. If what you want is healthy native habitat, you will not get it from anyone else. There is just too much site-specific information necessary to manage a problem this complex. Yet even with native perennial grasses on the slope…

Here, the road suffered a Type I road failure: In-sloped grades collected water flow and ran down the ditch to where it kicked out due to accumulated sediment. Then it ran across the surface away from the ditch, hit the corner (above), kept going, and just took the cake.

Why? Well, said cake was simply piled there when Charley McKiernan blasted out the rock to make the road. The surface was never benched nor the fill compacted. When the ditch across the road filled and the water came across, it took its fill. Unfortunately, despite my offer to reseed it with native grass for free, the County chose to hydro-seed it with Italian rye and soft chess; i.e., the usual. You do what you can, not what you can't. It is just as true for the County as it is for me.

Our property is bounded on the west by the County road. Needless to say, that road is not an effective weed barrier when it comes to either windblown seed or seeds on animals (whether burs on coats, mud on feet, or undigested seed from the gut) but it does help. I employ several strategies against those sources: treating open “launching pads” of windblown seed, maintaining catchment vegetation to filter them, and controlling animal ingress, also with vegetation.

This location is important because it is the first open spot to the south of my neighbor's home. To the south of here the ridge falls off so steeply that animals are unlikely to traverse it. As a result, this is the second deer path onto the southeastern quadrant of our property. As it turns out, it is ideal as long as I focus the entry point on our side.

The deer path crosses the county road at the turn (red arrow), which gives a clear view of the animals crossing the road for nearly 100 yards from either direction. Hence, all I have to do is to make this the most attractive path by rendering the others inhospitable. I simply planted shrubs along the road, located and sized such that they need very little trimming. I am also slowly removing trees along the edge of the road so that their roots won't heave the less than 1" of pavement. This photo is just after removing the roadside berm such that the water can sheet into the forest instead of running down the road to the turn where a County culvert had blown out decades ago and then cut a channel downstream. There are shrubs under the burlap teepees to form a sort of fence by which to direct animals to the crossing location (arrow) and to concentrate the exotic seeds they bring in.

Here is the “hedge” today. I lost a couple of toyon bushes, probably to sun scald. So I’m setting up to do a burn in here to generate some Ceanothus to fill in the gaps. I weave strands of poison oak across the top both as a people deterrent and for fall color!

Here at the deer crossing, topography, lines of brush, and my neighbor's fences tend to direct the deer to this entry (Red arrow). Behind the trees I maintain some sparse low shrubs such as monkey flower because the deer are fond of wiping the burrs off their coats on the bush. That means I can treat the bulk of the resulting weeds all in one place rather than spending more time searching for them all over the property. They like to slither and roll on cut branches for the same reason.

Most of our western boundary was once very shady, making an effective barrier when it came to suppressing weeds such as hedge parsley or bedstraw. In 2009, a tree went down about 100 feet on my neighbor's side of the road (I weeded broom in there). Back then, the areas on either side of the line in this photo were the same. It may be hard to see (unless you increase the screen magnification), but after the tree went down, the foreground sprouted a mix of hedge parsley and bedstraw while the background, still has the original diverse mix of ferns and snowberry that are now nearly missing in the foreground. They lost to the weeds. You should see how dry the soil is where the weeds are by comparison. All other factors are equal at the transition.

This spot represents a source of burs brought onto our property by animals. I had to find and treat it to reduce the rate of infestation of our property. But there is a more important point from the standpoint of general weed management: Clearings like this are where the weeds go nuts, even in an overgrown forest far from developed areas. Like roadsides, they are poised to infest the surrounding area should a major disturbance such as a fire occur. Here, there are bedstraw, hedge parsley, weedy annual grasses, and bull thistle, each easily capable of colonizing the area for over a mile the first year after a fire.

This photo taken the next year is of the same patch from a wider perspective (the first photo was in the (red box) . The infested area with bedstraw grew slightly (as expected) but within the prior boundary there is little bedstraw but instead hedge parsley. In my experience, bedstraw is the dominant germinator with hedge parsley more capable of extended dormancy. Behind me, there are now both native California brome grasses and exotic rattlesnake grass *(Briza major),* along with mouse-eared chickweed. There are buckeye shrubs crushed by that fallen tree (I'm standing on the log) that have sprouted new branches. They would have shaded this area back to normal in a few more years but for what was done in 2013.

My neighbor slashed the whole northwestern frontage just like this. Now, this is a pretty standard fuels reduction treatment; in fact, it is almost exactly what I would have done only 20 years ago. Considering his interests, it is not as bad as doing nothing but not as good as it could have been. What this will likely do is to sprout more weeds. Needless to say, about that I am not terribly grateful. Unfortunately, the contractors did not treat the stumps (as I once didn't). They'll sprout wads of trashy tops by next year, which works for me as barriers but defeats the purpose of a better forest. Moreover, if he was scared of fire, he should have taken out these not-particularly-sound fir trees. They don't belong here anyway as they are an artifact of fire suppression (they're fine farther downhill).

This is a good example of what I mean when I say that it is hard to photograph an infestation of forest understory groundcovers by small weeds like hedge parsley or bedstraw. There are also thistles and rip gut in here. It's almost as hard just to see.

From the perspective of a weed geek, this is the worst thing my neighbor could have done. It's the pile of dirt behind the base rock. It is my understanding that my neighbor took that dirt as a charitable act, to help out a tenant of his who's a landscape contractor. He brought in that rubble and dirt to reinforce the road which had eroded over the years and is undermining the County road elsewhere. So at least his heart is in the right place. Unfortunately, that material came from in town, just LOADED with weed seed and oxalis bulblets. That dirt will get all over the bulldozer he'll use to spread it and the weeds will then spread from there down into the forest in every water flow that runs off the road. This is permanent damage to his property, and likely to mine. After over twelve years of maintaining that section of his property, since long before he bought it, I don't know what to do. But I have to do something. I'm not a bureaucrat or activist; I am a landowner. I can't run from these problems. I must be respond to them.

This is where our control boundary crosses the road. Do you see the barrier? It is dark here. There is periwinkle *(Vinca major)* growing on both sides. While it is an exotic, it is both exclusive and unlikely to spread. Both are a good thing. The only hazard to me is the ditch which once brought Oxalis bulblets down the hill and infested two acres of my neighbor's place north of ours in the acacia stand below the eucalyptus where we started. I have a good neighbor up there who, although he still has an oxalis problem, understands and manages these things. He is willing to learn, but his organic farming certification only permits him so much.

October 2013

This is just behind the trees most people would see in the final link in our circuit, which ends on the property with the eucalyptus and acacia adjoining Edward Fenn's road to Glenwood. A new neighbor just bought it. He likes to manage his land just for the sheer pleasure of making it healthier. It keeps him sane in his high pressure Silicon Valley job. If I whack this broom it will expose me to cat's ear and thistles which tend to land here and breed, then blowing onto my place. He's a decent sort. So instead of suing people under the weed law nobody uses, I decided to help him by whacking the broom and dealing with the seed. I hope this discussion got you thinking, about how important human relationships are to the shape the land assumes. We can learn something about ourselves by learning to recognize in the land the consequences of our decisions. They aren't all what I think most people would like to think.

I wish him luck. I'll do what I can, but not what I cannot.

Edward Fenn,
& Family, ca1932

If there is one thing I have learned in 25 years of restoration work, it it's that the land takes its shape according to how humans treat each other, that there really is an unbreakable linkage between its vitality and the moral conduct of human affairs. What we seldom see is how those feedbacks work, especially when it comes to the collective exercise of emotive whimsy. Speaking of which…

I suspect (although I do not know) that you are sensing I want something out of photographing, writing, and publishing this free on the Internet. After all, I am exposing myself to activists, bureaucrats, and snoops who would want to harm me.

From this information, it should be self-evident that these results are meant to be an example of independent research by which to restore some sanity to land management and restoration. So, if I am willing to do all this work for nothing, then I want your public agents to leave me alone. Pull the threat of bureaucrats, consultants, lawyers, and their myriad dependents off my back and let me run my land as I see fit. Please. If I want to sell some native seed, I shouldn't need an agricultural permit. If I want to take out a few trees, I should be able to sell them without fronting $60,000 for a permit and another hundred grand for a "water quality" bond. If I've got a predator problem let me deal with it. If I want to sell native plants, leave me alone. I don't need their out-of-date specifications and endless inspections and consulting supervision. Keep your damned wolf and mountain lion playground somewhere else. The numbers we have now weren't "here first" when we got here and adding more won't make it better. I'll put the money I earn back into research and restoration. That is what I want.

Sad, isn't it, that in the "land of the free and the home of the brave" a person should have to spend two decades working to justify the public privilege of asking his fellow "free people" to simply stop running everything? Nobody else knows our land well enough to do what we do, nor would they take the time, spend the money, and deprive their families just to take care of what obviously needs to be done here. The public agents care more about "funding" than the land in their charge anyway, and it will never be enough. Hence, control of private property by popular whim CANNOT work, neither for people nor for plants and animals. It is nothing more than simple covetousness to control something without payment. Worse, it builds a bureaucracy capable of bankrupting the public and controlling their every move. Isn't that obvious?

So, if a landowner can get attestations from numerous experts, public or private, stating that he or she has done an outstanding job of management, does original research, seeks peer consultation, and publishes valuable information, please, help call off the bureaucrats and make it clear that they are to leave that person alone, in law. ***We simply cannot allow politics to dictate how to restore habitat when nobody really knows how to do it,*** nor would government agencies willingly allow the latitude to find out by experiment. They don't want the competition.

Things just don't work the way they appear on Animal Planet or National Geographic, because humans are integral to the way these systems have always worked. In fact, many of the environmental problems we now see in undeveloped countries have slowly resulted from displacing their aboriginal populations. So consider for a moment**:** What do the sponsors and "donors" to this kind of "public education" have in mind? Is it really charity, or is it actually tax-exempt advocacy to get people off the land and packed into unlivable cities for their personal benefit? Who controls the resources when the people are out of the way? I have documented quite enough of the latter to be virtually certain of its likelihood, unconscious or otherwise. Mercantilist manipulation of regulations for fun and profit was what "limited government" and natural law competition were supposed to preclude here in the United States. Unfortunately, public debt has unraveled those limitations.

So, how is it possible that Americans so commonly fail to understand this? Well, it is taught, and oh how it is taught!

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