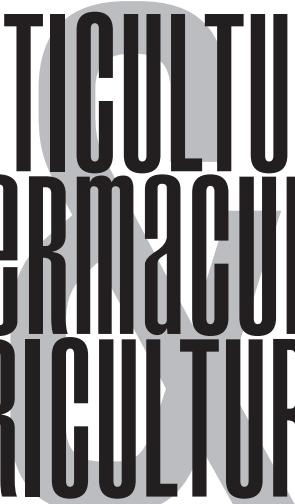


two essays



HORTICULTURE  
PERMACULTURE  
AGRICULTURE



Foragers, Hunter-gatherers and Horticulturalists used (and still in some places use today) the methods above to build soil, create varying habitats of succession, creating more ecotones and increasing biodiversity. Agriculture does not do that at all. If a continuum existed, we would see a decrease in biodiversity in each new phase of the continuum. Because we don't see this, we can guess that agriculture sits outside of that subsistence continuum as a completely different beast all-together.

I would like to note that many people use the term agriculture too loosely. Terms like "sustainable agriculture," make no sense linguistically and from the word's origin. We need to remember to differentiate between agriculture (the field/mono-crop) and horticulture (the garden of forest succession) if we want to see how to live sustainably.

The next difficult part obviously involves how to translate this knowledge to practical use. The question remains; how can we change our subsistence strategies from agriculturaling-supermarkets to horticulturing/hunting/gathering villages? How can we go from stupid-civilized-urban-dweller to rewilding-horticultural-hunter-gatherer-hot-shot?

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## AGRICULTURE OR PERMACULTURE: WHY WORDS MATTER

BY JASON GODESKY // ORIGINALLY POSTED AT REWILD.COM

A FEW YEARS AGO, my mother began gardening in her backyard. She grows tomatoes, zucchini, and other vegetables, as well as herbs and spices. She grows stevia, dill, aloe, and a host of other plants. She's far outdone whatever meager knowledge I've scraped together as a gardener, and I could hardly be more proud. But she's also heard more than a few of my rants about agriculture, and so when she started on this endeavor, she loved to tease me: "Want to see my farm?" She insisted on calling it her "farm," and herself a "farmer," mostly because my face turned such a lovely shade of red.

Of course, it was funny precisely because we all immediately recognize that there's a very real difference between "farming" and "gardening." The images the two words conjure in most of our minds could hardly be more different. What color is farming? Brown. Gardening? Green. What do you farm? Wheat. What do you garden? All kinds of things. Farming is back-breaking labor; gardening is recreational. We could go on, but the point is clear—the colloquial understanding of farming is very different from that of gardening.

And yet, the term "agriculture" is brandied about with such carelessness that it makes the more general term—cultivation—uselessly redundant. When we allow such an overblown definition of "agriculture" to take hold, it begins to make nonsense of our language. Horticulture becomes an agriculture; that is, gardening becomes a particular kind of farming. This is nonsense, in a historical context, and in the framework of general, colloquial understandings. Anthropologically, we know that horticulture—gardening—preceded agriculture.

Even in technical anthropological definitions, this cultural confusion sometimes persists; horticulture will sometimes be called "hoe agriculture" or "swidden agriculture," depending on context. Etymologically, "agriculture" comes from the Latin *ager*, meaning "a field", and *cultura*, meaning "cultivation" in the strict sense of tillage of the soil. A literal reading of the English word yields: *tillage of the soil of a field*. Thus, agriculture is a fairly specific (though extremely common) kind of cultivation; to refer to a type of agriculture that does not involve tilling is certainly taking liberties with the term, at least etymologically. More importantly, it is misleading; tillage is a critical component of the popular understanding of what a "farm" is. Without tilled fields, one can hardly speak of a

farm. Indeed, some anthropologists have honed in on this as the defining distinction between horticulture and agriculture. Consider this definition of agriculture:

Domesticated food production involving minimally the cultivation of plants but usually also the raising of domesticated animals; more narrowly, plant domestication making use of the plow (versus horticulture). (Hunter and Whitten, 1982)

And the matching definition of horticulture:

The preparation of land for planting and the tending of crops using only the hoe or digging stick; characterized especially by the absence of use of the plow. (Hunter and Whitten, 1982)

Another practice sometimes considered crucial is fallowing:

A baseline distinction between agriculture and horticulture is that horticulture requires regular fallowing (length of which varies), whereas agriculture does not.<sup>1</sup>

This again defies our normal understanding of these terms. Medieval serfs used fallowing periods; were they not farmers? Fallowing is often used in very clearly agricultural contexts. It is for complications like these that most anthropologists have abandoned the use of this or that practice to distinguish agriculture and horticulture, and instead look at a “cultivation continuum” of intensity:

plant cultivation carried out with relatively simple tools and methods; nature is allowed to replace nutrients in the soil, in the absence of permanently cultivated fields. (Ember and Ember, 1999)

And:

Horticultural communities may be distinguished from agricultural ones by (1) the small scale of the cultivation, using small plots of mixed crops rather than large field of single crops (2) the use of a variety of crops, often including fruit trees (3) the encouragement of useful native plants alongside direct cultivation (4) continued use of other forms of livelihood.<sup>2</sup>

## PESTICIDES

Foragers and horticulturalists also used burning to keep down insect populations. Civilization uses toxic chemicals that poison not only bugs, but the ground, the water, the birds, and our own bodies.

## PRUNING & COPPIRING

Beaver pruning stimulates willows, cottonwood and aspen to regrow bushier the next spring. Black bears break branches. Hunter-gatherers prune trees too, to encourage larger yields and materials for making tools like baskets.

## MONO-CROPPING?

Horticulturalists don't use this technique. It exists uniquely to agriculturalists. Probably the larger symptom of control and domestication. No weeds in my field!

## SELECTIVE HARVESTING: STRENGTH VS. WEAKNESS

Every animal uses this technique. Wolves thin out the sick and weak deer. Sometimes you take the weak so the strong survive. Sometimes you eat the strong so your poop will fertilize the seed. Selective harvesting shows us that systems evolve to work in cooperation; if we look closely we can see the outcome of our decisions. Domestication also works as a form of selective harvesting, only rather than strengthen the plant or animal it weakens it. I go more into this aspect in Domestication Vs. Rewilding.

## SEASONAL ROTATION

Aside from building strength through selective harvesting, seasonal rotation of lands and food sources, and even yearly rotations allows an area to restore itself from the temporary impacts of the harvest.

Many people also make the assumption that people who practice horticulture long enough eventually begin to practice agriculture. I'd like to suggest the perceived continuum from foraging to agriculture does not exist. I'd like to suggest that a continuum between foragers and horticultural peoples exists, but agriculture appears as a completely different beast. It goes against the fundamental restorative principles that shape the continuum between foraging and horticulture. Therefore, although it uses mostly intensified horticultural practices, it disregards the most basic ecological principles.

pretty rows. I can smell the sweetness of the upturned earth. Tilling works as an artificial catastrophe. Burning also works as a catastrophe but frequent, small-scale burns return nutrients to the soil without killing roots of desired species, eliminates succession and prevents large-scale fires from occurring.

#### SOIL AERATION: STICKS VS. STEEL

Gophers and moles dig holes and aerate the soil. Even foragers use digging sticks for foraging roots, tubers and rhizomes. This breaks up the earth making it easier for the roots to grow as well as aerates the soil. The plow on the other hand, goes too deep and destroys the mycorrhizal network of fungi that distributes nutrients to plants. It also aerates the soil, but it goes too deep and causes the soil to dry too much, which leads to soil loss and erosion.

#### IRRIGATION: STICKS VS. STONE

Beavers build small scale dams with sticks that create flood plains, wetlands and marshes that provide habitat for aquatic life. Humans too have replicated this on a small scale. Civilization builds insanely large dams of stone that destroy the river's life by draining too much water and drying it out.

#### SEEDING

Any squirrel will tell you; if you want to ensure that you have more to eat year after year, plant a few more seeds than you'll dig up to eat during the winter.

#### TRANSPLANTING

Transplanting looks the same as seeding to me. Do you consider a seed a plant? What about seeds that germinate into plants and then grow through rhizomes? Some willow trees can lose a branch, only to have that branch drift down stream and grow into a whole new plant! Wait, would you consider it new if it came from a pre-existing tree? Do they share the same soul? Have I gone too deep for a chapter about horticulture and agriculture?

#### FERTILIZING: POOP VS. PETROL

Shit. We all do it. Poop turns into fertilizer. Controlled burns also work as fertilizer by quickly breaking down dead wood and making their nutrients bio-available. Agriculturalists just import nutrients from other areas, and in the case of oil, from under the ground!

This begins to get us somewhere, but this view carries with it the bias of the agricultural society it came from. We are still looking at cultivation solely in terms of production; we may have widened our view to consider the energy invested in cultivation as well as the food energy such cultivation provides, but there is still lacking from this perspective any consideration of how cultivation relates to the ecology it is based on. In those terms, agriculture and horticulture do not exist on a continuum together, but rather, on opposite sides of a yawning chasm, much of it owing to the nature of the plants that agriculturalists farm.

There is a very narrow group of annuals, however, that grow in patches of a single species and store almost all of their income as seed, a tight bundle of carbohydrates easily exploited by seed eaters such as ourselves. Under normal circumstances, this eggs-in-one-basket strategy is a dumb idea for a plant. But not during catastrophes such as floods, fires, and volcanic eruptions. Such catastrophes strip established plant communities and create opportunities for wind-scattered entrepreneurial seed bearers. It is no accident that no matter where agriculture sprouted on the globe, it always happened near rivers. You might assume, as many have, that this is because the plants needed the water or nutrients. Mostly this is not true. They needed the power of flooding, which scoured landscapes and stripped out competitors. Nor is it an accident, I think, that agriculture arose independently and simultaneously around the globe just as the last ice age ended, a time of enormous upheaval when glacial melt let loose sea-size lakes to create tidal waves of erosion. It was a time of catastrophe.

Corn, rice, and wheat are especially adapted to catastrophe. It is their niche. In the natural scheme of things, a catastrophe would create a blank slate, bare soil, that was good for them. Then, under normal circumstances, succession would quickly close that niche. The annuals would colonize. Their roots would stabilize the soil, accumulate organic matter, provide cover. Eventually the catastrophic niche would close. Farming is the process of ripping that niche open again and again. It is an annual artificial catastrophe, and it requires the equivalent of three or four tons of TNT per acre for a modern American farm. Iowa's fields require the energy of 4,000 Nagasaki bombs every year.<sup>3</sup>

**Agriculture** is cultivation by means of catastrophe.

**Horticulture** is cultivation by means of succession.

**Cultivation** is any animal's conscious effort to promote the growth of particular plant species.

|  | AGRICULTURE                                     | HORTICULTURE                                  |
|--|---|---|
| <i>Relationship with Succession</i>                                | Catastrophe                                     | Promoter                                      |
| <i>Emulation of catastrophe</i><br>(e.g., tilling, flooding, fire) | Always  | Rarely  |
| <i>Allowing succession</i><br>(e.g., fallowing)                    | Sometimes                                       | Always  |
| <i>Monocropping Crops</i>  | Always<br>Small variety of successional species | Never<br>Wide variety of successional species |
| <i>Role of native plants</i>                                       | Death to Weeds!                                 | Essential to garden health                    |
| <i>Place in society</i>  | Sole (or nearly sole) food source               | Mixed with various forms of foraging          |
| <i>Wilderness</i>  | Wasted cropland; home to vermin                 | Precious resource; valued hunting grounds     |

What divides agriculture and horticulture is less a question of a particular technique or even the intensity of investment, but rather, the ecological effect of their strategies. Horticulturalists in the New World created the Amazon rainforest and the Great Plains.<sup>4</sup> By the same token, the first farmers laid waste to the cedar forest that once covered the Middle East and turned the Fertile Crescent into a wasteland. So here we have a workable definition: *agriculture is cultivation by means of catastrophe*. Tillage emulates catastrophe, and the plow is a catastrophe-emulating machine. By contrast, *horticulture is cultivation by means of succession*. Fallowing allows succession to advance; the lack of tillage and the plow is merely the lack of artificially-induced catastrophe to set back succession.

Both of these, then, can be seen simply in terms of biological succession—the process by which ecological communities achieve maximal complexity and diversity, and then establish a sustainable, “old-growth” character. Agriculture is cultivation that relies on suppressing succession. Weeds, “vermin,” and constant tilling—the back-breaking work we intuitively associate farming with—is the constant labor necessary to keep succession from taking over. Horticulture, on the other hand, works with succession and helps succession along, though it channels succession into specifically human-adapted paths, favoring plants and animals that humans favor. Nonetheless, horticulture, to one degree or another, depends on succession taking place, while agriculture is a constant fight against succession.

As ecosystems mature, biomass and complexity increase. Ecologist Ramon Margalef, in his landmark 1963 paper, “On Certain Unifying

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## HORTICULTURE VS. AGRICULTURE

BY PETER BAUER // ORIGINALLY POSTED AT URBANSCOUT.ORG

**M**ANY PEOPLE HAVE a difficult time understanding the differences between horticulture and agriculture. This may occur because some agricultural strategies cross over into horticultural strategies. Linguistically the term agriculture comes from the combination of the Latin words *agri* (field) and *cultura* (cultivation). Horticulture comes from the combination of the Latin words *hortus* (garden) and *cultura*. Cultivating a field vs. cultivating a garden. We can see the implications of agriculture’s mono-cropping primary succession plant obsession in its very origin. We can also see the implications of horticulture’s diversity of plants and smaller-scale style through its origins.

The real determining factor involves the results of how the strategy affects the land; does it create more biodiversity or less? Does it strengthen the biological community or weaken it? It seems like a good idea to create a list of horticultural and agricultural strategies and reveal how and why you can use them to create more life, or misuse them to create less.

Agriculture uses strategies of cultivation such as transplanting, seeding, tilling, burning, pruning, fertilizing, selective harvesting, crop-rotation, etc. But the main difference between agriculture and horticulture involves agriculture’s focus on using these tools to create one habitat; the meadow or “field.” Horticulture uses the same strategies of cultivation to promote ecological succession and diversity of landscapes. Let’s go through and find out for ourselves.

### CATASTROPHE: BURNING VS. TILLING

When I hear the word “tilling,” the classic image of a farmer and his plow pop into my head. I can see the deep trenches it has cut into the land in

Where this system breaks down—for instance, in New Guinea, where domesticated pigs eliminate some of the need for hunting—we see the border-line cases of where agriculture develops. Alongside this, we also see the phenomenon of the Melanesian “Big Man” and the breakdown of the egalitarian societies that inhabit the hunter-gatherer/horticulturalist continuum, from simple band societies at the hunter-gatherer extreme, to more complex tribal societies at the horticultural end. Where reliance on wild foods ends, cultivation tips from horticulture to agriculture, societies tip from egalitarian to hierarchical, and ecological impact tips from beneficial to disastrous. These are all deeply related phenomena.

The distinction of “agriculture” from “permaculture” may seem quibbling or even pedantic, but it strikes directly to the heart of this phenomenon, the most important change in human history. As members of a culture on one side of that historical divide, we are naturally inclined to see our way as the only way, even though it is the novel, untested way. To call horticulture or permaculture a subspecies of agriculture is one symptom of this, a semantically Freudian slip that evinces and reinforces a much deeper cultural conviction, and a much deeper cultural narrative. By transforming the living world into nothing more than a unit of production, agriculture trains us to see all cultivation not in terms of ecological relationship, but as an economic equation of energy in and energy out. It makes our scale one of how much we modify the ecology, rather than the kind of modifications we make. Intrinsic to this view is our mythology of humans vs. nature, reflected most recently in the Romantic view of “wilderness,”<sup>9</sup> but stretching back even further, to be found in the struggles of “human vs. nature” set up in *Antigone* with Antigone and Creon, and before that, in the Platonic dualism of the world of Forms, a mythic narrative of the literate mind.<sup>10</sup> That is to say, what compels us to see horticulture as a kind of agriculture is precisely the underlying problems that define agriculture itself. Stepping beyond that gets us past clumsy phrases like Quinn’s “totalitarian agriculture,” aligns us with our colloquial understanding of the differences between “farm” and “garden,” and sets us in a point of view that immediately highlights the most fundamental crisis of our time: the catastrophic nature of agriculture, and the hope we still have in horticulture.

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Principles in Ecology” (*American Naturalist* 97:357-374), suggests we think of biomass as “a keeper of organization, something that is proportional to the influence that an actual ecosystem can exert on future events.” In other words, we can think of biomass, complexity, and the other indicators of maturity as measures not only of the resilience of a system, but as a form of wisdom. That’s because as ecosystems mature, the aftermath of environmental tumult such as storm or drought depends more on the richness of the ecosystem than on the nature of the disturbance. A drought that withers a weedlot doesn’t faze an old-growth forest—the forest has learned what to do with drought. It has grown structures, cycles, and patterns that convert nearly any outside influence into more forest, and that protect key cycles during bad times. It has become wise.<sup>5</sup>

From this perspective, we can see that “sustainable agriculture” is an oxymoron.<sup>6</sup> It also suggests a very different interpretation of passages like that found in Isaiah 2:4: “And he shall judge among the nations, and shall rebuke many people: and they shall beat their swords into plowshares, and their spears into pruninghooks: nation shall not lift up sword against nation, neither shall they learn war any more.” As Daniel Quinn has suggested, agriculture is not an alternative to war, but simply an alternative war.

This is a great and famous image of people turning from war to peace—unless you happen to be in the habit of following my rule. If you turn this lined paper sideways, what you see in this business of beating swords into plowshares and spears into pruning hooks is not people turning from war to peace but rather people turning from one war to another war—from an inTRAspecies war to an inTERspecies war. From the conquest of nations to the conquest of nature—the mythological war that the people of our particular culture have been waging here for the past ten thousand years.

The plowshare has always been understood by the people of our culture as the sword they follow across the face of the earth. They followed it out of the Fertile Crescent eastward to India and China, they followed it northward into Europe, and finally they followed it westward into the New World.<sup>7</sup>

But neither does this indict all types of cultivation, because cultivation does not need to be a literal world-wide catastrophe; it can also be a pro-active human involvement in succession, and can allow us to take some part in rewilding the species we’ve domesticated and healing some of the ecological damage we’ve caused. This brings us to the question of

*permaculture*, originally conceived of as “permanent agriculture” with the same, hyper-extended sense of the term that eliminates the word “cultivation” entirely. Later, it was revised as “permanent culture.” One of the movement’s two founders, David Holmgren, put it thus:

“The word permaculture was coined by Bill Mollison and myself in the mid-1970s to describe an “integrated, evolving system of perennial or self-perpetuating plant and animal species useful to man”. A more current definition of permaculture, which reflects the expansion of focus implicit in *Permaculture One*, is “Consciously designed landscapes which mimic the patterns and relationships found in nature, while yielding an abundance of food, fibre and energy for provision of local needs”. People, their buildings and the ways they organise themselves are central to permaculture. Thus the permaculture vision of permanent (sustainable) agriculture has evolved into one of permanent (sustainable) culture.

Bill Mollison offers a definition, as well:

The aim is to create systems that are ecologically-sound and economically viable, which provide for their own needs, do not exploit or pollute, and are therefore sustainable in the long term.

Permaculture uses the inherent qualities of plants and animals combined with the natural characteristics of landscapes and structures to produce a life-supporting system for city and country, using the smallest practical area.

The fact that so many favorite permacultural techniques—enhancing edge, intercropping, guilds, and even many of Fukoka’s techniques like seedballs—are to be found among horticultural cultures around the world, is certainly instructive. Is there anything that can distinguish permaculture from horticulture? To date, I have been unable to find anything, leading me to the conclusion that permaculture is largely re-inventing the horticulturalist wheel. To what extent modern permaculturalists learn from primitive examples, the fusion of modern ecological principles with indigenous knowledge could produce precisely the kind of syncretic practices that we so desperately need in the shadow of agriculture’s global catastrophe.

Such potential is enormous; in her powerful article, “Ecological Collapse, Trauma and Permaculture,” trauma survivor Lisa Raynor outlines the striking similarities between the trauma of ecological collapse, and the personal collapse involved in trauma, as well as the ecopsychological

connections between the two. She also details the similarities between permaculture and trauma therapy, and the potential for permaculture for healing the trauma of agricultural catastrophe.

While the so-called “cultivation continuum” between agriculture and horticulture is problematized by opposing relationships with succession that mark a clear ecological distinction between the two, there is a smooth continuum from horticulture/permaculture and hunter-gatherers. The world has never seen a “pure” hunter-gatherer society that never uses any kind of cultivation techniques. Some come much closer than others, but even the most extreme will scatter seeds or leave more of one plant behind than another so that there will be more of it the next year. Hunter-gatherers have typically used fire to reshape ecologies on a large scale, for instance, or cultivated vast “food forests” in which they foraged.

Until the late 20th century, western anthropologists studying both ancient and current tropical cultures viewed equatorial agriculture as primitive and inefficient. Archeologists thought the methods were incapable of supporting many people, and so believed Central and South America before Columbus—outside of the major civilizations like the Aztec, Maya, and Inca—held only small, scattered villages. Modern anthropologists scouted tropical settlements for crop fields—the supposed hallmark of a sophisticated culture—and, noting them largely absent, pronounced the societies “hunter gatherer, with primitive agriculture.” How ironic that these scientists were making their disdainful judgements while shaded by brilliantly complex food forests crammed with several hundred carefully tended species of multifunctional plants, a system perfectly adapted to permanent settlement in the tropics. It just looks like jungle to the naive eye.<sup>8</sup>

The farm is a unit of human food production. If some plant finds its way into it, it is a “weed”; if some animal, “vermin.” “Weeds” and “vermin” must at all costs be eradicated, because cultivation by means of catastrophe creates a situation of constant scarcity and deprivation. Historically, the world’s “famine centers” have always been its agricultural centers (Manning, 2005). By contrast, horticulture/permaculture routinely creates rich habitat for other species, and even encourages it, in large part because, unlike agriculture, horticulture is not self-sufficient.

Just as no hunter-gatherer goes through life without some kind of cultivation, it is also true that no horticulturalist culture gets by without some measure of hunting and gathering. Even the most intensive horticulturalists rely on hunting for supplemental protein and gather wild-grown plants to supplement their diet. What permaculture establishes as a “good idea” or ethical imperative in “zone 5,” horticulture demands as an economic necessity for rich hunting grounds.