

Save the World: Kill Your Lawn

by Erin Hanton

It is the year 2021, and we are immersed in a global climate crisis. The Earth is getting warmer by the day, catastrophic storms are increasing in severity and frequency, and the future of humanity in addition to every other species on Earth is in question. How did we get here? While we know that the Earth's climate has changed significantly over the last 650,000 years, having gone through several warming and cooling cycles, ending with the dawn of human civilization, we also know that the current warming trend is due to the increase of greenhouse gases in the atmosphere, produced primarily by human activity (Causes). If we want to live on a habitable planet in the future, or for our children and grandchildren to be able to, we are going to need to do something about it as soon as possible. A problem like this one, which encompasses the entire planet, is a difficult one to solve, and may even seem impossible when dealing with so many different types of people and governments with a variety of beliefs, and nobody wants to take responsibility for the future of our very existence. Luckily, there is something that we can do to cut back on greenhouse gases put forth into the atmosphere by a significant amount, and it's something that can be done in almost every state, city, and tiny hamlet in the United States. Kill our lawns. Replace the non-native, grassy lawns of mid-20th century America that add more greenhouse gases to the atmosphere than they absorb through photosynthesis (Hitchler) with native greenery that requires less energy to maintain, supports and balances local ecosystems, and can be just as beautiful and functional.

As children, we are taught in elementary school about the process of photosynthesis and how plants absorb carbon dioxide and put out oxygen. What we aren't taught is that when it comes to their impact on the amount of greenhouse gases in our atmosphere, and therefore their impact on climate change and its catastrophic effects, not all plants are created equal. While on the surface it may seem like vast, well-cared for, lawns that cover almost 2% of the entire U.S. (Lindsey) would be good for the environment, with all those little green sprouts absorbing carbon dioxide, the reality is that a standard American lawn emits five or six times more carbon dioxide than it absorbs during photosynthesis (Gu).

How can this be true? The truth is that Americans invest billions of dollars per year in turfgrass, including lawn care products and engaging lawncare companies. These turfgrass lawns require more equipment, labor, fuel, and use more agricultural toxins than industrial farming in the U.S., making them the largest agricultural sector in the country (Hitchler). Every bit of having a turfgrass lawn contributes greenhouse gases to the atmosphere. Turfgrass is not native in most cases, so obtaining, packaging, transporting, and spreading seed all requires equipment fueled by carbon as well as packaging made from carbon products. That is just the beginning. Once the lawn has been seeded, then more significant contributions to climate change begin.

Turfgrass requires a lot of maintenance to grow in most areas of the United States. It requires fertilization, hydration, and regular mowing. Fertilizer is one of the largest contributors to climate change in the world of lawn maintenance. Just the production of fertilizers consumes more than one percent of the world's energy and is responsible for another one percent of greenhouse gas emissions globally (Jenssen). Americans use 45,000 tons of fertilizers on their lawns each year, an amount which is estimated to contribute 90,000 tons of carbon dioxide into the atmosphere just through its manufacture. Nitrous oxide emissions created when the nitrogen in fertilizer isn't absorbed by plants alone lead to an estimated total equivalent of 25 million tons of carbon dioxide each year in the U.S. (Gu). In addition, using fertilizers results in less sequestration of carbon dioxide in the soil, leaving it to be released into the atmosphere (Hitchler).

Once your lawn is fertilized, you may also spread pesticides onto it to keep it healthy and free from bugs, but pesticides are also a climate change contributor. Most pesticides are manufactured using petroleum products, in addition to the energy expended manufacturing and transporting them to their eventual place of use. Even watering your lawn contributes to climate change. A large amount of energy is used purifying, transporting, and irrigating water, 30-60% of which is used to water lawns in most municipalities (Lindsey). After your lawn is planted, fertilized, bug-free, and sufficiently hydrated though, now it's growing; and growing turfgrass means mowing.

While the use of electric mowers is on the rise, gasoline powered mowers are still dominant in the world of lawn care, accounting for all commercial mowers owned by lawncare companies, and most household machines. In addition to the

emissions produced in the manufacture, transport, and disposal of millions of mowers to supply demand, between 16 and 41 billion pounds of carbon dioxide is emitted from the use of lawn mowers each year (Hitchler). While people around the world are trying to cut back on travel or upgrade to more fuel-efficient vehicles, they continue to use gasoline powered lawn mowers, one of which produces eleven times more pollution than a new car (Banks). The negative climate impact doesn't even stop after the lawn is mowed. Most grass clippings in the U.S. are taken to landfills, where they produce methane as they decompose, a greenhouse gas approximately 21 times more potent than carbon dioxide (Hitchler).

So, what do we do about it? How could we get rid of our lawns? Luckily for us, there are answers for every lawn-owning citizen in the country, and they don't have to be all or nothing. Ideally, we would all replace our turfgrass with native plants that require fewer resources to survive. That may look different to different people. If you are someone who loves the vast green groundcover of lawn, there are several low maintenance options to use to replace your turfgrass with. Plants like sweet woodruff, red creeping thyme, clover, dutch clover, and even some varieties of chamomile can provide all the benefits of turf grass with little to no fertilizing, mowing, or watering, and many of them are naturally pest resistant, requiring no need for pesticides (10). While this wholesale replacement of turfgrass should be the end goal, it can be overwhelming, improbable, or even illegal in some jurisdictions to accomplish. Which is why it is important to emphasize how every little bit helps.

If you want to help decrease the carbon footprint of your lawn but aren't able to replace all of your turfgrass, there are still things you can do. We can start by challenging obstacles at the local level, by asking our city governments to overturn or amend ordinances requiring turfgrass landscaping and punishing the presence of ecologically helpful "weeds" like dandelions. When it comes to your individual lawn, reducing the coverage area of turfgrass is a good start. Plant trees or patches of plants that are native to your area and will contribute ecologically to your yard in addition to absorbing and storing more carbon than caring for them produces. Plant a patch of ornamental grasses for a high impact around your patio. Seed those shady places where turfgrass is particularly difficult to grow with sweet woodruff or violets. In addition, reduce the amount of high emission producing care you lavish on the turfgrass that remains. Cut back on or stop the use of fertil-

izer and pesticides. Let your grass grow close to your locality's height limit between mowing. Leave clippings to decompose on your lawn to help carbon stay in the soil instead of sending them to a landfill.

While climate change can seem like an insurmountable problem to us individual consumers, how we choose to manage our personal lawns is a way for every landowner to make a positive impact and help preserve the future of our planet. We can be comforted knowing that replacing turfgrass is a net benefit to more than just our climate, and turfgrass contributes almost nothing to our local ecosystems while taking a lot away from us. Redirecting our resources away from turfgrass and towards areas where it is truly needed would benefit our climate, air and water quality, and more in addition to lowering the amount of greenhouse gases in our atmosphere. So, let's all band together to save the world; all we must do is kill our lawns!

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