# Rethinking the American Lawn

Summer is the season of outdoor barbecues, the sound of children splashing in inflatable pools, and the smell of a freshly-mowed yard. Nothing is quite as ubiquitous as the American lawn – a vast, well-manicured plane of Bermuda or Kentucky bluegrass adorns the front of nearly every house in every subdivision of every city in the country. From suburban New Jersey to the mountainous foothills of Los Angeles, expansive grass lawns have become the primary feature of our built environment.

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The United States has nearly 50,000 square miles of turf grass[1], combined it would create a yard the size of Ohio or Pennsylvania. Mowing these thousands of square miles requires over 800 million gallons of gas annually[2], with lawn mower emissions mixing with stagnant air to create harmful ozone and air pollutants. Each weekend, an estimated 54 million Americans mow their yards[3], wiping away beads of sweat as they trim the blades of grass to a uniform height. Next weekend they'll don their lawn sneakers, fire up the mower, and perform the ritual all over again.

While the well-manicured grass lawn has been a near-constant fixture in our communities over the past century, many are revisiting its wide-ranging impacts in the face of habitat degradation, climate change, water consumption, and environmental pollution. With many people desiring more sustainable green spaces – fruit and vegetable gardens, pollinator flower patches, native grass meadows – landscape regulations must be flexible to account for these changing preferences. This document seeks to provide a brief overview of how grass lawns came to prominence, challenges associated with their widespread adoption, and opportunities to implement alternative landscapes. It's our hope that these items offer unique considerations on turf grass and ways to empower residents to create environmentally healthy green spaces that enhance the community's beauty.

# Where Did Lawns Come From?

Prior to European settlement, North America featured native grassland prairies that stretched towards the horizon. Fields of bluestems, bottlebrush, Indian grass, and wildflowers native to Michigan inhabited oak savannas across the lower peninsula[4]. For thousands of years these species of grasses endured without irrigation or maintenance and provided important habitats for birds, rabbits, bees, and butterflies.

With the settlement of North America came drastic changes to these landscapes. Settlers came to Michigan throughout the 1800s, lumbering northern pine forests and converting former grasslands to agricultural production. During this period, the nation's natural resources – a vast continent to be mined, hunted, fished, and deforested – were viewed as a force to be conquered and altered for human habitation[5]. This same thought translated to the emerging field of landscape design, where lawns were first implemented in the United States.

While Jefferson and Washington cultivated grass lawns at Monticello and Mount Vernon respectively[6], it was Frederick Law Olmstead's creation of Central Park in New York City and the development of Riverside, Illinois that prompted the rise of residential lawns. Non-native species were regularly incorporated in these designs, emulating the botanical gardens of Britain and France. Coupled with the Garden Cities movement of the early 20th century that sought to replace "crowded, unhealthy cities" with communities closer to nature[7], the turf grass lawn became synonymous with wealth, clean air, and good living.

The creation of zoning ordinances establishing front and side setback regulations enshrined lawns into law. With policies encouraging suburbanization during the 20th century, millions of Americans moved into mass-produced houses featuring grass yards. Post-war prosperity and technological advances such as new pesticides and the rotary lawn motor quickly made lawncare a domestic pastime. These factors along with long-standing cultural views have ensured turf grass lawns remain the primary landscape feature even in the 21st century.

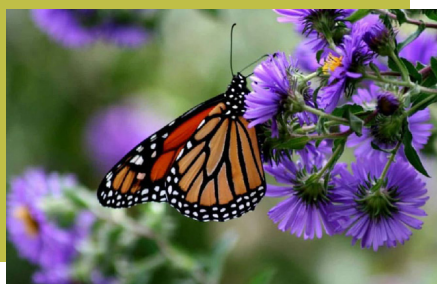
Pictures top to bottom: 1.) Hampton Court Palace, United Kingdom 2.)Levittown, New York 3.) Central Park, New York City 4.) New suburban construction featuring turf grass lawn

# Where Are Lawns Going?

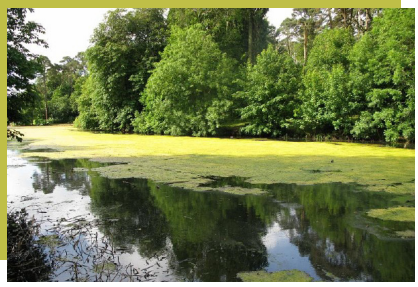
The typical grass lawn will likely remain a prominent fixture in our communities for the foreseeable future. Since its widespread adoption however, increased attention has been drawn to its harmful environmental impacts. Scientific understanding of habitat ecology, the effects of chemicals and pesticides, and local hydrologic systems has grown dramatically over the past century. Some of these challenges are discussed in detail below:

**Loss of Habitat** – Turf lawns represent a single species monoculture of grass. This homogenous landscape limits the number of species able to live in an area, reducing biodiversity. Bees, butterflies, and fireflies are experiencing declining populations due to habitat loss and pesticide applications associated with turf grass cultivation[8]. Alternatively, native landscapes act as habitats for these species, providing the natural conditions needed to prosper.

**Chemical Applications** – Non-native turf grass species require extensive applications of pesticides and herbicides to maintain their emerald-green shimmer. Not only are these substances toxic to local wildlife populations, these chemicals seep into the soil, poisoning organisms needed for healthy, nutrient-rich soils[9]. Runoff from pesticides and herbicides also regularly enter water bodies[10], creating algae blooms that threaten aquatic habitats and invaluable natural features.



Turf grass lawns limit biodiversity, harming pollinator species



Chemical runoff causes eutrophication on bodies of water

Turf grass lawns require consistent watering

**Water Dependency** – Due to their status as non-native to North America, common turf grass species require large quantities of water. Every day, the average household uses nearly 100 gallons of water to irrigate their lawn[11]. Including rainfall, a typical 4,000 square foot lawn in the Midwest can require over 44,000 gallons of water during the summer[12]. This is particularly harmful in Ottawa County, as subsurface geology inhibits recharge of the aquifers supplying irrigation water. To reduce the depletion of this vital water resource, native plantings that don't require extensive irrigation can be allowed and encouraged through landscaping regulations.

These factors along with a growing emphasis on sustainability are prompting many communities to seek ways to encourage native landscaping as turf grass alternatives. This can be accomplished through a landscaping ordinance that allows for appropriate native plantings.

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