Global Issue Essay:

The Ethics of Lawn Mowing

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Having finished my schoolwork for the day, I slip out the front door to go on a run, and my mind is overcome with peaceful bliss. However, my wave of contentment is quickly met with the loud roar of lawn mowers being turned on by our landscapers, who were just arriving and getting set to work on the extensive yard in front of my family's home. My front yard, which is about the size of a professional baseball diamond, does not even look to my untrained eye that it really requires care at the moment. I continue to stand right outside the door, as two workers hop on drivable lawn mowers and two more turn on gas-powered trimmers. The workers each begin working at opposite ends of my yard, and I continue to watch curiously, noting the slight decrease in the length of the grass that results from being run over with the lawn mower. As an undergraduate student studying Environmental Science and Policy, I cannot help but question the sustainability of the work being carried out in front of me.

There is a plethora of scientific literature chronicling the environmental damages that result from lawn mowing, particularly in regard to its negative impact on local ecologies. In a meta-analysis of data from 15 years of studies in North America and Europe, scientists working for the British Ecological Society found strong statistical evidence indicating that invertebrate and plant diversity is lower in lawns subjected to higher mowing intensities.[1] Such a loss in biodiversity can have numerous negative effects that cascade throughout ecosystems and impact humans directly. For example, the loss of pollinator insects–such as bees, butterflies, and beetles–is particularly worrying in the context of lawns that are frequently mowed. Through the process of pollination, pollinating insects spread pollen grains, containing male plant sex cells, from one plant to another, allowing for reproduction to take place. However, frequently mowed grass lawns are a hostile environment for these unique and important insects. While there are

[1] Watson, C.J., Carignan-Guillemette, L., Turcotte, C., Maire, V., & Proulx, R. (2020). Ecological and economic benefits of low-intensity urban lawn management. *Journal of Applied Ecology, 57*, 436– 446. https://doi.org/10.1111/1365-2664.13542

other pollinators that are more or less unaffected by the existence of lawns, like the wind and some mammalian species, it is pollinating insects that do the vast majority of pollination throughout the United States and worldwide. Without these insects, it is not an exaggeration to say that humans would go extinct. According to the United States Forest Service, which is part of the federal Department of Agriculture, nearly 80% of all global crop plants are dependent on pollinator species.[2] In addition to providing agricultural products, humans also rely on plant reproduction for essential regulatory functions, such as sequestering carbon dioxide in the air, purifying water, and preventing soil erosion.

While increasing the population of pollinating species is certainly both an intelligent and socially responsible reason to change one's lawn care practices, I also feel that it is necessary to consider the aesthetic value of a trimmed grass lawn. As a kid who grew up with a big yard, few activities brought me more joy than playing pick-up soccer with my friends in my front yard. To be honest, I'm not sure how receptive 10 year-old me would have been to the idea of having an unmowed lawn, even if there was a smart reason to do so. Even now, as a liberal minded college student, I think that the idea of a total ban on lawn mowing is far too extreme, especially in places like public parks where a lot of different people can enjoy the outdoor space. I certainly would be mad if the University of Maryland decided to stop mowing the lawn at McKeldin Mall, the main quad area at the heart of campus. Thus, the question still remains: How should society balance the trade-off between the aesthetics and sustainability of manicured lawns?

The obsession that us Americans have with meticulously trimmed lawns traces all the way back to colonial Europe, and author Virginia Scott Jenkins explored this deep rooted history in her book *The Lawn: A History of American Obsession*.[3] As Jenkins notes in her book, the

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[2] *Why is Pollination Important?*. (n.d.). United States Forest Service. Retrieved March 25, 2023, from https://www.fs.usda.gov/wildflowers/pollinators

[3] Jenkins, V. A. (1994). *The Lawn: A History of American Obsession*. Smithsonian.

concept of the modern lawn was initiated in 1660, when the *tapis vert*, which means "green carpet" in French, was first installed at the Palace of Versailles in France. Throughout the 17th- and 18th-centuries, the lawns at Versailles continued to be expanded through massive landscape design projects spearheaded by French royalty. During this period, aristocrats in France and England began embracing the trend, and by the time of the American Revolution, the lawn had become cemented throughout Western Europe as a status symbol denoting one's elite social status. At this point, the status symbol took a hop across the Atlantic Ocean, with prominent American figures such as George Washington and Thomas Jefferson adopting the landscape style for the land surrounding their extravagant homes. In the context of these historical events, it makes sense that more Americans began growing lawns to accompany their houses during the second half of the 19th-century. After all, it was during this time period, post-Civil War, that suburban housing started to actually become somewhat common in the United States. Then, it was in the 1950s, post-World War II, that lawns were truly solidified as a core component of achieving the American dream, as there was a mass exodus from cities to suburbia throughout the United States at this time. Simply put, more suburban houses meant more lawns.

Fast forward to today and we are still continuing to embrace lawns as the supreme landscape design. In fact, many homeowner associations even require local residents to maintain regularly trimmed grass lawns. In 2005, the National Aeronautics and Space Administration even decided to quantify the extent of our infatuation with lawns, estimating based on satellite images that about 2% of land in the contiguous United States is covered in cultivated turf grass landscapes.[4] While the average American may not perceive this fact to be problematic, the

[4] Milesi, C., Running, S.W., Elvidge, C.D., et al. (2005). Mapping and Modeling the Biogeochemical Cycling of Turf Grasses in the United States. *Environmental Management, 36*, 426–438. https://doi.org/10.1007/s00267-004-0316-2

scientific literature on the issue demonstrates the large-scale environmental degradation resulting from all of these lawns.

Lawns, particularly those that are frequently trimmed, are a hostile environment for pollinating insects, and for this reason, the American obsession with lawns represents a significant factor contributing to the decline of pollinators throughout the United States. Due to the sheer number of pollinating insect species (according to a 2007 report written by the National Research Council, there are about 200,000 species of pollinating animals, of which the vast majority are insects) and limited historical data regarding them, it is extremely difficult to pin down exactly how serious recent declines have been.[5] However, in recent decades, there have been increasing efforts to monitor the population levels of some particularly important pollinating insects. For example, honey bees were the primary focus of a 2014 Presidential Memorandum from the Obama Administration, which emphasized how honey bees alone provided $15 billion worth of pollinating benefits every year for the United States agriculture sector.[6] Unfortunately, honey bees are experiencing increasingly severe population declines. According to data from the Bee Informed Partnership, a national collaboration of leading labs and universities in agricultural science, honey bee colony populations in the United States have declined at an average yearly rate of 40% since data collection began in 2006.[7] Perhaps most distressing is the fact that there has been no signs of improvement, as the most severe episodes of population decline have all come in recent years, with April 2020 to April 2021 experiencing the highest rate of 51%. In addition, many other once common pollinating insects are also in sharp

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[5] National Research Council. (2007). Status of Pollinators in North America. *The National Academies Press*. https://doi.org/10.17226/11761

[6] Obama, B. (June 2014). *Presidential Memorandum -- Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators*. The White House of President Barack Obama. Retrieved March 30, 2023, from https://obamawhitehouse.archives.gov/the-press-office/2014/06/20

[7] Aurell, D., Bruckner, S., Wilson, M., Steinhauer, N., & Williams, G. (July 2022). *United States Honey Bee Colony Losses 2021-2022: Preliminary Results From The Bee Informed Partnership*. Bee Informed Partnership. Retrieved March 30, 2023, from https://beeinformed.org/2022/07/27/united-states-honey-bee-colony-losses-2021-2022

decline. According to the California Department of Fish and Wildlife, one quarter of all North American bumble bee species are threatened with extinction.[8] Another once common pollinating insect, the migratory monarch butterfly, known for their educational value in teaching bright-eyed elementary schoolers about the process of metamorphosis, was designated as an endangered species in July 2022 by the International Union for Conservation of Nature.[9]

All this being said, it is worth noting that lawns are not the only thing to blame for the loss of pollinating insects. According to the Department of Entomology at Pennsylvania State University, overlapping factors such as habitat fragmentation, climate change, and the spread of pathogens and parasites are the most significant reasons for the recent decline in pollinating insects.[10] However, we surely should not use the excuse that lawns are only part of the problem to justify the continuation of the destructive practice. While changing our landscapes is not the only solution needed to stabilize pollinator populations, it is still a necessary change.

It is also worth noting that fragmenting the habitats of pollinating insects, while being the most consequential environmental effect of lawns, is certainly not the only example of a resulting negative impact. For example, compared to other landscape designs, lawns typically require significantly more water and pesticides to maintain. According to the Natural Resources Defense Council, every year across the United States, lawn cultivation and maintenance consumes about 3 trillion gallons of water and 70 million pounds of pesticides.[11] In areas that are already water scarce, like California, water consumption from lawns exacerbates the water stress that

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[8] *Science: Pollinators*. (n.d.). California Department of Fish and Wildlife. Retrieved March 30, 2023, from https://wildlife.ca.gov/Science-Institute/Pollinators

[9] *Migratory monarch butterfly now Endangered - IUCN Red List.* (July 2022). International Union for Conservation of Nature. Retrieved March 30, 2023, from https://www.iucn.org/press-release/202207

[10] *Disappearing Pollinators*. (n.d.). PennState College of Agricultural Sciences. Retrieved March 30, 2023, from https://ento.psu.edu/research/centers/pollinators/resources-and-outreach/disappearing-pollinators

[11] Talbot, M. (September 2016). *More Sustainable (and Beautiful) Alternatives to a Grass Lawn*. Natural Resources Defense Council. Retrieved March 30, 2023, from https://www.nrdc.org/stories/more-sustainable-and-beautiful-alternatives-grass-lawn

communities experience. Furthermore, the use of pesticides on lawns leads to runoff of nutrients like nitrogen and phosphorus, and this pollution can cause bodies of water to become “dead zones” for marine life as a result of eutrophication. Another negative environmental impact from lawn maintenance is the large amount of gas used to power lawn mowers. According to the Natural Resources Defense Council, Americans use 200 million gallons of gas annually for mowing lawns. This translates to nearly 1.8 million metric tons of carbon dioxide, equivalent to the yearly emissions of about 386,000 American passenger vehicles. Thus, it is certainly fair to say that lawns pose extensive environmental damages, even beyond their drastic impact on pollinating insects.

So where does all of this leave us? How can we design our yards to be more sustainable? And perhaps most importantly, can these more sustainable options match the aesthetic pleasure we derive from transitional lawns? To help me answer these questions, I talked to my good friend Matt Prinn, who is a senior undergraduate student studying Environmental Science and Technology at the University of Maryland. Within his major, Matt has specifically chosen to take classes focusing on Ecosystem Health and Sustainable Environmental Management, and as a result, he feels quite vehemently that American homeowners should spend more time considering the environmental impact of their yard. In our discussion, Matt told me that most people will likely have to start from scratch if they want to turn their yard into a space that is both environmentally friendly and looks nice. “You could just stop mowing your lawn and let the grass grow super long. This sort of lawn is good for the environment, but the aesthetics are pretty hectic. If you really want a yard that is both good for the environment and looks nice, you have to put more work in to remake the whole landscape.”

Starting from scratch sounded like a lot of work to me, and Matt was quick to assure me that it is indeed quite an extensive process. “Tons of work. That’s why I can get paid for knowing how to do it. I enjoy it though, especially when I know my work is also making the landscape more eco-friendly than it otherwise would be.”

I asked Matt to describe to me what he meant by starting from scratch. I wanted to understand what someone could plant in their yard to make it both eco-friendly and aesthetically pleasing to the eye, if not typical turfgrass. “It's not about having absolutely zero turfgrass,” Matt told me. “It’s more about making sure that turfgrass takes up a relatively small portion of the yard, and ideally you would only trim it occasionally. Some turfgrasses, like fescue turfgrass, barely have to be trimmed at all. Some people don’t like the way they look, but I personally think they look nice. I think some people are just resistant to anything that doesn’t look like the traditional turfgrass lawn they’re used to seeing.”

Example of a lawn with fescue turfgrass. Image from The Spruce.[12]

After Matt showed me a photo of fescues turfgrass, I fully supported his position, but I still had one question. If turfgrass should ideally only make up a small portion of the yard, what should people do with the remaining area? Immediately after I asked my question, Matt seemed

[12] Burke, K. (June 2022). *What Is Fescue Grass?*. The Spruce. Retrieved March 30, 2023, from https://www.thespruce.com/fescue-grass-versatile-not-just-for-shade-2153122

glad to be given the opportunity to provide even more specific recommendations, as he began to speak with more enthusiasm. “The best way to fill up the rest of the yard is with plant or tree species that are native to the area you live in. It is not essential that the species is native to your area, but you should at least do your research to make sure that it will thrive in your local conditions based on factors like the temperature and precipitation patterns of where you live. It’s also important to make sure that the plant you choose to grow in your yard is not an invasive species, since that would lead to all sorts of problems with your ecosystem. If you search online you should be able to find a list of plant and tree species that are native to your area, and you should also be able to figure out what species are invasive.”

Matt and I took a look at the Maryland Department of Natural Resources website and found some resources for Marylanders. For one, we came across the Maryland Plant Atlas, which is a frequently updated list of plant and tree species native to Maryland.[13] We also came across links to lists of Tier 1 and 2 invasive species in Maryland, and we even came across a page on lawn alternatives that included a list of turfgrass species native to Maryland that require little to no trimming.[14]

After my conversation with Matt, I was left with the feeling that making a yard that is both environmentally friendly and visually pleasing is certainly doable if one is willing to commit to doing quite a bit of manual labor, in addition to some research. Still, I was skeptical of whether we as a society were willing to take it upon ourselves to change our yards to be more sustainable, especially if it involved abandoning the traditional turfgrass lawn. To put this question to the test, I stood in front of McKeldin Mall for an hour with two pictures, one of a

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[13] *Maryland Native Plant Resources*. (n.d.). Maryland Department of Natural Resources. Retrieved March 30, 2023, from https://dnr.maryland.gov/wildlife/Pages/plants_wildlife/Native-Plants.aspx

[14] *Lawn Alternatives*. (June 2019). Maryland Department of Natural Resources. Retrieved March 30, 2023, from https://news.maryland.gov/dnr/2019/06/14/lawn-alternatives/

manicured turfgrass lawn and one of a sustainable yard. I asked students passing by which yard they thought looked nicer. To my surprise, 34 of the 50 students that I surveyed thought that the sustainable yard looked nicer. A handful of students even mentioned that they were aware of the negative environmental impacts of traditional lawns. The results of my survey made me feel a bit better about our future. Sure, I had not mentioned to them all the manual labor involved with converting a traditional lawn to the more sustainable option, but nonetheless, I was still satisfied with the fact that students were open to changing the notion of what looks nice away from the status-quo of a meticulously trimmed turfgrass lawn.

34 (68%) of 50 surveyed students found the sustainable yard (right) to look nicer than the mowed grass lawn (left). Images from KLTA.[15]

Having just parked on the street adjacent to my home, I glance out my window to once again look at my family's massive and neatly trimmed lawn. As I prepare to get out and walk to my family's home, where I would be spending the second half of my Spring Break, I think to

[15] Salahieh, N. (April 2022). *SoCal water restrictions: How to make your yard more water efficient*. KLTA. Retrieved March 30, 2023, from https://ktla.com/news/local-news/socal-water-restrictions-how-to-make-your-yard-more-water-efficient/

myself about whether it would be a good idea to try to convince my family to convert our yard to one that would be more sustainable. While my parents typically enjoy hearing my suggestions on how to live more sustainably, I am unsure how they would react to the idea of dramatically changing their front yard. On this point, I am curious what the reader thinks of the ideas I have shared in this piece. If you currently own a house with a traditional lawn, how much work are you willing to put in to transform your yard to be more environmentally friendly? If you plan on owning a home in the future, how much work would you be willing to put in after purchasing your home? Perhaps you should google image search "sustainable yard ideas" before finalizing your answer. However, it is important to bear in mind, if you do peruse through such images, that sustainable yards can look very different depending on both personal preference and what plants are native to your area. In addition, keep in mind that sustainability is a spectrum, so even if you just decided to replace your turfgrass with another form of turfgrass that required little to no trimming, you would still be making your yard a more environmentally friendly place. Keeping the idea of sustainability as a spectrum in mind, the question ultimately boils down to a very simple one: What are you willing to do to live more sustainably?

This question applies to how you manage your yard and also just about everything else we humans do in the 21st century. It is a question that I ask myself at least a couple times a week, and I find it to be a productive way to balance my personal demands with the responsibility that I feel as someone who is living on planet Earth. Even as a self-proclaimed environmentalist, there are still many times where I allow my personal demand to take priority over what is best for the environment, and I am not ashamed of this fact. This is the way I see it: If you ask yourself the question, confront the resulting cognitive dissonance, and proceed to act

with the honest intent of balancing your personal demand with what is best for the environment, then you are part of the solution to addressing the daunting environmental problems that we face.

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