

Why embracing the “unnatural” can help us improve on—and preserve—nature

Can we improve on nature? Short answer: yes.

Ponder the inverse: we cannot improve on nature. Therefore, nature is the best at everything—including agriculture. Is a field of grass, hypothetically untouched by human hands, the most productive, sustainable, and ecologically balanced grain-producing system? No, it is obviously not, [argues agronomist Andrew McGuire at BioFortified](#).

McGuire takes the idea that “nature knows best” to task, pointing out that natural ecosystems are not optimized nor exquisitely balanced—rather they are the byproduct of interactions between many competing species and their nonliving environment.

He’s rebelling against what he sees as a pervasive (and pernicious) perspective on modern farming that romanticizes nature:

Behind many efforts to make agriculture more sustainable is the idea that our farming systems need to be more like nature. According to agroecologist Miguel Alteri, “By designing farming systems that mimic nature, optimal use can be made of sunlight, soil nutrients, and rainfall.” This strategy arises from a long history of thinking that there exists a “balance of nature.” This idea has greatly influenced how we look at nature and agriculture. In the latter case, it drives much of what is done in organic farming and agroecology, but also finds its way into no-till farming. Nonetheless, it is false, and because it is false we can abandon the restrictive “nature knows best” argument in designing agricultural systems. Instead, we can improve on nature.

McGuire limits his discussion to agriculture: I’m extending his argument.

First of all, we already are improving on nature. We have been since our inception as a species.

Take medicine for example—aspirin specifically. Willow bark was used in antiquity as an analgesic. Once science identified the active compound behind the benefit (salicylic acid), we were able to produce a medicine without needing to harvest willow bark. Nature may have come up with the active compound, but we’re the ones who turned it into an effective and widespread treatment for pain and fever.

It’s important to point out that nature had no interest in curing our headaches. The usefulness of salicylic acid to humans is coincidence, not design. We identified a useful property in nature and extracted, expanded, and—yes—improved it.

Eradicating smallpox is another example. In this case, we didn't co-opt natural invention for our benefit: we wiped one out. Smallpox was making us sick, and we decided the costs of its continued existence outweighed the benefits, so we removed an organism from the globe. We intentionally caused an extinction, and we haven't looked back since.

The lumber provided by trees or the grain by grasses is just another aspect of the natural world we've made use of. If you go out and weed your garden, you're improving nature for your needs and the needs of the plants you want to grow. With our wheat farms, we improved on grassland ecosystems and carefully bred grasses so that they would produce more food for us. Now arguments are raging over whether we are going too far by extending our "improvement" efforts to include direct manipulation of wheat genetics. Taking a long view of our history, it seems like a logical progression.

Embracing the "unnatural" could help save nature. And, I should note, I want to save nature. My business card lists "naturalist" as one of my professions. I write [natural history essays](#) in addition to my work at the Genetic Literacy Project. Standing alone at the edge of a marsh while the sun sets taking in the dusk chorus of frog- and bird-song gives me a heady transcendentalist buzz.

What McGuire taps into is a larger cultural debate that's rippling through all discussions of conservation, environmentalism and sustainability as we speak. The old guard (and its offspring, the modern green movement) says the only way to preserve nature is to try to integrate with it, to learn how it manages its (perceived) state of perfect balance and how to live within that balance without upsetting it.

The irony is that heavily redesigning natural systems to meet our specific needs, may enable us to minimize our overall environmental impact.

Despite our increasingly electronic society, we still use staggering amounts of paper. This paper comes from trees. Is the best solution for sustainable paper production to try to harvest trees from natural forests while disturbing the natural order as little as possible? This is what we generally think of when we hear the word "sustainable." We're banking on the fact that our understanding of natural forests is such that we can make informed choices that will give us the paper we want without harming the natural systems we want to preserve.

Recent efforts to [genetically engineer poplar trees to be easier to break down into pulp for paper](#) offer another avenue toward sustainability. Poplar is also a good tree for farming because it grows quickly and takes up relatively little space. Might not a well-designed farm comprised of genetically engineered poplar be sustainable as well—after all, getting our paper from a specific piece of land optimized to meet our goals would spare natural forests from tampering. Wouldn't no tampering at all still be preferable to sustainable tampering?

McGuire's argument about agriculture—that to move forward we must abandon all pretense of using nature as our only model and supplement it with artificial ecosystems to produce our food—is not just a good perspective on modern agriculture, genetic engineering included. It's not just a good perspective on genetic modification in general, since the same logic applies to genetically modifying humans to treat

disease.

In the [Anthropocene](#), we need to accept that we are (and have been, and will be) constantly manipulating nature to meet our needs, the same way a beaver will dam a river to create a pond. No living thing thrives without some unintended impact (read: harm) on its environment. As humans, however, we're able to consider the harm we're causing. We're able to minimize it.

Embracing the unnatural may just be the best way to preserve nature.

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