

SCENE... & UNSEEN



February 2013

The images in this chapter are to demonstrate that a non-native seed bank has been cleansed at least sufficiently to attain nearly pure germination of post-disturbance native annual forbs. With the exceptions noted, all of these areas are now manageable almost entirely by hand. Some of these photos are a bit grainy for identification, even with a 15 megapixel camera, so you may have to take my word for it, but I wanted to show you the complexity, variety, and the area involved. I don't know how else to get this across without good HD video and monstrously expensive camera support equipment. So I hope this series of photos works for you for now.

WILDERGARTEN 5.2

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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](#) [4.6](#) [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

[Articles at Wildergarten Press](#): collected writings on Constitutional history and regulatory racketeering by tax-exempt “charitable” foundations

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Burn Area

February 2013



These photos are the most important in the whole book, because what you are seeing is, to my knowledge, unprecedented. This is what so many billions of public money to “preserve the environment” in principle should have achieved, but didn’t even attempt: Dominant germination of native annuals after a burn on a landscape long dominated by exotics. This is restoration of at least part of the native plant successional system, effectively this is REAL restoration.



Burn Area

February 2015

If you look carefully, there are two size classes of clovers here, the larger ones from the warm fall rains, and another group of smaller plants after a 7" rain dump in early February followed by 80° weather. This bimodal pattern of germination, typical of this region, can be VERY useful to ridding the seed bank of weeds as you will see later in the book. Monitoring the edges of burn piles is a great way to discover what might have once lived in a particular spot, but only if the term of overgrowth was short enough that the native seed is still viable. On this property, much of it was not. Hence, what you see growing here is from plants that colonized this spot since about 2002 when I first got serious about annuals. Up until then, it was broom and forestry, career, and then my first book



Burn Area

January 2012, monitoring germination after a burn pile; pig trap in the background

The "Burn Area" above is only weeks after burning a brush pile. As long as one can distinguish juvenile weed seedlings from natives, this is the most productive time to weed because one can find them easily and remove them with so little damage to the natives. Weeding is usually unpleasant this time of year as it is often wet and cold, but with persistence comes immense reward. Reducing the front of the germination distribution buys much time later on when speed becomes of the essence.





January 2009

This is the real thing.



January 2009

Nearly pure germination of native post-disturbance annual forbs.



January 2009



I haven't even weeded it yet.



February 2015

Although weeding still takes considerable patience and endurance,



February 2015



In places, it is getting easier.



February 2015

Here, with the exception of redwood forest (and that's in the plans), native forbs infuse every kind of habitat, from oak woodland...



February 2015



....to rocky chaparral,



February 2015



....to sand hills,



February 2015 – A to power-line right of way



....forest openings,



December 2016



....and even roads.



April 2009

Native annuals that are varied,



January 2009

Complex,





December 2016



Intense,



February 2015



Multilayered.



January 2009



Detailed.



January 2009



Productive,



The signs are subtle and may require zooming to see.
These plants were browsed by deer.
They tend to bite off the top and move on.

February 2015



and even tasty! (OK, so not to me.)



February 2015



I just want you to consider what this means:



April 2010

Achieving high purity native grasslands with small annual forbs **IS** possible (the point of this chapter).
Believe me, there is many an expert who remains convinced otherwise.



April 2012 – Drought takes its toll on seedlings on this sandy hilltop

Unaffordable? It turns out, it may not be, although it won't be cheap at first. Learning to reduce that cost is the next step. Then comes profitability. Still, to show that it *is* possible is an accomplishment at this point, and an encouragement while we're working on that secondary goal.



March 2012

Not all of the property is as clean, yet. Once I had grassland and sand hills under relative control, I returned to thinning forest in places that had been suspended in **Phase I & II conditions** until I could get to them. That meant I got to start over on the weed “onion,” but only once the duff and chopped up material rots down, which is uneven. That reduces peak labor demands but delays cleansing these layers of weeds (“the onion”). I am learning to stimulate weed germination so as to kill them, as you’ll learn in the grassland chapters.



January 2013 – Native *Stachys adjugoides* invades while exotic residual *Cardamine hirsuta* and *Torilis arvensis* face certain death

It turns out that forests here support many of the same annuals as one finds in grasslands, once one kills “the onion,” layers of dormant weeds and the natives start to return. Building up a varietal cohort usually takes several years, as the native seed bank is so depleted while the returning species do compete and tend to express hierarchically. This is what I call a “transitional” state, which tends to require very high labor inputs. I can only handle so much area of this condition and still maintain the cleaner areas without regression.



December 2016

As to the potential for regression, the biggie is bitter cress (*Cardamine hirsuta* – which State and local botanists had misclassified for 50 years until it was figured out by a friend of mine and me. This error on their part induced a massive retrenchment and unscheduled work load). If I could sue, I might. It may take a decade to recover, as this is an enormously difficult weed.



March 2017

In the late winter of 2017, we had a 100-year rain event: 55 inches in about as many days. Few of them were downpours, but that kind of steady water has an impressive ability to leach abscisic acid out of dormant seeds thereby to break seed dormancy. Although many weed species I had not seen in years came up all were easily manageable but one. Bitter cress came up in many new places, including deep in forests through thick leaf mulch where I had never seen any forb germination. Effectively, it was a surprise attack. I won in some places, lost in others, and some were a draw. But in places where I had made an attack in the years prior since we had learned about the problem, there was good news. This may be a winnable war, but there will be a cost, but it has to be won (above).



December 2016

Bedstraw (*Galium aparine*) remains an annoyance. Nominally, it is a native, but I suspect is either an exotic or a hybrid thereof. In other words, the State's "experts" may be wrong again.



January 2009



The remaining hanger-on is hedge parsley (*Torilis arvensis*), a remarkably persistent weed.



December 2016 – Note that the chickweed tends to stunt the miners' lettuce. The two are very hard to separate when mature, so I'll mow it. Grazing would help, but in what quantity is *Solanum umbelliferum* (a nightshade species) toxic to herbivores? Nobody knows.

...with chickweed (*Stellaria media*) and rat tail fescue (*Festuca myuros* – not shown) in a tie for a distant third. The rest are occasional and localized occurrences.



December 2016 – Sample Weeds: *Silene gallica*, *Cerastium glomeratum*, *Cardamine hirsuta*, *Stellaria media*, *Oxalis micrantha*, *Senecio vulgaris*...

In 2016, some remaining locations not amenable to burning were disturbed with **trail construction and fill from a major grading project to correct problems along the County road**. These major disturbances are also likely to induce weed problems for several years. It may not look so bad here with so many natives, but it adds up to an acre or more. It may be weedable, but how much can I afford? I will remove the miners' lettuce for a while because it makes the area hard to weed. I'll get it cleaned up before I let it go.



December 2016 – Sample Weeds: Both *Germanium molle* and *Erodium moschatum* respond to nitrate. *Lysmachia arvensis* less so.

There are other weeds with potentially lurking dormant seeds that have not germinated because of insufficient soil nitrate or lack of fire. Hence is a concern that improving soil conditions may lead to an unmanageable problem, one I am beginning to address in patches so that the situation doesn't get out of control.



March 2010 – After weeding hop clover for seven years, then killing the grass bunches, this embankment expressed hop clover in large numbers for another five or six years.

Finally, there are places in which I am dealing with the problems of a successful restoration conducted in the wrong order. In particular, when I built the house, I had seeded red fescue (*F. rubra*) as recommended by the local US Resource Conservation District office. These “native” bunch grasses did their job in suppressing weeds. When I realized that this particular variety was not locally native I took them out and, as expected, up came exotic dwarf hop clover (*Trifolium dubium* - inset). I had been weeding hop clover from around the bunches for many years. I don’t tend to do things that way any more. Weed suppression, as a strategy, may make people happy or control the spread of weeds while getting a handle on things, but it delays cleansing of the “weed bank” and extends intensive labor requirements to achieve dominant native annuals. It is at best a temporary measure, as one will learn after the first disturbance.



February 2015

Obviously, the Wildergarten today does not compare to the miles of wildflowers Starr King and Mayfield described, as quoted in the [site history](#). Does that mean it ever did? Had I been asked that question five years ago, I would have said, “No,” because our soils are so poor and erosive that I doubt this area ever approached that degree of fertility. But from what I have seen happening recently, it may be that it occasionally once resembled it to a degree, albeit on a very different scale because this landscape is so steep and varied. What you see above is that patch of *Dichelostemma capitatum* mentioned in the site history, a bulb very similar to what Mayfield described and certainly thick enough to make a bloom of flowers similar to what enriched his life as the single most powerful experience in all his 85 years. As yet, these are too young to bloom. The broader flowers below them are annuals, *Sanicula crassula*, also grown by the tribes for food and very possibly a commercially valuable spice. But beneath them both may be the real key to what initiated their return.



January 2015

This is the next ridge to the north. This meadow is recovering from an invasion of cudweed I had allowed because it was supposedly native and apparently successful at suppressing exotics. Unfortunately, it sucked the nitrate out of the soil and suppressed just about everything. So I burned and weeded it and the grasses are looking much better. As a bonus, blue dicks are coming up here too over a big area but not as dense, so they are hard to see in this photograph (trust me; they're all over). This patch is less well developed, gets more sun, and less runoff. This spot too first had native forbs for several years, but also grass. There are also soap lilies down-slope, just as there are on the patch to the south that first appeared. Unlike the other patch, these are lying flat on the ground like loose strings of dark green spaghetti, which makes me wonder about a possible lack of silicates, as both potassium and phosphorus are adequate for this system. The culprit is probably soil, as this ridge was once graded off with a bulldozer. Research continues on how to rehabilitate it.



March 2015



Does this mean that I want to make the property look like it once did? No, I want it more varied so as to develop more knowledge because that is my passion and my product. But big patches of wildflowers would be nice. After all, this is the Wildergarten.

THE NUB

Results here show that it is possible to restore a functional native successional system, although we don't have all the species distributed as they once were (that we can't know). But will it ever be PURE? Not in my lifetime. Landslides, gophers, ants, and the difficulty of absolute detection in time preclude that until we have means of removing single species (nanobots, viruses, whatever). That technology will take at least 50 years to be realized and proven safe. In the mean time, 'times a wasting' for what remains of the dormant native seed bank, not to mention their associated microbial symbiotes. As we saw in the chapter [Native Is Not Good Enough](#), If we don't do this work at least in distributed patches, the foundations of the native soil system die forever. This kind of work is not optional; it must be done.

As should be obvious, our results took a decade to accomplish. But for bitter cress, I was almost to the point that I had only native plants in the seed bank with which to play. Yet this isn't only about exotics. I still have to deal with invasive native succession. We only have 14 acres and even managing that is a chore. What about the rest of the hundreds of millions of acres on this continent that remain in trashed condition? How are we ever going to deal with a problem that big?

I'm going to repeat myself a bit and tie some thoughts from several chapters together here. This book isn't just about how to do it, but how to make it affordable and eventually even profitable. To my knowledge, nobody else has done what I have done here, not one major billionaire foundation, government agency, or major university. What this takes is the time and commitment that only come with private property, but what it takes to make it affordable is information systems, tools, and optimized resource allocation management that only comes with free markets.

Where are we going to get the labor? Look around you. Are people under-employed because robotics and information systems have replaced them with free capital financed by the profligacy of government funding various forms of welfare supposedly for said under-employed? This engineer says that robotics are poorly suited to this kind of work: It's dirty, steep, remote from electricity, demands huge amounts of knowledge, and places severe demands on vision and dexterity that are very hard to do electromechanically. Meanwhile, many of the under-employed would benefit from real work and contact with the land. The problem is measuring how well people perform those tasks justly, with which to allocate resources to multiply their efforts with tools that do not yet exist. This is a huge opportunity to create an industry dedicated to stewardship.

Yet how do we orient free markets to act responsibly? The topic of [Natural Process](#) (my first book in 2001) was how to structure markets of property owners trading in management services subject to third party verification and priced by their ability to mitigate actuarially calculated risks to environmental resources; elitists and control freaks need not apply. The real problem is crooks, and they should be in jail. This project was dedicated to proving that technical point; it is not about some weirdo in his garden pulling millions of weeds and putting out thousands of pages nobody will read to justify it.

The next chapter is about how the resources for this project were organized and allocated. The three parts that follow discuss the technologies involved. The concluding part is about the context in which this project operates. Enjoy!



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These are LARGE files; they do take time to load

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References are [HERE](#)

