

Reimagining the Traditional Lawn

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Department of Strategic Impact



Ottawa County
Where You Belong[®]

History

First became popular ~17th-18th century

Symbols of wealth and success

Popularity in America exploded around the 1860s

Modern U.S. comprised of over 40 million acres



Credit:
Planet Natural Research Center



Credit:
William Gottlieb/CORBIS/Corbis via Getty Images, History.com



Credit:
Library of Congress (1919)



Credit:
Anne Cusack/Los Angeles Times via Getty Images, History.com

Cost of a Turf Lawn

High Water Use

- Nearly 30% of total residential water use
- Require ~200 gallons of potable water per person
- Up to ½ of water is wasted

High Gasoline Consumption

- \$1.2 billion gas annually
- ~35% used by commercial mowing
- 17 million gallons spilled annually
- Lawn mowers contribute up to 5% of total air pollution

Time Consuming

- 58% dislike mowing lawns
- 70 hours per year
- 22 times per year per person
- Cost of labor



Credit:
H2OC Stormwater Program



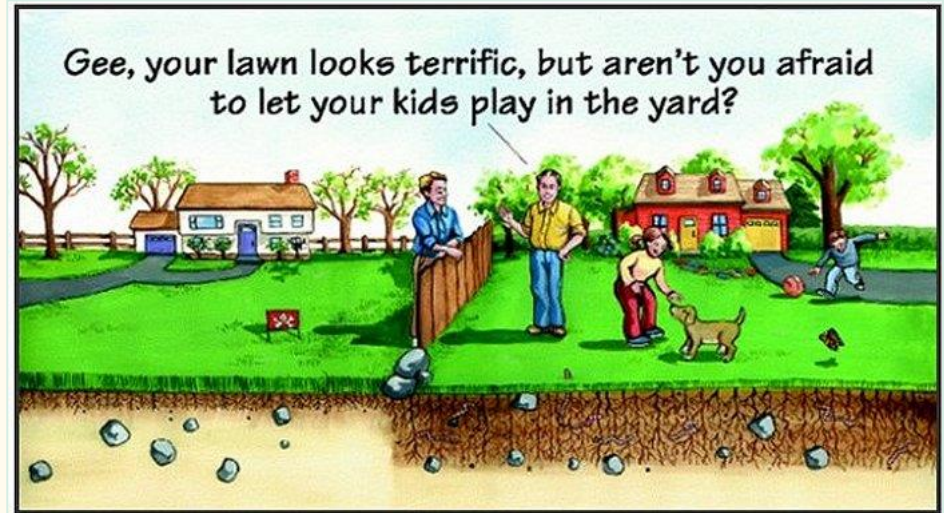
∴ Turf Monoculture... (Cost Cont.)

Turf Monoculture

- Largest irrigated 'crop'
- Est. 90 million lawns in America

To achieve the monoculture...

- Synthetic/Chemical Fertilizers
 - 50% use
 - Est. \$128 million
- Insecticides
 - 51% use
 - \$3.35 billion
- Herbicides
 - 52% use
 - \$910 million



Credit:
Jeff Swano (2017) Digrightin Landscaping

• Turf Monoculture... (Cost Cont.)

Health risks

- Birth defects
- Cancer
- Neurological impairments
- Immunodeficiencies
- Lymphoma in pets

Environmental risks

- Increased nutrient load in waterways
- Algal blooms
- Wildlife/pollinator harm
- Soil degradation

Health Effects of 40 Commonly Used Lawn Pesticides

BEYOND PESTICIDES
www.beyondpesticides.org

	Health Effects						
	Cancer	Endocrine Disruption	Reproductive Effects	Neurotoxicity	Kidney/Liver Damage	Sensitizer/Irritant	Birth Defects
Herbicides							
2,4-D*	X ⁴	X ¹⁰	X ⁷	X ⁸	X ⁶	X ¹	X ¹¹
Atrazine [†]	X ⁴	X ⁸	X ⁸	X ¹¹	X ⁶	X ¹	X ¹¹
Benfluralin	X ⁴	X ⁸			X ⁶	X ¹	
Bensulfide				X ⁷	X ⁶	X ²	
Clopyralid			X ⁷			X ¹	X ²
Dicamba*	Possible ³		X ⁷	X ⁷	X ⁶	X ¹	X ²
Diquat Dibromide			X ¹²		X ¹¹	X ²	
Dithiopyr					X ⁶	X ²	
Fluazipop-p-butyl			X ⁷		X ⁶		X ²
Glyphosate*	X ¹²	X ⁸	X ¹		X ⁶	X ¹	X ⁴
Imazapyr	Possible ³				X ⁶	X ²	
Isoxaben	X ⁷				X ⁶		Possible ³
MCPA	Possible ³	X ⁸	X ²	X ⁷	X ¹¹	X ¹	
Mecoprop (MCP) [†]	Possible ³	X ⁸	X ²	X ⁷	X ⁶	X ¹	X ²
Oxadiazon	X ⁴	X ⁸	X ⁷	Possible ³	X ⁶		X ²
Oxyfluorfen	X ⁴		X ¹¹		X ¹¹	X ¹¹	X ¹¹
Pendimethalin*	Possible ³		X ⁷		X ⁶	X ²	X ⁴
Proflaminate	X ⁴	Suggestive ¹	Possible ³	X ⁷			Possible ³
Sulfentrazone				Possible ³		X ¹	
Triclopyr			X ⁷		X ⁶	X ¹	X ²
Trifluralin	Possible ³	X ⁸	X ¹	X ⁷	X ⁶	X ¹	
Insecticides							
Abamectin [†] Avertectin 81			X ¹¹	X ⁷			X ²
Acephate*	Possible ³	X ⁸	X ¹¹	X ⁷		X ²	
Bifenthrin ^{††}	Possible ³	Suspected ¹⁰		X ⁷		X ¹	X ²
Carbaryl	X ⁴	X ¹⁰	X ⁸	X ⁷	X ¹¹	X ¹¹	X ²
Cyfluthrin [†]		Possible ³	X ⁸	X ⁷	X ¹¹	X ¹¹	
Deltamethrin*		X ⁸	X ⁷	X ⁷		X ²	
Fipronil	Possible ³	X ⁸	X ⁸	X ⁷	X ⁶	X ⁸	
Imidacloprid [†]		X ⁸	X ⁷	Possible ³	X ⁶		X ²
Malathion*	Probable ¹²	X ¹⁰	X ¹¹	X ⁷	X ⁶	X ²	X ²
Permethrin ^{††}	X ⁴	Suspected ¹⁰	X ^{1,7}	X ^{2,9}	X ⁶	X ¹	
Trichlorfon	X ⁴	X ⁸	X ¹¹	X ⁷	X ⁶	X ¹	X ²

Water Scarcity in Michigan?

Pressure

Western U.S.

Ottawa County

Alarming Aquifer Drawdown

X

X

Rapidly Growing Development

X

X

Irrigation

X

X

Recharge Reduction

X

X

Case Studies

Southern Nevada Water Authority

- Xeriscape Conversion Study (1990)
- 73 gallons/sq ft → 17 gallons/sq ft annually
- Set guidelines for home development

Colorado Springs Utilities

- Parks Efficiency Program (2013)
- 7.5 acres Kentucky Bluegrass → Native Grasses
- Cut watering from 3x/week to 2x/mo
- Save 2 million gallons of water
- ROI of 4 months and \$8,108/acre annually

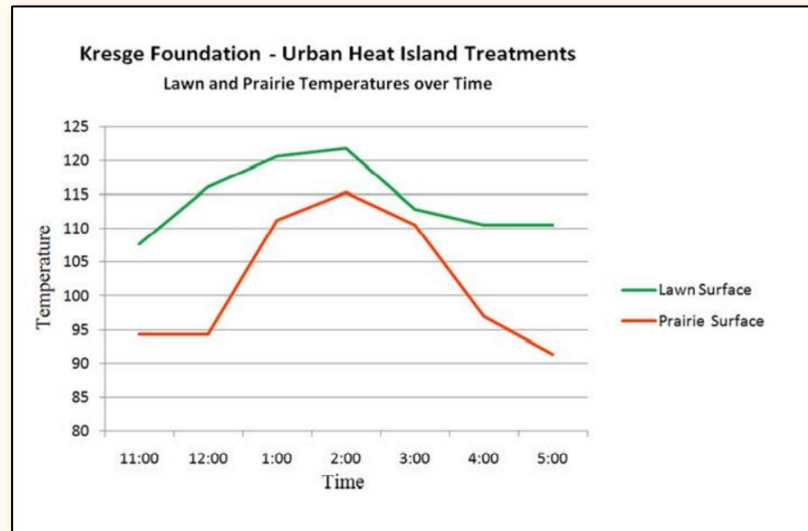


Keller Park, before and after native grass conversion.

Michigan Case Study

Kresge Foundation Headquarters, Flint, MI (2005)

- 2.77 Acres
- Saves over 1 million gallons/year
- Saves \$6,400/year of irrigation costs
- Reduced local surface temp by ~12 °F
- \$30,794 saved in maintenance



Credit:
Landscape Performance Series- Methodology Report

Ottawa County Re-landscaping Project

Primary Purpose

- Reduce water consumption
- Lead by example
- Encourage countywide participation

Other Benefits

- Save time and money
- Benefits to public health
- Increase wildlife habitat



Proposed County Site Locations

Fillmore Complex

~4.5 Acres of turf



Family Justice Center

~2.2 Acres of turf



Fillmore Complex w/ Future Justice Center

~6.7 Acres of turf total



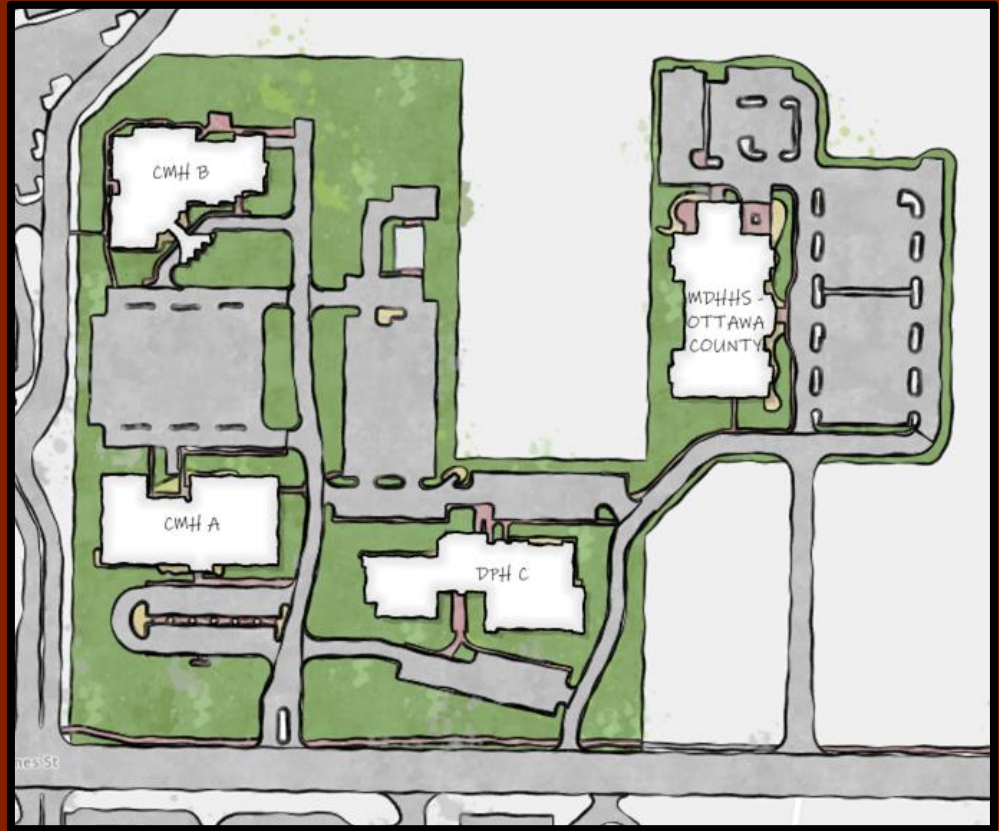
Hudsonville Courthouse

~3.5 Acres of turf total



James St. Complex

~7.8 Acres of turf total



Types of Water Conscious Landscapes



Bioswale

Credit:
Lower Grand River Organization of Watersheds



Native Plant Garden

Credit:
Michigan United Conservation Club



Xeriscape

Credit:
Trenton Michigan Garden Walk



Native Prairie

Credit:
Native Connections



Rain Garden

Credit:
City of Royal Oak, MI

Project Phases and Methods

- Professional landscaping plan and design
- Installation process
- Short term maintenance
- Long term maintenance



Education

Interpretive signage

Understanding the process

Inspiring Ideas

Overcoming stigmas



Interpretive Sign Example

Credit:
Mark Deamer, Central Park Gardens Interpretive Signage

Michigan Native Wildflowers



Wild Columbine

Credit:
Washtenaw County Conservation District



Butterfly Weed

Credit:
Karan A. Rawlins, University of Georgia,
Bugwood.org



Black-eyed Susan

Credit:
Dave Powell, USDA Forest Service (retired),
Bugwood.org



True Solomon's Seal

Credit:
Cheryl Magyar (2022), Rural Sprout



Southern Blue Flag Iris

Credit:
© (2011) Charles Peirce



New England Aster

Credit:
Ann Arbor Natural Area Preservation,
Michiganflora.net



Rose Mallow

Credit:
Mary Anne Borge, *The Natural Web*



Foxglove Beardtongue

Credit:
Cam Mannino (2018), *Natural Areas Notebook*

Native Edible Plants



Common Elderberry

Credit:
Janet Pesaturo (2013), One Acre Farm



American Hazelnut

Credit:
Albert Herring, CC by S.A. 2.0., University of Minnesota



Wild Strawberry

Credit:
Thank Your Garden (2022)

Native Shrubs, Grasses & Trees



Oak Tree Varieties

Credit:
Michigan Arbor Day Alliance (2018)



Eastern Redbud

Credit:
Brian Gayheart (2022), Michigan State University



Little Bluestem

Susan Mahr, University of Wisconsin-Madison



Winterberry

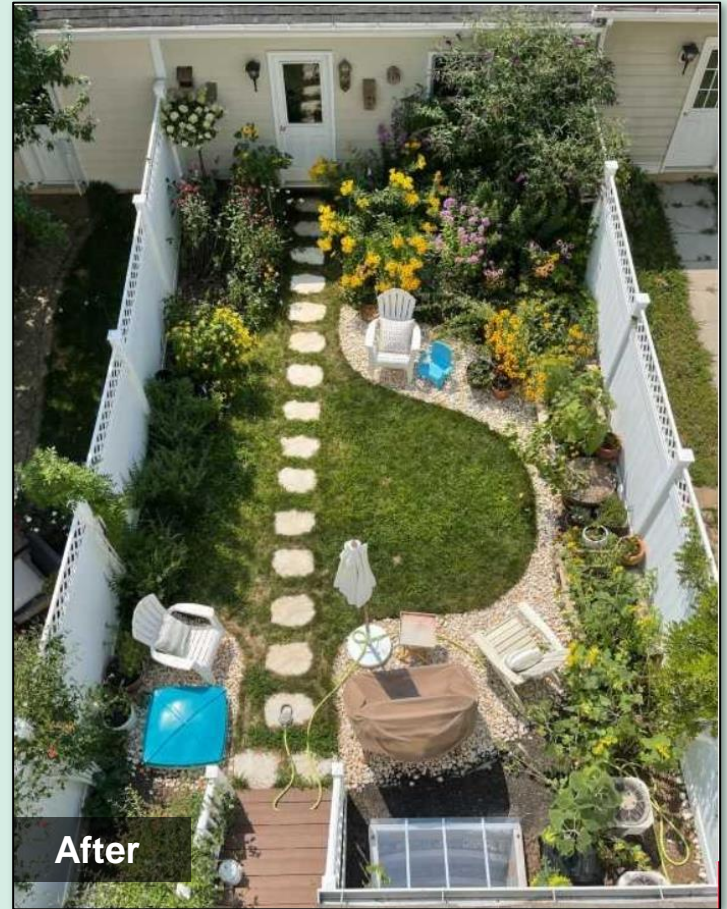
Credit:
Evgeniya Vlasova (2021), The Spruce



Ostrich Fern

Credit:
Wikimedia Commons







Best of Both Worlds?



LiveRoof Global
@LiveRoof

Digging this "no mow" lawn in Holland Michigan. Planted with Liriope NoMo®, this miniature selection introduced by Hortech / Grown Earth Friendly Plants is a stunning eco-friendly turf substitute.



9:38 AM · Aug 16, 2018 · Twitter Web Client



Credit:
Kimberley Navabpour (2009), Sunset



Credit:
Allan Armitage (2022), Greenhouse Grower



Help Us Reimagine the Traditional Lawn!

Department of Strategic Impact



Ottawa County
Where You Belong.





Thank You! Q & A

Sources

Southern Lower Peninsula - Native Plants and Ecosystem Services (msu.edu)

US Outdoor Water Use | WaterSense | US EPA

Looking for Lawns (nasa.gov)

Lawn Maintenance and Climate Change — PSCI (princeton.edu)

The American Obsession with Lawns - Scientific American Blog Network

Outgrowing the Traditional Grass Lawn - Scientific American Blog Network


Water in the West | Climate Central

US states face water crisis as global heating increases strain on supplies | Access to water | The Guardian

Case Study: Saving Water with Landscape Conversion - City Parks (csu.org)

Focus-on-Agriculture.pdf

Grass Lawns are an Ecological Catastrophe – ONE Only Natural Energy



Fastest growing states: Idaho, Utah, Montana, Arizona top new growth list - Deseret News

US EPA - Pesticides Industry Sales and Usage 2008 - 2012

Landscape Transformation Case Studies (epa.gov)

Converting Lawns Into Diverse Landscapes: Case Studies | University of Maryland Extension (umd.edu)

Lawns are a soul-crushing timesuck and most of us would be better off without them – Chicago Tribune

Polyculture: Get an Earth-friendly Lawn | Cocoa, FL - Official Website (cocoafll.org)

spring (epa.gov)

Grown Earth Friendly (hortech.com)

LAF Landscape Performance Series –

Clean Cities Guide to Alternative Fuel Commercial Lawn Equipment (Brochure), Energy Efficiency & Renewable Energy (EERE)

Cleaner Air: Mowing Emissions and Clean Air Alternatives. A Fact Sheet (peoplepoweredmachines.com)

