

From the American lawn to the freedom lawn: the perception and environmental impacts of
manicured and naturalistic lawns

by

Julia Ann Hammes

A REPORT

submitted in partial fulfillment of the requirements for the degree

MASTER OF LANDSCAPE ARCHITECTURE

Department of Landscape Architecture and Regional & Community Planning
College of Architecture, Planning & Design

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2024

Approved by:

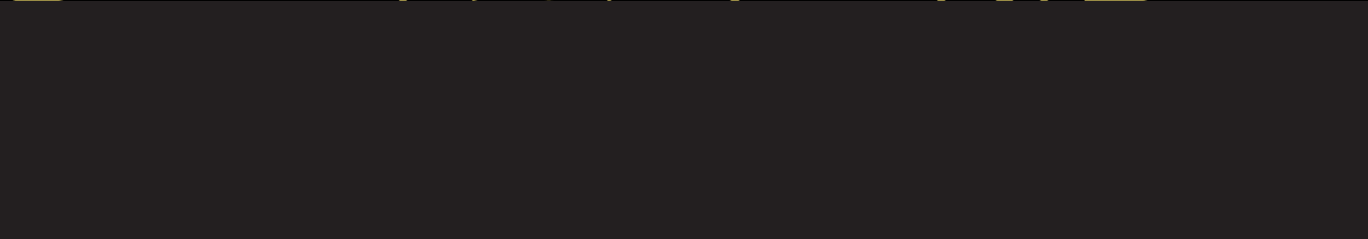
Major Professor
Howard Hahn

Copyright

© Julia Ann Hammes 2024.

Abstract

Each residential manicured lawn in the United States averages three-tenths of an acre, cumulatively consuming over 20 million acres which comprises a significant portion of highly managed landscapes. Manicured landscapes are highly resource intensive, requiring copious amounts of water, fertilizer, herbicide/insecticide, and maintenance utilizing carbon emitting equipment. Additionally, manicured lawns contribute to natural habitat destruction, accelerating species extinction at rates that far exceed speciation. While numerous impacts are associated with manicured lawns, this aesthetic preference has largely been kept out of the conversation because it has become an accepted American landscape standard since the popularization of suburbia. The alternative is the naturalistic lawn which is characterized by mixed grasses and other herbaceous species allowed to grow and assume natural forms/habits. Although many homeowners are aware of the benefits of naturalistic planting and aesthetic forms, there is still much resistance to widespread adoption. Through this research, the perception, ecological, and economic benefits of naturalistic planting were studied. Data were collected through a literature review, survey, precedent studies, and a review of design guidelines with the overall goal of creating a projective design on a site in Pottawatomie County, Kansas illustrating naturalistic landscape design principles. Survey data were collected from residents with the ability to change their landscapes with manicured and naturalistic residential landscapes. From the survey analysis, lawns exhibiting a full extent of planting, no buffer edge, a mix of color and planting groups, and a medium growing height were most preferred. Regarding residents who did not have naturalistic lawns, the biggest deterring factors and challenges came from installation and establishment challenges while the most attractive factors for residents were wanting to increase pollinator populations and conserve water. Residents who had installed naturalistic lawns found managing aesthetics with expectations to be most difficult and found an increase in wildlife to be a pleasant surprise. These findings offer more insight into naturalistic lawn perceptions and contribute to the existing body of literature by developing naturalistic lawn guidelines leading to greater social acceptance.





FROM THE AMERICAN LAWN TO THE FREEDOM LAWN

THE PERCEPTION AND ENVIRONMENTAL
IMPACTS OF NATURALISTIC LAWNS

Julia Hammes

Kansas State University 2024

ABSTRACT

Each residential manicured lawn in the United States averages three-tenths of an acre, cumulatively consuming over 20 million acres which comprises a significant portion of highly managed landscapes. Manicured landscapes are highly resource intensive, requiring copious amounts of water, fertilizer, herbicide/insecticide, and maintenance utilizing carbon emitting equipment. Additionally, manicured lawns contribute to natural habitat destruction, accelerating species extinction at rates that far exceed speciation. While numerous impacts are associated with manicured lawns, this aesthetic preference has largely been kept out of the conversation because it has become an accepted American landscape standard since the popularization of suburbia. The alternative is the naturalistic lawn which is characterized by mixed grasses and other herbaceous species allowed to grow and assume natural forms/habits. Although many homeowners are aware of the benefits of naturalistic planting and aesthetic forms, there is still much resistance to widespread adoption. Through this research, the perception, ecological, and economic benefits of naturalistic planting were studied. Data were collected

through a literature review, survey, precedent studies, and a review of design guidelines with the overall goal of creating a projective design on a site in Pottawatomie County, Kansas illustrating naturalistic landscape design principles. Survey data were collected from residents with the ability to change their landscapes with manicured and naturalistic residential landscapes. From the survey analysis, lawns exhibiting a full extent of planting, no buffer edge, a mix of color and planting groups, and a medium growing height were most preferred. Regarding residents who did not have naturalistic lawns, the biggest deterring factors and challenges came from installation and establishment challenges while the most attractive factors for residents were wanting to increase pollinator populations and conserve water. Residents who had installed naturalistic lawns found managing aesthetics with expectations to be most difficult and found an increase in wildlife to be a pleasant surprise. These findings offer more insight into naturalistic lawn perceptions and contribute to the existing body of literature by developing naturalistic lawn guidelines leading to greater social acceptance.

TABLETS OF SIN AND PUNISHMENT

02	CHAPTER 1 INTRODUCTION
08	CHAPTER 2 BACKGROUND
36	CHAPTER 3 METHODS
56	CHAPTER 4 SURVEY FINDINGS
84	CHAPTER 5 PRECEDENT STUDY
138	CHAPTER 6 DESIGN APPLICATION
156	CHAPTER 7 DESIGN GUIDELINES
188	CHAPTER 8 CONCLUSION

LIST OF FIGURES

Figure 1.01. English: A Dry Bed in California.

Figure 2.01. Archimedean Lawn Mower Advertisement in Le Monde Illustré

Figure 2.02. Cover of American Homes and Garden (Vol. 6, No. 11 – November 1909)

Figure 2.03. Cover of American Homes and Garden (Vol. 6, No. 12 – December 1909)

Figure 2.04. American Homes and Gardens

Figure 2.05. American Homes and Gardens

Figure 2.06. Dowmetal Magnesium: The Metal of Motion

Figure 2.07. The Superior Lawn Mower

Figure 2.08. Handy Notes and Queries

Figure 2.09. Seed Catalogue

Figure 2.10. Shoot to kill - Protect your victory garden

Figure 2.11. Drought Tolerant Plants in Yard

Figure 2.12. A Colorful Backyard Pollinator Garden

Figure 2.13. House Garage

Figure 2.14. Suburbia

Figure 2.15. 18th Century Horse Farm, New England (Oehme van Sweden | OvS)

Figure 3.01. Methodology Process Overview

Figure 3.02. Survey Questions

Figure 3.03. Start of Online Survey

Figure 3.04. Notes from Test Running Survey

Figure 3.05. Precedent Study List

Figure 3.06. Existing Site Conditions

Figure 3.07. View of Pottawatomie Lake 2 campsite

Figure 3.08. Pottawatomie Lake 2

Figure 3.09. Heritage Hills

Figure 3.10. Single-Family Context

Figure 3.11. View of Stream Bank

Figure 3.12. East road of site

Figure 3.13. View of Dam Looking Towards the Site

Figure 3.14. Housing overlooking the lake

Figure 3.15. View of Heritage Hills from site

Figure 3.16. Duplex Context

Figure 3.17. Northeast site intersection

Figure 3.18. Highpoint of Site

Figure 3.19. Site Conditions - Developable Slope

Figure 3.20. Site Conditions - Hillshade

Figure 3.21. Methodology Conclusion Tasks

Figure 4.01. Participant Background: Gender

Figure 4.02. Participant Background: Employment Status

Figure 4.03. Participant Background: Age

Figure 4.04. Participant Background: Ethnicity

Figure 4.05. Participant Background: Race

Figure 4.06. Participant Background: Kansas Residents

Figure 4.07. Participant Background: Zipcodes

Figure 4.08. Participant Background: Ability to change landscapes appearance

Figure 4.09. Participant Background: Property Size

Figure 4.10. Participant Background: Lawn (routinely maintained space)

Figure 4.11. Plant composition

Figure 4.12. A Classic Country White Garden Revisited

Figure 4.13. Oak Savanna at Picnic Grove Park, Fox River Grove, IL

Figure 4.14. Swale at Russell R. Kirt Prairie; a Marsh and Pond Can Be Seen in the Background. Illinois, USA

Figure 4.15. A Prairie at Three Creeks Metro Parks (Columbus, Ohio). The Prairie Takes Advantage of a Lot of Undeveloped Park Land by Heron Pond

Figure 4.16. Aesthetic preferences: planting bed edges

Figure 4.17. Cottage landscape with suburban home + fenced landscape (Adobe Firefly)

Figure 4.18. Cottage landscape with suburban home + mulched landscape border (Adobe Firefly)

Figure 4.19. Cottage landscape with suburban home + turf landscape border (Adobe Firefly)

Figure 4.20. Cottage landscape with suburban home (Adobe Firefly)

Figure 4.21. Aesthetic preferences: planting color

Figure 4.22. Cottage landscape with suburban home + Low flowering plants (Adobe Firefly)

Figure 4.23. Cottage landscape with suburban home + Turf lawn (Adobe Firefly)

Figure 4.24. Cottage landscape with suburban home + Turf and flowering shrubs (Adobe Firefly)

Figure 4.25. Cottage landscape with suburban home (Adobe Firefly)

Figure 4.26. Aesthetic preferences: planting bed extent

Figure 4.27. Cottage landscape with suburban home + Turf landscape (Adobe Firefly)

Figure 4.28. Cottage landscape with suburban home + Turf portion of landscape (Adobe Firefly)

Figure 4.29. Cottage landscape with suburban home + More turf portion of landscape (Adobe Firefly)

Figure 4.30. Cottage landscape with suburban home (Adobe Firefly)

Figure 4.31. Aesthetic preferences: planting height

Figure 4.32. Cottage landscape with suburban home + Turf landscape (Adobe Firefly)

Figure 4.33. Cottage landscape with suburban home + Low wildflower landscape (Adobe Firefly)

Figure 4.34. Cottage landscape with suburban home (Adobe Firefly)

Figure 4.35. Cottage landscape with suburban home + Tall wildflowers (Adobe Firefly)

Figure 4.36. Aesthetic preferences: plant groupings

Figure 4.37. Cottage landscape with suburban home + Low flowering plants (Adobe Firefly)

Figure 4.38. Cottage landscape with suburban home + Turf landscape (Adobe Firefly)

Figure 4.39. Cottage landscape with suburban home + Turf and flowering shrubs (Adobe Firefly)

Figure 4.40. Cottage landscape with suburban home + Low flowering plants (Adobe Firefly)

Figure 4.41. Aesthetic preferences: precedents

Figure 4.42. American Suburban Family House

Figure 4.43. 14937921412_6575ee9d1a_k

Figure 4.44. 37393507100_1cf807cb50_k

Figure 4.45. 29719915

Figure 4.46. Minnesota Household

Figure 4.47. Jackson Meadow 1

Figure 4.48. WS-Outdoor-West-Gallery-40. WS-outdoor-west-gallery-40

Figure 4.49. Naturalistic Landscape

Figure 4.50. Do you actively incorporate a naturalistic landscape?

Figure 4.51. Interest & Appeals

Figure 4.52. Deterring Factors & Challenges

Figure 4.53. Desired space for naturalistic plantings

Figure 4.54. Confidence in skills when designing, installing, maintaining naturalistic landscapes

Figure 4.55. Naturalistic landscape installation individual

Figure 4.56. Confidence in maintenance practices regarding naturalistic landscapes

Figure 4.57. Hours of maintenance per week dedicated to traditional non-food landscape during a typical growing season

Figure 4.58. Familiarity with the following naturalistic landscape design strategies

Figure 4.59. Hours of maintenance per week dedicated to your naturalistic non-food landscape during typical growing season

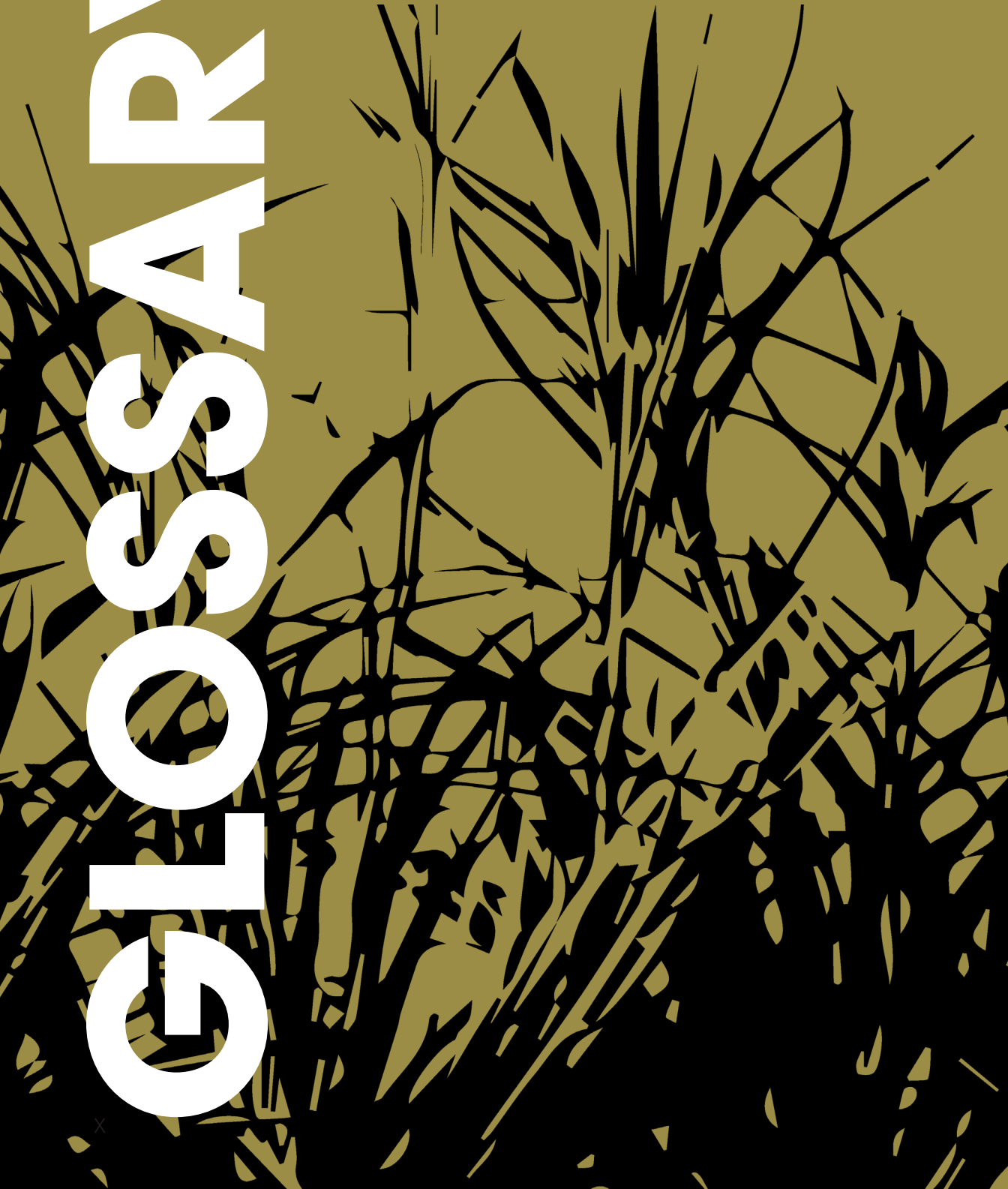
Figure 4.60. Is maintenance with a naturalistic landscape more or less than with a non-naturalistic landscape?

LIST OF FIGURES

- Figure 4.61. Source of inspiration for naturalistic landscape*
- Figure 4.62. Source of interest for naturalistic landscape*
- Figure 4.63. Frequency of feedback on naturalistic landscape*
- Figure 4.64. Positivity ranking of feedback on naturalistic landscape*
- Figure 4.65. Comments from neighbors regarding their naturalistic landscapes*
- Figure 4.66. Reflections and advice from homeowners with naturalistic landscapes*
- Figure 4.67. City code restriction on one's naturalistic landscape*
- Figure 4.68. Inclination to report a landscape*
- Figure 4.69. Do you think a naturalistic landscape compared to a neighborhood of manicured (short mown) lawns lowers a community's sense of unity?*
- Figure 4.70. Naturalistic landscape challenges as a homeowner*
- Figure 4.71. Survey findings conclusion*
- Figure 5.01. Precedent study overview*
- Figure 5.02. Katama Road 1 (Oehme van Sweden | OvS)*
- Figure 5.03. Katama Road 2 (Oehme van Sweden | OvS)*
- Figure 5.04. Katama Road 3 (Oehme van Sweden | OvS)*
- Figure 5.05. Graenest Ridge Road 1 (Oehme van Sweden | OvS)*
- Figure 5.06. Graenest Ridge Road 2 (Oehme van Sweden | OvS)*
- Figure 5.07. Graenest Ridge Road 3 (Oehme van Sweden | OvS)*
- Figure 5.08. Graenest Ridge Road 4 (Oehme van Sweden | OvS)*
- Figure 5.09. Riversville Road 1 (Oehme van Sweden | OvS)*
- Figure 5.10. Riversville Road 2 (Oehme van Sweden | OvS)*
- Figure 5.11. Riversville Road 3 (Oehme van Sweden | OvS)*
- Figure 5.12. Riversville Road 4 (Oehme van Sweden | OvS)*
- Figure 5.13. North Street 1 (Oehme van Sweden | OvS)*
- Figure 5.14. North Street 2 (Oehme van Sweden | OvS)*
- Figure 5.15. North Street 3 (Oehme van Sweden | OvS)*
- Figure 5.16. Mid-Century Haven 1 (Miridae)*
- Figure 5.17. Mid-Century Haven 2 (Miridae)*
- Figure 5.18. Mid-Century Haven 1 (Miridae)*
- Figure 5.19. Boules and Buckwheat 1 (Miridae)*
- Figure 5.20. Boules and Buckwheat 2 (Miridae)*
- Figure 5.21. Boules and Buckwheat 3 (Miridae)*
- Figure 5.22. Cedar Acres Residence 1*
- Figure 5.23. Cedar Acres Residence 2*
- Figure 5.24. Cedar Acres Residence 3*
- Figure 5.25. Cedar Acres Residence 4*
- Figure 5.26. Prospect House 1*
- Figure 5.27. Prospect House 2*
- Figure 5.28. Prospect House 3*
- Figure 5.29. Charlie Mountain Ranch 1*
- Figure 5.30. Charlie Mountain Ranch 2*
- Figure 5.31. Charlie Mountain Ranch 3*
- Figure 5.32. Charlie Mountain Ranch 4*
- Figure 5.33. Jackson Meadows 1*
- Figure 5.34. Jackson Meadows 2*
- Figure 5.35. Jackson Meadows 3*
- Figure 5.36. Google Earth - Jackson Meadows*
- Figure 5.37. Prairie Crossing 1*
- Figure 5.38. Prairie Crossing 2*

Figure 5.39. Prairie Crossing 3
Figure 5.40. Prairie Crossing 4
Figure 5.41. Prairie Crossing 5
Figure 5.42. Fox Ridge 1
Figure 5.43. Fox Ridge 2
Figure 5.44. Fox Ridge 3
Figure 5.45. Google Earth - Fox Ridge
Figure 6.01. Neighborhood layout design
Figure 6.02. Neighborhood layout design with hillshade overlay
Figure 6.03. Zoom-in neighborhood layout design
Figure 6.04. Neighborhood layout design
Figure 6.05. Greenbelt neighborhood amenity
Figure 6.06. Neighborhood layout design with slope overlay
Figure 6.07. Household naturalistic plan
Figure 6.08. Household naturalistic plan vs traditional turf lawn
Figure 6.09. Naturalistic landscapes at different planting extents
Figure 6.10. Street view of naturalistic landscaping across property lines.
Figure 6.11. General Aesthetic Guidelines
Figure 6.12. Plant Palette Overview
Figure 6.13. EMAW pridescape plant palette
Figure 6.14. Beginner biodiverse garden plant palette
Figure 6.15. Pollinator paradise plant palette
Figure 6.16. Shady oasis plant palette
Figure 6.17. Water-wise landscape plant palette
Figure 7.01. Design Guidelines: Page 1
Figure 7.02. Design Guidelines: Page 2
Figure 7.03. Design Guidelines: Page 3
Figure 7.04. Design Guidelines: Page 4
Figure 7.05. Design Guidelines: Page 5
Figure 7.06. Design Guidelines: Page 6
Figure 7.07. Design Guidelines: Page 7
Figure 7.08. Design Guidelines: Page 8
Figure 7.09. Design Guidelines: Page 9
Figure 7.10. Design Guidelines: Page 10
Figure 7.11. Design Guidelines: Page 11
Figure 7.12. Design Guidelines: Page 12
Figure 7.13. Design Guidelines: Page 13
Figure 7.14. Design Guidelines: Page 14
Figure 7.15. Design Guidelines: Page 15
Figure 7.16. Design Guidelines: Page 16
Figure 7.17. Design Guidelines: Page 17
Figure 7.18. Design Guidelines: Page 18
Figure 7.19. Design Guidelines: Page 19
Figure 7.20. Design Guidelines: Page 20
Figure 7.21. Design Guidelines: Page 21
Figure 7.22. Design Guidelines: Page 22
Figure 7.23. Design Guidelines: Page 23
Figure 7.24. Design Guidelines: Page 24
Figure 7.25. Design Guidelines: Page 25
Figure 7.26. Design Guidelines: Page 26
Figure 7.27. Design Guidelines: Page 27

GLOSSARY



MANICURED LAWN

(or variant terms like Industrial Lawn, Traditional Lawn, Turf Lawn, or American Lawn)

composed of one grass species only, free from weeds and pests, continuously green, and mowed regularly to an even height

NATURALISTIC LAWN

(or variant terms like Freedom Lawn or Native Lawn)

allows more diverse plant species to grow with infrequent mowing or fire being the only disruption to the natural processes, typically native species or cultivars

BIODIVERSITY

the vast diversity of life forms, ecosystems, and biomes on Earth and their genes and diversity in population for future adaptability, ongoing evolution, and continued existence in the rapidly changing world (Tallamy 2019)

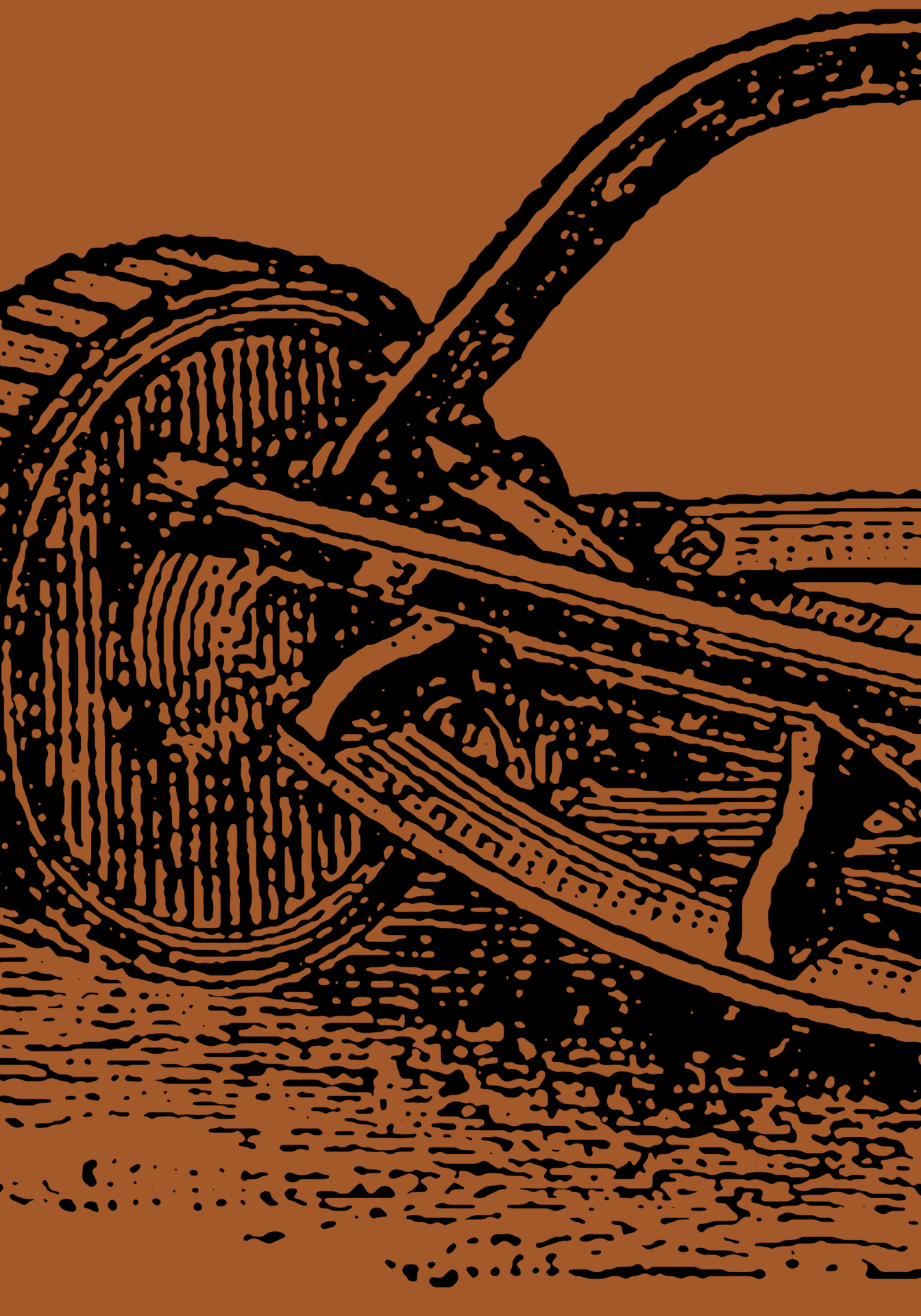
Copyright 2024 by Julia Hammes

Department of Landscape Architecture and Regional & Community Planning
Kansas State University
Manhattan, Kansas May 2024

Major Professor: Howard Hahn Landscape Architecture
Committee Member: Leslie Wren Landscape Architecture
Committee Member: Dr. Cheryl Boyer Horticulture & KSU Extension

ACKNOWLEDGMENTS

Thank you so much for everyone who supported me in the creation of this book, especially Howard Hahn my major professor, and my committee members Dr. Cheryl Boyer and Leslie Wren. I would also like to thank my family who helped supported me throughout all of my academic career along with my close friends and studio mates.





01

INTRODUCTION

CHAPTER 1

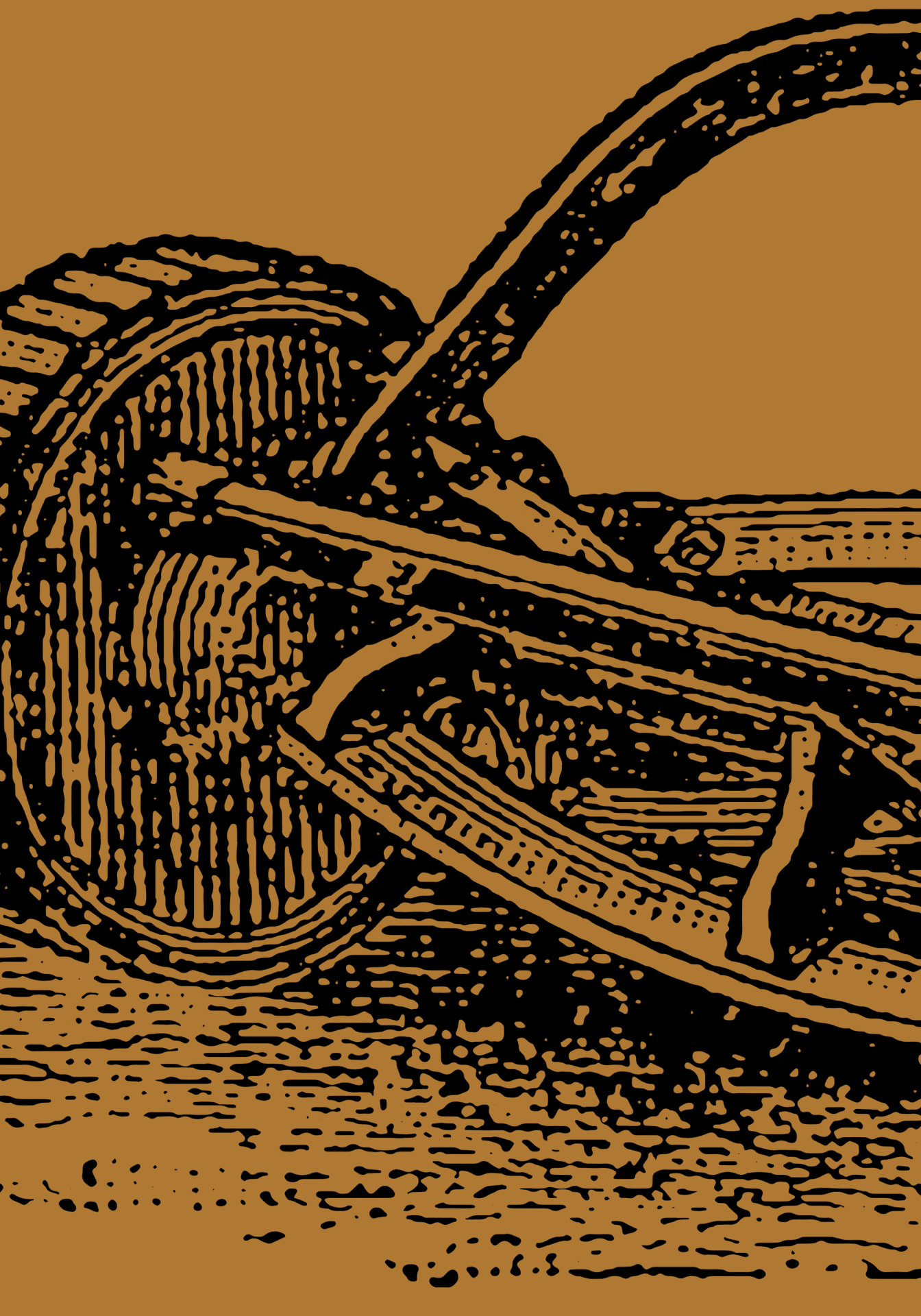
Climate change is rapidly occurring meaning one should reduce their environmental footprint wherever possible. An increasing population only heightens this environmental issue, with the United States population projected to exceed 400 million by 2050 (Vickers 2006, 56). Additionally, because of human development, species extinction is occurring at an accelerated rate that is outweighing typical speciation rates (Tallamy 2019). The current housing inventory, real estate transactions, and preference surveys all indicate that single-family homes are the preferred housing type for Americans (Shern & Slocum 1996, 102). With each of these single-family homes comes a lawn. Lawn establishment and on-going maintenance typically requires irrigation, chemical use, and the use of polluting lawn care equipment (Lerman et al. 2018, 160). “As the population continues to increase in urban and peri-urban residential areas, the extent and intensity of lawn care and associated use of consumables, including fertilizers and pesticides, is expected to increase” (Sewell et al. 2010, 1). Manicured lawns replace natural land cover, disrupt natural processes, and require fossil energy, water, and chemicals (Bormann et al. 2001). “With the Industrial Revolution, the growth of technology, the enormous growth in our use of renewable and non-renewable resources, and increasing numbers of human beings on earth, we are finding, as William Vogt



Figure 1.01. Dry lakebed in California due to drought conditions.

suggested in the 1950s, "... that the planet has shrunk, that space is no longer the protection we once thought it was, and that indeed we are capable of affecting global ecological processes" (Bormann et al. 2001, 66). Research has proved these methods to be actively destroying the natural environment, yet there is little to no shift to better practices such as the use of native landscaping. In fact, native landscaping is often referred to as looking like "weeds".

The relevance of native and naturalistic lawns plays a role with contemporary landscape architecture because it falls within the line of residential landscape architecture. "Our third of an acre may not seem like much, but lawns combine to cover more than 31 million acres of the United States, making grass the largest single 'crop' and a significant part of the American landscape" (Bormann et al. 2001, 67). Lawns, including residential and commercial, are the largest irrigated crop in America in terms of surface area totaling about 128,000 square kilometers (Lindsey 2006, 2). As one of the fastest growing land covers, turfgrass covers nearly one-quarter of urban areas. The goal of this project is to combat these large issues through improving the perception of naturalistic plantings as a viable alternative to manicured lawns, or at a minimum, create naturalistic corridors through private land to better support habitat and species resources.





02

BACKGROUND

CHAPTER 2

Origins

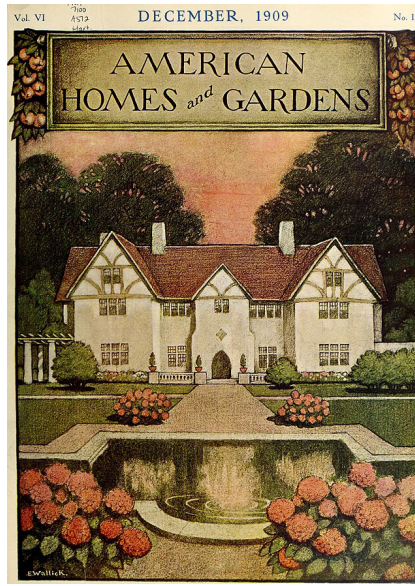
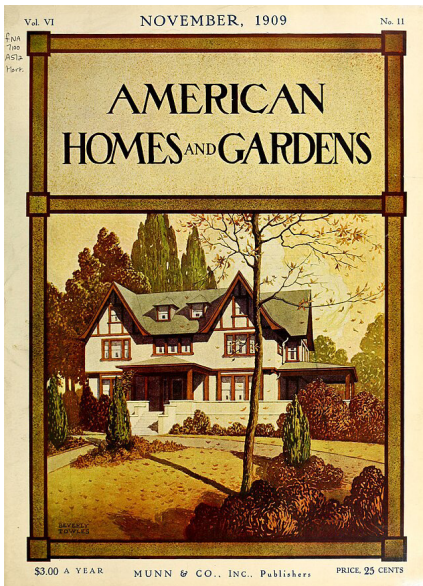
The definition of the word “lawn” was first defined in sixteenth-century Western Europe to describe a stretch of untilled soil covered in grass (Jenkins 1994). The term ‘yard’ typically refers to outdoor residential areas including grass and other land cover (Larson et al. 2009) “During the late 17th century, the first lawn as we know it appeared at Louis XIV’s Versailles gardens. Louis XIV called his lawn the tapis vert, or green carpet, and it was a sign of utter wealth and prestige” (Bailey 2016). In the 1600s and 1750s, this sign of wealth expanded with the Jacobean-inspired close-cut lawns (Ignatieva et al. 2017; Zhang et al. 2015). Lawns were a symbol of excess wealth as lawns were hand cut by scythes and land typically needed to be used for agriculture or grazing (Bailey 2016). The average lawn acted as pasture fields for livestock (Ignatieva et al. 2017, 214; Zhang et al. 2015, 109). These outdoor spaces also were often described as “living rooms” allowing free-roaming animals, leisure, and areas for drying clothes (Schroeder 1993). These lawns were often short and green, native grasses of the British Isles by the Atlantic climate (Yandik 2001; Zhang et al. 2015). When settlers migrated to America, there were not many types of native grass in the area that worked well for livestock, resulting in the introduction of European turfgrass, bringing the term ‘lawn’ to America in 1733 (Jenkins 1994).



Figure 2.01. A French advertisement for the archimedeane lawnmower.

Early Inspirations

In 1870, Frank J. Scott, a landscape architect, published the book, *The Art of Beautifying Suburban Home Grounds of Small Extent* which sought to emphasize the use of turfgrass as an essential measure of beauty for the grounds of the suburban house. Scott espoused that lawn's value was being a symbol of a virtuous community (Bailey 2016). Scott was one of the first landscape architects to work with the suburbs, making him a pioneer in the field in the mid-1800s. He placed lawns at the center of suburban models, above all other plantings (Bailey 2016). Other influential figures in the development of the lawn included Andrew Jackson Downing, Frank J. Scott, Frederick Law Olmsted Sr., and Frank A. Waugh (Zhang et al. 2015). "Through the publication of landscaping guidelines, Andrew Jackson Downing solidified the single-family detached home surrounded by lawns and gardens as an enduring ideal by the 1840s" (Larson et al. 2009, p. 923). In this landscape, lawns replaced common green spaces, creating a park-like community in its place (Zhang et al. 2015).



(Left) Figure 2.02. & (Right) Figure 2.03. American Homes and Gardens magazine covers in 1909.

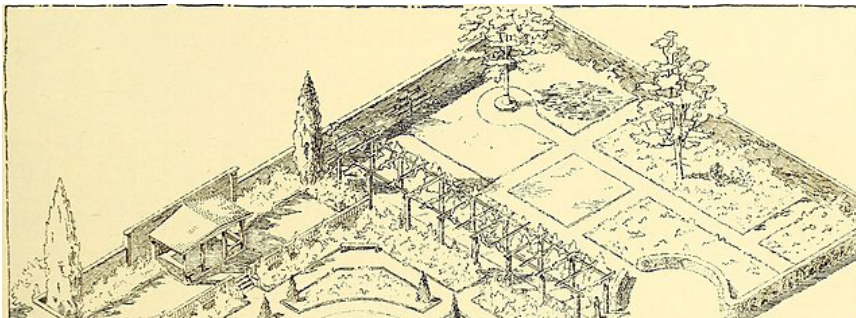


Figure 2.04. American Homes and Gardens backyard example plan.

During WWI & WWII

At the start of World War I, the lawn-care industry diminished because of the need to shift all resources to the war efforts. Homeowners shifted their lawns to victory gardens, vegetable gardens for food production during the war (Jenkins 1994). Following WWI was the Great Depression. To restimulate the housing growth Congress passed the FHA (Federal Housing Administration) and HOLC (Home Owners' Loan Corporation), increasing homeownership and suburbanization significantly (Jenkins 1994). Suburbanization thrived because of widespread car



Figure 2.05. Typical home exterior and landscaping in 1910.

ownership along with the shared desire to leave cities to get away from the harsh industrial setting (Bormann et al. 2001; Jenkins 1994; Zhang et al. 2015). Abraham and William Levitt, Andrew Jackson Downing, Frank J. Scott, Frederick Law Olmsted Sr., and Frank A. Waugh were leaders in this, creating plans for the suburban landscape (Zhang et al. 2015 “Abraham Levitt and his son William Levitt, known as the fathers of the American suburb, planted lawns in their massive suburban developments, because they were cheap and quick, perfect for post-war suburban development” (Bailey 2016, 16).

During World War II, the lawn was portrayed as a patriotic symbol to keep up the country’s morale, serving as an image for soldiers to come home to (Colomina 1999; Veder 2000). Lawns were also seen as a productive hobby that worked towards the war effort. Because there were only manual reel mowers, lawn care saved gasoline, and growing a victory garden supported the war. After the war, the lawn was seen as a garden of peace and productivity, as the space continued to serve as a therapy mechanism for veterans returning from war (Colomina 1999).

Post World War II

In the post-war era, few suburban homeowners knew how to achieve and manage the desired manicured lawn. This sent lawn care companies into full production, instigating a mass production of rotary lawnmowers and synthetic chemicals (Jenkins 1994; Shern & Slocum 1996; Steinberg 2005). The condensed 9 a.m. to 5 p.m. workday allotted more time for lawn management, giving households an outlet to exhibit their social status (Jenkins

THE METAL OF MOTION

DOWMETAL *magnesium*

IN THINGS THAT MOVE . . .
MAGNESIUM IS EARNING ITS OWN IMPORTANT PLACE

● Each cubic yard of all the seven seas contains more than two pounds of magnesium. Dow is engaged in the extraction of this abundant substance from the brine, thus providing industry with the lightest of all structural metals.

But extreme lightness in itself is of little significance until the fact is added that magnesium is likewise strong and durable. And it has other characteristics, too, which make it peculiarly valuable in many fields of endeavor—from to-

day's most elaborate war materiel to tomorrow's version of the lawn mower.

Wherever metal is to be put in motion: in the moving parts of machinery, where power is to be saved . . . in manually operated tools and equipment, where human effort is to be conserved . . . in aircraft and other conveyances, where lazy weight is to be eliminated—in all these places the Metal of Motion is contributing its own important usefulness.

DOWMETAL

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle

4375

Figure 2.06. Advertisement for the Dowmetal Magnesium mower from the Dow Chemical Company in Midland, Michigan.

1994). Golf also encouraged this effort, funding the development of products to create effective lawn solutions including adapted seeds, fertilizers, and lawn machinery (Bormann et al. 2001; Steinberg 2005). “Here the distinction between an English lawn and the suburban American lawn becomes clear; the English lawn was never a piece by itself: it was always the setting for games or a neutral ground to stage flowers or trees. The American lawn in comparison is monolithic and manicured, a distinctly American invention” (Bailey 2016, 15).

Traditional Lawn Practices

Water & Irrigation

America uses an extravagant amount of water in residential settings (Vickers 2006). “In parts of Florida, Texas, Colorado, Arizona, and Southern California - some of the fastest-growing regions in the United States - more than 50% of water use is reported to be for outdoor purposes, much of it home turf” (Vickers 2006, 56). Overwatering occurs because of turfgrasses’ need for sufficient moisture, due to the species’ origin in England, where precipitation is abundant (Bormann et al. 2001; Jenkins 1994; Weigert 1994). “Converting thirsty lawns into alternative landscapes is one approach to water conservation, yet barriers such as cultural norms reinforce the traditional lawn” (Larson et al. 2009, 921). The unhealthy standard of lawn appearance leads to improper perceptions of water requirements leading to over-irrigation (Bremer et al. 2013). This predicament is heightened now given the scarcity of water, especially in arid climates and dwindling rainfall (Cristina et al. 2012; Steinberg 2005; Veder 2000; Vickers 2006). “Factors such as home value, home age, and lot size could also affect perceptions about the practices of lawn watering by homeowners. Presumably, residential homeowners with newer, more expensive homes may have higher expectations for maintaining a green lawn all the time, and fewer concerns about spending money for that purpose” (Bremer et al. 2013, 90). Those with an irrigation system are more likely to overwater because they do not see the effects of

overwatering; however, the effects are starting to become evident (Vickers 2006). In a study done in Salina, Wichita, and Kansas City 65-77% of residents thought that water conservation was “moderately to very important”, yet 71-77% did not know how much water was applied during irrigation. The research also revealed that watering frequency was most abundant in Wichita and least in Salina, with Wichita residents responding with more importance to phrases “having a green lawn all the time” and “keeping their lawn alive during hot weather” (Bremer et al. 2013). This has led to over-pumping groundwater such as in eastern Massachusetts where the Ipswich River was dry for several years, adding the river to America’s Most Endangered Rivers list in 2003 (Vickers 2006).

Lawn Maintenance Activities

Lawn maintenance takes up an increasing amount of time and money, inflicting environmental consequences (Weigert 1994). “In today’s market, labor remains the largest single cost in both home and commercial lawn care” (Bormann et al. 2001, 62). Americans collectively spend an estimated \$40 billion per year to maintain the front lawn, making it one of the largest economic industries (Zhang et al. 2015). Each summer, refueling lawnmowers and other garden equipment has led to an average consumption of seventeen million gallons of gasoline (Steinberg 2005). This was able to take precedence in the world of landscaping due to the cheap oil prices granted by the postwar economy. This affordability allowed for mowers, leaf blowers, and other garden equipment to be able to be inexpensively powered by gas and used to manicure the lawn (Steinberg 2005, 65). Lawn equipment also contributes to the overall waste put into the environment. Because many homeowners dump their grass clippings, it accounts for around 20% of all garbage generated in the U.S. and the second largest component, by weight, of the municipal solid waste. (Shern & Slocum 1996). “Yard waste is the second largest component of the waste stream; three-quarters of yard waste is grass clippings from our lawns” (Bormann et al. 2001, 85). If people throw away their lawn clippings to the landfill,



Figure 2.07. Advertisement for 'The Superior Lawn Mower' by Rogers Fence Co.

THE SUPERIOR LAWN MOWER.

SOME OF THE SPECIAL ADVANTAGES

RECOMMENDING IT ARE :

1st—The ease and quickness with which it can be adjusted to cut High and Low grass ; in a moment you can vary the cut from one-half to three and one-half inches.

2d—It is the only Mower in the market where the same machine Can, in a Moment, be Adjusted to Cut grass from one to twelve inches high.

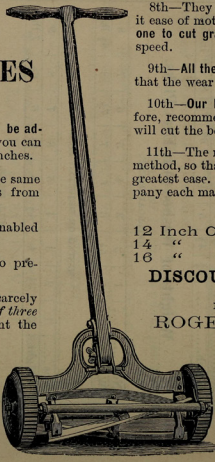
3d—Being a Front-Cut Machine the operator is enabled to cut grass close up to walls, fences, trees, etc.

4th—The Reel Knives are protected by a Guard to prevent them from cutting shrubbery, etc.

5th—The ratchet or pawl has no Spring, makes scarcely any noise, has eight catches in a circumference of three inches, so that the reel starts to cutting the moment the machine is started forward.

6th—The material used is of the very best quality, so that Breakages Seldom if Ever occur.

7th—The Knives are made by a patented process, of the best steel, and are hardened and tempered in oil.



8th—They are made with the double gear, giving it ease of motion, combined with strength, enabling one to cut grass rapidly going at a slow rate of speed.

9th—All the Bearings in the Mower are long, so that the wear will be very slow.

10th—Our Pawls will Not Gum or Stick, we therefore, recommend to oil with machine oil. Coal oil will cut the bearings.

11th—The machine is sharpened by a very simple method, so that even a child can sharpen it with the greatest ease. A Crank and full directions accompany each machine.

PRICE LIST :		
12 Inch Cut,	- - -	\$18.00
14 " "	- - -	15.00
16 " "	- - -	17.00

DISCOUNT TO THE TRADE.

MANUFACTURED BY THE
ROGERS FENCE CO.,
Springfield, Ohio.

Sole Agents for New York City,
Quackenbush, Townsend & Co.,
85 Chambers and
67 Reade Sts.

Figure 2.08. List of advantages in purchasing 'The Superior Lawn Mower.'

an oxygen poor site, it creates carbon-containing methane, aka greenhouse gases. If people in the U.S. let their lawn clippings decompose on the lawn (stores 16.7 teregrams of carbon a year = 147,000 blue whales) or compost at another site lawn (stores 5.9 teragrams of carbon a year) surfaces are a carbon sink (Lindsey 2005).

An overlooked topic when it comes to lawn practices is health. Originally, lawn mowing was advertised as a positive health experience: providing exposure to fresh air and exercise (Zhang et al. 2015). However, lawn machinery can be both hazardous and a producer of harmful pollutants that can impair health (Robbins & Birkenholtz 2003). This is because gasoline-powered lawn equipment tends to have higher emissions rates, such as carbon monoxide (CO) and non-methane hydrocarbons emissions (NMHC), comparable to automobiles and farm equipment (Robbins & Birkenholtz 2003; Ignatieva et al. 2020). These emissions also have negative health correlations including cancer, deterioration in neurologic functions, immune system effects, and reproductive and birth defects (Shern & Slocum 1996, 105). "Annual pollution emissions from lawn utility machines in California are equivalent

to the emissions produced by 3.5 million 1991 model automobiles driven 16,000 miles each” (Bormann et al. 2001, 74).

Chemical Usage

Chemical application is an environmental hazard and does not provide much benefit to the plants themselves. Chemicals change the soil profile, micro-fauna diversity, air quality, wildlife, pollute stormwater runoff, increase water consumption, and energy use (Robbins & Birkenholtz 2003). Lawns and urbanization may have a correlation with the decrease in water quality with pesticides and other harmful runoff polluting it (Bremer et al. 2013). Air is 78% nitrogen; however, plants can't use nitrogen in this state. In natural systems, nitrogen is created and used through the process of decomposing plants. Before WWI, most fertilizer was from animal manure, guano, and blood meal. However, after the discovery of capturing nitrogen to create synthetic ammonia, fertilizers have become negative environmental impacts contributing to fossil fuel emissions from the mining, refining, and transporting of potassium & phosphorus in fertilizer. These nitrogen-phosphorus-potassium fertilizer formulations cannot fully be used by plants. With about half of the mixture being dissolved into groundwater and runoff, causing growth in the number of bacteria, leading to low oxygen in the water and the killing of aquatic animals (Zhang et al. 2015). “A number of studies have linked urbanization with declining water quality in surface and ground water reservoirs due to increased concentrations of nutrients and pesticides, some of which are used in lawns” (Bremer et al. 2013, 23). Two different effects that can occur include eutrophication, the input of excessive nutrients in a body of water, and hypoxia, the depletion of oxygen in water resulting from rapid decomposition of organic material. (Sewell et al. 2010). Fertilizers are shown to be unnecessary as lawn clippings can act as a natural fertilizer if left in the lawn to decompose (Bormann et al. 2001; Monteiro 2017).

With large exposure, these pesticides and fertilizers can have toxic or harmful health effects, despite being claimed to be safe for



Figure 2.09. Advertisement for 'Evans' Electric Sprayer and Bug Exterminator.'

human contact (Bormann et al. 2001; Robbins & Birkenholtz 2003; Zhang et al. 2015). In the past, Turfgrass Producers International and the PLCAA released statements containing information that a fifty-by-fifty-foot lawn supplies enough oxygen to offset the needs of a family of four. This fails to consider the oxygen needed by microorganisms to decompose grass clippings, as well as the loss of oxygen from mowing. In fact, one hour of running a lawn mower is equivalent to 350 miles of driving a car (Bormann et al. 2001). The level of maintenance for lawns alters the natural system to the extent that more and more artificial materials are necessary to sustain its integrity (Sachs 1996). This is prevalent as nationwide 74% of households use some form of fertilizer or pesticide (Sewell et al. 2010). In the Midwest this is even more apparent with 91% of households reported fertilizing their lawn, and only 3% testing the soil prior to application (Sewell et al. 2010).



Figure 2.10. Graphic conveying to protect your victory garden through killing insects.

Naturalistic & Biodiverse Lawns

Importance of Species Diversity

Species extinction is a normal earth function, often caused by large catastrophes or gradual environmental changes. Creating the same landscape across the country isn't ecologically feasible without being highly unsustainable (Bormann et al. 2001). Fossil

records explain that “natural” extinction is about one species per thousand years with a new species return rate that matches this rate. However, through human activities the extinction rate has been accelerated through habitat destruction and pollution outweighing typical speciation rates (Tallamy 2019). In fact, in 1991 an estimation predicted that one quarter of species known could be eliminated in the next fifty years. For example, “A housing development frequently involves the wholesale destruction of a forest, an abandoned agricultural field, or a desert” (Bormann et al. 2001, 86). When one works to make a pristine lawn by watering, spraying, and mowing, the ecosystem is further removed from what it once was (Bormann et al. 2001). “The perfectly manicured lawn with only one variety of grass and no tolerance for pests has been referred to as an industrial lawn and creates conditions that are often impossible for an ecosystem to endure” (Sachs 1996, 74). The “American lawn” only enforces this species diversity reduction due to the lawn’s monoculture nature (Tallamy 2019). “The habitat required by dozens of native bees for nesting sites was but eliminated when nature was replaced by lawn, as were the contributions those bees would have made toward pollinating crops and other plants around us” (Tallamy 2019, 49).

From this lack of plant species diversity comes a lack of wildlife diversity. In suburban developments where the lawn is most prominent, there is usually an increase in ground feeding birds, outweighing the population of other birds. Conversely, monarch populations have declined due to the decline in habitat and resources provided through flowering plants like milkweeds, asters, and goldenrods (Tallamy 2019). “Incredibly, migrating monarchs that were once present in huge numbers have been reduced by well over 90 percent to a remnant of their former population” (Tallamy 2019, 38). “When we chop up a large forest into several small woodlots divided by roads, housing developments, strips malls, and other human development, we inadvertently reduce the population sizes of the organisms that inhabited the forest when it was intact” (Tallamy 2019, 40). “We now live in a world in which habitat- places

that provide both food and shelter for plants and animals- is so fragmented, and those fragments are so isolated from one another, that they are hemorrhaging species at an alarming rate” (Tallamy 2019, 45). “When a population is large, it typically can withstand even severe environmental insults, but when a population is reduced to a small fraction of its normal size, environmental stress can send it to oblivion” (Tallamy 2019, 39). Making habitat preserves bigger is better, but still brings environmental risks to these populations (Tallamy 2019). Not only is decreasing habitat size detrimental, but the edges of these habitats are deadly to species as well (Tallamy 2019). “The edge of a forest is windier, drier, and brighter than its interior” (Tallamy 2019, 42). Additionally, there are disruptions to migration and natural reproduction of species. Another species experiencing significant habitat disruption is the Eastern box turtles. These turtles either have been destroyed by crossing roads or by agricultural vehicles working farmland. Overall, many species of different sizes and speeds are being affected by habitat fragmentation with private landscapes destroying natural corridors (Tallamy 2019). Limiting a habitat to one variety of plant also limits how many organisms can exist in that system (Sachs 1996). “The diversity of a natural setting not only provides better survivability but also creates a habitat for a more balanced ecosystem (Sachs 1996, 77).

To create better habitats, land connections should be made to improve species populations. These corridors provide an avenue for safe travel between habitat pieces (Tallamy 2019). “If we are going to turn our planted landscapes into effective biological corridors, we will need to add millions of plants to our neighborhoods, corporate landscapes, and the lands bordering infrastructure across the country” (Tallamy 2019, 47).

Native Plantings Background

“When domestic animals were introduced to North America, native grasses could not survive and replenish themselves under pasture conditions. European species could, and in fact did quickly

take over in areas disturbed by European influence. As European influence (and the animals that came with them) spread, so did invasive grasses. Today, most prairie lands in the U.S. are cultivated or disturbed by urban settlement” (Bailey 2016, 18). This urban settlement has taken out forests, meadows, and savannahs that used to grow there (Tallamy 2019). Due to these events, now most of the native grass species in the U.S. are now extinct (Bailey 2016). “Turfgrass has replaced diverse native plant communities across the country...and we are adding 500 square miles of lawn to the United States each year” (Tallamy 2019, 47). “Jefferson could have landscaped effectively and beautifully using native plants, but including native plants would not have achieved his goals. Native plants were everywhere, and using common plants in the garden did not indicate status-they did not require wealth to buy and international connections to obtain” (Tallamy 2019, 54). Gardeners still use non-native plants today to showcase their rarity and differentiation from the surrounding landscape (Tallamy 2019). These non-natives introduce “...invasive plant species, devastating insect pests, and deadly plant diseases to which our native plants have no resistance” (Tallamy 2019, 54-55). In fact, 85% of all invasive woody plant species in the U.S. have started from residential landscaping (Tallamy 2019). Oftentimes what are known as weeds are mistaken for native plants. Weeds are plants in the wrong place because in a natural setting there are no weeds (Sachs 1996).

Eco-friendly solutions for lawns include shifting to the integration of native plants in the landscape, encouraging biodiverse ecosystems (Ghys 2013; Monteiro 2017). There is a preference for native plantings in naturalistic settings, even when those looking at the plantings cannot identify which species are in the photograph (Zadegan et al. 2008). Native plantings have lower water needs, provide strong roots that help with erosion, and provide habitat (Canaway 2010; Martin 2007; Vickers 2006; Yandik 2001). Naturalistic landscape styles have many benefits aside from the ecosystem as well. These include meeting complex goals, nature conservation, community involvement, environmental education,



Figure 2.11. A naturalistic landscape bed in bloom with a drybed stream running throughout.

sustainable development, aesthetic quality, cost efficiency (Özgüner et al. 2007). Native plantings also sequester more carbon than a traditional lawn making them beneficial for human health (Tallamy 2019). Native plants also attract insects, balancing the food chain (Bormann et al. 2001; Ghys 2013). Trees and shrubs provide food and shelter beneficial to introduce both structural variety and species diversity (Bormann et al. 2001; Monteiro 2017). Native plantings have minimal long-term maintenance and water needs after initial maintenance of hand weeding and watering-in of the species (Canaway 2010). Naturalistic landscapes can be cheaper than manicured landscapes, but it depends on the patterning, intensity, and previous cost of the landscape (Özgüner et al. 2007). Converting lawns into alternative landscapes is an approach to water conservation (Larson et al. 2009). These native lawns can also be known as freedom lawns. Freedom lawns allow any

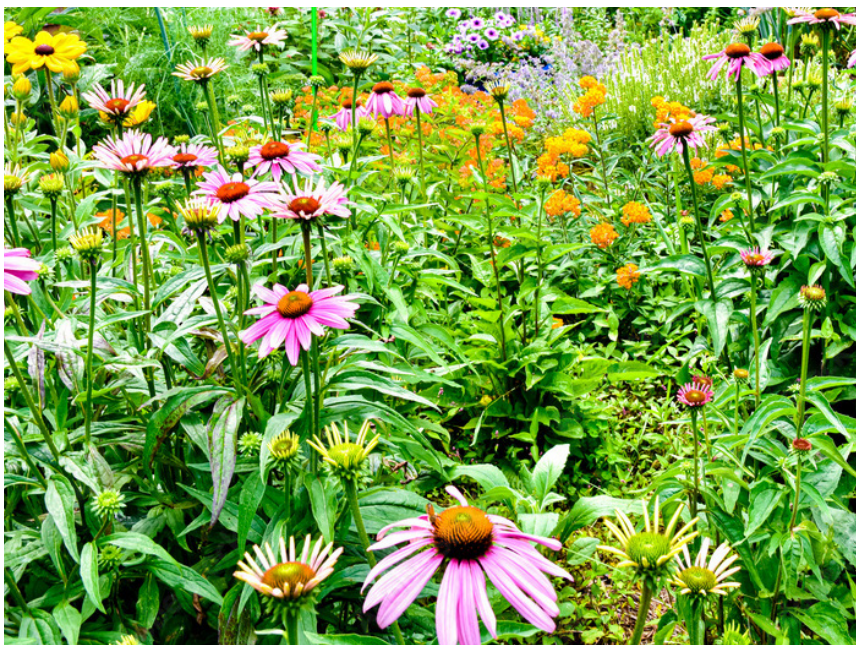


Figure 2.12. A mix of Kansas native plantings in bloom.

plant species to grow naturally making the lawn adaptable in all different stressful environments. The goal of a freedom lawn is to minimize the use of fossil energy and other scarce natural resources (Bormann et al. 2001). Despite adaptation, lawn grasses are still invasive species, Kentucky Bluegrass, carpet grass, and rye grass are all non-native species (Bailey 2016). Low input turfgrasses create a better solution to the problem, but still do not reap as many benefits as native plantings (Hugie et al. 2012). If lawn grass is still desirable in certain areas, less frequent mowing and with a hand-push reel mower can lower carbon emissions and preserve habitats (Bormann et al. 2001; Canaway 2010). Naturalistic landscapes are shown to have a place in urban landscapes enhancing connection to nature, environmental education, and natural renewal along with the landscapes (Özgüner et al. 2007).

Human Nature

In today's age, people are so far detached from nature that there is little desire to see it and some even fear it. However, the luxury of ignoring the natural world was not always the case. Humans used

to choose savannah-like prairies because of their unobstructed view of predators. Some psychologists even believe that humanity turns back to this instinct, resulting in turning our land into a visually free space like what is seen with the traditional lawn. Although there are other hypotheses that the science of status and conformity to be a part of a “tribe” feels so much more convincing as to why the lawn has stood the test of time (Tallamy 2019). “The above-mentioned American Dream is one; but I do not perceive any hoary origins for American lawns such as genetic imprinting from homo sapiens earliest home grounds in the grass-scapes of central Africa. Neither do I find the American yard’s origins in the pilgrim fathers’ drive to clear the woods, which some believe to be legacy of the medieval fear of the deep, dark forests” (Schroeder 1993, 8). If this was the case, then there would be evidence of these origins a long time ago as well as instances seen in other countries like Europe too (Schroeder 1993). Natural scenes are typically most drawn towards because of their balance of continuity, complexity, and symbolic significance (Özgüner et al. 2007).

Humans are a territorial species. To survive and reproduce successfully, resources are needed but may be in short supply. It would be easier to acquire these resources if some humans were excluded from the tribe. To decide who was part of the tribe, humans chose people who looked and behaved most like them, although we are a little more welcoming than we once were. This behavior still becomes apparent in things such as the lawn (Tallamy 2019). “We conform to the norms of our neighborhood in almost all aspects of our daily lives so that we feel, and are, accepted by our local society. We choose our wardrobes, our cars, our diets, our vacations, and even the plans in our yards with one largely subconscious goal in mind: to send the clear message that we are like those around us and therefore should be accepted as a member of their tribe” (Tallamy 2019, 52). Marketing agencies still play into this instinct by convincing groups to buy certain products, to vote for certain people, to dress a certain way, and more (Tallamy 2019). “The visual nature of front yards accentuates social pressures and the

moral duty to uphold aesthetic norms, neighborhood character, or property values” (Larson et al. 2009, 924). However, this perception can still be changed as large societal shifts happen all the time (Tallamy 2019). This is beginning to be seen already, for example children no longer play in the front yards due to safety concerns, and adults no longer use their front porches to converse with people passing by. With the lawns use changing, the appearance of the lawn could as well (Schroeder 1993). By making homeowners stewards of their land again, overall positive views of humanity and the natural world may be created (Larson et al. 2009). “Overall, people’s rationales for their landscape preferences are likely to reveal diverse worldviews and the social construction of nature and ecological impacts, thereby helping to clarify why simple quantitative measures of environmental values have been largely insignificant in explaining and motivating ecologically friendly landscaping practices” (Larson et al., 2009, 924). This is prevalent already as homeowners are shown to value the cost to maintain the landscape over weediness and water consciousness (Hugie et al. 2012).

Social Perception

HOA & Development Code

Homeowner Associations (HOAs) first occurred in the 1960s, and now have reached such popularization that a fifth of Americans are a part of one. The main purposes of HOAs include: 1) assessing monthly fees to maintain common landscape areas and amenities enjoyed by all association residents; 2) coordinate and provide services like landscape maintenance, trash removal and snow plowing; and 3) enforce aesthetic/maintenance standards to protect home values. This privatization of local government involves policy-making implementation, the enforcement of by-laws, and most significantly the landscape (Clarke & Freedman 2019; Fraser et al. 2016). HOA policies include subdivision covenants and zoning ‘setbacks’ encouraging the existence of the lawn (Shern & Slocum 1996). Residential landscaping has a direct correlation to property value (Zadegan et al. 2008). Based on a Montana study, “...an



Figure 2.13. A typical suburban house and landscape.



Figure 2.14. A sprawling suburban neighborhood layout.

average 41% of the perceived home value added by the landscape to the base price of the home was due to the design sophistication of a landscape, 35.9% to plant size, and 22.4% to plant material,” (Zadegan et al. 2008, 10). They also advocate for services that “increase” property values and regulate lawn appearances (Clarke & Freedman 2019; Fraser et al. 2016; Zhang et al. 2015). With HOAs having authority over the semi-public front-yard space, conformity is required through tree placement, shrub placement, and lawn height

which influences home prices and enforces a standard of landscape beauty (Schroeder 1993, Zhang et al. 2015).

Disadvantages of living within an HOA include social restriction and limitations of aesthetic preferences. Within HOAs, perception and psychological pressure play a large role in ensuring regulatory actions are taken care of (Fraser et al. 2016). Opinions differ on whether homeowners enjoy living in HOAs; however, “some contend that HOAs represent a sensible market solution to local public goods problems, while others see HOAs as a sort of unregulated hostage crisis with unwitting homeowners harassed by busybody neighbors” (Clarke & Freedman 2019). Those living in HOAs tend to exceed landscape maintenance through the overuse of irrigation and chemicals to mold to the standard (Lerman et al. 2018). HOAs also tend to be composed of higher-income individuals and less racially diverse blocks than non-HOA nearby neighborhoods (Clarke & Freedman 2019). From studies and commentary, HOAs tolerate little deviance from social norms, which is welcomed and accepted by many of the residents that live there taking little regard to the environment to meet their standards (Fraser et al. 2016).

User Lawn Transformations

Homeowners are realizing the exhaustive effects that their lawn can have on the environment. With profound lifestyle and generational changes, traditions like the lawn are being questioned. This movement has inspired leaders to come forward to implement impactful movements for change, starting with their own landscapes as native species are increasing in popularity (Vickers 2006; Zadegan et al. 2008). A couple in Athens, Georgia added additional trees, shrubs, and native plants to their lawn. The couple found that letting their lawn be one with nature brought them great satisfaction. Another homeowner found their love for sustainable lawns after their lawn mower broke forcing them to leave their lawn unmown till a replacement came, but found they preferred the landscape instead. While the neighbors were not pleased, they stuck with their decision for the aesthetic and ecological benefits (Bormann et al. 2001). To

reduce water use on her property, a homeowner only planted what survived her limited watering regimen and lack of intense care. This led to many native plants being implemented and in return, water savings (S. Wasowski & A. Wasowski 1993). One user was an avid lawn mower who enjoyed the tedious process until he realized he found gardening to be a much more fulfilling experience abandoning the bad practices that lawns encompass (Bormann et al. 2001). Emotionally, it is shown that interacting with plants can improve a sense of self-worth and create more feelings of freedom and control in one's life (Aldous 1999). Gardening also lessens one's dependency on energy, technology, and food purchases, while adding to a sense of control (Bormann et al. 2001). Overall, users who have found sustainable lawn alternatives have not had regret. Some homeowners have even started to find beauty in plantings in their worse state. One author writes,

The low morning sun hits the inland sea oats (*Casmanthium latifolium*), making the seedheads glow golden and bringing out hints of purple in the dark yellow stalks. Patches of green showing along the path and amidst the fallen leaves are tufts of native sedge and the leafy rosettes of various herbs and wildflowers, such as avens, green eyes (*Berlandiera texana*) and obedient plant (*Physostegia virginiana*) (S. Wasowski & A. Wasowski 1993, 56).

In transforming one's traditional yard into a naturalistic one, there are a few things to consider. Because scale can be hard to estimate outside it is important to get the correct proportions to match the surroundings. Additionally, using plantings that match the context of materials can help create a cohesive design (Oehme van Sweden, 2017).

Reactions to Naturalistic Lawns

Not all neighbors are fond of lawn decisions that skew from tradition. A well-maintained lawn represents intelligent owners with respected jobs and picture-perfect families (Weigert 1994; Zhang

et al. 2015). “The lush, meadowlike carpet lightens and softens spacious areas between trees and shrubs in a yard” (MacCaskey 1985, 5). Because of this, communities have immense pressure to have unreasonable standards: a plot no taller than a couple of inches, neat edges, green and vibrant, with no weeds in sight (Bormann et al. 2001; Jenkins 1994). For many, looking at a “bad lawn” or untraditional lawn, triggers anger or rage and some even feel morally motivated to notify the homeowner of the ill appearance as assistance (Weigert 1994). Native plantings look like an abandonment of neighborhood standards (Tallamy 2019).

There have even been cases of threats associated with lawn care not living up to the standards of strangers. One couple received startling responses after merely planting wildflowers in their front lawn (Weigert 1994). “Through the summer, they received threats to burn their house; herbicides were put on their flowers; their cat was stoned; birds were shot, and snakes released in their yard; and a court convicted and fined them \$50 a day for ‘creating conditions hazardous to health’” (Weigert 1994, 87). This caused the couple to move from the neighborhood to avoid the harsh social environment. Similarly, one woman had a native lawn put in her yard and was harassed by saying her property value had decreased by \$10,000, so much so that she sold her house and moved to a more rural setting with no immediate neighbors (Tallamy 2019). Another individual with a naturalistic lawn diffused harsh comments by putting up a sign declaring the property a bird sanctuary. Most of the comments stopped shortly after (Bormann et al. 2001).

Conversely, several users are inspired by the sustainable changes in their neighborhood and want to revitalize their lawns. One homeowner adopted native plantings, starting a trend that inspired many of the neighbors to follow suit (S. Wasowski & A. Wasowski 1993). Slow implementation of changes and maintaining good relationships with neighbors may cause them to imitate the behavior and practices for a sustaining naturalistic lawn ideal (S. Wasowski & A. Wasowski 1993). This influence is important because these practices will allow future generations to create a better connection

with nature, helping to fight for the planet and quality green space (Hines 2002).

However, some ordinances prevent users from fulfilling their lawn freedom. Native plantings have been mistaken as weeds and reported to the government as an unmanaged lawn (Bormann et al. 2001; Burr et al. 2018). This ignorance created a citation that one couple rebuked. After explaining the ecological benefits to the officials, the citation was lifted and even the regulations were changed (Bormann et al. 2001). One homeowner states being jailed from long grass citations because she let her lawn become overgrown (Hines 2002). These cases demonstrate the extent people must fight for sustainability. Many homeowners have expectations that their lawn needs to appear like golf course, but do not have reasoning other than social standards making this an issue of education (Sachs 1996).

In a pilot study conducted in spring 2003, a small number of consumers expressed interest in purchasing native herbaceous plants. However, the majority of plant buyers preferred more traditional species. The initial study indicated that the lack of interest in purchasing native plants was due to lack of knowledge about the plants rather than price differences or other factors (Zadegan et al. 2008, 110).

Another research project studied consumer preferences for low-input turfgrasses with results that 95.7% of homeowners indicated a likelihood to purchase low-input turfgrass if more information was provided (Hugie et al. 2012).

Naturalistic Aesthetic Preference Research

The debate of aesthetics is an age-old question that often has many opinions. According to a study done in Montana, residents place most importance on the aesthetics of their lawn when asked in relationship to other options such as plant material and species diversity (Zadegan et al. 2008). Naturalistic landscapes are not as commonly seen because formal landscapes have more popular

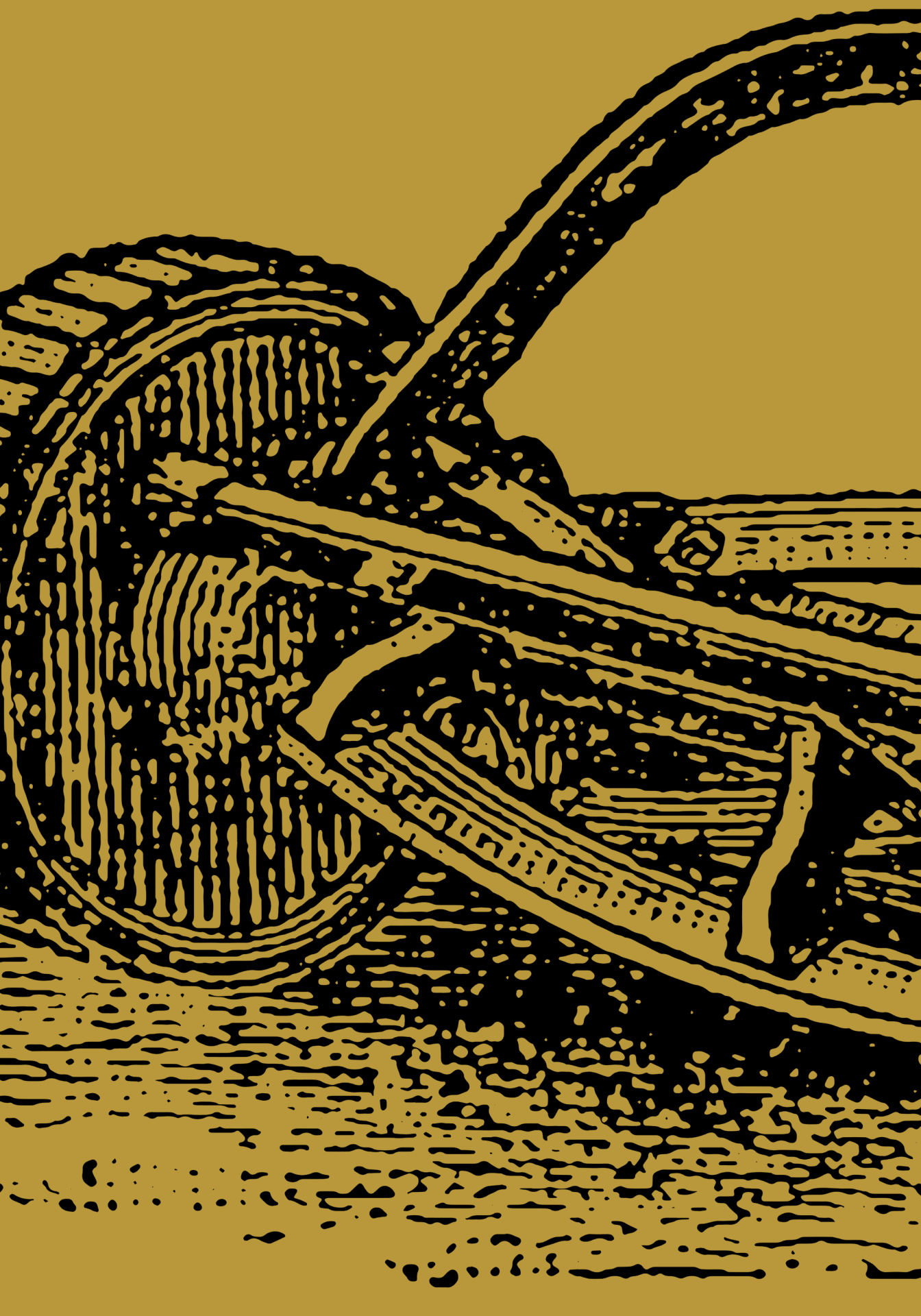
demand due to aesthetics. Formal landscapes are defined with, "...artificial features or geometric or uniform patterns; neat and tidy appearance or intensive maintenance; and obvious human control in the design and management" (Özgüner et al. 2007, 37).

When it comes to naturalistic planting, people often reject these landscapes because residents only see an unruly, weedy space. The most common complaint with naturalistic landscapes are their appearance (Özgüner et al. 2007). What residents do not understand is that these landscapes have a large ecological impact compared to non-native turfgrass (Nassauer 1995). Typically, homeowners give preference to dark, fine, grass with no color infestation (Hugie et al. 2012). "Ecological quality tends to look messy, and this poses problems for those who imagine and construct new landscapes to enhance ecological quality" (Nassauer 1995, 161). When naturalistic landscapes are not adequately presented, then there can be large misunderstandings regarding their use. To avoid this from occurring, one must present landscapes in an orderly frame and with "cues to care". In a study done with farmers and rural residents, one found that the most aesthetic landscapes were described with having a level of care to them. Building off the study, suburban residents were surveyed on their aesthetic thoughts about seven different landscapes (Nassauer 1995). The overarching message of the research supports the claim that landscapes with "cues to care" are more likely to be accepted (Nassauer 1995; Özgüner et al. 2007). Some themes of the cues to care pulled from the study are as follows: mowing, flowering plants and trees, wildlife feeders and houses, bold patterns, trimmed shrubs, planting in rows, fences, architectural details, lawn ornaments, and foundation planting (Nassauer 1995). Additionally, minimizing visual conflict and perceptual conflicts with natural areas can equate to human care and stewardship (Özgüner et al. 2007). Naturalistic landscapes are often most successful in rural areas where natural areas are more prevalent already (Zadegan et al. 2008).

In the 1970s, naturalistic landscapes grew in popularity in the United Kingdom through 'greening of cities movement' or 'ecological design.' This trend included applying naturalistic landscapes to park systems, housing, new towns, urban wasteland reclamation, and school ground improvements (Özgüner et al. 2007). A leader in this 'ecological design' style is Oehme van Sweden, a landscape architecture firm that promotes their version of naturalistic landscapes through the idea of the "New American Garden." They describe their landscapes as follows, "It is vigorous and audacious, and it vividly blends the natural and the cultivated" (Oehme van Sweden 2017). A strategy the firm especially works by is planting in masses to show a sense of order within the naturalistic forms (Oehme van Sweden 2017). Creating more naturalistic landscapes is seen as a form of protecting the natural environment and gives an increased sense of responsibility and ownership to the land (Özgüner et al. 2007).



Figure 2.15. Residential landscape by Oehme van Sweden.





METHODS

CHAPTER 3

The methods follow the order of literature review and existing guidelines, precedent studies, survey, design application, and lastly design guidelines. This process supports the project's research question which is as follows,

“How can public acceptance of naturalistic residential landscapes be increased through design (guidelines) promoting high aesthetics and ecological function?”

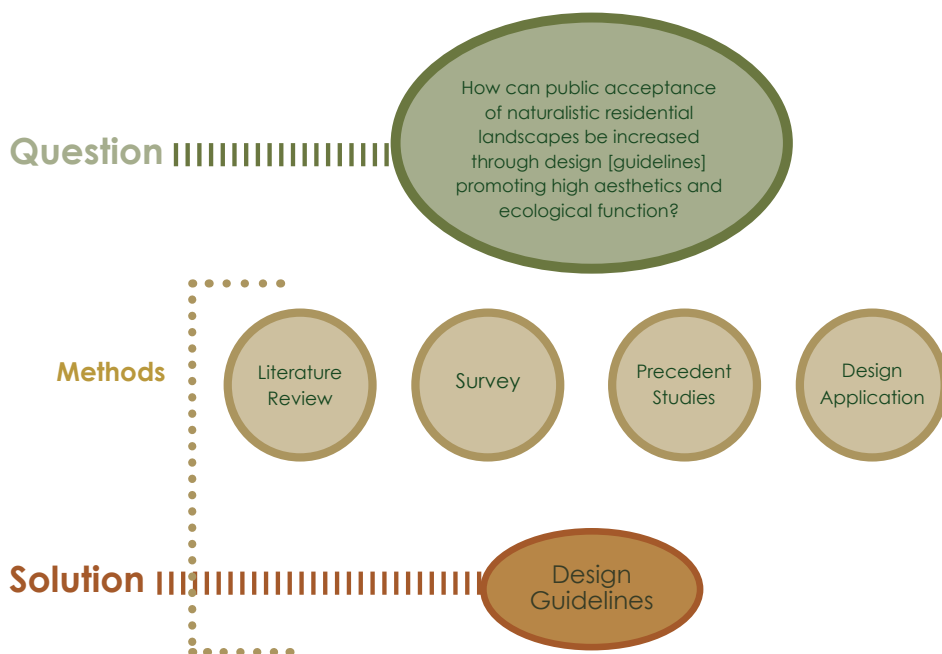


Figure 3.01. Methodology process overview.

Survey

An online survey was conducted to gain knowledge about user perception and lessons learned from naturalistic residential landscapes in Kansas. The topics of interest covered in the survey included stakeholder grouping, demographics, naturalistic landscape background, design principles, public perception, current yard characteristics, establishment and maintenance, and policy and legality. The survey included forty-one questions in total, with question subsets directed at different home resident types. Links to the survey were included in the K-State horticulture e-newsletter email lists. Survey subgroups include homeowners with naturalistic landscaping, homeowners with an interest in naturalistic landscaping, homeowners with no interest in naturalistic landscapes, and non-homeowners. These survey subgroups help determine question selection within the survey, to best tailor the survey to their knowledge and the research goal.

The goal of the research is to find out what prohibits social acceptance of naturalistic plantings, what aesthetic qualities are appreciated in these residential landscapes, what has been learned from residents who have implemented naturalistic landscapes, and what strategies might lead to more widespread acceptance of these landscapes to reduce environment impacts.

The survey questions were created based on the information found in the literature search. Some of the questions were inspired by previous research but with a tailored approach to learn this knowledge from Kansas residents' perceptions. A large portion of the research was based on aesthetics and visuals for a portion of the questions. Question 2, for example, used images of different landscapes to gauge what landscapes were most appealing to the survey respondents. This technique was used to get a sense of their views towards different ratios of grass and trees in working systems. Questions 3 through 6 broke down specific design qualities in residential landscapes. This included the following categories: planting edges, color, amount of planting, height, and

plant groupings. To target only one design quality without additional variables, a common backdrop was needed between the categories to avoid bias. This was achieved using Adobe Firefly AI software. The visuals were created by using trial and error of several prompts and adapting the images through generative fill. The images use the hyper-realistic effect. The prompt used as a basis for the design alterations was “cottage landscape with suburban home.” From this prompt, generative fill was used to adapt portions of the landscape to fit the needs based on the question asked. For example, for the planting edges question, the edge of the planting was highlighted in generative fill and “fence” was typed to automatically add a fence border. This was repeated for all images within Questions 3 through 6. Question 7 pulled existing naturalistic landscapes in residential settings to get users’ thoughts on their appeal based on the traditional landscape.

The survey reached a pool of about 5,000 potential respondents. This number originated from the existing number of active subscribers to K-State’s horticulture e-newsletter (about 3,000) email list and the Extension Master Gardeners’ email list (1,889). The survey was distributed through this media because the potential respondents already have an expressed interest in horticulture and gardening activities and widespread membership extends across Kansas, making them good candidates for the survey. Respondents were self-enrolled by digitally agreeing to participate by accepting or rejecting the consent at the start of the survey. The consent portion of the survey contained the following information: project approval date, project expiration date, IRB project number, length of study, principal investigator, surveyee, contact, IRB chair contact, purpose, survey procedure, anticipated risks, benefits of study, and terms of participation. The survey was sent out through the horticulture e-newsletter on February 12, 2024 and was open for 3 weeks. Two reminder emails followed the initial email inviting users to participate in the survey. The survey was also sent out through the Extension Master Gardeners’ email list on February 26, 2024 and was open for one week. All email notifications regarding the survey was

Survey Questions

In your current living situation, are you able to change your landscape's appearance?

How appealing are the following naturalistic landscapes in terms of plant composition?

Look and compare the following images. How appealing are the following naturalistic landscapes in terms of planting edges?

Look and compare the following images. How appealing are the following naturalistic landscapes in terms of color?

Look and compare the following images. How appealing are the following naturalistic landscapes in terms of the amount of planting?

Look and compare the following images. How appealing are the following naturalistic landscapes in terms of height?

Look and compare the following images. How appealing are the following naturalistic landscapes in plant groupings?

Compared to the traditional residential landscape, how appealing are the following landscapes?

Compared to the traditional residential landscape, how appealing are the following landscapes?

What deters and/or challenges you in incorporating (or considering a) naturalistic landscaping?

Why did/do you want to install a naturalistic landscape?

How much space do you want to dedicate to naturalistic plantings?

How confident do you feel performing the following skills when designing, installing, or maintaining naturalistic landscapes:

Who installed your naturalistic landscape?

How confident do you feel performing the following maintenance practices with naturalistic landscapes:

How many hours of traditional per week do you currently dedicate to your naturalistic non-food landscape during a typical growing season?

How many hours of maintenance per week do you currently dedicate to your naturalistic non-food landscape during a typical growing season?

*Is this more or less than with a non-naturalistic non-food producing landscape?

How challenging have the following topics been with naturalistic landscapes as a homeowner:

Where did your interest for naturalistic landscapes come from?

Where did inspiration for your naturalistic landscape come from?

How familiar are you with the following naturalistic landscape design strategies?

Were there any city codes that restricted the design of your naturalistic landscape?

How frequently have you received feedback on your naturalistic landscape?

Reflecting on your experiences with having a naturalistic landscape, is there any advice about challenges or unexpected positives that you would share with someone considering naturalistic plantings?

How inclined would you feel to report a homeowner if you felt their landscape violated city/Homeowner Association (HOA) ordinances?

Do you think a naturalistic landscape compared to a neighborhood of manicured (short mown) lawns lowers a community's sense of unity?

Are you a resident of Kansas?

What is your zip code?

In which state or country is your primary residence located?

What is your gender?

How old were you at the end of 2023?

What is your current employment status?

What is your Race?

What is your ethnicity?

How large is your property size?

How large is your lawn (routinely maintained) space?

Add any additional comments.

Figure 3.02. Survey questions.

conducted through the newsletter outlet, and the surveys closed at 5 pm on March 4, 2024.

The survey was anticipated to pose little to no risk to the respondents. However, respondents were instructed to stop taking the survey if they lacked sufficient knowledge, lacked time, lacked interest, and/or were unwillingness to disclose experiences or opinions on naturalistic lawns. Respondents could also choose not to answer questions that made them feel uncomfortable. The survey was not tied to any names or resident addresses to avoid any possibility of tracing the survey responses back to one's identity. A Project Participation Information sheet including the survey procedure and consent was provided at the start of the online survey with a yes or no question asking if the respondents understood and agreed to the terms. By clicking yes, the respondent agreed to the survey terms and the survey began.

Aside from the satisfaction of contributing to research on naturalistic landscapes, a small incentive was provided. This gesture helped attract survey respondents to participate in the survey. The incentive consisted of a link to the new naturalistic landscaping publication that will be released in the fall of 2024. The incentive was located at the survey's end to ensure their participation. Survey respondents who opted for the incentive were redirect to another survey to collect their email and name. This ensured their anonymity by not tying their identifiable information with their responses.

IRB approval was needed for the survey but was determined to be exempt from further review under category two. The survey was administered through an online link to the Qualtrics instrument and responses were digitally analyzed through the same software. Digital responses were the only form of data collected and was stored on a password-protected computer. The data may be used for future research and survey respondents were notified of this possibility before accepting the terms of the survey. All identifiable information will be removed if the transfer of the research occurs. The survey responses will only be accessible to graduate student



Project Title: The Perception and Environmental Impacts of Manicured and Naturalistic Landscapes

Project Approval Date: February 8, 2024 | **Project Expiration Date:** March 25, 2024 | **IRB Project Number:** IRB-12038 | **Length of Study:** 5 months

Principal Investigator: Associate Professor Howard Hahn Kansas State University | The Department of Landscape Architecture and Community Planning & Design (LARCP).

Surveyor: Julia Hammes, graduate student (LARCP) Anticipated length of Survey: The survey will take 10-20 min and be open for 3 weeks.

Contact Details for Problems/Questions: hhahn@ksu.edu

IRB Chair Contact Information: Lisa Rubin, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224; Brad Woods, Associate Vice President for Research Compliance, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

Purpose: The survey is conducted to gain knowledge about user perception and lessons learned from naturalistic residential landscapes.

Survey Procedure: This survey was developed in accordance with the protocols associated with Research Involving Human Subjects and was reviewed and approved by the Institutional Review Board (IRB) at Kansas State University.

Survey responses will be documented digitally and used in preparation of a master's project and report expected to be published in May 2024. The project report will be publicly available online through the KSU Research Exchange (<https://krex.ksu.edu/dspace/>). The final report will summarize the survey's findings.

Anticipated Risks: Anticipated risks to the interview subjects are judged by the researchers to be minimal to none.

Benefits of Study: The goal of the research is to present design [guidelines] that address concerns or reinforce benefits known from residents and bring greater acceptance of naturalistic plantings.

Terms of participation: I understand this project is research, and that my participation is voluntary. I also understand that if I decide to participate in this survey, I may withdraw my consent at any time without penalty or loss of benefit. I can stop participating at any time without explanation.

Identifiers will be removed from the identifiable private information and that, after such removal, the information could be used for future research studies or distributed to another investigator for future research studies without additional informed consent.

By checking yes this indicates I have read and understand this information sheet, and willingly consent to participate in this project and survey under the conditions described.

Thank you for taking the time to respond to this survey.

If you agree to participate in this survey, please proceed by clicking the yes button below.

Thank you!

Yes

No

Figure 3.03. Start of online survey.

Julia Hammes, Associate Professor Howard Hahn, Assistant Professor Leslie Wren, and Dr. Cheryl Boyer.

The Project Participation Information sheet was presented digitally on Qualtrics before the survey commenced. Because there is no deception involved, there was no need for clarity after the research has been conducted. The information sheet states that the project will be publicly available online through the KSU Research Exchange (<https://krex.kstate.edu/dspace/>). The Project Participation sheet contained the project title, project approval date/expiration date provided by the IRB, IRB project number, length of study, principal investigator, surveyee, contact details for the principal investigator and IRB chair, purpose of the research, survey procedures to be used, anticipated risks, benefits of the study, and terms of participation. These statements were provided at the start of the online survey with a yes or no option for survey participants to click yes if they agreed to the terms (starting the survey) or no therefore disagreeing with the terms and ending the process.

To test the survey, six graduate student volunteers went through the survey while the graduate student conducting the research sat silently nearby to record any confusion or concerns displayed by the volunteers. The composition of the six-volunteer group consisted of two landscape architecture students, two industrial design students, and two non-design students. A range of different backgrounds among the volunteers was helpful to get feedback when shaping the questions. Some comments by the volunteers led to changing the wording of survey questions like 1 and 28. Other comments identified display logic issues or misspellings. Question 8 was also adjusted to incorporate a separate question about interest in naturalistic landscapes, simplifying the survey. The size of the properties diagrams was also adjusted to better match the options for the questions.

- center precedent images
 - my mouse pixelated - crop in
 - ~~Mark~~
 - ✓ install plant material - plants
 - ✓ check all that apply - installation
 - ✓ change traditional display logic
 - ✓ Book(s) - inspiration
 - ✓ visual "contrast" misspelled
 - ✓ < 50,000 change to > 50,000
-
- fire - intense
 - specify plantings
 - ✓ edge define
 - add planting?
 - ✓ extent of planting
 - ✓ are you interested incorporating a naturalistic landscape
 - get rid of
 - scale change?
 - ~~no~~ - no intention on applying - make NA option
 - ✓ "space" should be "size" on property
 - size of properties are wrong
 - human non-food
 - plant groupings
 - well manicured ~~and~~ against naturalistic
-
- ✓ In your current living situation, can you change your landscape's appearance
 - ✓ employment status - pick one
 - non-food → inedible?
 - woodland prc → one w/o path?

Figure 3.04. Notes from test running the survey.

Precedent Study

Precedent studies of naturalistic landscapes in residential settings are featured and summarized. Precedents were chosen for two different scales: neighborhood-wide and the homeowner scale. The neighborhood scale showcases how large-scale efforts in naturalistic and conservation landscapes can occur in a residential setting. For example, in the precedent *Prairie Crossing*, one can see how a naturalistic landscape can be used to reduce the extent of manicured lawns, and how a naturalistic landscape can be managed through a home-owner association (HOA). Another neighborhood, *Fox Ridge* in Wichita, Kansas has extensive naturalistic landscaping along the neighborhood collector road but does not encroach on properties allowing residents to preserve their idea of a lawn. Additionally, the neighborhood showcases how collector roads would look like in a naturalistic neighborhood. Homeowner-scale precedents showcase how individual residents have successfully implemented naturalistic landscapes. For example, the precedent of the household implemented by *Miridae* in Davis, California uses naturalistic landscaping with planting in masses and lines. The full list of precedents is shown in the following table.

The precedents are analyzed based on their scale, neighborhood-wide or homeowner. Neighborhood-wide studies the amount of naturalistic land cover, its quality, and how the landscape is maintained, along with other noteworthy subject matter. Homeowner scale studies the planting design strategies, styles, color palette, the focal plantings, and any other focal features that enhance the design.

 HOUSEHOLD SCALE

Katama Road

Graenest Ridge Road

Riversville Road

North Street

Boules and Buckwheat

Mid-Century Haven

Cedar Acres

Prospect House

Charlie Mountain Ranch

 NEIGHBORHOOD SCALE

Jackson Meadow

Prairie Crossing

Fox Ridge

Figure 3.05. Precedent study list.

Design Application

A hypothetical design application site was chosen just outside Manhattan, Kansas in Pottawatomie County. The design application showcases a multiphase housing layout that conserves slopes and drainages while providing single-family and duplex housing. The design highlights areas that support naturalistic planting for neighborhood identity. These natural landscape areas include preserved drainage ways, a community collector road, community entry features, and an integrated trail system. The design also highlights a couple of different ways to organize naturalistic planting by residences (individual lot & zero lot line planting). The design application provides metrics for comparison to a typical neighborhood design. This proposed site, located at the intersection of Conroy Road and Green Valley Road, consists of two parcels combined to create 515 acres. The site is currently zoned for agricultural use and adjacent properties owned by the State of Kansas that include Pottawatomie State Lake 2, a planned unit development, and land zoned for two-family residential, and single-family residential. Notable site features include some remnants of cattle grazing but is pretty well managed otherwise. Site vegetation is mostly a prairie grass mix with deciduous hardwood trees, especially on the south side of the site. The terrain has slopes that range from .01% to 276% but large plateaus exist which are conducive for residential development. Onsite there is little flooding concern, but there are several drainage ways present along the site edges.



Figure 3.06. Existing site conditions.



POTTAWATOMIE LAKE 2

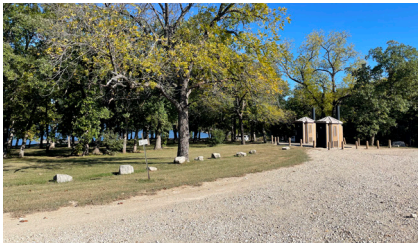


Figure 3.07. View of Pottawatomie Lake 2 campsite.



Figure 3.08. Pottawatomie Lake.

ADJACENT NEIGHBORHOODS



Figure 3.09. Heritage Hills new construction sign directly adjacent to the site



Figure 3.10. Single family residential south of the site.

THE SITE

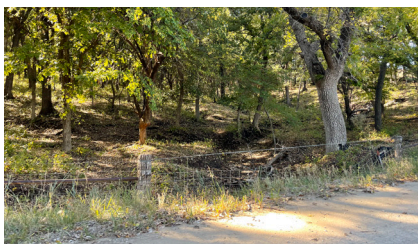


Figure 3.11. View of intermittent stream banks.



Figure 3.12. Driving along the east side of the site.



Figure 3.13. View of dam looking towards the site.



Figure 3.14. Housing overlooking the lake.

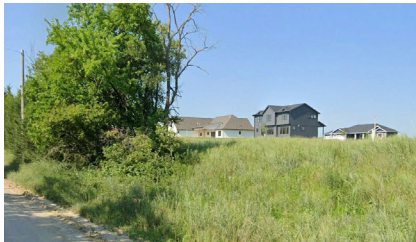


Figure 3.15. View of Heritage Hills neighborhood from site.



Figure 3.16. Duplex development south of the site.



Figure 3.17. Northeast corner of the site intersection.



Figure 3.18. Highpoint of the site on the North side.



Figure 3.19. Developable slope area.



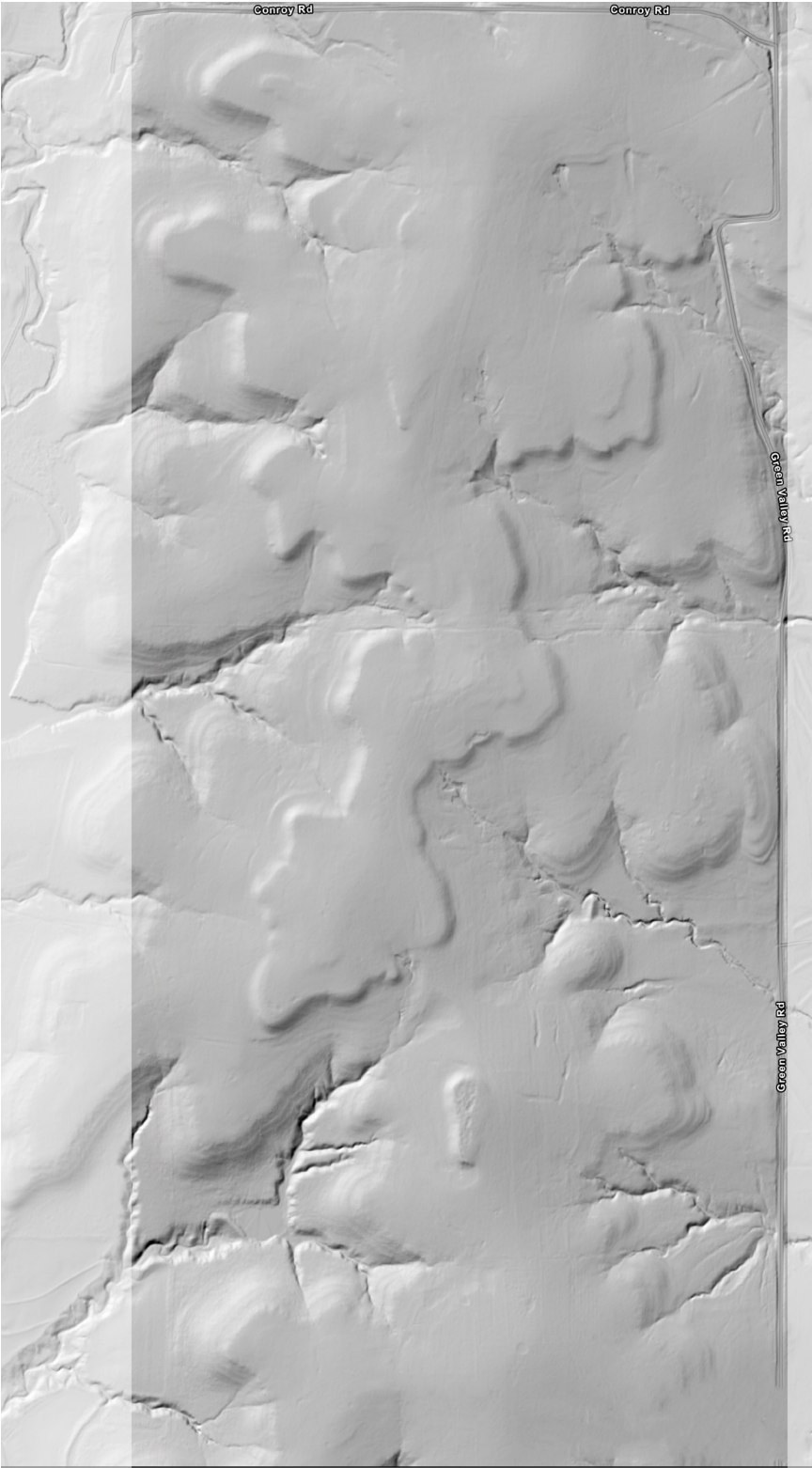


Figure 3.20. Hillshade overlay on site conditions.



Design Guidelines

The project culminates with the development of design guidelines for naturalistic landscapes intended for developers and homeowners. The design guidelines are a small booklet covering background and importance, precedents, general aesthetic guidelines, and design application examples. The background section includes a synthesis of the literature review supported by attractive graphics illustrating the aesthetics and benefits of native plantings over turfgrass. The precedents section gives users an idea of where and how landscapes of this type have been implemented and are worth emulating. General guidelines give the reader a concept of typical dos and don'ts for their landscape. Lastly, the design application give developers an idea of how this landscape paradigm could be implemented on a larger scale.



LITERATURE REVIEW

Includes a synthesis of the literature review supported by attractive graphics illustrating the aesthetics and benefits of native plantings over turf grass.



SURVEY FINDINGS

To gather specific data on Kansas residents perception of naturalistic landscapes, a survey will be used to gauge deterring and inspiring factors..



PRECEDENT STUDY

This section will give users an idea of where and how high quality naturalistic landscapes of residential and neighborhood scale have been implemented and are worth emulating. This will include imagery and analysis based on predetermined categories.



DESIGN APPLICATION

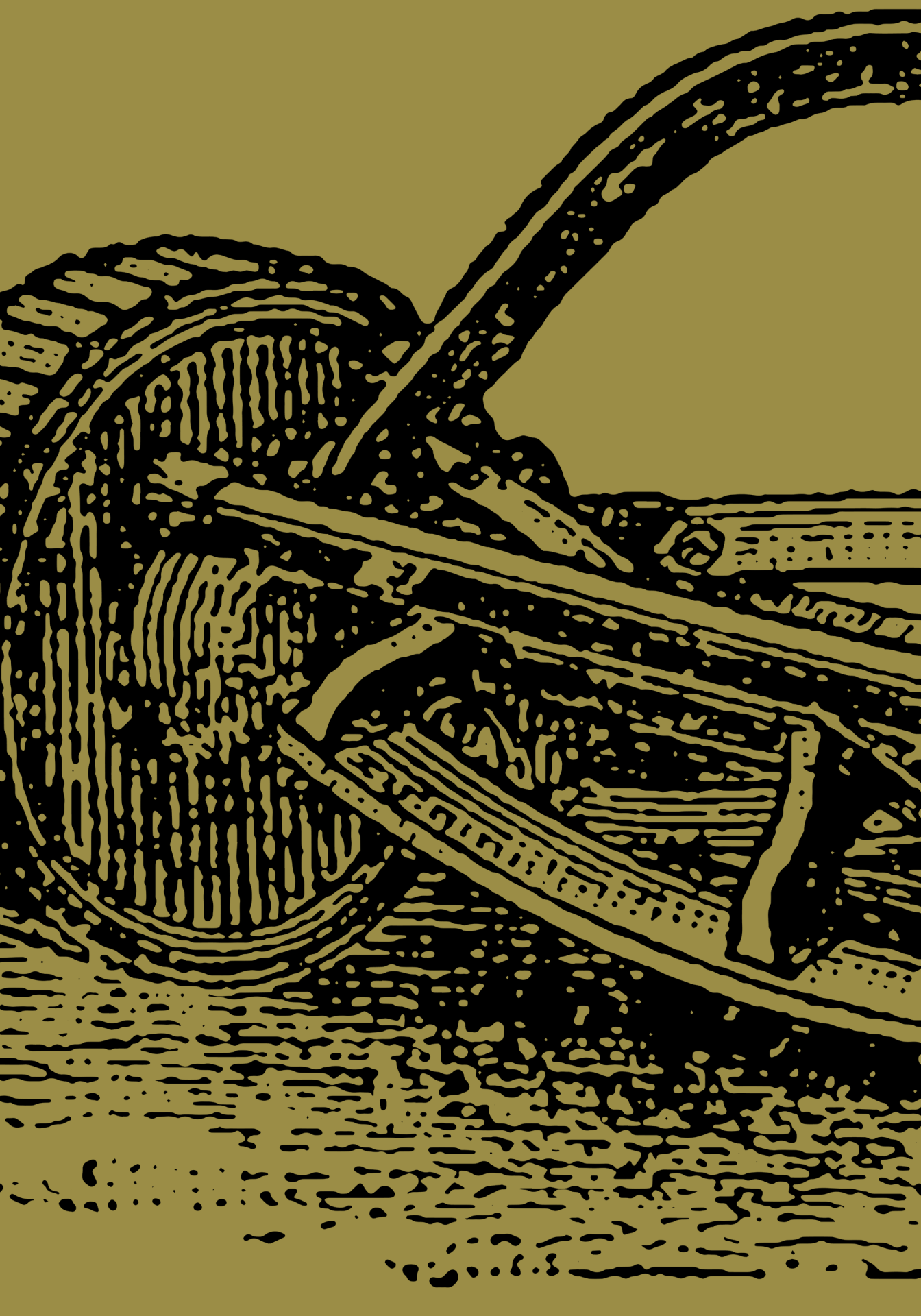
Design application will transfer lessons learned from the survey findings and precedent analysis to examples that are applicable to Kansas on scales that vary from the planting level to neighborhood.



DESIGN GUIDELINES

These guidelines will synthesize the previous methods in a concise way that easily communicate to the public why naturalistic landscapes are important and provide a jumping off point for those who want to get started.

Figure 3.21. Methodology conclusion tasks.





04

SURVEY FINDINGS

CHAPTER 4

The survey was conducted on February 12, 2024, and ran through March 4, 2024, equating to 21 days. There was a total of 270 respondents, equaling a response rate of 5.4%. Of the 270 survey respondents, 224 opted for the survey incentive of receiving the publication once finished. Fourteen respondents were not from Kansas with twelve of these residents being from Missouri, two from Nebraska, and one from Minnesota. Their responses were still included in the survey. The overall demographic showed survey respondents to be female, with the primary age being between 60-69 years old and retired regarding their employment status. The primary race was identified as white or Caucasian, and the ethnicity was not Hispanic or Latino. These demographics are in line with other surveys received based on this subject of work. Residents background showed that 87% of the respondents could change their landscape's appearance and live on a property sized between 5,000 - 15,000 sq ft (0.11 - 0.34 acres), with less than 5,000 sq ft being lawn (routinely maintained) space. The survey was analyzed with the tools within Qualtrics and Excel, and the results are presented in the following pages.

PARTICIPANT DEMOGRAPHICS

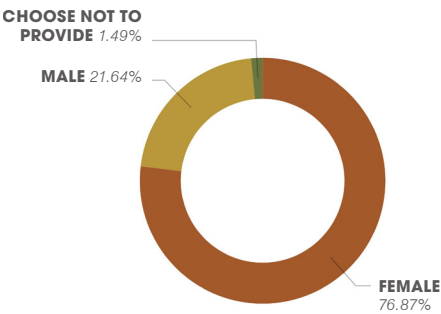


Figure 4.01. Gender

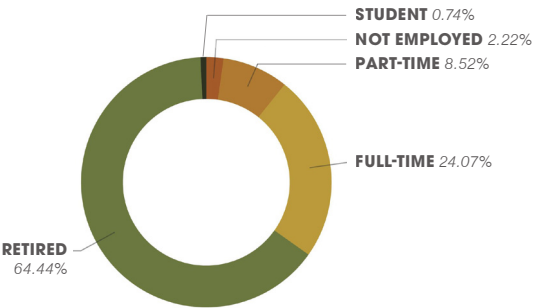


Figure 4.02. Employment Status

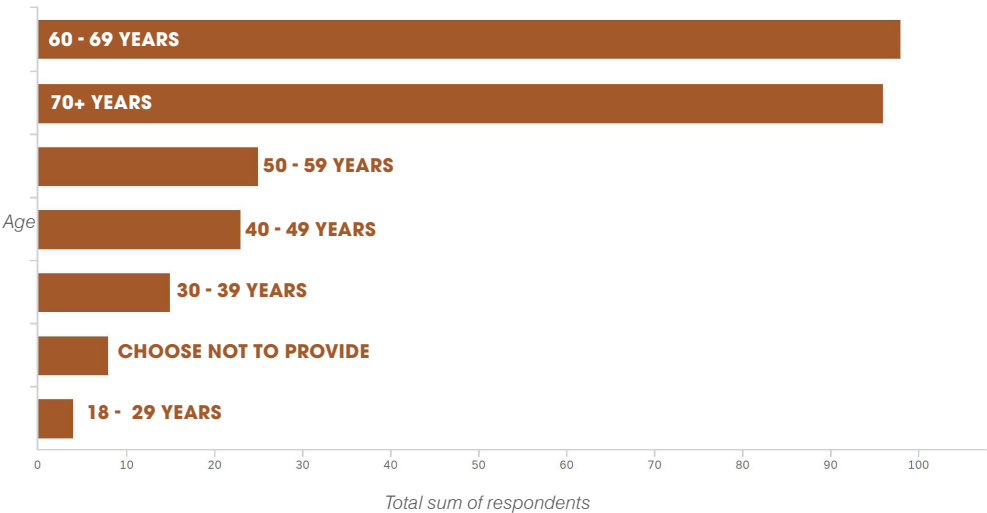


Figure 4.03. Age

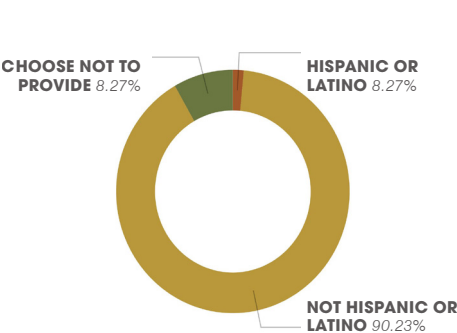


Figure 4.04. Ethnicity

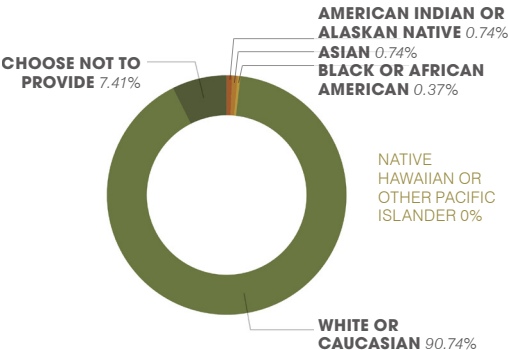


Figure 4.05. Race

PARTICIPANT BACKGROUND

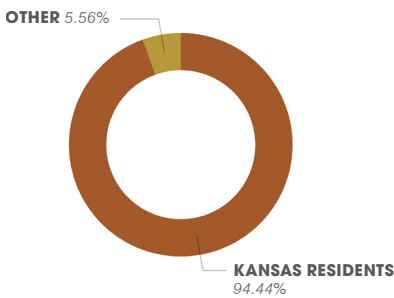


Figure 4.06. Kansas Residents

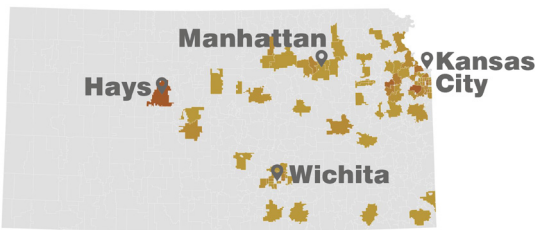


Figure 4.07. Zipcodes (darker has more respondents)

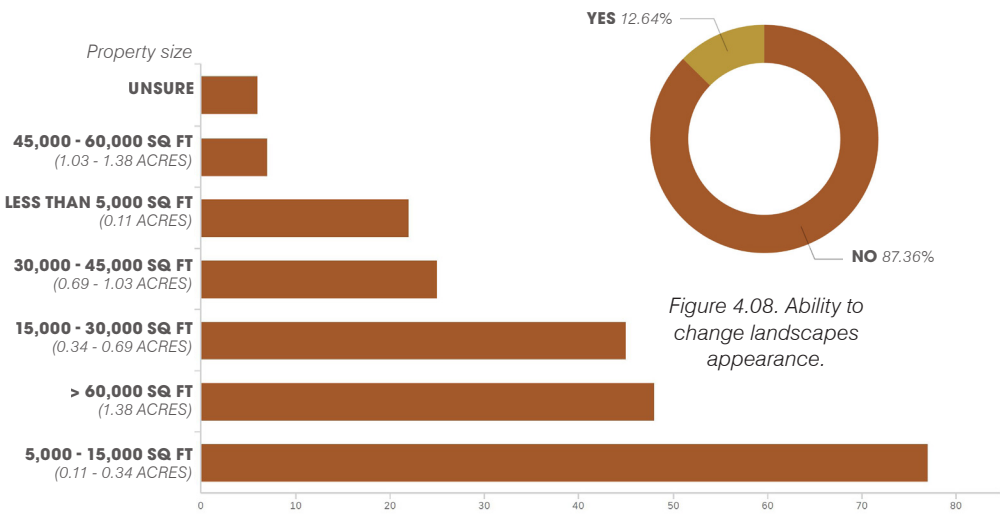


Figure 4.08. Ability to change landscapes appearance.

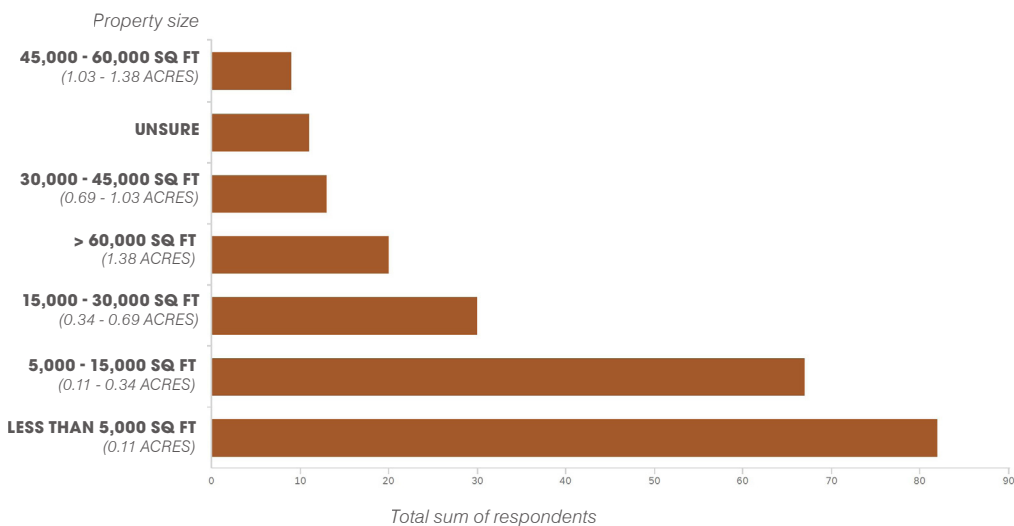


Figure 4.10. Lawn (routinely maintained space)

AESTHETIC PREFERENCES: PLANT COMPOSITION

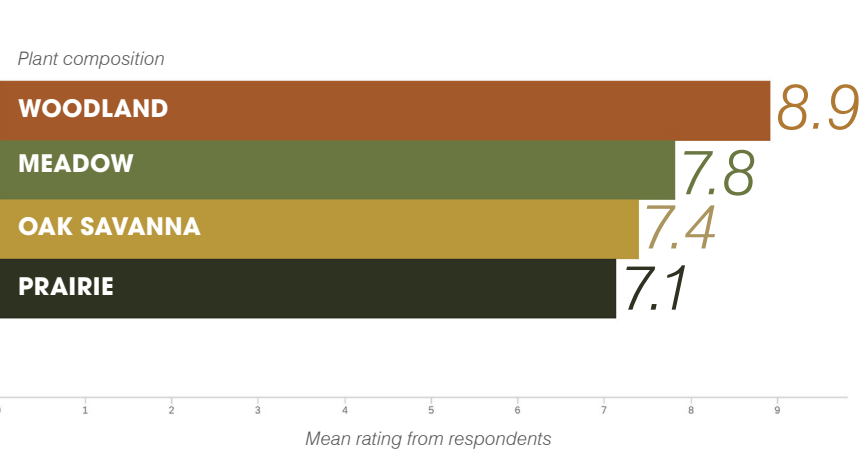


Figure 4.11. Plant composition

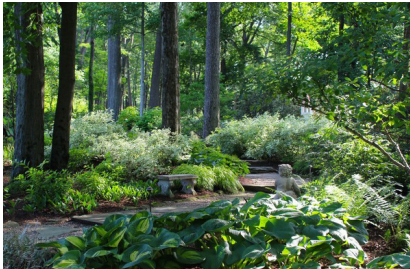


Figure 4.12. Woodland



Figure 4.13. Oak Savanna

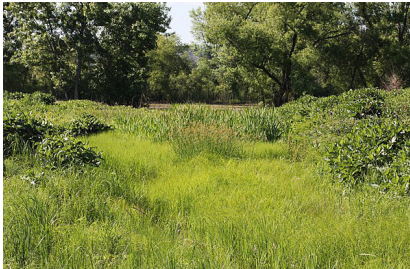


Figure 4.14. Meadow



Figure 4.15. Prairie

AESTHETIC PREFERENCES: EDGES

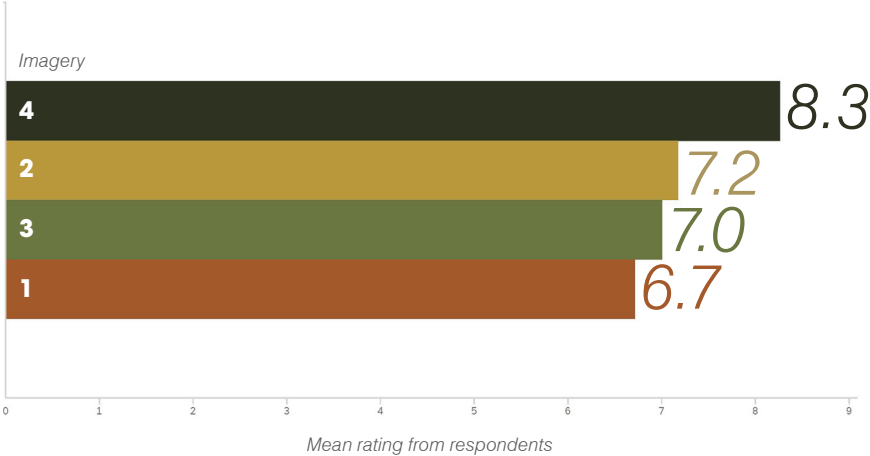


Figure 4.16. Aesthetic preferences: planting bed edges



Figure 4.17.



Figure 4.18.



Figure 4.19.



Figure 4.20.

AESTHETIC PREFERENCES: COLOR

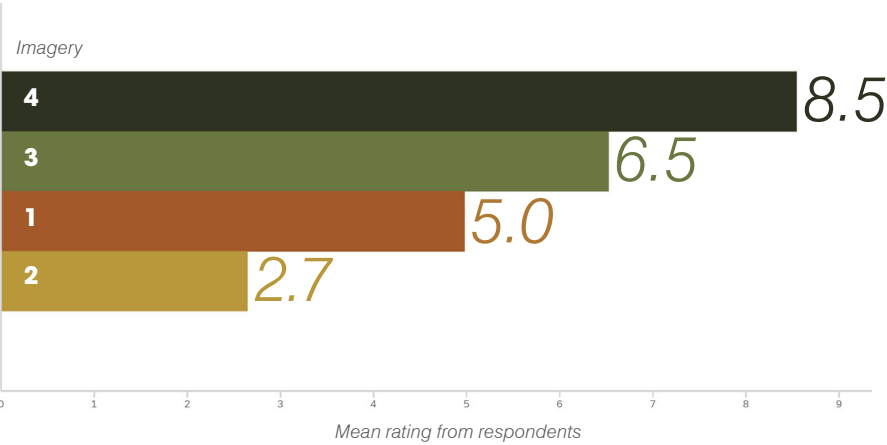


Figure 4.21. Aesthetic preferences: planting color



Figure 4.22.



Figure 4.23.



Figure 4.24.



Figure 4.25.

AESTHETIC PREFERENCES: EXTENT

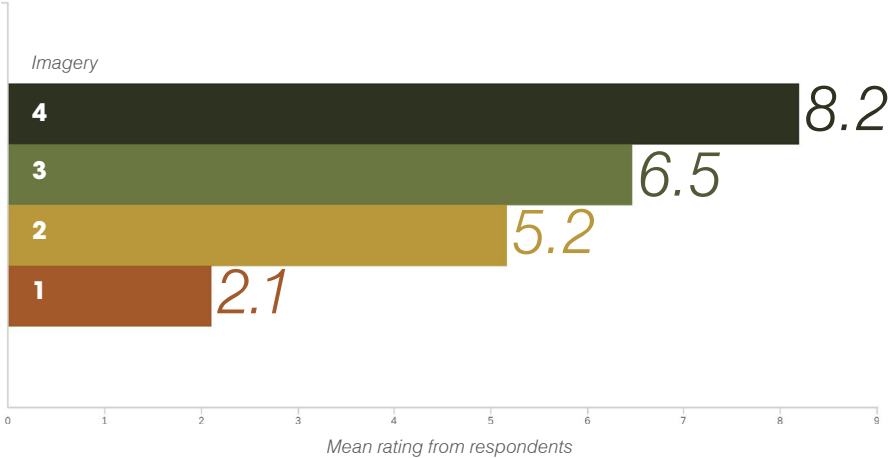


Figure 4.26. Aesthetic preferences: planting bed extent



Figure 4.27.



Figure 4.28.



Figure 4.29.



Figure 4.30.

AESTHETIC PREFERENCES: HEIGHT

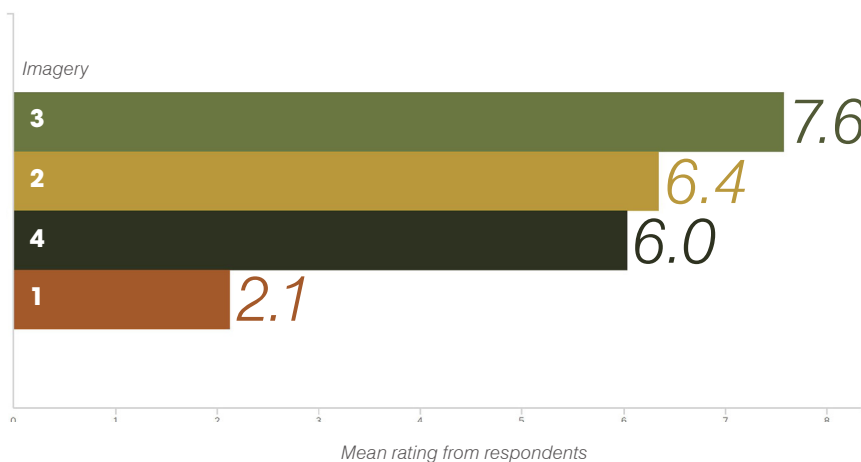


Figure 4.31. Aesthetic preferences: planting height

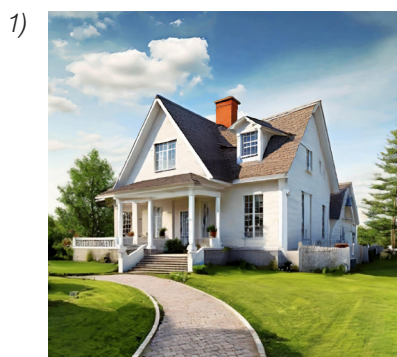


Figure 4.32.



Figure 4.33.



Figure 4.34.



Figure 4.35.

AESTHETIC PREFERENCES: GROUPINGS

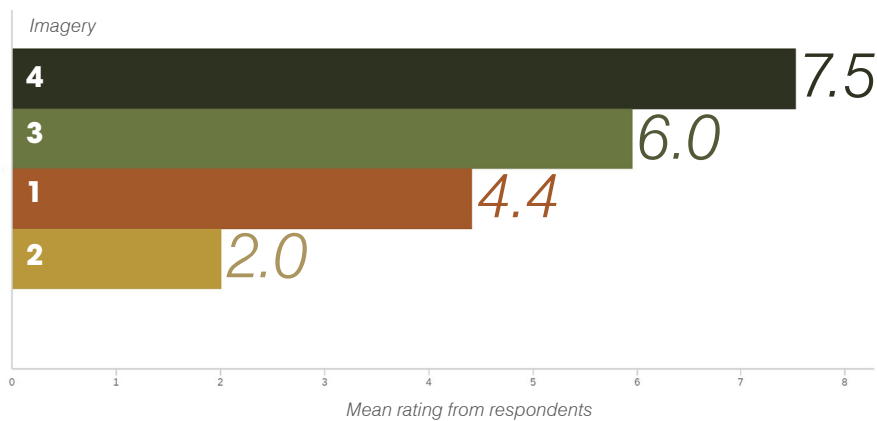


Figure 4.36. Aesthetic preferences: plant groupings



Figure 4.37.



Figure 4.38.



Figure 4.39.



Figure 4.40.

AESTHETIC PREFERENCES: PRECEDENTS

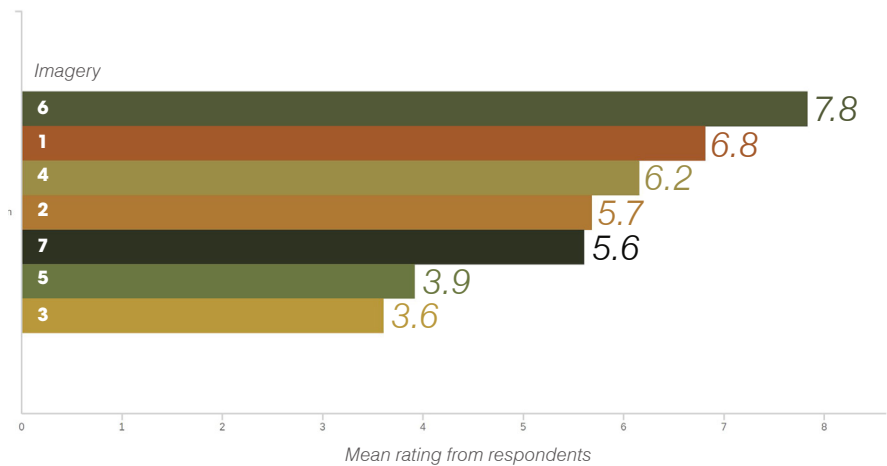


Figure 4.41. Aesthetic preferences: precedents



Figure 4.42. Example shown.

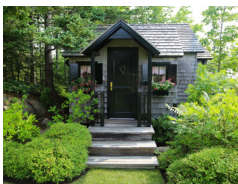


Figure 4.43.



Figure 4.44.



Figure 4.45.



Figure 4.46.



Figure 4.47.



Figure 4.48.



Figure 4.49.

INTEREST & APPEALS

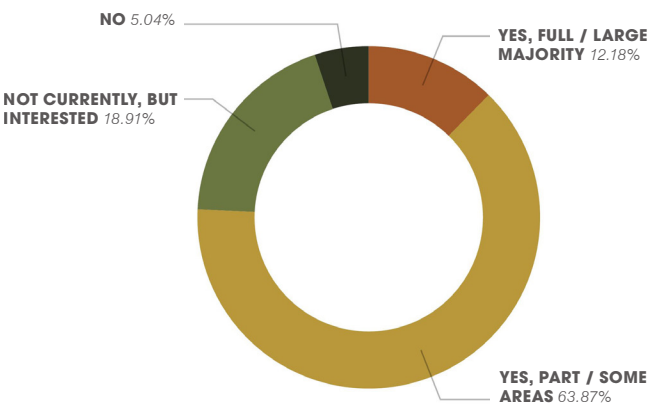
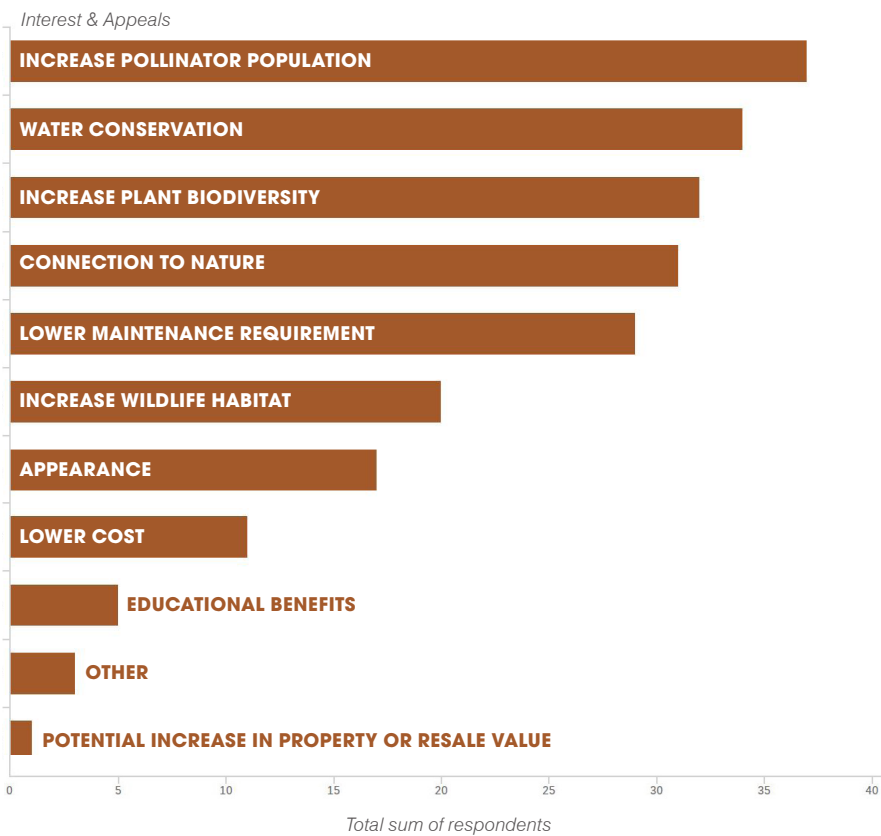


Figure 4.50. Do you actively incorporate a naturalistic landscape at your residence?

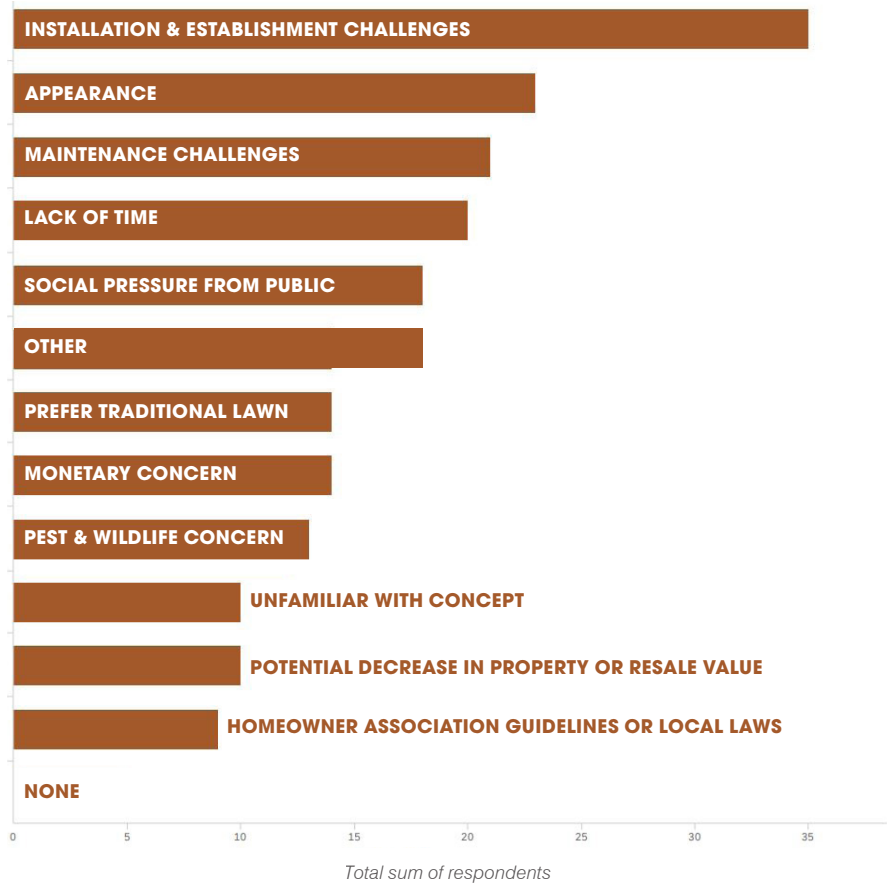


Other:
"Reduce footprint"
"Attractiveness"
"Reduce the use of a mower, fall leaf clean up"

Figure 4.51. Interest for installing a naturalistic landscape.

DETERRING FACTORS & CHALLENGES

Deterring Factors & Challenges



Other:

- "native plant design"
- "Planting in dry shade areas"
- "Lack of moisture in Western KS"
- "Plant diversity"
- "companion plants"
- "need turf while kids are young so they have big yard to play in"
- "Design"
- "Not sure about HOA rules or enforcement"
- "I like edible landscapes so most of my plantings are disqualified"
- "Organizational"
- "Code compliance"
- "Spouse likes lawn"
- "Challeneges with removing invasives/volunteer trees that settle in"
- "Experience"
- "Lack of assistance"
- "Unable to visualize, would need assistance in planning"

Figure 4.52. Deterring and/or challenging factors in incorporating (or considering a) naturalistic landscape.

INSTALLATION & MAINTENANCE

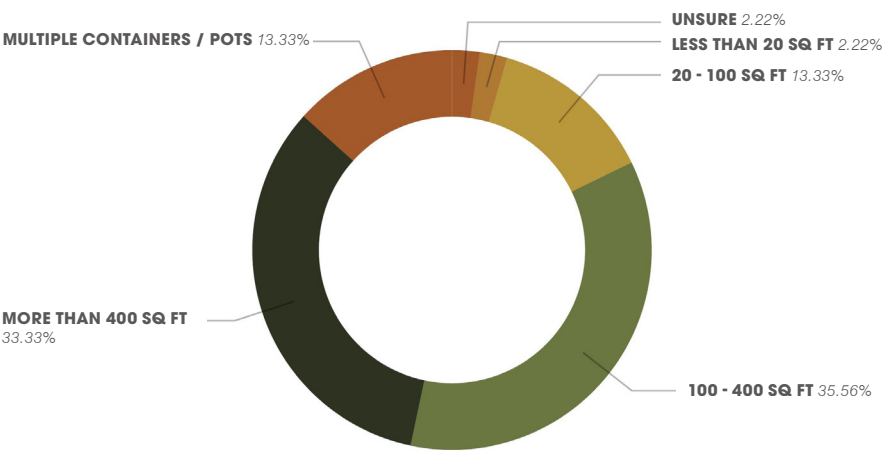


Figure 4.53. Desired space for naturalistic plantings.

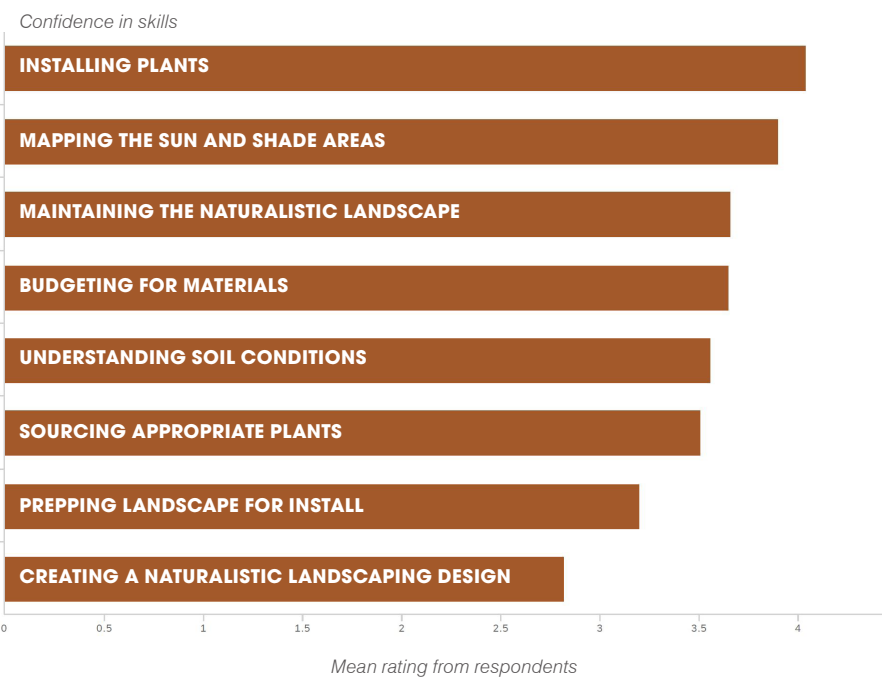
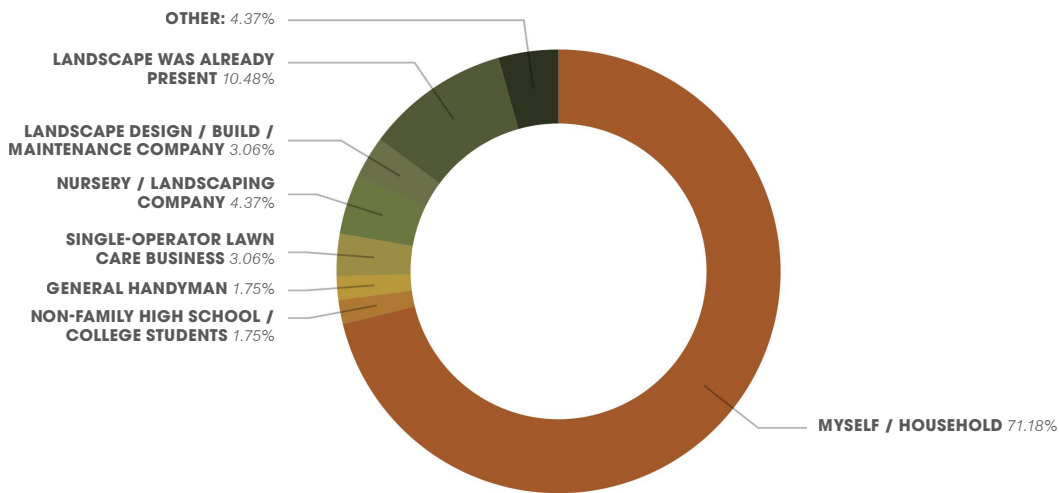


Figure 4.54. Confidence in skills when designing, installing, maintaining naturalistic landscapes.

INSTALLATION & MAINTENANCE



Other:

"Lot for our build was left as natural as we could"

"Here when we bought the place!"

"My pond and hardscape patio was installed and designed by a professional pond builder. I created and designed all the gardens on my property."

"Landscape company & handyman"

"Senior Cooperative under direction of Audubon with grant support. Senior members take day to day responsibilities with support of consultants, occasional help from others"

"Nature - area was not maintained or managed for 50 years"

"It is partially as it was when we moved in, but the mowing area has been reduced. While the mowing area is less it generates less waste than other areas and may actually take less time to maintain as mowing occurs only 4 to 6 times a year with any removed clipping or leaves composted."

Figure 4.55. Naturalistic landscape installation individual.

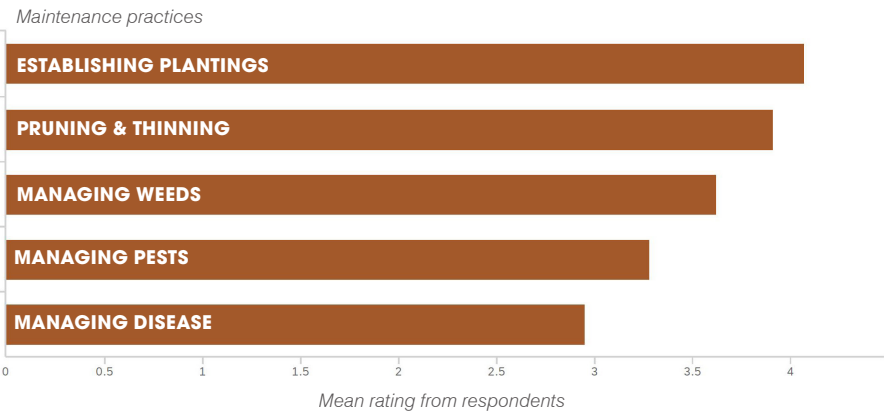


Figure 4.56. Confidence in maintenance practices regarding naturalistic landscapes.

INSTALLATION & MAINTENANCE

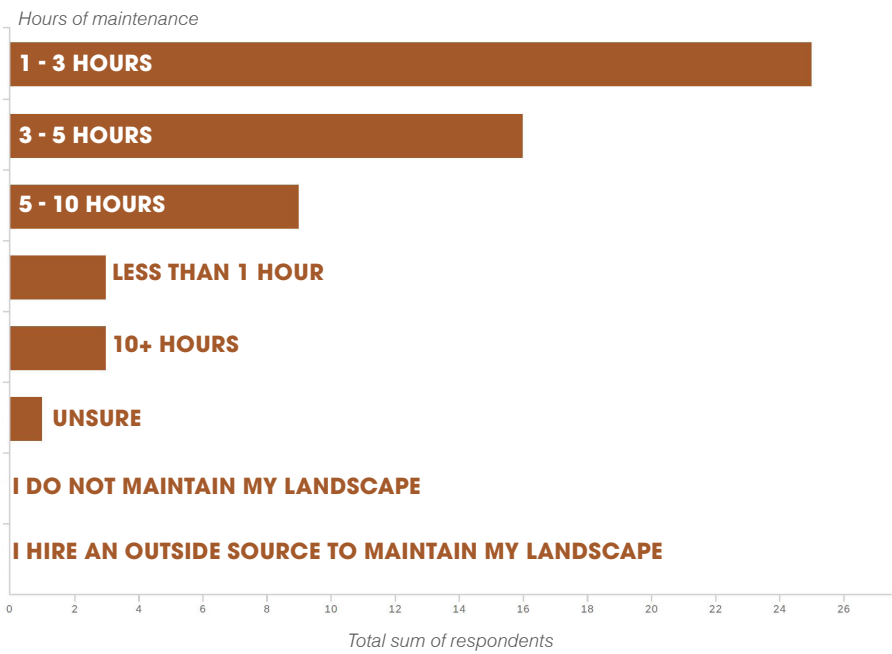


Figure 4.57. Hours of maintenance per week dedicated to traditional non-food landscape during a typical growing season.

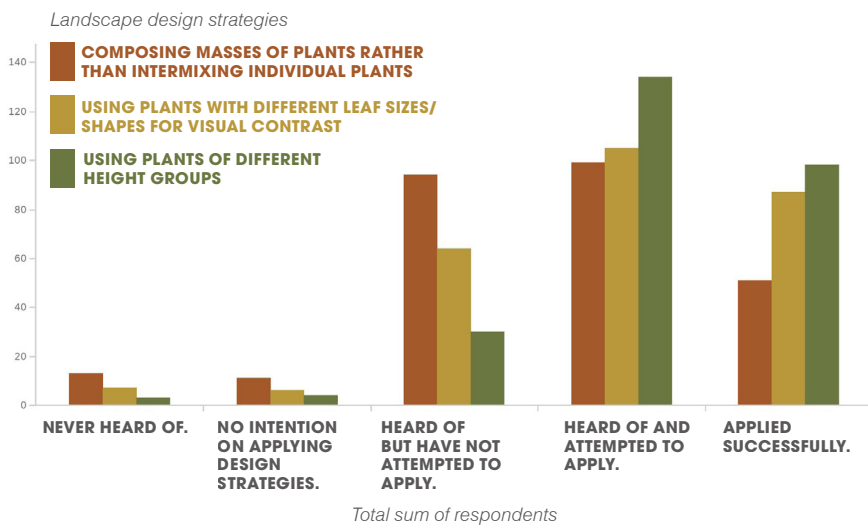


Figure 4.58. Familiarity with the following naturalistic landscape design strategies

INSTALLATION & MAINTENANCE

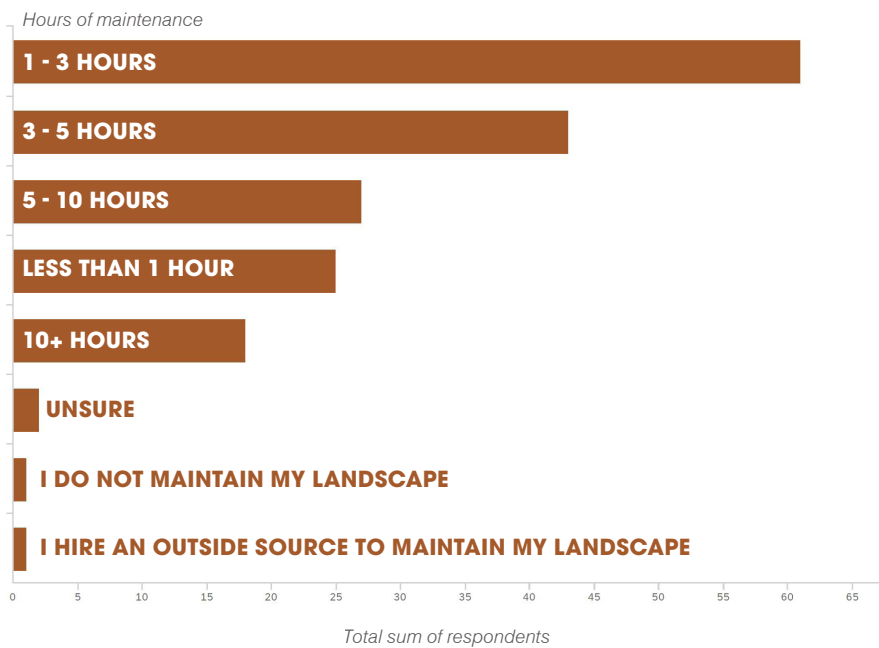
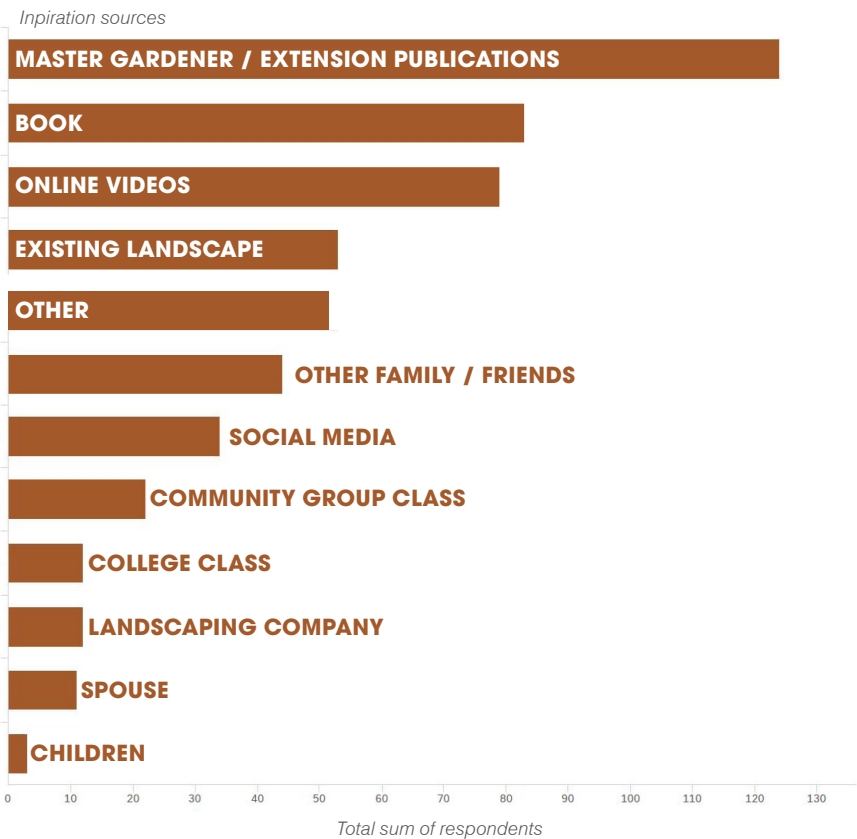


Figure 4.59. Hours of maintenance per week dedicated to your naturalistic non-food landscape during a typical growing season.



Figure 4.60. Is maintenance with a naturalistic landscape more or less than with a non-naturalistic landscape?

NATURALISTIC LANDSCAPE INSPIRATION



Other:

"Appreciation from growing up on a farm."

"NRCS"

"this is how it grows"

"Kansas Grazing Lands Collation"

"reduce maintenance as we age"

"desire to enhance habitat for pollinators"

"responsibility to conserve water resources"

"group visits/course"

"visiting famous gardens"

"Mo Prairie Foundation"

"Mo. Dept. of Conservation"

"Master Naturalist program"

"travel to other gardens/parks"

"The woods behind my house."

"Visiting native landscapes: konza, baker Wetlands, Anita Gorman discovery Center, seminars"

"Extension Master Naturalists"

"Magazines"

"Piet Oudolf's work"

"Childhood memories"

"What deer devour"

"Nature walks"

"Grow native/Deep Roots"

"Volunteering as a master gardener in established

native gardens"

"Botanical gardens"

"Deep roots"

"Master Gardener classes"

"Kansas Landscape"

"Moved onto this property as a new build and no grass only dirt. I had it sodded and now I keep digging out grass and replacing with flower and hard scape gardens."

"I have a degree from Kansas State University in Natural Resources Management and I was a District Conservationist and Asst. State Conservationist with the Natural Resources Conservation Service in Kansas"

"I believe in landscaping for nature and with native plants"

"I do not believe in burning gasoline for my yard maintenance"

"I believe all property owners should take into account the ecosystem and run-off in their landscape planning"

"Myself, i enjoy landscaping"

"Plant supplier website"

"Working at a nursery"

"seeing what others do in their yards"

"Members of our Senior Living Cooperative"

"Concern about pollinators"

"concern about habitat for animals and birds"

"Concern about chemicals"

"Scientific publications"

"Master Naturalist program"

"Membership and employment with environmental group."

"Newspaper article about that group, The Nature Conservancy."

"Time spent outdoors, recreation and hunting."

"travels"

"I need plants that are drought resistant as watering can be too time consuming."

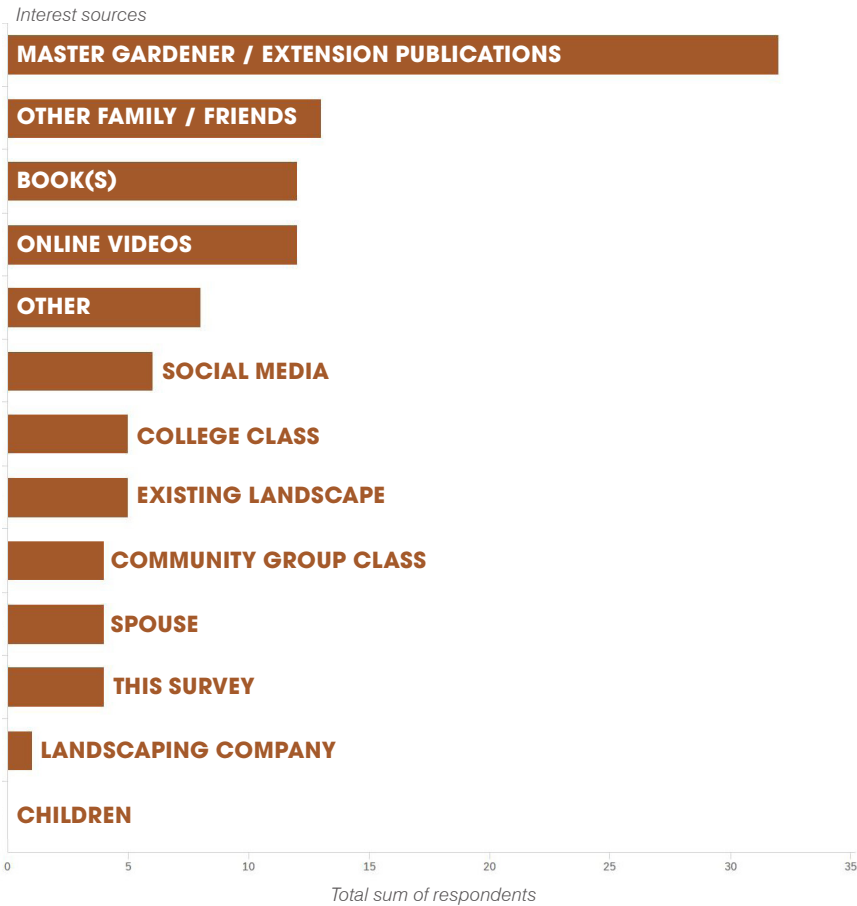
"National speakers and books"

"NRCS"

"local gardening publication"

Figure 4.61. Source of inspiration for naturalistic landscape.

NATURALISTIC LANDSCAPE INTEREST



Other:

"Probably a combination over time"

"neighbor landscapes"

"Career"

"I just like natural things"

"Everything I've read and learned over years of study"

"personal preference"

"Environmental Studies"

"Classes I teach"

Figure 4.62. Source of interest for naturalistic landscape.

NATURALISTIC LANDSCAPE FEEDBACK



Figure 4.63. Frequency of feedback on naturalistic landscape.



Figure 4.64. Positivity ranking of feedback on naturalistic landscapes.

"It looks weedy and a little
out of control"

"**When in bloom,**
commenters liked the
looks."

"Friends let me know that the
new landscaping is
much better

than the previous landscaping."

"**That's different, why?**

Kids are walking through it"

"The conversation generally begins with how much they love the space, but the grades into
but I could never do that.

They also speak to the
**discomfort they have
with doing anything but
traditional turf grass."**

Happy to see anyone involved in
maintaining bee habitat

City has cited me 3 times
in past 5 years for having "weeds," telling me that
neighbors have complained. Neighbors deny.

**My "weeds"
are native
prairie flowers
and grasses.**

Figure 4.65. Comments from neighbors regarding their naturalistic landscape.

**DON'T
GIVE
UP. IT
DOESN'T
HAPPEN
OVER-
NIGHT.**

REFLECTIONS FROM HOMEOWNERS

"Be kind to yourself. This takes time and you may need to change things around. It is part of the process and shouldn't become drudgery. There are some natives who don't play nice and need to be reprimanded."

"After establishment, it is way less work than mowing and raking leaves, maintaining a typical lawn. Positives are all over the place. It's pretty, it's easy, it attracts beneficial insects, it feeds an ecosystem."

"Don't expect perfection or huge displays of perennial color. If something doesn't work, don't be afraid to rip it out and try again."

"Natives spread! I think you have to accept that you are going to have a wandering garden if you plant a lot of native plants. I had to come to terms with the movement of the garden and working around the natural tendency of the plants to spread out, reseed, and pop up in other areas of our yard."

"Enjoy watching the insects and butterflies that will find your space!"

"I would suggest that if people had an interest in preserving the world they would give up chemicals and appreciate what nature gives us, and one way to do that is to give up the manicured look and go wild to provide for and protect all different species--including humans."

The main positive would be the reduction in chemical fertilizers with native plants and the reduction in water required to keep plants alive.

With any landscape, know your plants. Design is about contrast- color, texture, size etc. Have fun and keep learning and experimenting.

Figure 4.66. Reflections and advice from homeowners with naturalistic landscapes.

NATURALISTIC LANDSCAPE FEEDBACK

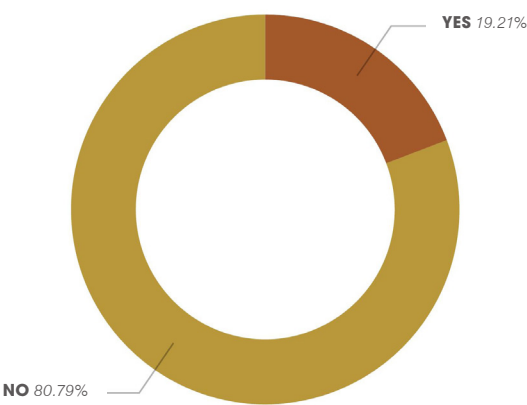


Figure 4.67. City code restriction on one's naturalistic landscape.

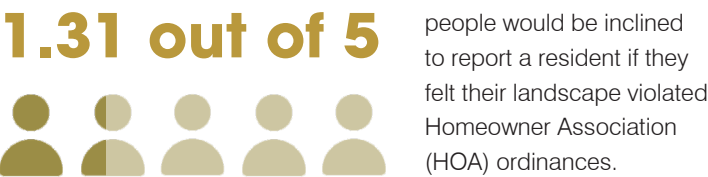


Figure 4.68. Inclination to report a landscape.

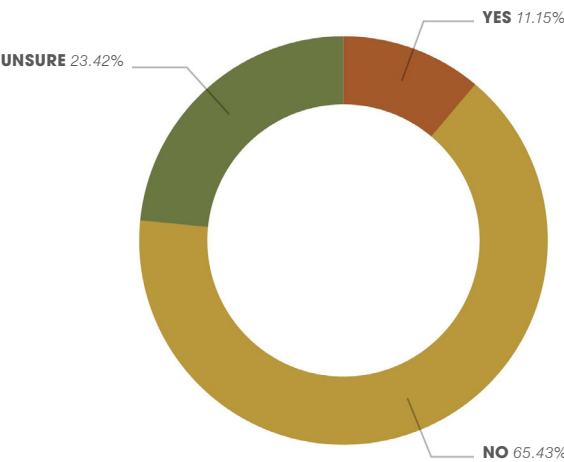


Figure 4.69. "Do you think a naturalistic landscape compared to a neighborhood of manicured (short mown) lawns lowers a community's sense of unity?"

NATURALISTIC LANDSCAPE CHALLENGES

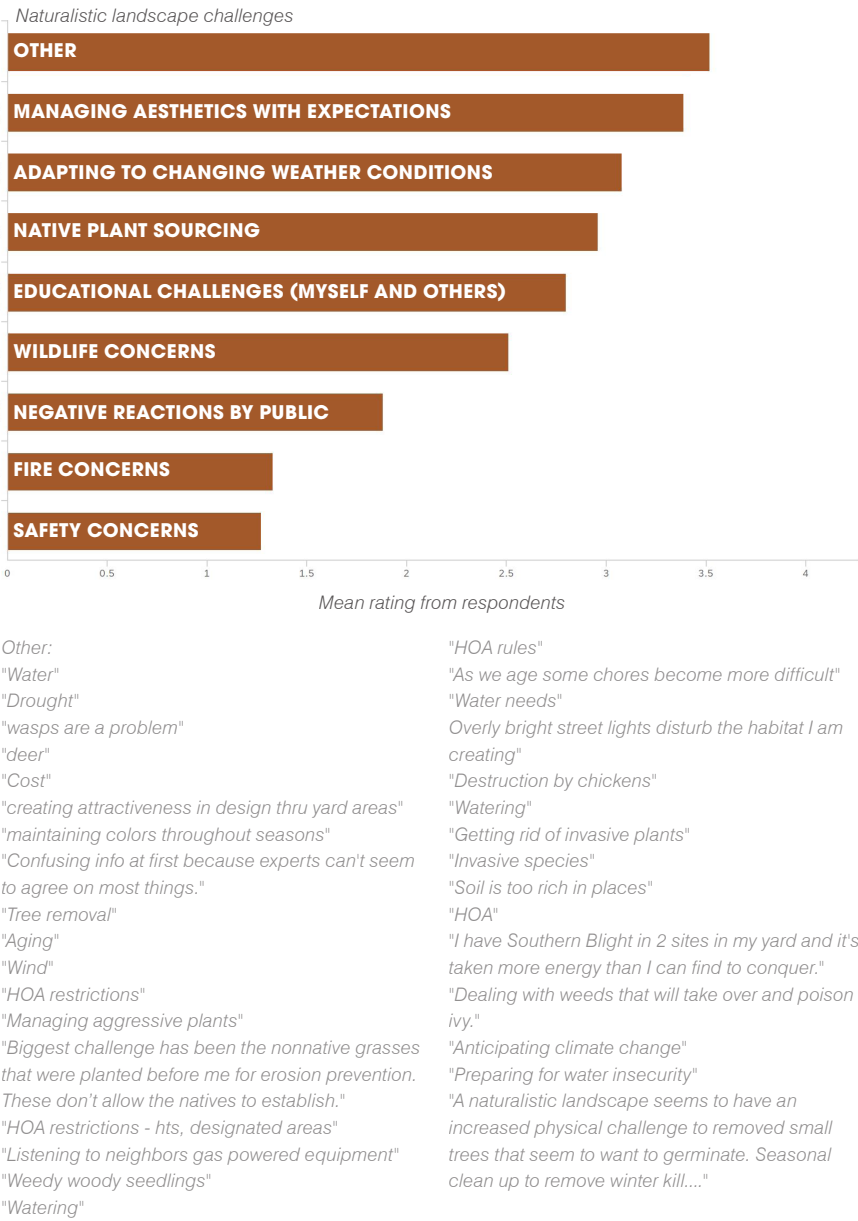


Figure 4.70. Naturalistic landscape challenges as a homeowner.

SURVEY FINDINGS CONCLUSION

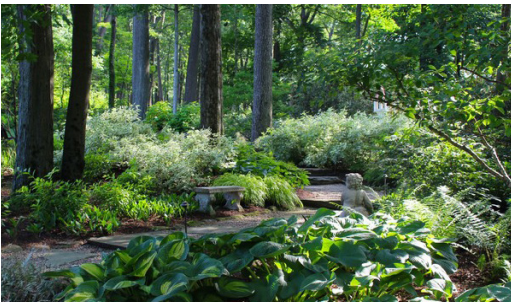


AESTHETICS

Appearance is the #2 deterring factor for surveyees without a naturalistic landscape.

Managing aesthetics with expectations ranked #2 for challenges from those with naturalistic landscapes.

Image Preferences:



Plant Composition



Edges, Color, Extent, Height, Groupings



Precedent



INSTALLATION & MAINTENANCE

Installation & establishment is the #1 deterring factor / challenge for those considering naturalistic landscapes.

Least amount of confidence in designing a naturalistic landscape.

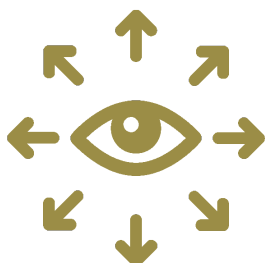
"Other" ranked #1 on naturalistic landscape challenges with many describing invasive species challenges.



RESOURCES

Water conservation is the 2nd highest interest for installing a naturalistic landscape.

Master gardener / extension publications are #1 inspiration and interest sources.



EXTERNAL FACTORS

Users with naturalistic landscapes report feedback is primarily positive.

1.31 / 5 people would be inclined to report a resident if they felt their landscape violated HOA ordinances.

65.43% of people do NOT think a naturalistic landscape compared to a neighborhood of manicured lawns lowers a community's sense of unity.

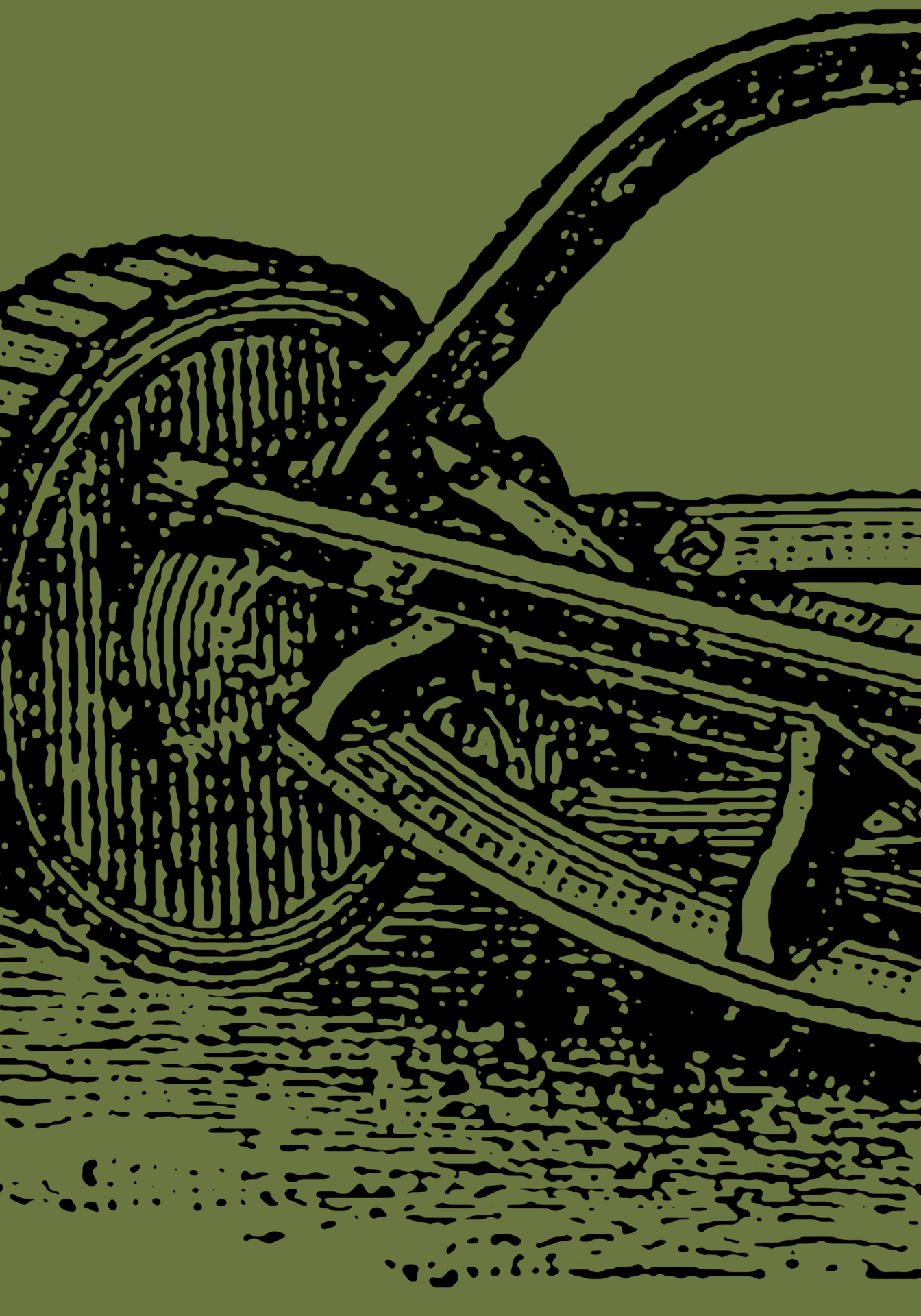


ENVIRONMENT

Increase pollinator population is the #1 interest for installing a naturalistic landscape.

Large amounts of increased pollinator and bird activity reported after installing a naturalistic landscape.

Figure 4.71. Survey findings conclusion.





05

PRECEDENT STUDY

CHAPTER 5

The precedents were chosen to cover a wide range of landscapes, through styles, sizes, and locations of the landscapes. To thoroughly analyze the precedents, two categories were created: 'neighborhood scale' and 'household scale'. The neighborhood scale makes note of the overall number of households in the community, the acreage of naturalistic planting, the percentage of naturalistic planting to total neighborhood area, what naturalistic planting characteristics are present in the community, who the landscape is maintained by, if there is an HOA present and other notable features within the community. Household scale is a precedent that only looks at one property and its planting strategies while analysis at the neighborhood scale examines a community of households and how they are addressing naturalistic planting. Within each category, a set of criteria was created for each. The household scale criteria consist of looking at the planting style, the planting color palette used, planting strategies that either shaped the design and/or are currently present in the design, some focal plantings that were used within the design, and any overall focal points within the landscape that help create an aesthetic design. Both categories make note of the project name given by the firm/developer, the location of the project, acreage if known, and the firm or developer that headed the project. Photo credits are available in the reference section at the end of the book.

 HOUSEHOLD SCALE

Katama Road

Graenest Ridge Road

Riversville Road

North Street

Boules and Buckwheat

Mid-Century Haven

Cedar Acres

Prospect House

Charlie Mountain Ranch

 NEIGHBORHOOD SCALE

Jackson Meadow

Prairie Crossing

Fox Ridge

Figure 5.01. Precedent study overview.

KATAMA ROAD

MARTHA'S VINEYARD, MA

20 Acres

Firm / Developer:

Oehme van Sweden



Style: Coastal

Color Palette:



Planting Strategy: Large smooth stone pavers contrasted against rugged grass and whimsical purple blooms that peek above. Mixed plantings with a primary grass base against a woodland backdrop.

Featured Plants: *Festuca ovina* Sheep Fescue

Perovskia atriplicifolia Russian Sage

Focal Points: Stone sculpture and purple blooms (Oehme van Sweden 2015).



(Top) Figure 5.02. Mixed grasses with purple blooms along a large stone path.

(Bottom) Figure 5.03. Entry drive with shrub masses.



Figure 5.04. Warm hues of the landscape brought out by the sunset.



GRAENEST RIDGE ROAD

WILTON, CT

2 Acres

Firm / Developer:

Oehme van Sweden



Style: English Country

Color Palette:



Planting Strategy: Intermixing of plantings throughout the beds with some areas being more formal through crisp garden bed edges and other plantings flanking over stepping stones for a more whimsical effect.

Featured Plants: *Aruncus dioicus* Goat's beard

Filipendula rubra 'Venusta' Queen of the Prairie

Echinacea purpurea Purple coneflower

Focal Points: Use of stone through walls and pavers to create a united landscape through formal and informal settings (Oehme van Sweden 2015).



(Top) Figure 5.05. Purple blooms lead into a blooming backyard garden.

(Middle) 5.06. Large masses of goat's beard provide a dramatic bloom exhibit.

(Bottom) Figure 5.07. Large shrubs flocking over a stone path giving a whimsical feeling.



Figure 5.08. Mix of wildflowers and grasses within a contained planting areas gives visual interest while maintaining form.



RIVERSVILLE ROAD

GREENWICH, CT

25 Acres

Firm / Developer:

Oehme van Sweden



Style: Meadow

Color Palette:     

Planting Strategy: Due to the slope onsite, a series of terraced naturalistic plantings with each a slightly different character fill the house's landscape. The wild meadow plantings were chosen based on the clients desire for a cottage feeling and for their ability to retain water preserving the landscape. Creeping herbs were planted within the groundscape to give textural elements even beneath your feet.

Featured Plants: *Persicaria amplexicaulis* 'Fire Tail' Knotweed

Perovskia atriplicifolia Russian Sage

Liatris spicata Blazing Star

Focal Points: Differing heights of planting beds and plantings with vibrant contrasting colors within them (Oehme van Sweden 2015).



(Top) Figure 5.09. Masses of flowering plantings leads the eye down the path.

(Middle) Figure 5.10. A range of bloom color creates a vibrant landscape.

(Bottom) Figure 5.11. Bright purple coneflower contrasts nicely against white blooms.



Figure 5.12. Terraced naturalistic planting beds gives visual interest through varying heights with the house overseeing them.



NORTH STREET

GREENWICH, CT

2 Acres

Firm / Developer:
Oehme van Sweden



Style: Woodland

Color Palette: 

Planting Strategy: Intricate geometric pavements contrasted with round sweeping grass. Large masses of flowering perennials and grasses give a grand cohesive feeling despite the plants wild nature.

Featured Plants: *Packera aurea* Golden ragwort
Pennisetum alopecuroides 'Hameln'
Dwarf Fountain Grass 'Hameln'

Focal Points: Fountain within a viewing pond and red brick to contrast the vibrant green grass (Oehme van Sweden 2015).



(Top) Figure 5.13. Organic grass masses contrast nicely to the geometric pavers.

(Bottom) Figure 5.14. Similar leaf textures and sizes give a uniform feeling while differing bloom shapes create interest.



Figure 5.15. A large mass of yellow flowers gives a dramatic and intentional effect.



MID-CENTURY HAVEN

DAVIS, CA

0.25 Acres

Firm / Developer:

Miridae



Style: Desert

Color Palette:



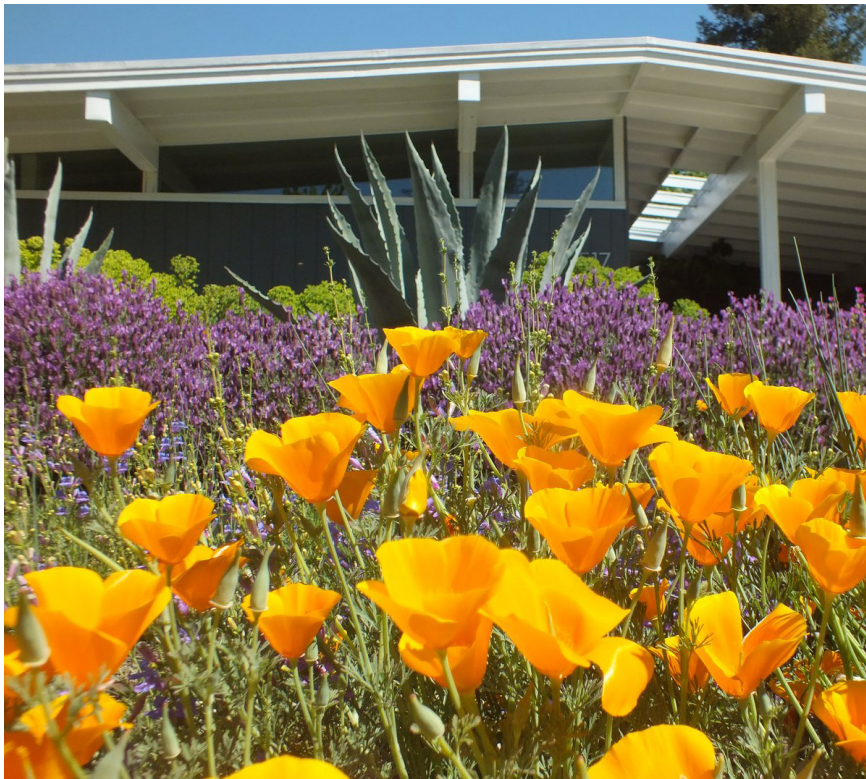
Planting Strategy: Through gradually increasing in plant height, the entrance to the entry of the house is framed and the asymmetrical roof brought to life. The contrasting colors create notice of the distinct row planting bringing more formality to the landscape.

Featured Plants: *Agave americana* Century Plant

Lavandula stoechas Spanish Lavender

Eschscholzia californica California Poppy

Focal Points: Contrasting vibrant colors and height ("Miridae" n.d.).



*(Top) Figure 5.16. Layering plantings in rows adds formality to the landscape.
 (Bottom) Figure 5.17. Orange and purple blooms contrast nicely adding vibrancy.*



Figure 5.18. The funky plantings complement the midcentury modern house.



BOULES AND BUCKWHEAT

SACRAMENTO, CA

0.25 Acres

Firm / Developer:

Miridae



Style: Desert

Color Palette: 

Planting Strategy: Rows of plantings provides order amongst the varying leaf texture that gives visual interest. With a small seating space between the landscape and the house, low walls and shrubs delineate this space and give some added privacy.

Featured Plants: *Baccharis pilularis* 'Pigeon Point' Dwarf Coyote Brush

Beschorneria yuccoides Mexican Lily

Eriogonum fasciculatum California Buckwheat

Focal Points: A neutral palette with diverse leaf shapes and textures ("Miridae" n.d.)



(Top) Figure 5.19. This hardy desert landscape has aesthetic and water-saving qualities.
(Bottom) Figure 5.20. The sharper edges of the plants give a rustic feeling to the landscape.



Figure 5.21. Although a neutral palette, the plant and rock texture create a dynamic aesthetic.



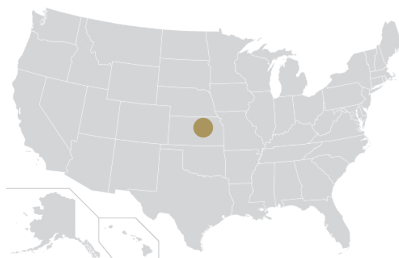
CEDAR ACRES

MANHATTAN, KS

0.50 Acres

Firm / Developer:

Unknown



Style: Container / Woodland

Color Palette: 

Planting Strategy: This landscape hugs the homes architecture, giving a more private approach to the house. Although the dispersed plantings within the bed, a clean border gives the arrangement order and intent. A mix of large potted plants help to contain aggressive plants while giving height and structure.

Featured Plants: *Begonia boliviensis* Trailing Begonia

Lagerstroemia Crape Myrtle

Rudbeckia hirta Black-eyed Susan

Focal Points: Container pots within the planting bed to give structure and height.



(Top) Figure 5.22. Potted plants within the landscape add interest.

(Middle) Figure 5.23. Clean borders add intentionality to the planting bed.

(Bottom) Figure 5.24. Vibrant reds and yellows stand out in the lush green landscape.



Figure 5.25. The landscape density and height add privacy to the home.

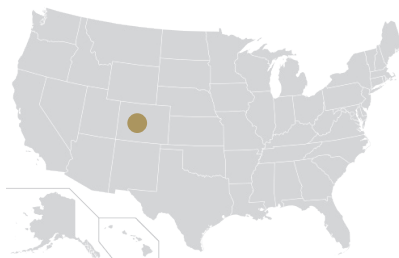


PROSPECT HOUSE

ASPEN, COLORADO

0.75 Acres

Firm / Developer:
Design Workshop



Style: Contemporary

Color Palette: 

Planting Strategy: With a large focus on decreasing water consumption and filtering rainwater, native grasses were chosen as the primary planting strategy. The simplicity of the planting palette and larger scale of the application give the design a grand feeling.

Featured Plants: *Populus tremuloides* Quaking Aspen
Sporobolus rigidus Buckley

Focal Points: Aspen trees peek out of the grass framing the home and giving contrast due to their white trunks ("Design Workshop" n.d.).



*(Top) Figure 5.26. Masses of similar grasses give a minimalist feeling to the space.
(Bottom) Figure 5.27. The naturalistic grasses give a more private secluded effect.*



Figure 5.28. The white bark from the aspen trees contrast nicely to the lush green grasses.



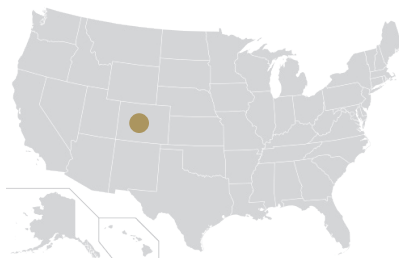
CHARLIE MOUNTAIN RANCH

OLD SNOWMASS, CO

3 Acres

Firm / Developer:

Design Workshop



Style: Mountain Prairie

Color Palette:



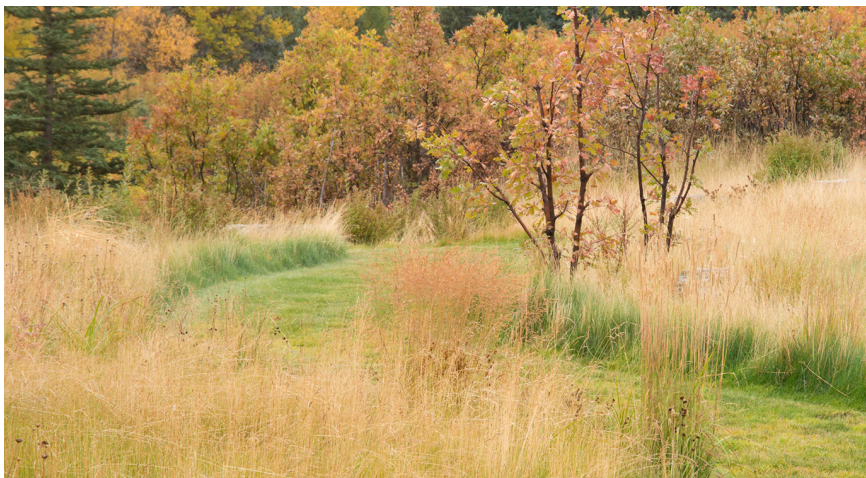
Planting Strategy: Once neglected ranch and agricultural land, this property was restored with native oak-mountain shrubland and grasslands that complement the stone accents within the site. Areas that were dense with oak were thinned to improve habitat quality and supplemental plantings were added for interest and for biodiversity.

Featured Plants: *Pascopyrum smithii* Western Wheatgrass

Cornus sericea Red Twig Dogwood

Quercus gambelii Gambel Oak

Focal Points: Red twig dogwood shines in the winter against the snow and clear borders on the planting beds adds intention to the design ("Design Workshop" n.d.).



(Top) Figure 5.29. Naturalistic grasses and trees frame the entrance to the home nicely.

(Middle) Figure 5.30. The landscape provides interest throughout all seasons with red osier dogwood present in the wintertime scenery.

(Bottom) Figure 5.31. Clear mown borders distinguish pathways with minimal effort.



Figure 5.32. Harsh lines from the boulders peek out amongst the organic plant masses.





JACKSON MEADOW

MARINE ON ST. CROIX, MN

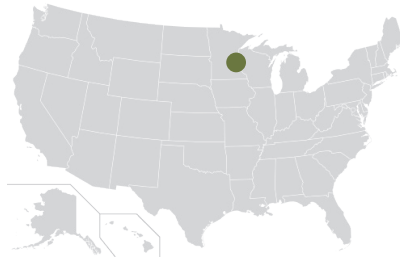
145 Acres

Firm / Developer:

Coen + Partners

Village of Marine and the

Minnesota Land Trust



64 Households

94 acres Naturalistic Planting Area

65% Naturalistic to Total Area

Naturalistic Planting Characteristics: Throughout the property a seed mix is distributed with little bluestem as the dominant species for neighborhood continuity and seasonal color.

HOA (y/n): Yes

Maintained by: Residents, Local volunteers, and the Village of Marine and Minnesota Land Trust

Notable Features: Within the neighborhood includes seven miles of trails, green infrastructure through a wetland treatment system, and a community park. The neighborhood also is adjacent to William O'Brien State Park giving further access to outdoor amenities ("Jackson Meadow" n.d.).



(Top) Figure 5.33. Lawns of homes are filled with biodiverse naturalistic grasses.

(Middle) Figure 5.34. Mown pathways provide trails within the neighborhood.

(Bottom) Figure 5.35. Fall foliage shines against the white homes.



Figure 5.36. Aerial view of Jackson Meadows neighborhood community and conserved space.



⊖ —————
400 ft

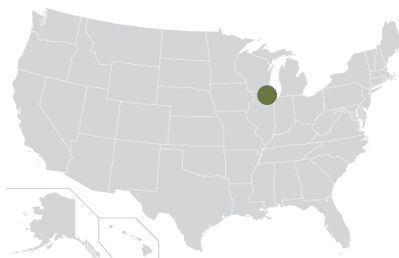
PRAIRIE CROSSING

GRAYSLAKE, ILLINOIS

677 Acres

Firm / Developer:

Prairie Holdings Corporation



395 Households

290 acres Naturalistic Planting Area

43% Naturalistic to Total Area

Naturalistic Planting Characteristics: About 175 acres prairie, 20 acres of restored wetland, and 16 acres of historic hedgerows. A mix of naturalistic planting between community and resident space.

HOA (y/n): Yes

Maintained by: Residents (burning maintenance outlined in Homeowner association guidelines), volunteers, trained professional contractors for shared areas

Notable Features: 100 acre organic farm, 10 miles of trails, adjacent to Liberty Prairie Reserve 5,800 acre, Charter School, 2 Metra Train Stations, restored historic barn, half of 1% of each home sale/resale goes to Liberty Prairie Conservancy ("Prairie Crossing" n.d.)



(Top) Figure 5.37. Naturalistic landscape filled with flowering perennials.
(Middle) Figure 5.38. Expansive naturalized areas have immense ecological benefits.
(Bottom) Figure 5.39. A grass heavy landscape creates a coastal feeling for this home.





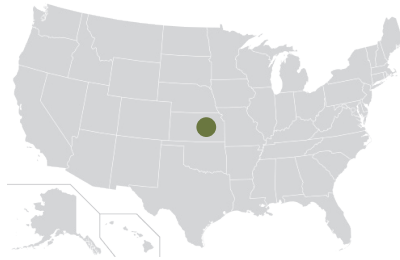
Figure 5.41. The naturalized edge of a pond reflecting the homes in the distance.

FOX RIDGE

WICHITA, KS

215 Acres

Firm / Developer:
Schellenberg Development
Company



391 Residents

88 acres Naturalistic Planting Area

40% Naturalistic to Total Area

Naturalistic Planting Characteristics: Neighborhood branding through naturalistic collector road planting and buffering edges of ponds and overall neighborhood edge.

HOA (y/n): Yes

Maintained by: HOA

Notable Features: Neighborhood includes 31 acres of dedicated pond area and dedicated community space with pool and playground area.



(Top) Figure 5.42. Naturalized accents throughout the neighborhood allow homeowners to maintain their landscape how they please.

(Middle) Figure 5.44. Entry signage and common space within the neighborhood has naturalized plantings creating a unified space.

(Bottom) Figure 5.43. Ponds are sprinkled throughout the neighborhood as buffer zones.



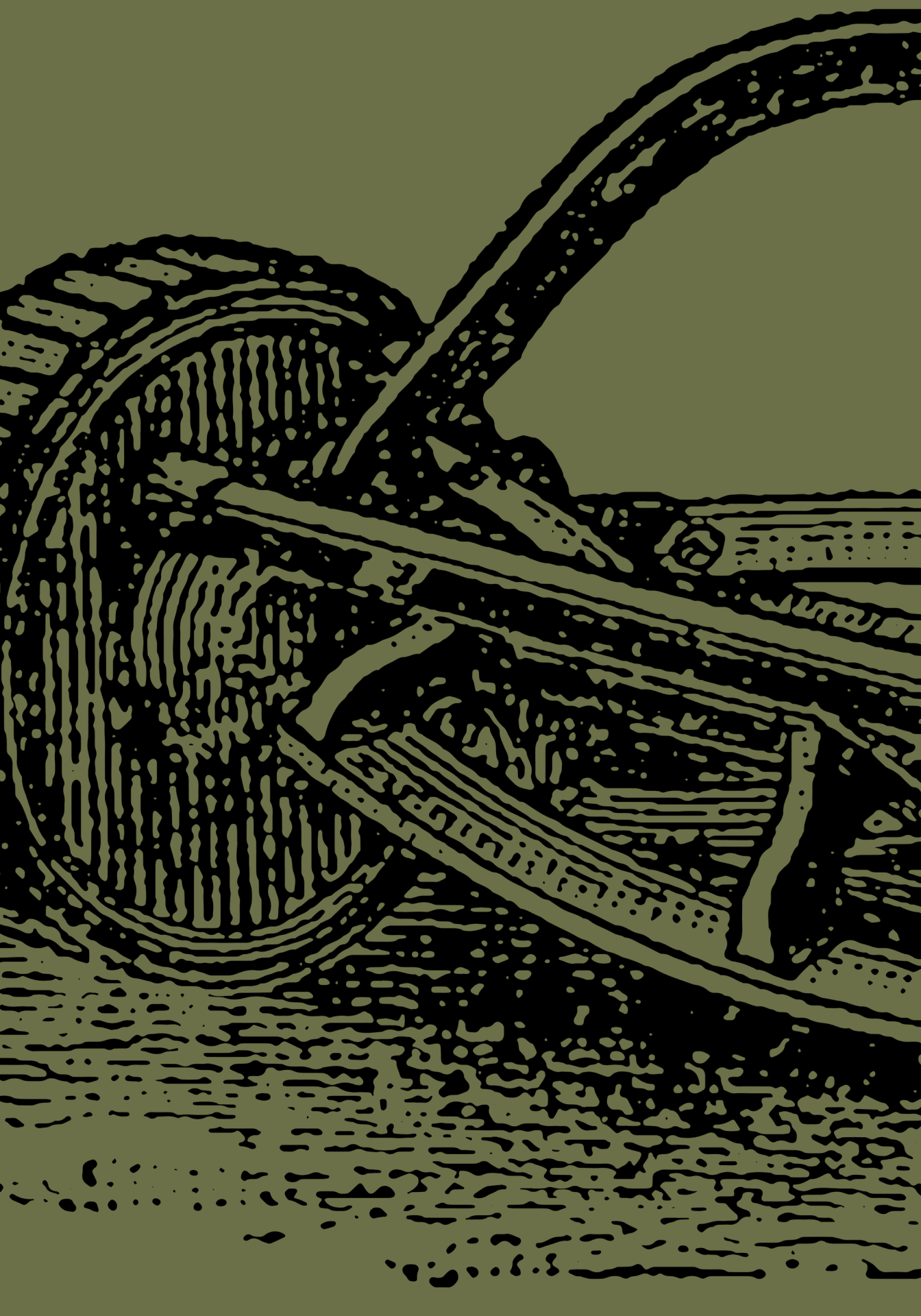
Figure 5.45. Aerial view of Fox Ridge neighborhood.



200 ft

PRECEDENT STUDY CONCLUSIONS

Through the precedent analysis, some key themes were found from both the household and neighborhood scales. Regarding the neighborhood scale precedents, all were part of an HOA which helped delineate the maintenance of naturalistic landscaping in shared spaces. A large portion of Jackson Meadow's shared space was part of the Village of Marine and Minnesota Land Trust which cares for the landscape. Each resident is responsible for their property in these communities, but naturalistic landscaping is most present in Prairie Crossing. Prairie Crossing's HOA standard even gives training for residents on maintaining and upkeeping naturalistic landscapes. In looking at naturalistic planting on the household scale, having some key plantings in a large massing helps to give a more formal and grand presence, and when intermixing plants a more whimsical effect is achieved. When having mixed landscape beds, using a mix of plants with differing leaf textures, sizes, and heights provides more visual interest. Additionally, in keeping with the intention of the design, many precedents have clear planting edges. Throughout these precedents, many different areas of naturalistic landscaping were covered giving insight into real-world examples that exist today and how they can be emulated in the future.





06

DESIGN APPLICATIONS

CHAPTER 6

Neighborhood Scale

A deterring factor of incorporating naturalistic landscaping found through the survey was the result of homeowners not wanting to stand out due to social pressures from neighbors or the public. To combat this resistive factor, a master-planned neighborhood where naturalistic landscapes are the norm instead of manicured turf lawns was created. By creating this aesthetic from the start, homeowners can buy into the idea of having an environmentally conscious neighborhood and would not have to be an outlier amidst the other houses which combats another concern from homeowners which is the potential decrease of property or resale value. This concern largely drives the social pressures from outside opinions as well. Additionally, through having a neighborhood development where a naturalistic landscape is already installed, the concerns, time, and energy of ripping out previous plantings and installing new ones do not have to occur. With the use of an HOA which is very common amongst neighborhoods at this time, landscape maintenance guidelines and/or procedures can be dictated based on however much guidance the neighborhood residents would like. Through the precedent research, neighborhoods with common spaces maintained by HOAs having written guidelines for individual properties tend to work best. However, maintenance done by one landscape management group could ensure a more uniform look across the community but will also increase expenses as well.



Figure 6.01. Neighborhood layout design.



Figure 6.02. Neighborhood layout design with hillshade overlay.

Master-planned communities that keep the environment in mind have many benefits aside from aesthetic purposes. By conserving and maintaining naturalistic landscapes, the neighborhood has a built-in green belt which is supplemented with trails for recreational activities. These trails weave in and out of the neighborhood and into the conserved space, giving a more immersed nature experience for the residents. Additionally, the trails connect to a state park, giving recreational amenities to the neighborhood. Through conservative lot placement within the neighborhood, the natural terrain of the landscape is preserved preventing erosion and further ecological impacts. Within the lots is a mix of housing units, ranging from single-unit homes to four-plex homes. This is to increase density, creating the ability to conserve more open space for trail use and community amenities. Due to the density, the community has a very comparable dwelling unit to acre count compared to a typical homogenous single-family neighborhood, but with much more conserved space for amenities and less disturbance to the landscape. Lastly, to protect the natural slopes and vegetation, drainage basins to collect rainwater were considered. This allows a natural collection and filtration process mitigating the need for large infrastructure solutions.

9.1% Dwelling Unit / Acre

72% Preserved Open Space

Total Acreage: 517.4

Developed Acreage [building envelopes, parking areas & road] - 143 acres

Maintained Open Space Acreage - 0.11 acres

Natural Open Space Acreage - 374 acres

Road Length:

Collector length & width - 9800' x 30'

Residential length & width - 47000' x 24'

Total Units: 1751

Single Family - 847

Duplex - 492

Fourplex - 412



Figure 6.03. Zoom-in of neighborhood layout design.



Figure 6.04. Neighborhood layout design.

500 ft

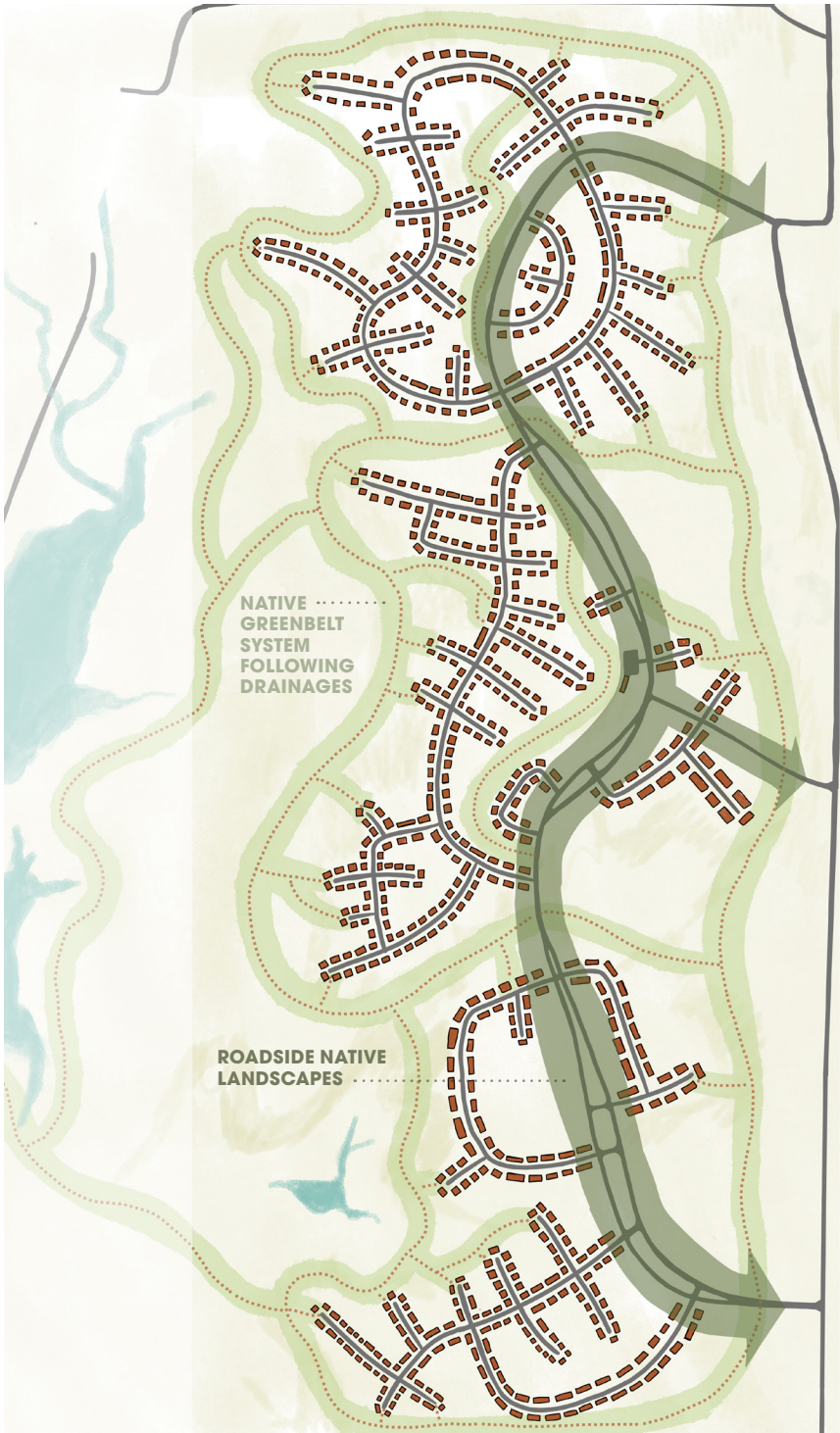


Figure 6.05. Greenbelt amenities to neighborhood.





Figure 6.06. Neighborhood development with developable slope overlay.

Household Scale

Household-level naturalistic aesthetic and planting solutions were compiled based on the literature review, precedent studies, and survey results. A generic plan was created based on the response from the survey having a large extent of naturalistic landscape present and how this would look regarding neighboring properties. Also, the diagram considers framing the home through plantings, preserving usable turf space for activity, and increasing ecological benefits compared to a typical lot layout.

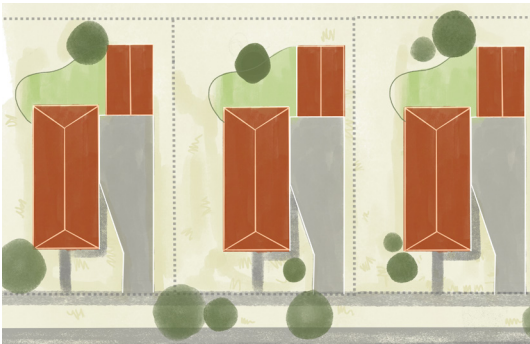


Figure 6.07. Household scale naturalistic planting across property lines.

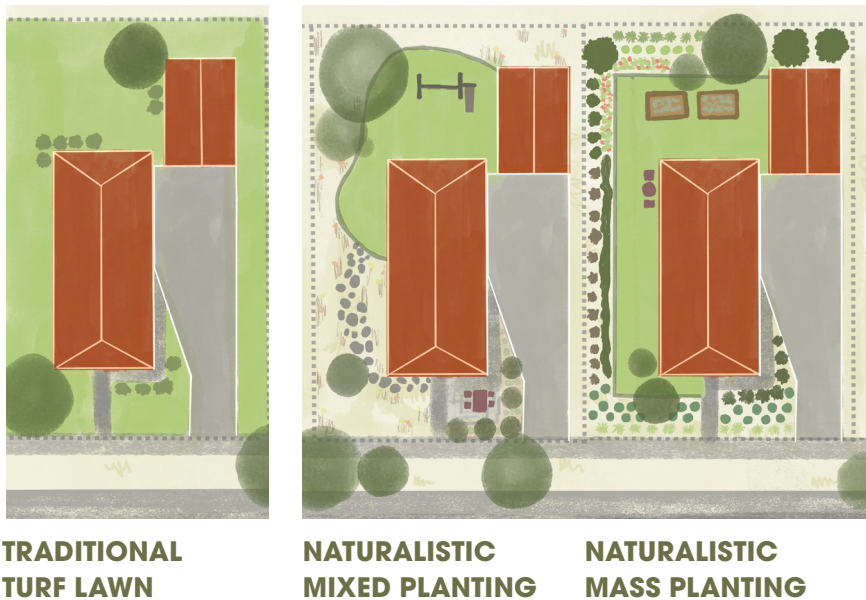


Figure 6.08. Household scale naturalistic plan comparing traditional turf to two naturalistic style households.



CONTAINER PLANTINGS



PLANTING BEDS



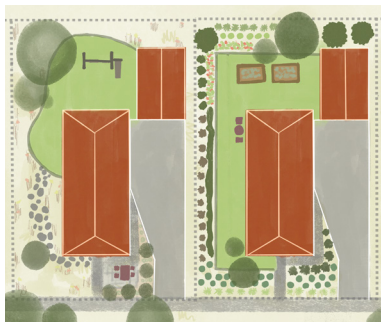
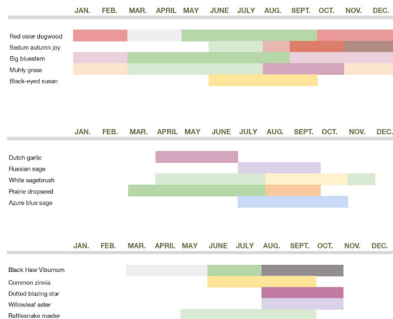
FULL NATURALISTIC LAWN

Figure 6.09. Naturalistic landscapes at different planting extents.



Figure 6.10. Street view of naturalistic landscaping across property lines.





BORDERS

Planting up to a walkway prohibits manicuring awkward in-between spaces and ensures a clean edge

COLOR & GROUPINGS

Mixed plantings with planned color throughout the season creates a vibrant garden all year round.

EXTENT OF PLANTING

Large beds of planting frames homes and provide the most ecological qualities.

HEIGHT

Medium height plantings create visual interest without prohibiting views or showing a lack of care for the landscape.

Figure 6.11. General aesthetic guidelines.

General Aesthetic Guidelines

General aesthetic guidelines were pulled based on the image preference portion of the survey analysis. These guidelines are intended to help those maintaining or installing naturalistic landscapes with quick tips to ensure their landscape looks intentional and well-presented. These guidelines primarily help elevate the aesthetic appearance of the beds which is a typical challenge that was seen from homeowners throughout the survey.

ADDITIONAL TIPS

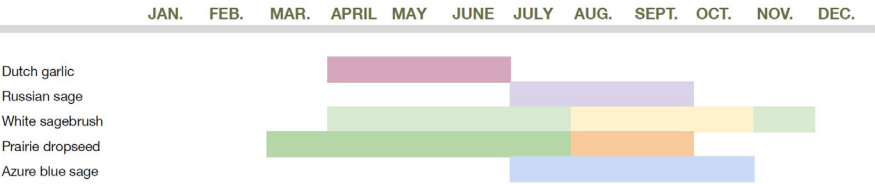
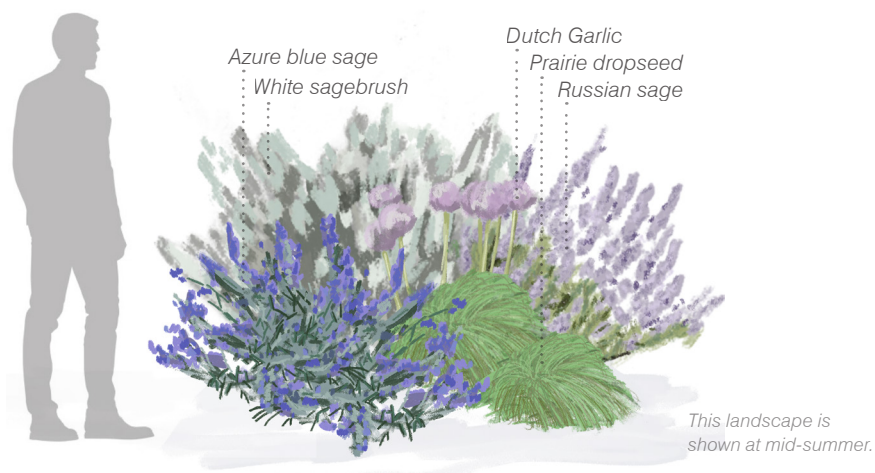
- Provide buffer room for maintenance or create beds wide enough that you can reach to maintain
- Have 1-2 focal species to allow plantings to shine
- Plant with views in mind, put shorter plants in front of beds and taller plants in the back (*note if the planting bed can be seen from the front and back place taller plants in the middle)
- When mapping your planting bed, use mature widths and sizes, not the initial nursery pot size
- Use flour to map your landscape beds and mature size of your plantings *this does not harm anything
- Use a minimum of three plants (nursery pots) per species in your planting design
- Keep in mind sun and shade patterns when deciding plant species
- Check the end of this document for additional resources

Plant Palettes

To expand on what naturalistic plantings could occur in these beds, five key plant combinations were created to compose a garden that strikes awe and wonder. These palettes were created based on the precedent study analysis of what was working well in those precedent landscapes, and how it could be transferred to fit the plantings that work with the ecological conditions in Kansas. The palettes were also based on factors that surveyed homeowners were most drawn towards regarding naturalistic landscapes which included increasing plant biodiversity, increasing pollinator species, and water conservation. Two additional palettes were created to account for plantings that addressed shade conditions and a Kansas State University palette to give tribute to the project's origin. Key design strategies that were used to create the palettes included selecting plantings requiring similar planting conditions, differing textures, differing heights, and based on seasonality to ensure color throughout the seasons. The palettes also use color in varying ways to appeal to different tastes, ranging from analogous, monochromatic, and complementary hues. These palettes are intended as starting points for homeowners, with the ability to supplement with other plantings or substitutions for other preferred aesthetic combinations. An additional list of plants is presented as well with each palette for this reason. This is not a comprehensive list of all suitable options, however. Resources are listed in the next chapter regarding design guidelines.



Figure 6.12. Plant palette overview.



COMMON NAME	SCIENTIFIC NAME	TYPE	HEIGHT	WIDTH
Dutch garlic	<i>Allium aflatunense</i> 'Purple Sensation'	perennial	2-3'	bulbs
Russian sage	<i>Perovskia atriplicifolia</i>	perennial	3-5'	2-4'
White sagebrush	<i>Artemisia ludoviciana</i>	perennial	3-4'	4-5'
Prairie dropseed	<i>Sporobolus heterolepis</i>	perennial / grass	up to 3'	3'
Azure blue sage	<i>Salvia azurea</i>	perennial	up to 5'	1-4'

Light Needs

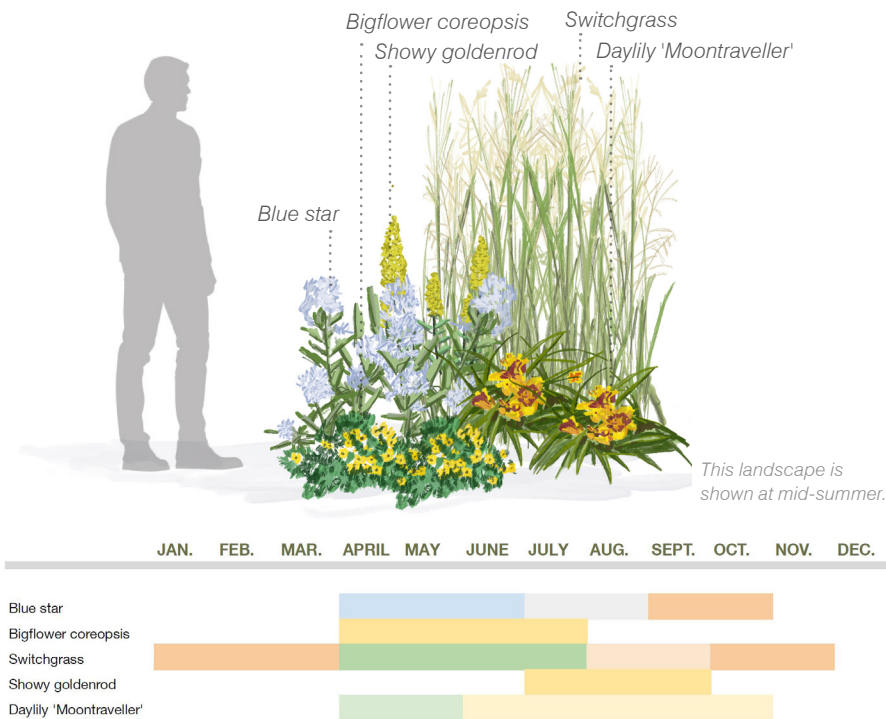
Water Needs

Other Suitable Plantings:

- Eryngium leavenworthii* (False purple thistle)
- Monarda citriodora* (Lemon beebalm)
- Symphyotrichum praealtum* (Willow leaf aster)
- Amorpha canescens* (Leadplant)
- Amorpha fruticosa* (False indigo)
- Viola nephrophylla* (Wild violet)
- Lamium purpureum* (Purple dead nettle)
- Tradescantia ohiensis* (Common spiderwort)

Figure 6.13. EMAW pridescape plant palette.

BEGINNER BIODIVERSE GARDEN



COMMON NAME	SCIENTIFIC NAME	TYPE	HEIGHT	WIDTH
Blue star	<i>Amsonia tabernaemontana</i>	perennial	2-3'	1-2'
Bigflower coreopsis	<i>Coreopsis grandiflora</i>	perennial	1-3'	1-3'
Switchgrass	<i>Panicum virgatum</i>	perennial / grass	3-6'	2-3'
Showy goldenrod	<i>Solidago speciosa</i>	perennial	2-3'	2-3'
Daylily 'Moontraveller'	<i>Hemerocallis 'Moontraveller'</i>	perennial	1.5-2'	1.5-2'

Light Needs 

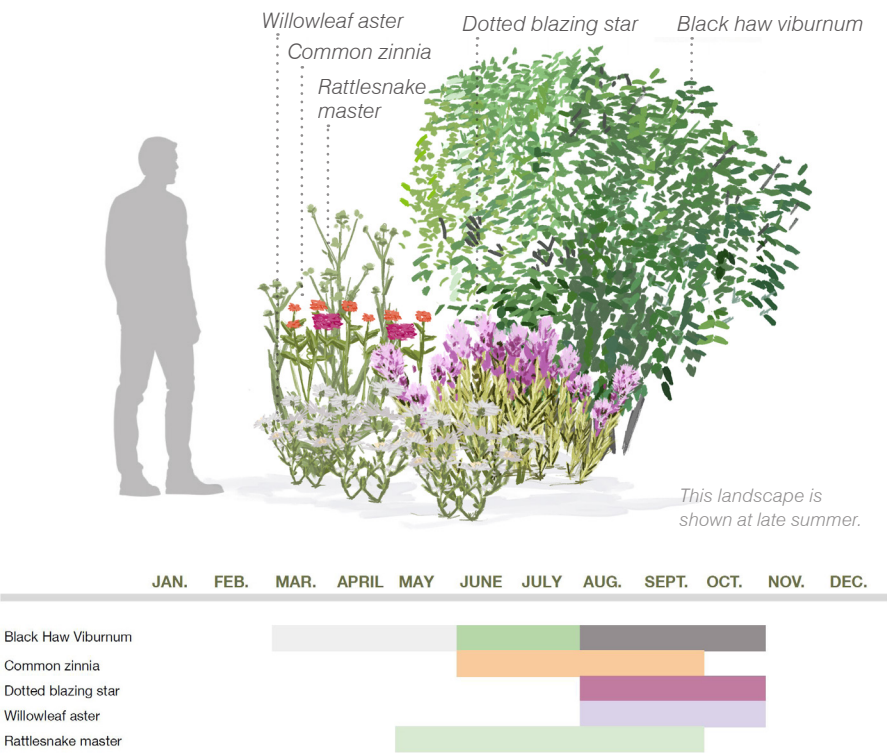
Water Needs 

Other Suitable Plantings:

- Amorpha canescens* (Leadplant)
- Geranium bohemicum* (Hardy geranium)
- Nepeta cataria* (Catnip)
- Penstemon cobaea* (Cobaea penstenum)
- Coreopsis grandiflora* (Bigflower coreopsis)
- Symphotrichum praealtum* (Willow leaf aster)
- Helenium autumnale* (Common Sneezeweed)

Figure 6.14. Beginner biodiverse garden plant palette.

POLLINATOR PARADISE



COMMON NAME	SCIENTIFIC NAME	TYPE	HEIGHT	WIDTH
Black Haw Viburnum	<i>Viburnum prunifolium</i>	shrub	5-15'	5-12'
Common zinnia	<i>Zinnia elegans</i>	annual	1-4'	0.75-1'
Dotted blazing star	<i>Liatris punctata</i>	perennial	up to 3'	1-2'
Willowleaf aster	<i>Symphyotrichum praealtum</i>	perennial	2-5'	1-4'
Rattlesnake master	<i>Eryngium yuccifolium</i>	perennial	4-5'	2-3'

Light Needs 

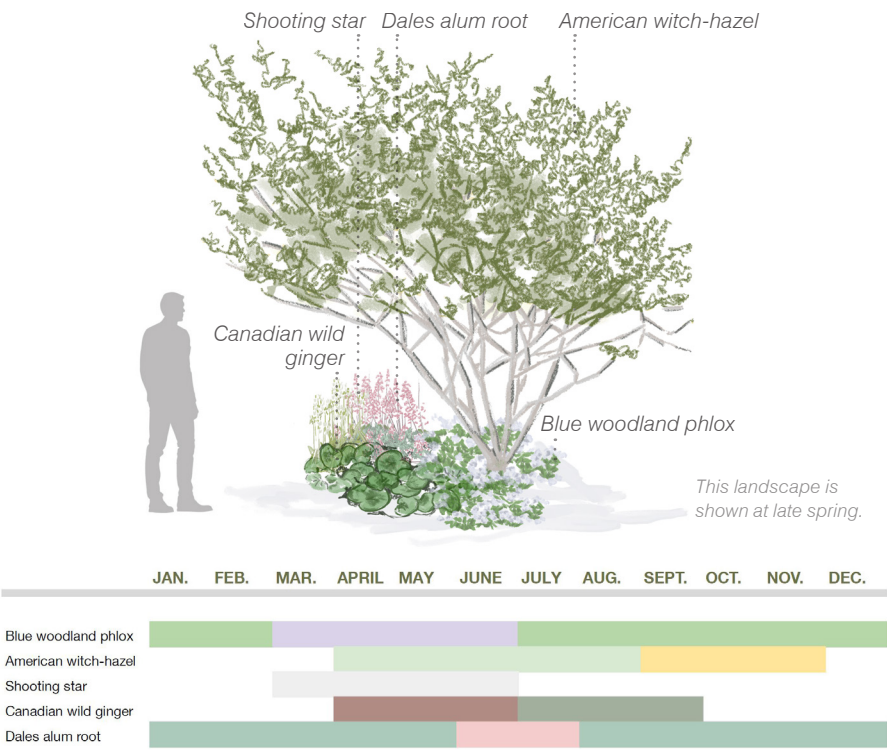
Water Needs 

Other Suitable Plantings:

- Eryngium leavenworthii* (False purple thistle)
- Asclepias syriaca* (Common Milkweed)
- Artemisia stelleriana* (Dusty miller)
- Allium canadense* (Wild onion)
- Dyssodia papposa* (Fetid marigolds)
- Gaillardia pulchella* (Indian blanket)
- Cosmos bipinnatus* (Garden cosmos)

Figure 6.15. Pollinator paradise plant palette.

SHADY OASIS



COMMON NAME	SCIENTIFIC NAME	TYPE	HEIGHT	WIDTH
Blue woodland phlox	<i>Phlox divaricata</i>	perennial	up to 2'	2'
American witch-hazel	<i>Hamamelis virginiana</i>	shrub / small tree	8-25'	8-20'
Shooting star	<i>Dodecatheon meadia</i>	perennial	up to 2'	1'
Canadian wild ginger	<i>Asarum canadense</i>	perennial	up to 1'	1-2'
Dales alum root	<i>Heuchera americana</i> 'Dales Strain'	perennial	up to 1'	up to 1'

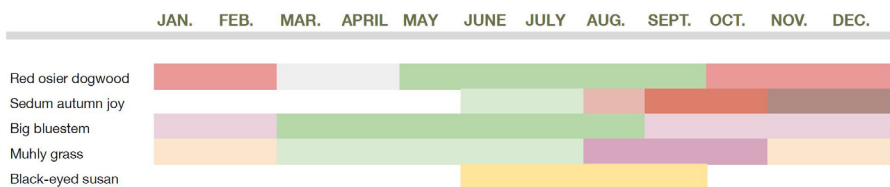
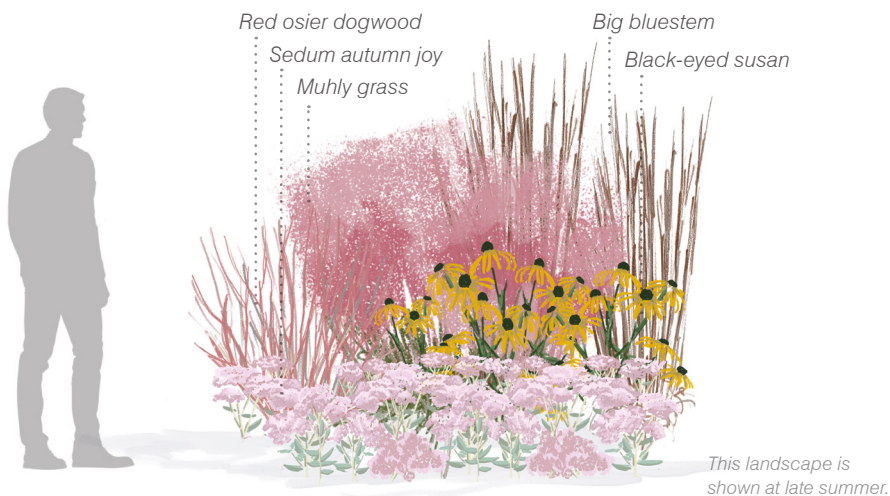
Light Needs  Water Needs 

Other Suitable Plantings:

- Hosta sieboldiana* 'Frances Williams' (Hosta 'Frances Williams')
- Helleborus orientalis* (Lenten rose)
- Hydrangea quercifolia* (Oakleaf hydrangea)
- Solenostemon scutellarioides* 'Sky Fire' (Coleus sky fire)
- Tiarella cordifolia* (foamflower)
- Caladium* 'White Dynasty' (White Dynasty Caladium)
- Epimedium rubrum* (Barrenwort)

Figure 6.16. Shady oasis plant palette.

WATER-WISE LANDSCAPE



COMMON NAME	SCIENTIFIC NAME	TYPE	HEIGHT	WIDTH
Red osier dogwood	<i>Cornus sericea</i> L.	perennial	up to 5'	
Sedum autumn joy	<i>Hylotelephium</i> 'Herbstfreude' Autumn Joy	perennial	1.5-2'	1.5-2'
Big bluestem	<i>Andropogon gerardii</i>	perennial / grass	4-6'	2-3'
Muhly grass	<i>Muhlenbergia capillaris</i>	perennial / grass	up to 5'	2-3'
Black-eyed susan	<i>Rudbeckia hirta</i>	perennial	2-3'	2-3'

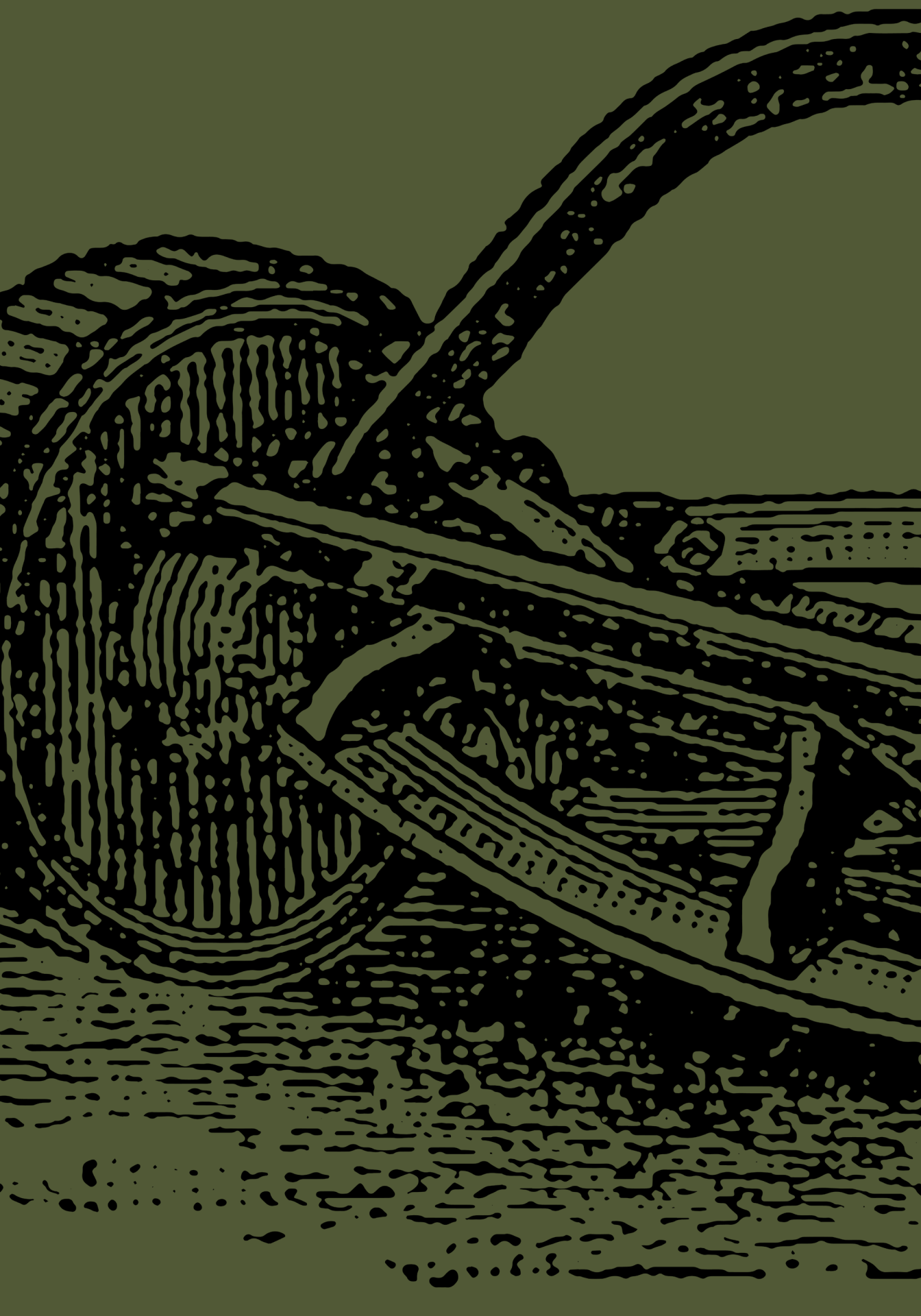
Light Needs 

Water Needs 

Other Suitable Plantings:

- Aruncus dioicus* (Goatsbeard)
- Salvia yangii* (Russian sage)
- Thymus serpyllum* (Creeping thyme)
- Asclepias tuberosa* (Butterfly milkweed)
- Nepeta cataria* (Catnip)
- Coreopsis grandiflora* (Bigflower coreopsis)
- Cephalanthus occidentalis* (Buttonbush)
- Carex* sp. (Sedge)

Figure 6.17. Water-wise landscape plant palette.





07

DESIGN GUIDELINES

CHAPTER 7

Design guidelines were created to present the information within this project in a conveyable and concise manner. The target of the design guidelines is for potential publication through K-State Extension creating a large outreach to the public regarding naturalistic landscapes. I anticipate homeowners to be most influential with design professionals, nurseries, and neighborhood developers to promote this new landscape aesthetic. With lack of education being a large prohibitive factor leading to poor social perceptions of naturalistic landscapes, it is important to give a full overview of the topic. The design guidelines first summarize portions of the literature review containing background on both manicured and naturalistic lawns. Next a summary analysis of the survey states current viewpoints and perceptions of naturalistic lawns and their prohibiting and appealing factors. Once this basis is laid out, design recommendations of general aesthetic guidelines, planting palettes, and a full neighborhood design follow. Lastly, additional resources for interested readers are listed including topics like where to source native plantings, how to rip out current turf, installation techniques, maintenance techniques, and information about naturalistic landscapes in general.

KANSAS NATURALISTIC LANDSCAPE GUIDE



Figure 7.01. Page one of design guidelines.

TABLE OF CONTENTS

3	BACKGROUND
4	ESTABLISHING THE NEED
6	EXAMPLES
12	PLANTING LAYOUT
16	GENERAL GUIDELINES
17	PLANT PALETTES
23	RESOURCES

Figure 7.02. Page two of design guidelines.

BACKGROUND

The first lawns have been seen since sixteenth-century Western Europe, describing untilled soil covered in grass and have evolved to standardized neighborhood appearance overseen by local governance or homeowners' associations (Jenkins 1994). This evolution occurred as a social construct as only the wealthiest of individuals could maintain the appearance of a well-manicured lawn. Common folks used their lawn space for agriculture or livestock grazing, a productive space (Bailey 2016). With the creation of the automobile and the suburban landscape to follow, lawns became more attainable for individuals (Bailey 2016). During World War II the lawn was advertised as a patriotic symbol for soldiers to come home to, and once over, the lawn was desired to be emulated despite its unnaturalness to grow, as the turfgrass originates from England (Bormann et al. 2001; Jenkins 1994; Weigert 1994). Lawn care companies went into full production, with golf only accelerating this effort, becoming one of the largest economic industries (Zhang et al. 2015). The manicured lawn has several negative environmental impacts with excessive water intake, carbon emissions and waste from lawn equipment, and chemical

pollutants being the most prevalent (Jenkins 1994). Naturalistic landscapes are seen as a viable solution to lessen these effects as these plants have a lower environmental impact and have additional benefits (Ghys 2013; Monteiro 2017). Native plantings have lower water needs, provide strong roots that help with erosion, and provide habitat (Canaway 2010; Martin 2007; Vickers 2006; Yandik 2001). Naturalistic landscapes in this project are defined as diverse plant species, typically native species, or cultivars, that grow with infrequent mowing or fire being the only disruption to the natural processes. Despite naturalistic landscapes' environmental benefits, there is still a lack of acceptance from the public. A well-maintained lawn represents intelligent owners with respected jobs and picture-perfect families while native plantings look like an abandonment of neighborhood standards and often are described as unruly and weedy (Özgüner et al. 2007; Tallamy 2019; Weigert 1994; Zhang et al. 2015). Joan Nassauer studied these perceptions through an image survey and the use of a native landscape with different edge conditions. From this research, she found that the landscapes with "cues to care" were more likely to be accepted (Nassauer 1995).



Figure 01. Existing slope on neighborhood.

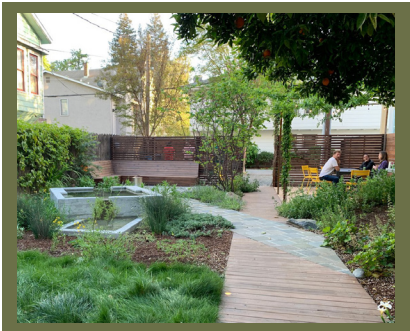


Figure 02. Existing slope on neighborhood.

Figure 7.03. Page three of design guidelines.

ESTABLISHING THE NEED

SURVEY RESULTS

The survey was conducted on February 12, 2024, and ran through March 4, 2024, equating to 21 days. There was a total of 270 respondents, equating a response rate of 3.9%. Of the 270 survey respondents, 224 of the respondents opted for the survey incentive of receiving the publication once finished. Fourteen respondents were not from Kansas with twelve of these residents being from Missouri, two from Nebraska, and one from Minnesota. Their responses were still included in the survey. The overall demographic showed survey respondents to be female, with the primary age being between 60-69 years old and retired regarding their employment status. The primary race was identified as white or Caucasian, and the ethnicity was not Hispanic or Latino. These demographics are in line with other surveys received based on this subject of work. Resident's background showed that 87% of the respondents could change their landscape's appearance and live on a property sized between 5,000 - 15,000 sq ft (0.11 - 0.34 acres), with less than 5,000 sq ft being lawn (routinely maintained) space. The survey was analyzed with the tools within Qualtrics and Excel, with the results presented on the next two pages.

AESTHETIC PREFERENCES IMAGE WINNER

CATEGORIES:

- Edge Conditions
- Color
- Amount of Planting
- Height
- Plant Groupings

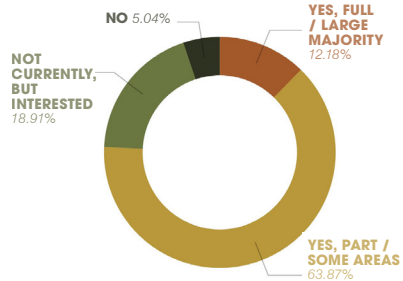


Figure 03.

“Don’t expect perfection or huge displays of perennial color. If something doesn’t work, don’t be afraid to rip it out and try again.”

Figure 04.

Figure 05. Do you actively incorporate a naturalistic landscape?



IS MAINTENANCE WITH A NATURALISTIC LANDSCAPE MORE OR LESS THAN A NON-NATURALISTIC ONE?



FREQUENCY OF FEEDBACK ON NATURALISTIC LANDSCAPE



POSITIVITY RANKING OF FEEDBACK RECIEVED



Figure 7.04. Page two of design guidelines.

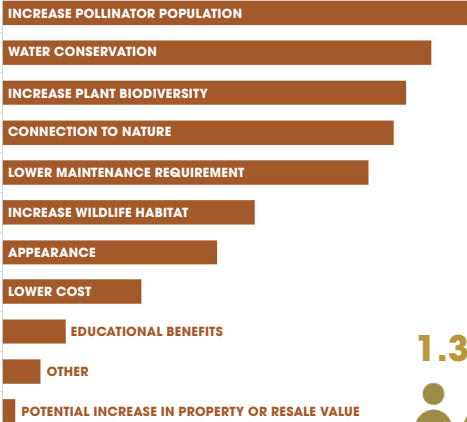
ESTABLISHING THE NEED

SURVEY RESULTS

DETERRING FACTORS & CHALLENGES Figure 09.



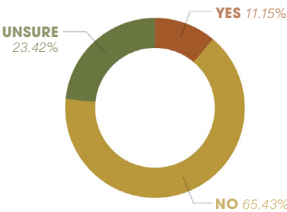
INTEREST & APPEALS Figure 10.



HOMEOWNERS CONFIDENCE IN THE FOLLOWING TASKS (MOST TO LEAST) Figure 11.

- 1) Installing plants
- 2) Mapping the sun & shade areas
- 3) Maintaining the naturalistic landscape
- 4) Budgeting for materials
- 5) Understanding soil conditions
- 6) Sourcing appropriate plants
- 7) Prepping landscape for install (ripping out turf)
- 8) Creating a naturalistic landscape design

Figure 12. Do you think a naturalistic landscape compared to a neighborhood of manicured (short mown) lawns lowers a community's sense of unity?



“My ‘weeds’ are native prairie flowers and grasses.” Figure 13.



people would be inclined to report a resident if they felt their landscape violated Homeowner Association (HOA) ordinances. Figure 14.

Figure 7.05. Page three of design guidelines.

EXAMPLES



HOUSEHOLD-SCALE



NEIGHBORHOOD-SCALE

KATAMA ROAD

Firm / Developer:

Oehme van Sweden

Style: Coastal

Color Palette:



Planting Strategy: Large smooth stone pavers contrasted against rugged grass and whimsical purple blooms that peek above. Mixed plantings with a primary grass base against a woodland backdrop.

Featured Plants: *Festuca ovina* Sheep Fescue

Perovskia atriplicifolia Russian Sage



Figure 15.

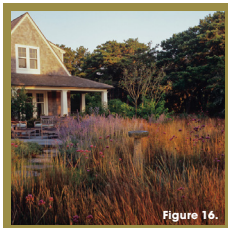


Figure 16.

GRAENEST RIDGE ROAD

Firm / Developer:

Oehme van Sweden

Style: English Country

Color Palette:



Planting Strategy: Intermixing of plantings throughout the beds with some areas being more formal through crisp garden bed edges and other plantings flanking over stepping stones for a more whimsical effect.

Featured Plants: *Aruncus dioicus* Goat's beard

Filipendula rubra 'Venusta' Queen of the Prairie

Echinacea purpurea Purple coneflower

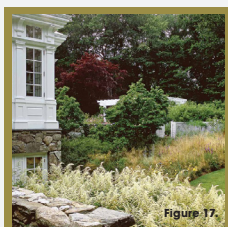


Figure 17.

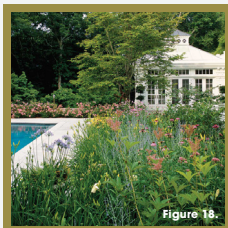


Figure 18.

Figure 7.06. Page two of design guidelines.

EXAMPLES

HOUSEHOLD-SCALE
NEIGHBORHOOD-SCALE

RIVERSVILLE ROAD

Firm / Developer:

Oehme van Sweden

Style: Meadow

Color Palette:

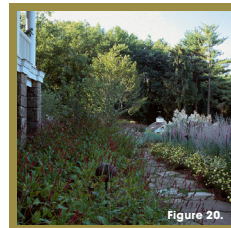


Planting Strategy: Due to the slope onsite, a series of terraced naturalistic plantings with each a slightly different character fill the house's landscape. The wild meadow plantings were chosen based on the ecology of the site and for their ability to retain water preserving the landscape.

Featured Plants: *Persicaria amplexicaulis* 'Fire Tail' Knotweed

Perovskia atriplicifolia Russian Sage

Liatris spicata Blazing Star



NORTH STREET

Firm / Developer:

Oehme van Sweden

Style: Woodland

Color Palette:



Planting Strategy: Intricate geometric pavements contrasted with round sweeping grass. Large masses of flowering perennials and grasses give a grand cohesive feeling despite the plants wild nature.

Featured Plants: *Packera aurea* Golden ragwort

Pennisetum alopecuroides 'Hameln'

Dwarf Fountain Grass 'Hameln'

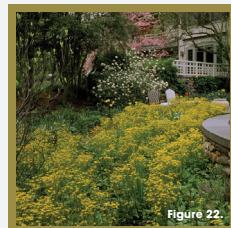


Figure 7.07. Page seven of design guidelines.

EXAMPLES



HOUSEHOLD-SCALE



NEIGHBORHOOD-SCALE

HOUSEHOLD-SCALE MID-CENTURY HAVEN

Firm / Developer:
Miridae

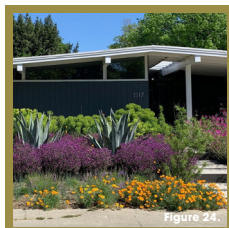
Style: Desert

Color Palette:



Planting Strategy: Through gradually increasing in plant height, the entrance to the entry of the house is framed and the asymmetrical roof brought to life. The contrasting colors create notice of the distinct row planting bringing more formality to the landscape.

Featured Plants: *Agave americana* Century Plant
Lavandula stoechas Spanish Lavender
Eschscholzia californica California Poppy



HOUSEHOLD-SCALE BOULES AND BUCKWHEAT

Firm / Developer:
Miridae

Style: Desert

Color Palette:



Planting Strategy: Rows of plantings provides order amongst the varying leaf texture that gives visual interest. With a small seating space between the landscape and the house, low walls and shrubs delineate this space and give some added privacy.

Featured Plants: *Baccharis pilularis* 'Pigeon Point' Dwarf Coyote Brush
Beschorneria yuccoides Mexican Lily
Eriogonum fasciculatum California Buckwheat

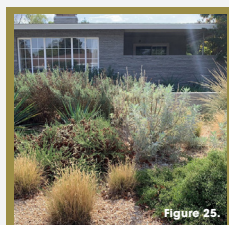


Figure 7.08. Page eight of design guidelines.

EXAMPLES

HOUSEHOLD-SCALE
NEIGHBORHOOD-SCALE

CEEDAR ACRES

Firm / Developer:
Unknown

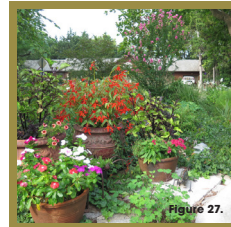
Style: Container / Woodland

Color Palette:



Planting Strategy: This landscape hugs the homes architecture, giving a more private approach to the house. Although the dispersed plantings within the bed, a clean border gives the arrangement order and intent. A mix of large potted plants help to contain aggressive plants while giving height and structure.

Featured Plants: *Begonia boliviensis* Trailing Begonia
Lagerstroemia Crape Myrtle
Rudbeckia hirta Black-eyed Susan



PROSPECT HOUSE

Firm / Developer:
Design Workshop

Style: Contemporary

Color Palette:



Planting Strategy: With a large focus on decreasing water consumption and filtering rainwater, native grasses were chosen as the primary planting strategy. The simplicity of the planting palette and larger scale of the application give the design a grand feeling.

Featured Plants: *Populus tremuloides* Quaking Aspen
Sporobolus rigidus Buckley

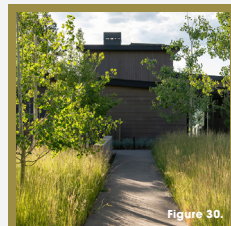
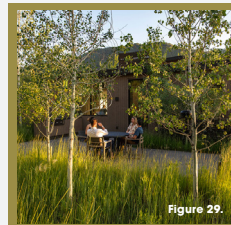


Figure 7.09. Page nine of design guidelines.

EXAMPLES

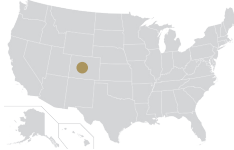
 HOUSEHOLD-SCALE
 NEIGHBORHOOD-SCALE

CHARLIE MOUNTAIN RANCH

Firm / Developer:
Design Workshop

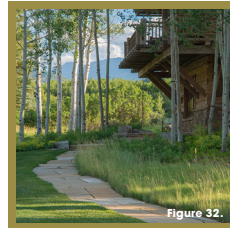
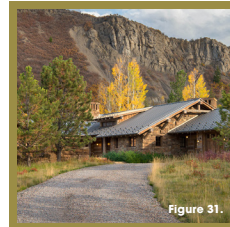
Style: Mountain Prairie

Color Palette: 



Planting Strategy: Once neglected ranch and agricultural land, this property was restored with native oak-mountain shrubland and grasslands that complement the stone accents within the site. Areas that were dense with oak were thinned to improve habitat quality and supplemental plantings were added for interest and for biodiversity.

Featured Plants: *Pascopyrum smithii* Western Wheatgrass
Cornus sericea Red Twig Dogwood
Quercus gambelii Gambel Oak



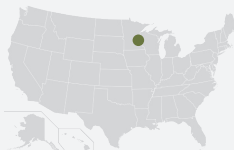
JACKSON MEADOW

MARINE ON ST. CROIX, MN

145 Acres

Firm / Developer:
Coen + Partners

Village of Marine and the
Minnesota Land Trust



64 Households

94 acres Naturalistic Planting Area

65% Naturalistic to Total Area

Naturalistic Planting Characteristics: Throughout the property a seed mix is distributed with little bluestem as the dominant species for neighborhood continuity and seasonal color.

Maintained by: Residents, Local volunteers, and the Village of Marine and Minnesota Land Trust ("Jackson Meadow" n.d.)



10

Figure 7.10. Page ten of design guidelines.

EXAMPLES

 **HOUSEHOLD-SCALE**
 **NEIGHBORHOOD-SCALE**

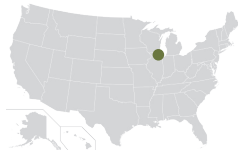
PRAIRIE CROSSING

GRAYSLAKE, ILLINOIS

677 Acres

Firm / Developer:

Prairie Holdings Corporation



395 Households

290 acres Naturalistic Planting Area

43% Naturalistic to Total Area

Naturalistic Planting Characteristics: About 175 acres prairie, 20 acres of restored wetland, and 16 acres of historic hedgerows. A mix of naturalistic planting between community and resident space.

Maintained by: Residents (burning maintenance outlined in HOA guidelines), volunteers, trained professionals ("Prairie Crossing" n.d.).



Figure 35.



Figure 36.

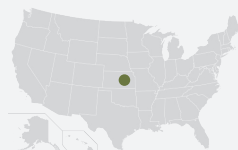
FOX RIDGE

WICHITA, KS

215 Acres

Firm / Developer:

Schellenberg Development Company



391 Residents

88 acres Naturalistic Planting Area

40% Naturalistic to Total Area

Naturalistic Planting Characteristics: Neighborhood branding through naturalistic collector road planting and buffering edges of ponds and overall neighborhood edge.

Maintained by: HOA



Figure 37.



Figure 38.

Figure 7.11. Page eleven of design guidelines.

PLANTING LAYOUT

NEIGHBORHOOD-SCALE



Figure 39. Neighborhood greenbelt.

Figure 40. Slope overlay on design.

A deterring factor of incorporating naturalistic landscaping found through the survey was the result of homeowners not wanting to stand out due to social pressures from neighbors or the public. To combat this resistive factor, a master-planned neighborhood where naturalistic landscapes are the norm instead of manicured turf lawns was created. By creating this aesthetic from the start, homeowners can buy into the idea of having an environmentally conscious neighborhood and would not have to be an outlier amidst the other houses which combats another concern from homeowners which is the potential decrease of property or resale value. This concern largely drives the social

pressures from outside opinions as well. Additionally, through having a neighborhood development where a naturalistic landscape is already installed, the concerns, time, and energy of ripping out previous plantings and installing new ones do not have to occur. With the use of an HOA which is very common amongst neighborhoods at this time, landscape maintenance guidelines and/or procedures can be dictated based on however much guidance the neighborhood residents would like. Through the precedent research, neighborhoods with common spaces maintained by HOAs having written guidelines for individual properties tend to work best. However, maintenance done by one landscape management

group could ensure a more uniform look across the community but will also increase expenses as well.

Master-planned communities that keep the environment in mind have many benefits aside from aesthetic purposes. By conserving and maintaining naturalistic landscapes, the neighborhood has a built-in green belt which is supplemented with trails for recreational activities. These trails weave in and out of the neighborhood and into the conserved space, giving a more immersed nature experience for the residents. Through conservative lot placement within the neighborhood, the natural terrain of the landscape is preserved preventing erosion and further ecological impacts. Within the lots is a mix of housing units, ranging from single-unit homes to four-plex homes. This is to increase density, creating the ability to conserve more open space for trail use for community amenities. Due to the density, the community has a very comparable dwelling unit to acre count compared to a typical homogenous single-family neighborhood. Lastly, to protect the natural slopes and vegetation, drainage basins to collect rainwater were considered. This allows a natural collection and filtration process mitigating the need for large infrastructure solutions.

12

Figure 7.12. Page twelve of design guidelines.

PLANTING LAYOUT

NEIGHBORHOOD-SCALE

KEY STATISTICS

Total Acreage: 517.4

- Developed Acreage - 143 acres
- Maintained Open Space Acreage - 0.11 acres
- Natural Open Space Acreage - 374 acres

Total Units: 1751

- Single Family - 847
- Duplex - 492
- Fourplex - 412

9.1% Dwelling Unit / Acre

72% Preserved Open Space

LEGEND

	SINGLE FAMILY		MANICURED LAWN
	DUPLEX		EXISTING TREES
	QUADPLEX		PROPOSED TREES
	HOME		DRAINAGE BASIN
	PROPOSED ROAD		NATURALIZED
	TRAILS		



Figure 41.

Figure 7.13. Page thirteen of design guidelines.

PLANTING LAYOUT

AMOUNT OF NATURALISTIC PLANTING



Figure 42.

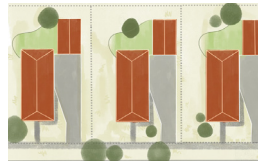


Figure 43.

NATURALISTIC PLANTING ACROSS PROPERTIES

Naturalistic plantings across household properties create thriving ecological corridors and a seamless aesthetic environment.

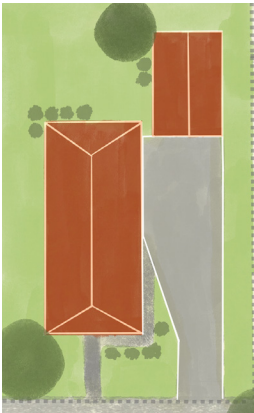


Figure 44.

TRADITIONAL TURF LANDSCAPE

A manicured turf landscape takes up a majority of a household landscape providing less ecological benefit.

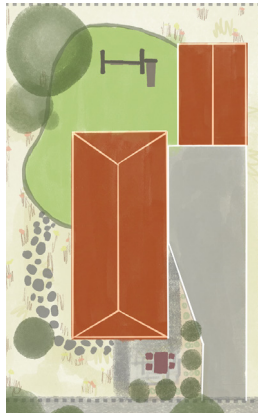


Figure 45.

NATURALISTIC MIXED PLANTING

Intermixing species in a naturalistic landscape has a more wild effect, but through the use of clean borders can still be intentional.

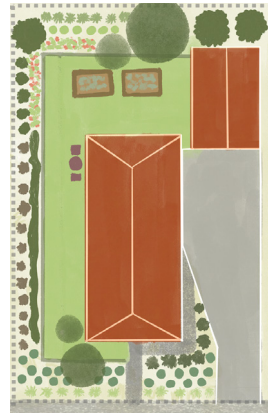


Figure 46.

NATURALISTIC MASS PLANTING

Planting species in masses through clumping and rows provides a more formal effect.

Figure 7.14. Page fourteen of design guidelines.

PLANTING LAYOUT

AMOUNT OF NATURALISTIC PLANTING



Figure 47.

CONTAINER PLANTINGS

For those experimenting with naturalistic plantings or are not comfortable dedicating a large portion of space can use container plantings. These typically have less maintenance and allow more control over the landscape's appearance.



Figure 48.

PLANTING BEDS

Dedicating a portion of your lawn to naturalistic plantings through landscape beds is a good transition point for those wanting a full naturalistic lawn or still want to preserve parts of their turf lawn.



Figure 49.

FULL NATURALISTIC LAWN

A full naturalistic lawn has the most ecological and water saving benefits while still being able to maintain high-quality aesthetics.

Figure 7.15. Page fifteen of design guidelines.

GENERAL GUIDELINES



Figure 50.



Figure 51.

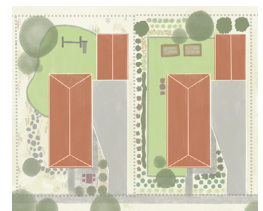


Figure 52.



Figure 53.

BORDERS

Planting up to a walkway prohibits manicuring awkward in-between spaces and ensures a clean edge

COLOR & GROUPINGS

Mixed plantings with planned color throughout the season creates a vibrant garden all year round.

EXTENT OF PLANTING

Large beds of planting frames homes and provide the most ecological qualities.

HEIGHT

Medium - low height plantings create visual interest without prohibiting views or showing a lack of care for the landscape.

ADDITIONAL TIPS

- Provide buffer room for maintenance or create beds wide enough that you can reach to maintain
- Have 1-2 focal species to allow plantings to shine
- Plant with views in mind, put shorter plants in front of beds and taller plants in the back (*note if the planting bed can be seen from the front and back place taller plants in the middle)
- When mapping your planting bed, use mature widths and sizes, not the initial nursery pot size
- Use flour to map your landscape beds and mature size or your plantings *this does not harm anything
- Use a minimum of three plants (nursery pots) per species in your planting design
- Keep in mind sun and shade patterns when deciding plant species
- Check the end of this document for additional resources

Figure 7.16. Page sixteen of design guidelines.

PLANT PALETTES

To expand on what naturalistic plantings could occur in these beds, five key plant combinations were created to compose a garden that strikes awe and wonder. These palettes were created based on the precedent study analysis of what was working well in those precedent landscapes, and how it could be transferred to fit the plantings that work with the ecological conditions of Kansas. The palettes were also based on factors that surveyed homeowners were most drawn towards regarding naturalistic landscapes which included increasing plant biodiversity, increasing pollinator species, and water conservation. Two additional palettes were created to account for plantings that addressed shade conditions and a Kansas State palette to give tribute to the project's origin. Key design strategies that were used to create the palettes included selecting plantings requiring similar planting conditions, differing textures, differing heights, and based on seasonality to ensure color throughout the seasons. The palettes also use color in varying ways to appeal to different tastes, ranging from analogous, monochromatic, and complementary hues. These palettes are intended as starting points for homeowners, with the ability to supplement with other plantings or substitutions for other preferred aesthetic combinations. An additional list of plants is presented as well with each palette for this reason. This is not a comprehensive list of all suitable options, however. Resources are listed in the next chapter regarding design guidelines.

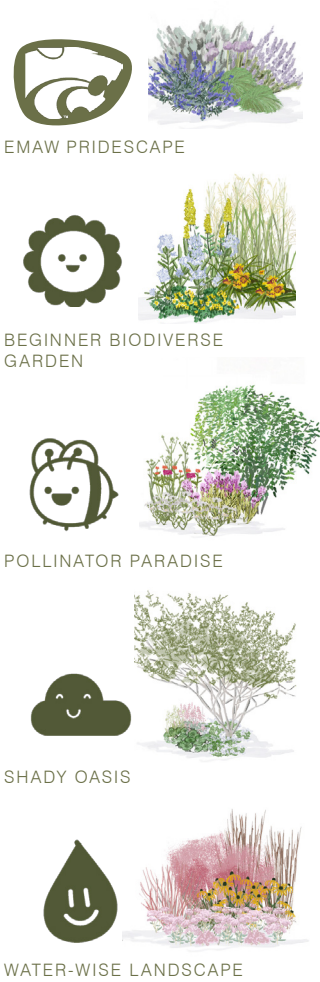
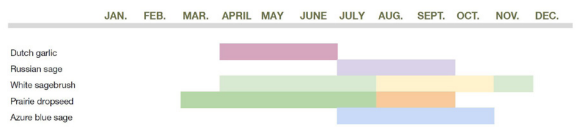
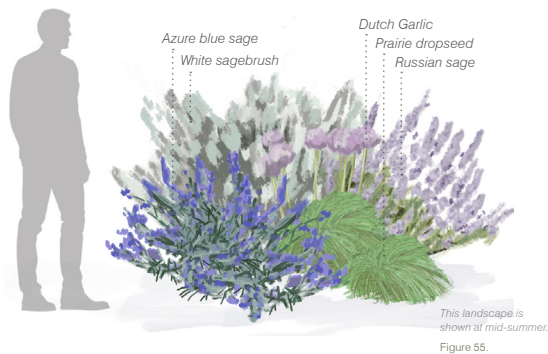


Figure 54.

Figure 7.17. Page seventeen of design guidelines.

PLANT PALETTES

EMAW PRIDESCAPE 



COMMON NAME	SCIENTIFIC NAME	TYPE	HEIGHT	WIDTH
Dutch garlic	Allium afflatunense 'Purple Sensation'	perennial	2-3'	bulbs
Russian sage	Perovskia atriplicifolia	perennial	3-5'	2-4'
White sagebrush	Artemisia ludoviciana	perennial	3-4'	4-5'
Prairie dropseed	Sporobolus heterolepis	perennial / grass	up to 3'	3'
Azure blue sage	Salvia azurea	perennial	up to 5'	1-4'

Light Needs  Water Needs 

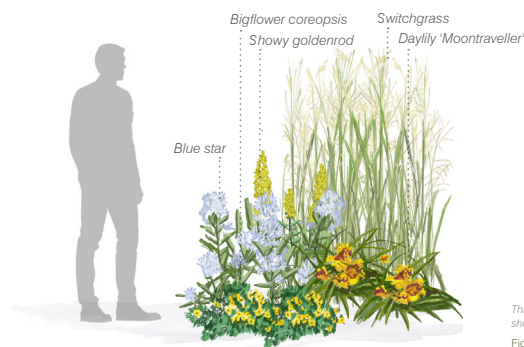
Other Suitable Plantings:

- Eryngium leavenworthii (False purple thistle)
- Monarda citriodora (Lemon beebalm)
- Symphotrichum praealtum (Willow leaf aster)
- Amorpha canescens (Leadplant)
- Amorpha fruticosa (False indigo)
- Viola nephrophylla (Wild violet)
- Lamium purpureum (Purple dead nettle)
- Tradescantia ohiensis (Common spiderwort)

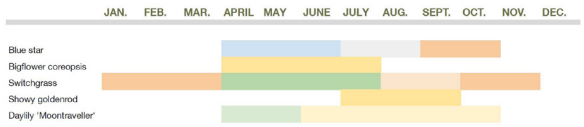
Figure 7.18. Page eighteen of design guidelines.

PLANT PALETTES

BEGINNER BIODIVERSE GARDEN



This landscape is shown at mid-summer.
Figure 56.



COMMON NAME	SCIENTIFIC NAME	TYPE	HEIGHT	WIDTH
Blue star	<i>Amsonia tabernaemontana</i>	perennial	2-3'	1-2'
Bigflower coreopsis	<i>Coreopsis grandiflora</i>	perennial	1-3'	1-3'
Switchgrass	<i>Panicum virgatum</i>	perennial / grass	3-6'	2-3'
Showy goldenrod	<i>Solidago speciosa</i>	perennial	2-3'	2-3'
Daylily 'Moontraveller'	<i>Hemerocallis 'Moontraveller'</i>	perennial	1.5-2'	1.5-2'

Light Needs 

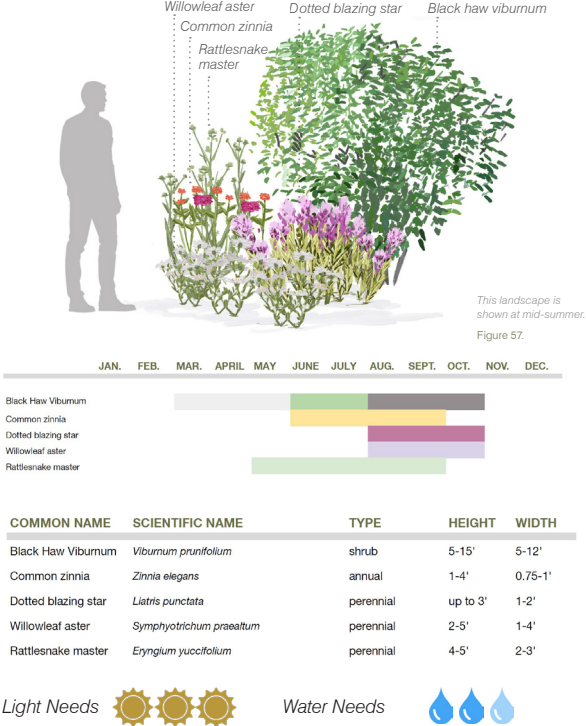
Water Needs 

- Other Suitable Plantings:
- Amorpha canescens* (Leadplant)
 - Geranium bohemicum* (Hardy geranium)
 - Nepeta cataria* (Catnip)
 - Penstemon cobaea* (Cobaea penstenum)
 - Coreopsis grandiflora* (Bigflower coreopsis)
 - Symphytichum praealtum* (Willow leaf aster)
 - Helenium autumnale* (Common Sneezeweed)

Figure 7.19. Page nineteen of design guidelines.

PLANT PALETTES

POLLINATOR PARADISE

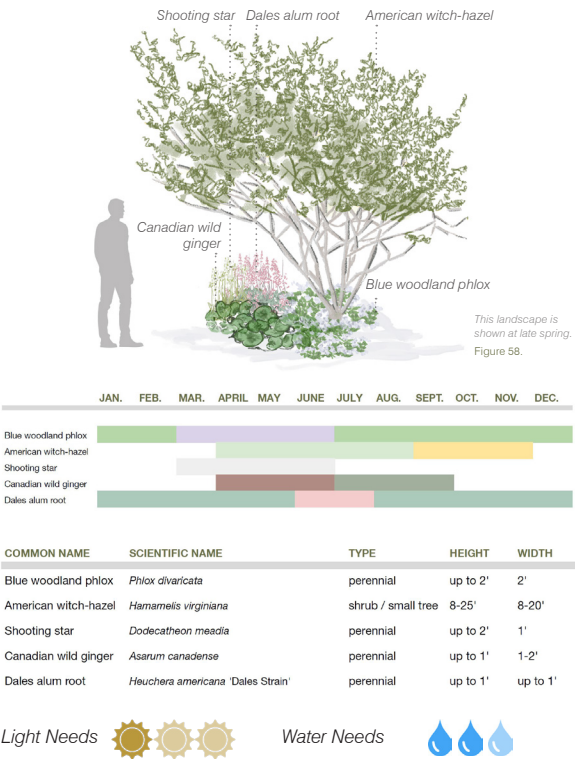


- Other Suitable Plantings:
- Eryngium leavenworthii* (False purple thistle)
 - Asclepias syriaca* (Common Milkweed)
 - Artemisia stelleriana* (Dusty miller)
 - Allium canadense* (Wild onion)
 - Dyssodia papposa* (Fetid marigolds)
 - Gaillardia pulchella* (Indian blanket)
 - Cosmos bipinnatus* (Garden cosmos)

Figure 7.20. Page twenty-one of design guidelines.

PLANT PALETTES

SHADY OASIS 



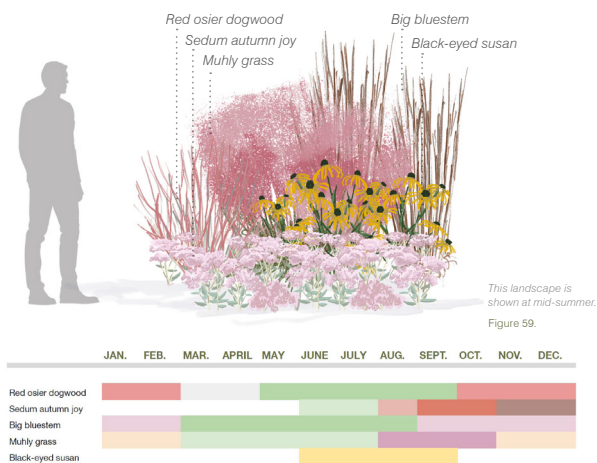
Other Suitable Plantings:

- Hosta sieboldiana* 'Frances Williams' (Hosta 'Frances Williams')
- Helleborus orientalis* (Lenten rose)
- Hydrangea quercifolia* (Oakleaf hydrangea)
- Solenostemon scutellarioides* 'Sky Fire' (Coleus sky fire)
- Tiarella cordifolia* (foamflower)
- Caladium* 'White Dynasty' (White Dynasty Caladium)
- Epimedium rubrum* (Barrenwort)

Figure 7.21. Page twenty-one of design guidelines.

PLANT PALETTES

WATER WISE LANDSCAPE



COMMON NAME	SCIENTIFIC NAME	TYPE	HEIGHT	WIDTH
Red osier dogwood	<i>Cornus sericea</i> L.	perennial	up to 5'	
Sedum autumn joy	<i>Hylotelephium</i> 'Herbstfreude' Autumn Joy	perennial	1.5-2'	1.5-2'
Big bluestem	<i>Andropogon gerardii</i>	perennial / grass	4-6'	2-3'
Muhly grass	<i>Muhlenbergia capillaris</i>	perennial / grass	up to 5'	2-3'
Black-eyed susan	<i>Rudbeckia hirta</i>	perennial	2-3'	2-3'

Light Needs  Water Needs 

Other Suitable Plantings:

- Aruncus dioicus* (Goatsbeard)
- Salvia yangii* (Russian sage)
- Thymus serpyllum* (Creeping thyme)
- Asclepias tuberosa* (Butterfly milkweed)
- Nepeta cataria* (Catnip)
- Coreopsis grandiflora* (Bigflower coreopsis)
- Cephalanthus occidentalis* (Buttonbush)
- Carex* sp. (Sedge)

Figure 7.22. Page twenty-two of design guidelines.

RESOURCES

NAME	WEBSITE	EDUCATIONAL BENEFITS	INSTALLATION & MAINTENANCE	LANDSCAPE DESIGN	NATIVE PLANT LISTS / DETAILS	NATIVE PLANT SOURCING
Audubon	https://www.audubon.org/native-plants	●			●	
Center for Plant Conservation	https://saveplants.org/	●			●	
Dyck Arboretum	https://dyckarboretum.org/landscaping-with-native-plants/	●		●	●	
EPA landscaping with native plants	https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=94005TMX.txt	●				
Grow Native	https://grownative.org/	●	●	●	●	●
Kansas Native Plants	https://kansasnativeplants.com/index.php				●	●
Kansas Roots	https://www.kansasroots.org/Plant-Search				●	
Kansas Rural Center	https://kansasruralcenter.org/other-publications/planting-natives-in-northeast-kansas	●				
Kansas Wildflowers and Grasses	https://kswildflower.org/			●		
K-State Extension	https://www.ksre.k-state.edu/program-areas/lawn-and-garden/	●	●		●	●
Ladybird Johnson Wildflower Center	https://www.wildflower.org/learn/guide-native-plant-gardening	●	●		●	
Missouri Botanical Garden	https://www.missouribotanicalgarden.org/plantfinder/plantfindersearch.aspx				●	
Missouri Department of Conservation	https://mdc.mo.gov/trees-plants/native-plants-your-landscape	●	●	●	●	
North American Native Plant Society	https://nanps.org/	●			●	●
Plant Hardiness Zone Map	https://planthardiness.ars.usda.gov/				●	
Plant Native	https://plantnative.org/	●				●
Planting Natives in Northeast Kansas	https://plantnatives.weebly.com/	●	●	●	●	●
Prairie Nursery	https://www.prairienursery.com/			●		
Rain Garden Network	https://www.raingardennetwork.com/	●			●	
USDA Invasive Species	https://www.invasivespeciesinfo.gov/				●	
USDA Plant Database	https://plants.usda.gov/home				●	
Wild Ones	https://nativegardendesigns.wildones.org/why-native-plants/	●		●		

Table 01.

Figure 7.23. Page twenty-three of design guidelines.

LEADING LANDSCAPE ARCHITECTURE FIRMS

NAME	WEBSITE
Center for Urban Habitats	https://centerforurbanhabitats.com/
CLS & Associates	https://clsokc.com/
Coen + Partners	https://www.coenpartners.com/
Design Workshop	https://www.designworkshop.com/index.html
Green Abundance by Design	https://www.greenabundancebydesign.com/
Hoerr Schaudt	https://hoerrschaudt.com/
Miridae	https://www.miridae.com/
Native Edge	https://www.nativedgeco.com/
Native Plant Landscape Design	https://www.nativeplantld.com/
Native Son Gardens	https://nativesongardens.com/
Oehme van Sweden	https://www.ovsla.com/
Phyto Studio	https://www.phylostudio.com/
Piet Oudolf	https://oudolf.com/
Plan it Wild	https://www.planitwild.com/
Red Stem Native Landscapes	https://www.redstemlandscapes.com/
Refugia Design	https://www.refugiadesign.com/

Table 02.

Figure 7.24. Page twenty-four of design guidelines.

REFERENCES

- Bailey, Mattias Orellana. 2016. "Our Grass Groweth Over: A Built Network to Reclaim the American Lawn." Thesis. <https://digital.lib.washington.edu/443/researchworks/handle/1773/38523>.
- Bormann, F. Herbert, Diana Balmori, and Gordon T. Geballe. 2001. *Redesigning the American Lawn: A Search for Environmental Harmony*. 28-45. Second Edition. Yale University.
- Canaway, Jane. 2010. "Lawns." *Sanctuary: Modern Green Homes*, no. 11: 82–83. <https://www.jstor.org/stable/sanctuary.11.82>.
- "Design Workshop." n.d. <https://www.designworkshop.com>.
- Ghys, Maria Decker. 2013. "The American Lawn: Culture, Nature, Design, and Sustainability." Masters Thesis., Graduate School of Clemson University. https://www.clemson.edu/cafls/vincent/articles/ghys_thesis.pdf.
- "Jackson Meadow" n.d. Jackson-Meadow. <https://www.jacksonmeadow.com>.
- Jenkins, Virginia Scott. 1994. *The Lawn: A History of an American Obsession*. Washington, DC: Smithsonian Institution Press.
- Martin, Susan. 2007. "Green in the Desert: Extreme Climates and Fragile Ecosystems Present Challenges to Sustainable Development in America's Desert Regions." *Urban Land*, April, 144–47. <https://ksu-illiad-oclc-org.er.lib.k-state.edu/illiad/illiad.dll?Action=10&Form=75&Value=1074114>.
- "Miridae." n.d. Miridae. <https://www.miridae.com>.
- Monteiro, José A. 2017. "Ecosystem Services from Turfgrass Landscapes." *Urban Forestry & Urban Greening*, Special feature: Turfgrass, 26 (August): 151–57. <https://doi.org/10.1016/j.ufug.2017.04.001>.
- Nassauer, Joan. 1995. "Messy Ecosystems, Orderly Frames." *Landscape Journal*, no. 14 (Fall): 161–70.
- Özgüner, H., A. D. Kendle, and R. J. Bisgrove. 2007. "Attitudes of Landscape Professionals towards Naturalistic versus Formal Urban Landscapes in the UK." *Landscape and Urban Planning* 81 (1): 34–45. <https://doi.org/10.1016/j.landurbplan.2006.10.002>.
- "Prairie Crossing." n.d. Prairie Crossing. <https://prairiecrossing.com/>.
- Tallamy, Douglas W. 2019. *Nature's Best Hope: A New Approach to Conservation That Starts in Your Yard*. Portland, Oregon: Timber Press.
- Weigert, Andrew J. 1994. "Lawns of Weeds: Status in Opposition to Life." *The American Sociologist* 25 (1): 80–96. <https://www.jstor.org/stable/2769867>.
- Vickers, Amy. 2006. "New Directions in Lawn and Landscape Water Conservation." *Journal (American Water Works Association)* 98 (2): 56–61, 156. <https://www.jstor.org/stable/41312929>.
- Yandik, Will. 2001. "Ridding the American Landscape of Lawn: Is Nothing Sacred?" *Architectural Record* 189 (3): 51–52. <https://er.lib.k-state.edu/login?url=https://www.proquest.com/trade-journals/ridding-american-landscape-lawn-is-nothing-sacred/docview/222144373/se-2>.
- Zhang, Yaoqi, Bin Zheng, Ge Sun, and Peilei Fan. 2015. "The American Lawn Revisited: Awareness Education and Culture as Public Policies Toward Sustainable Lawn." 107-115. SSRN Scholarly Paper. Rochester, NY. <https://papers.ssrn.com/abstract=2560287>.

Figure 7.25. Page twenty-five of design guidelines.

FIGURES

- Figure 01. Oehme van Sweden | OvS. n.d. *18th Century Horse Farm, New England*. <https://www.ovsla.com/portfolio-items/18th-century-horse-farm/>.
- Figure 02. Miridae. n.d. *A Mirid's Mansion*. Accessed March 28, 2024. <https://www.miridae.com/a-mirids-mansion>.
- Figure 03. Adobe Firefly. Response to "Cottage landscape with suburban home." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.
- Figure 04. Hammes, Julia. 2024. *Reflections and advice from homeowners with naturalistic landscapes*. Qualtrics.
- Figure 05. Hammes, Julia. 2024. *Do you actively incorporate a naturalistic landscape?* Qualtrics.
- Figure 06. Hammes, Julia. 2024. *Is maintenance with a naturalistic landscape more or less than with a non-naturalistic landscape?* Qualtrics.
- Figure 07. Hammes, Julia. 2024. *Frequency of feedback on naturalistic landscape*. Qualtrics.
- Figure 08. Hammes, Julia. 2024. *Positivity ranking of feedback on naturalistic landscape*. Qualtrics.
- Figure 09. Hammes, Julia. 2024. *Deterring Factors & Challenges*. Qualtrics.
- Figure 10. Hammes, Julia. 2024. *Interest & Appeals*. Qualtrics.
- Figure 11. Hammes, Julia. 2024. *Confidence in skills when designing, installing, maintaining naturalistic landscapes*. Qualtrics.
- Figure 12. Hammes, Julia. 2024. *Do you think a naturalistic landscape compared to a neighborhood of manicured (short mown) lawns lowers a community's sense of unity?* Qualtrics.
- Figure 13. Hammes, Julia. 2024. *Comments from neighbors regarding their naturalistic landscapes*. Qualtrics.
- Figure 14. Hammes, Julia. 2024. *Inclination to report a landscape*. Qualtrics.
- Figure 15. Oehme van Sweden | OvS. n.d. *Katama Road 1*. <https://www.ovsla.com/portfolio-items/marthas-vineyard/>.
- Figure 16. Oehme van Sweden | OvS. n.d. *Katama Road 3*. <https://www.ovsla.com/portfolio-items/marthas-vineyard/>.
- Figure 17. Oehme van Sweden | OvS. n.d. *Graenest Ridge Road 2*. <https://www.ovsla.com/portfolio-items/wilton-ct/>.
- Figure 18. Oehme van Sweden | OvS. n.d. *Graenest Ridge Road 4*. <https://www.ovsla.com/portfolio-items/wilton-ct/>.
- Figure 19. Oehme van Sweden | OvS. n.d. *Riversville Road 2*. <https://www.ovsla.com/portfolio-items/>.
- Figure 20. Oehme van Sweden | OvS. n.d. *Riversville Road 1*. <https://www.ovsla.com/portfolio-items/>.
- Figure 21. Oehme van Sweden | OvS. n.d. *North Street 1*. <https://www.ovsla.com/portfolio-items/greenwich-ct-north-street/>.
- Figure 22. Oehme van Sweden | OvS. n.d. *North Street 3*. <https://www.ovsla.com/portfolio-items/greenwich-ct-north-street/>.
- Figure 23. Miridae. n.d. *Mid-Century Haven 2*. <https://www.miridae.com/midcentury-haven>.
- Figure 24. Miridae. n.d. *Mid-Century Haven 1*. <https://www.miridae.com/midcentury-haven>.
- Figure 25. Miridae. n.d. *Boules and Buckwheat 1*. <https://www.miridae.com/boules-and-buckwheats>.
- Figure 26. Miridae. n.d. *Boules and Buckwheat 2*. <https://www.miridae.com/boules-and-buckwheats>.
- Figure 27. Hahn, Howard. n.d. *Cedar Acres Residence 1*. Photograph.
- Figure 28. Hahn, Howard. n.d. *Cedar Acres Residence 3*. Photograph.
- Figure 29. Design Workshop. n.d. *Prospect House 1*. <https://www.designworkshop.com/projects/prospect-house.html>.
- Figure 30. Design Workshop. n.d. *Prospect House 3*. <https://www.designworkshop.com/projects/prospect-house.html>.
- Figure 31. Design Workshop. n.d. *Charlie Mountain Ranch 3*. <https://www.designworkshop.com/projects/charlie-mtn-ranch.html>.
- Figure 32. Design Workshop. n.d. *Charlie Mountain Ranch 4*. <https://www.designworkshop.com/projects/charlie-mtn-ranch.html>.
- Figure 33. Skabelund, Lee. 2024. *Jackson Meadows 1*. Photograph.
- Figure 34. Skabelund, Lee. 2024. *Jackson Meadows 3*. Photograph.
- Figure 35. Hahn, Howard. n.d. *Prairie Crossing 3*. Photograph.

26

Figure 7.26. Page twenty-six of design guidelines.

FIGURES

- Figure 36. Hahn, Howard. n.d. *Prairie Crossing 5*. Photograph.
- Figure 37. Hahn, Howard. n.d. *Fox Ridge 1*. Photograph.
- Figure 38. Hahn, Howard. n.d. *Fox Ridge 4*. Photograph.
- Figure 39. Hammes, Julia. 2024. *Greenbelt neighborhood amenity*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.
- Figure 40. Hammes, Julia. 2024. *Neighborhood layout design with slope overlay*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.
- Figure 41. Hammes, Julia. 2024. *Neighborhood layout design*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.
- Figure 42. Hammes, Julia. 2024. *Street view of naturalistic landscaping across property lines*. Adobe Fresco.
- Figure 43. Hammes, Julia. 2024. *Household naturalistic plan*. Adobe Fresco.
- Figure 44. Hammes, Julia. 2024. *Household traditional turf lawn*. Adobe Fresco.
- Figure 45. Hammes, Julia. 2024. *Household naturalistic mixed planting*. Adobe Fresco.
- Figure 46. Hammes, Julia. 2024. *Household naturalistic mass planting*. Adobe Fresco.
- Figure 47. Hammes, Julia. 2024. *Container Plantings*. Adobe Fresco.
- Figure 48. Hammes, Julia. 2024. *Planting Beds*. Adobe Fresco.
- Figure 49. Hammes, Julia. 2024. *Full Naturalistic Lawn*. Adobe Fresco.
- Figure 50. Hammes, Julia. 2024. *Shady oasis plant palette*. Adobe Fresco & Excel.
- Figure 51. Hammes, Julia. 2024. *Plant Color Mapping*. Excel.
- Figure 52. Hammes, Julia. 2024. *Household naturalistic mixed & massing planting*. Adobe Fresco.
- Figure 53. Hammes, Julia. 2024. *Beginner biodiverse garden plant palette*. Adobe Fresco & Excel.
- Figure 54. Hammes, Julia. 2024. *Plant palette overview*. Adobe Fresco & Excel.
- Figure 55. Hammes, Julia. 2024. *EMAW pridescape plant palette*. Adobe Fresco & Excel.
- Figure 56. Hammes, Julia. 2024. *Beginner biodiverse garden plant palette*. Adobe Fresco & Excel.
- Figure 57. Hammes, Julia. 2024. *Pollinator paradise plant palette*. Adobe Fresco & Excel.
- Figure 58. Hammes, Julia. 2024. *Shady oasis plant palette*. Adobe Fresco & Excel.
- Figure 59. Hammes, Julia. 2024. *Water-wise landscape plant palette*. Adobe Fresco & Excel.

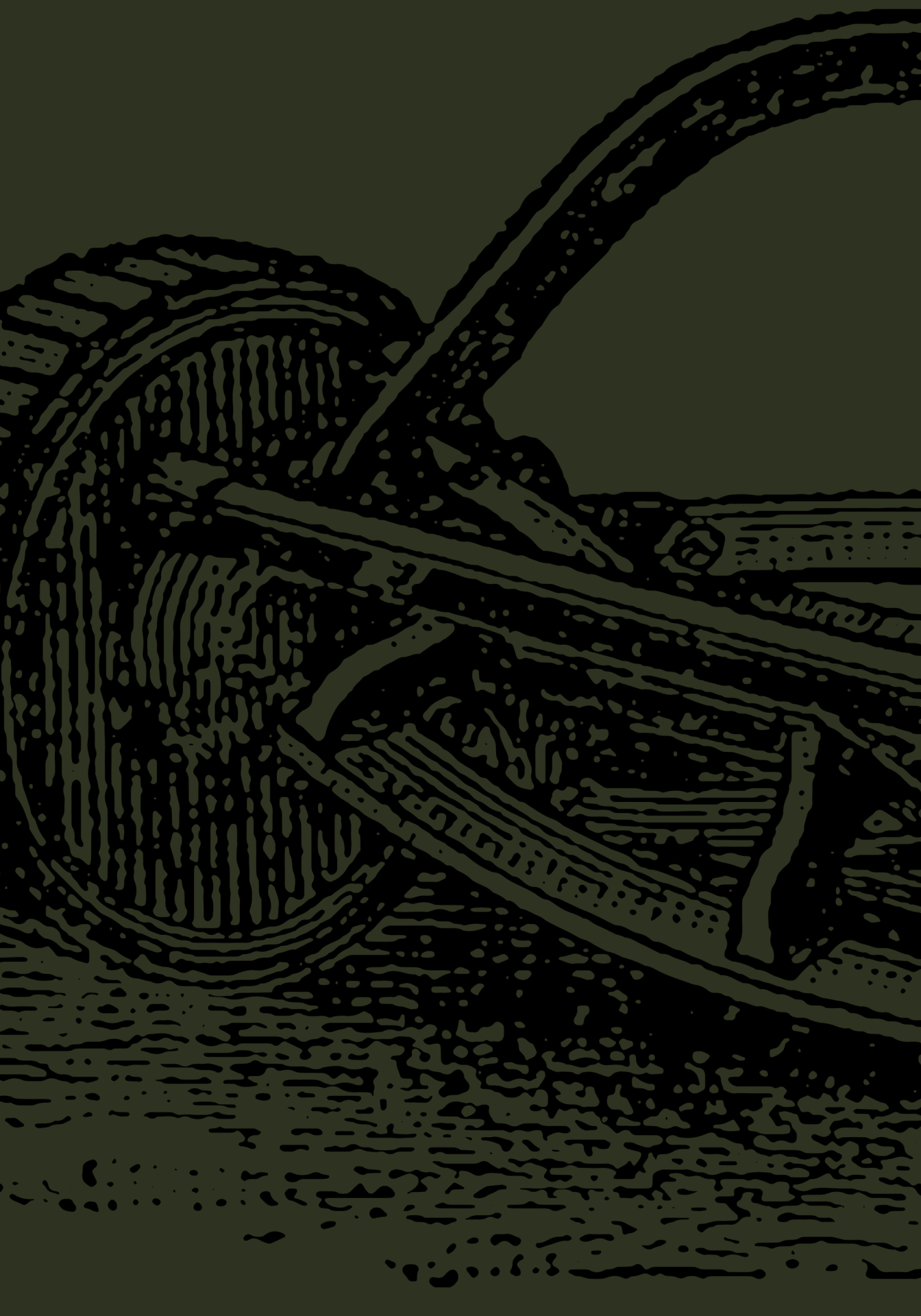
TABLES

- Table 01. Hammes, Julia. 2024. *Resources*. Excel.
- Table 02. Hammes, Julia. 2024. *Leading Landscape Architecture Firms*. Excel.

Figure 7.27. Page twenty-seven of design guidelines.



Figure 7.28. Page twenty-eight of design guidelines.





08

CONCLUSION

CHAPTER 8

Implication

The first lawns have been seen since sixteenth-century Western Europe, describing untilled soil covered in grass and has evolved to standardized neighborhood appearance overseen by local governance or homeowners' associations (Jenkins 1994). This evolution occurred as a social construct as only the wealthiest of individuals could maintain the appearance of a well-manicured lawn. Common folks used their lawn space for agriculture or livestock grazing, as a productive space (Bailey 2016). With the creation of the automobile and suburban landscape which followed, lawns became more attainable for individuals (Bailey 2016). During World War II the lawn was advertised as a patriotic symbol for soldiers to come home to, and once they returned, the lawn was desired to be emulated despite its unnaturalness to grow, as the turfgrass originates from England (Bormann et al. 2001; Jenkins 1994; Weigert 1994). Lawn care companies went into full production, with golf only accelerating this effort, becoming one of the largest economic industries (Zhang et al. 2015). The manicured lawn has several negative environmental impacts with excessive water intake, carbon emissions and waste from lawn equipment, and chemical pollutants being the most prevalent (Jenkins 1994). Naturalistic landscapes are seen as a viable solution to lessen these effects as these plants have a lower environmental impact and have additional benefits (Ghys 2013; Monteiro 2017). Native plantings have lower water needs, provide

strong roots that help with erosion, and provide habitat (Canaway 2010; Martin 2007; Vickers 2006; Yandik 2001). Naturalistic landscapes in this project are defined as diverse plant species, typically native species or cultivars, that grow with infrequent mowing or fire being the only disruption to the natural processes. Despite the environmental benefits of naturalistic landscapes, there is still a lack of acceptance from the public. A well-maintained lawn represents intelligent owners with respected jobs and picture-perfect families while native plantings look like an abandonment of neighborhood standards and often are described as unruly and weedy (Özgüner et al. 2007; Tallamy 2019; Weigert 1994; Zhang et al. 2015). Joan Nassauer studied these perceptions through an image survey and the use of a native landscape with different edge conditions. From this research, she found that the landscapes with “cues to care” were more likely to be accepted (Nassauer 1995).

Through this project the question “How can public acceptance of native-oriented residential landscapes be increased through design [guidelines] promoting high aesthetics and ecological function?” was answered.

From the online literature review, the basis of argument for why naturalistic landscapes should be incorporated into lawns to replace manicured turf was established. The subsequent survey covered perceptions from Kansas residents on their views of naturalistic landscapes. A precedent study analysis was conducted to learn from high quality examples of what elements worked well in residences with naturalistic landscapes with findings that using masses of plantings with differing leaf texture and height were common throughout. In learning from managing naturalistic landscapes on a large scale through neighborhood precedents, a Homeowner Association was present to organize maintenance or create maintenance guidelines. Sample design layouts were used to apply lessons learned from precedents which can be adapted to Kansas growing conditions and plant sourcing. From these applications, a design guideline booklet was created to condense

this information in a form more easily accessible by the public. Through the design application and guidelines, concerns from the survey were addressed, and appealing factors were emphasized. This booklet's information is expected to be published later this year through K-State Extension having a large reach in the community. From this process, greater public acceptance of naturalistic lawn landscapes in Kansas is anticipated.

Limitations

A limitation within this project is the survey group selected for this project. The survey group of those within the e-Horticulture newsletter and Kansas Master Gardener focused on users who already have an interest in gardening or horticulture. Although this was beneficial for accessing a large pool of potential survey participants, this group is not representative of all Kansas residents. Also, there was a lack of representation from Western Kansas which could have affected the data because of the differing ecological conditions and rural settings compared to Eastern Kansas. Gathering more survey respondents in the future by opening the survey again could resolve this issue and create a more accurate response representation.

Available time was a limitation and additional synthesis, in-depth analysis, and solutions could have occurred throughout many different aspects of the project. Specifically, only a few design solutions were presented with this research and in-depth solutions could have occurred responding to issues found in the survey. However, this project is intended to be used as a launching pad for future additional research.

Future Research

In future research the survey data could be analyzed further to establish cross connections between specific demographic groups and their aesthetic preferences for alternative landscape forms. Specifically, the written answers were not fully able to be synthesized by users and a quantitative analysis could be done in the future.

Through this research process, few high-quality precedents for naturalistic landscapes in a household or neighborhood setting were found. Of these precedents found, few were local to the Midwest region and even fewer from Kansas. This showcases a need for future precedents to take place and be documented as this will help with widespread acceptance. Lastly, precedent selection relied on approval from firms for picture use, therefore creating a narrower scope of projects since some projects did not get approval. This limitation is also dictated by limited time as some firms may have given approval if given more time to respond or foster a connection.

Many initiatives for native and naturalistic planting were discovered and could have future collaboration potential. Collaboration could help consolidate resources and enhance these initiative's current research and work. Overall, new research regarding native and naturalistic landscaping is occurring every day. This body of research adds to naturalistic landscape research that will inspire or be accelerating point improving upon what has been started.

Landscape Architecture Moving Forward

The relevance of naturalistic landscapes plays a vital role in contemporary landscape architecture as the topic coincides with residential landscape architecture. This topic has growing importance because of how much land the collective lawn takes up. Each residential manicured lawn averages three-tenths of an acre, cumulatively consuming over 20 million acres, and representing a significant portion of highly managed landscapes. The current maintenance practices associated with manicured lawns cannot be sustained without doing immense damage to the environment. Naturalistic landscapes comprised of more native plantings provide superior benefits, primarily increasing pollinator habitat and conserving water. Although this is a societal and environmental issue, landscape architecture can help lead the effort by creating attractive design solutions that appeal to communities and accelerate a shift in societal landscape preferences.

REFERENCES

- Aldous, Dr. David E. 1999. "Introduction to Turfgrass Science and Management." In *International Turf Management Handbook*, edited by D.E. Aldous, 1–18. Inkata Press. [Weigel SB433 I56 1999].
- Bailey, Mattias Orellana. 2016. "Our Grass Groweth Over: A Built Network to Reclaim the American Lawn." Thesis. <https://digital.lib.washington.edu/443/researchworks/handle/1773/38523>.
- Bormann, F. Herbert, Diana Balmori, and Gordon T. Geballe. "Questioning the Lawn." 2001. In *Redesigning the American Lawn: A Search for Environmental Harmony*. 28–45. Second Edition. Yale University. [Weigel SB433 B64 1993].
- Bormann, F. Herbert, Diana Balmori, and Gordon T. Geballe. "A New American Lawn." 2001. In *Redesigning the American Lawn: A Search for Environmental Harmony*. 90–114. Second Edition. Yale University. [Weigel SB433 B64 1993].
- Bremer, Dale J., Steven J. Keeley, Abigail L. Jager, and Jack D. Fry. 2013. "Lawn-Watering Perceptions and Behaviors of Residential Homeowners in Three Kansas (USA) Cities: Implications for Water Quantity and Quality." *International Turfgrass Society Research Journal* 12: 23–29. <https://krex.k-state.edu/handle/2097/16767>.
- Burr, Andrea, Nicole Schaeg, and Damon Hall. 2018. "The Perfect Lawn: Exploring Neighborhood Socio-Cultural Drivers for Insect Pollinator Habitat." *Urban Ecosystems* 21 (6): 1123–37. <https://doi.org/10.1007/s11252-018-0798-y>.
- Clarke, Wyatt, and Matthew Freedman. 2019. "The Rise and Effects of Homeowners Associations." *Journal of Urban Economics*, 112 (July): 1–15. <https://doi.org/10.1016/j.jue.2019.05.001>.
- Canaway, Jane. 2010. "Lawns." *Sanctuary: Modern Green Homes*, no. 11: 82–83. <https://www.jstor.org/stable/sanctuary.11.82>.
- Colomina, Beatriz. 1999. "The Lawn at War: 1941-1961." in *The American Lawn*, edited by Georges Teyssot, 134–153. Montreal: New York: Princeton Architectural Press with Canadian Centre for Architecture. [Weigel SB433 A45 1999].
- Cristina, Milesi, Christopher Elvidge, J.B. Dietz, B.T. Tuttle, Ramakrishna Nemani, and S.W. Running. 2012. "A Strategy for Mapping and Modeling the Ecological Effects of US Lawns," May. https://www.researchgate.net/publication/228337532_A_strategy_for_mapping_and_modeling_the_ecological_effects_of_US_Lawns.
- "Design Workshop." n.d. <https://www.designworkshop.com>.
- EPA (United States Environmental Protection Agency). 2004. "Healthy Lawn, Healthy Environment: Caring for Your Lawn in an Environmentally Friendly Way." Washington, DC: U.S. Government Publishing Office. https://www.epa.gov/sites/default/files/2014-04/documents/healthy_lawn_healthy_environment.pdf.
- Fraser, James, Joshua Theodore Bazuin, and George Hornberger. 2016. "The Privatization of Neighborhood Governance and the Production of Urban Space." *Environment and Planning A: Economy and Space* 48 (5): 844–870. <https://doi-org.er.lib.k-state.edu/10.1177/0308518X15621656>.
- Ghys, Maria Decker. 2013. "The American Lawn: Culture, Nature, Design, and Sustainability." Master's Thesis., Graduate School of Clemson University. https://www.clemson.edu/cafls/vincent/articles/ghys_thesis.pdf.
- Hines, Susan. 2002. "In the Thick of It: Midwesterner Warren Klink Battles the Great American Lawn." *Landscape Architecture: The Magazine of the American Society of Landscape Architects* 92 (10): 128–131. [Weigel SB469 L3].
- Hugie, Kari, Chengyan Yue, and Eric Watkins. 2012. "Consumer Preferences for Low-Input Turfgrasses: A Conjoint Analysis." *HortScience* 47 (8): 1096–1101. <https://doi.org/10.21273/HORTSCI.47.8.1096>.
- Ignatieva, Maria, Dagmar Haase, Diana Dushkova, and Annegret Haase. 2020. "Lawns in Cities: From a Globalised Urban Green Space Phenomenon to Sustainable Nature-Based Solutions." *Land* 9 (3): 73. <https://doi.org/10.3390/land9030073>.
- Ignatieva, Maria, Fredrik Eriksson, Tuula Eriksson, Per Berg, and Marcus Hedblom. 2017. "The Lawn as a Social and Cultural Phenomenon in Sweden." *Urban Forestry & Urban Greening* 21 (January): 213–23. <https://doi.org/10.1016/j.ufug.2016.12.006>.
- "Jackson Meadow" n.d. Jackson-Meadow. <https://www.jacksonmeadow.com>.
- Jenkins, Virginia Scott. 1994. *The Lawn: A History of an American Obsession*. Washington, DC: Smithsonian Institution Press.
- Larson, Kelli L., David Casagrande, Sharon L. Harlan, and Scott T. Yabiku. 2009. "Residents' Yard Choices and Rationales in a Desert City: Social Priorities, Ecological Impacts, and Decision Tradeoffs." *Environmental Management* 44 (5): 921–37. <https://doi.org/10.1007/s00267-009-9353-1>.
- Lerman, Susannah B., Alexandra R. Contosta, Joan Milam, and Christofer Bang. 2018. "To Mow or to Mow Less: Lawn Mowing Frequency Affects Bee Abundance and Diversity in Suburban Yards." *Biological Conservation* 221 (May): 160–74. <https://doi.org/10.1016/j.biocon.2018.01.025>.

- Lindsey, Rebecca. 2005. "Looking for Lawns." Text.Article. NASA Earth Observatory. November 8, 2005. <https://earthobservatory.nasa.gov/features/Lawn/lawn.php>.
- MacCaskey, Michael. 1985. "All About Lawns." Edited by Alice E. Mace. ORTHO Books.
- Martin, Susan. 2007. "Green in the Desert: Extreme Climates and Fragile Ecosystems Present Challenges to Sustainable Development in America's Desert Regions." *Urban Land*, April, 144–47. <https://ksu-iliad-oclc-org.er.lib.k-state.edu/iliad/iliad.dll?Action=10&Form=75&Value=1074114>.
- "Miridae." n.d. Miridae. <https://www.miridae.com>.
- Monteiro, José A. 2017. "Ecosystem Services from Turfgrass Landscapes." *Urban Forestry & Urban Greening*, Special feature: Turfgrass, 26 (August): 151–57. <https://doi.org/10.1016/j.ufug.2017.04.001>.
- Oehme van Sweden. "The New American Garden, The Landscape Architecture of Oehme, van Sweden (The Cultural Landscape Foundation)." 2015. <https://www.tclf.org/sites/default/files/microsites/new-american-garden/projects.html>.
- Özgüner, H., A. D. Kendle, and R. J. Bisgrove. 2007. "Attitudes of Landscape Professionals towards Naturalistic versus Formal Urban Landscapes in the UK." *Landscape and Urban Planning* 81 (1): 34–45. <https://doi.org/10.1016/j.landurbplan.2006.10.002>.
- Penn, Cordelia, and Dorothy S. Wilbur. 1982. *Landscaping with Native Plants*. Winston-Salem, North Carolina: John F. Blair.
- "Prairie Crossing." n.d. Prairie Crossing. <https://prairiecrossing.com/>.
- Robbins, Paul, and Trevor Birkenholtz. 2003. "Turfgrass Revolution: Measuring the Expansion of the American Lawn." *Land Use Policy* 20 (2): 181–94. [https://doi.org/10.1016/S0264-8377\(03\)00006-1](https://doi.org/10.1016/S0264-8377(03)00006-1).
- Rockwell, F.F., and George L. Hollock. 1929. *The Home Garden Handbooks: Lawns*. New York: The Macmillan Company.
- Sachs, Paul D. 1996. *Handbook of Successful Ecological Lawn Care*. Newbury, Vermont: The Edaphic Press.
- Schroeder, Fred E.H. 1993. *Front Yard America*. Ohio: Bowling Green State University Popular Press.
- Sewell, Sarah, Dennis McCallister, Roch Gaussoin, and Charles Wortmann. 2010. "Lawn Management Practices and Perceptions of Residents in 14 Sandpit Lakes of Nebraska" 48 (2). <https://archives.joe.org/joe/2010April/rb4.php>.
- Shern, Lois C., and Ann C. Slocum. 1996. "The Impact of the American Lawn Ideal on Environmental Liveability." *Human Ecology Review* 3 (1): 102–7. <https://www.jstor.org/stable/24706922>.
- Schroeder, Fred E.H. 1993. *Front Yard America*. Ohio: Bowling Green State University Popular Press.
- Steinberg, Ted. 2005. "Lawn and Landscape in World Context, 1945-2000." *OAH Magazine of History* 19 (6): 62–68. <https://www.jstor.org/stable/25162002>.
- Sweden, James van, and Tom Christopher. 2011. *The Artful Garden*. New York: Random House.
- Tallamy, Douglas W. 2019. *Nature's Best Hope: A New Approach to Conservation That Starts in Your Yard*. Portland, Oregon: Timber Press.
- Teyssot, Georges. 1999. "The American Lawn: Surface of Everyday Life." In *The American Lawn*, edited by Georges Teyssot, 1-39. Montreal: New York: Princeton Architectural Press with Canadian Centre for Architecture. [Weigel SB433 A45 1999].
- Veder, Robin. 2000. "Working the Techno-Lawn." Edited by Georges Teyssot. *American Quarterly* 52 (2): 344–63. <https://www.jstor.org/stable/30041847>.
- Vickers, Amy. 2006. "New Directions in Lawn and Landscape Water Conservation." *Journal (American Water Works Association)* 98 (2): 56–61, 156. <https://www.jstor.org/stable/41312929>.
- Wasowski, Sally, and Andy Wasowski. 1993. "Lawnless Landscape." In *The Natural Lawn & Alternatives*, edited by Margaret Roach and Janet Marinelli, 49:50–59. 3. Brooklyn Botanic Garden. [Weigel SB433 N38 1993].
- Weigert, Andrew J. 1994. "Lawns of Weeds: Status in Opposition to Life." *The American Sociologist* 25 (1): 80–96. <https://www.jstor.org/stable/2769867>.
- Williamson, Joseph F. and Sunset Editorial Staff. 1964. "Why Have a Lawn?" In *Lawns and Ground Covers*, 7. Menlo Park, California: Lane Magazine & Book Company. [Weigel SB433 S8 1964].
- Yandik, Will. 2001. "Ridding the American Landscape of Lawn: Is Nothing Sacred?" *Architectural Record* 189 (3): 51–52. <https://er.lib.k-state.edu/login?url=https://www.proquest.com/trade-journals/ridding-american-landscape-lawn-is-nothing-sacred/docview/222144373/se-2>.
- Zadegan, Yousef R., Bridget K. Behe, and Robert Gough. 2008. "Consumer Preferences for Native Plants in Montana Residential Landscapes and Perceptions for Naturalistic Designs." *Journal of Environmental Horticulture* 26 (2): 109–14. <https://doi.org/10.24266/0738-2898-26.2.109>.
- Zhang, Yaoqi, Bin Zheng, Ge Sun, and Peilei Fan. 2015. "The American Lawn Revisited: Awareness Education and Culture as Public Policies Toward Sustainable Lawn." 107-115. SSRN Scholarly Paper. Rochester, NY. <https://papers.ssrn.com/abstract=2560287>.

FIGURES

Figure 1.01. Administration, National Oceanic and Atmospheric. 2009. *English: A Dry Bed in California*. National Oceanic and Atmospheric Administration [1]. https://commons.wikimedia.org/wiki/File:California_Drought_Dry_Lakebed_2009.jpg.

Figure 2.01. *Archimedean Lawn Mower Advertisement in Le Monde Illustré*. 1875. https://commons.wikimedia.org/wiki/File:Le_Monde_illustr%C3%A9_Tondeuse_archim%C3%A9dienne.jpg.

Figure 2.02. *Cover of American Homes and Garden (Vol. 6, No. 11 – November 1909)*. 1909. <https://www.flickr.com/photos/internetarchivebookimages/17535496844/>. [https://commons.wikimedia.org/wiki/File:American_homes_and_gardens_\(1909\)_\(17535496844\).jpg](https://commons.wikimedia.org/wiki/File:American_homes_and_gardens_(1909)_(17535496844).jpg).

Figure 2.03. *Cover of American Homes and Garden (Vol. 6, No. 12 – December 1909)*. 1909. <https://www.flickr.com/photos/internetarchivebookimages/18155114922/>. [https://commons.wikimedia.org/wiki/File:American_homes_and_gardens_\(1909\)_\(18155114922\).jpg](https://commons.wikimedia.org/wiki/File:American_homes_and_gardens_(1909)_(18155114922).jpg).

Figure 2.04. *American Homes and Gardens*. 1910. <https://www.flickr.com/photos/internetarchivebookimages/17532493034/>. [https://commons.wikimedia.org/wiki/File:American_homes_and_gardens_\(1910\)_\(17532493034\).jpg](https://commons.wikimedia.org/wiki/File:American_homes_and_gardens_(1910)_(17532493034).jpg).

Figure 2.05. *American Homes and Gardens*. 1905. <https://www.flickr.com/photos/internetarchivebookimages/18158596011/>. [https://commons.wikimedia.org/wiki/File:American_homes_and_gardens_\(1910\)_\(18158596011\).jpg](https://commons.wikimedia.org/wiki/File:American_homes_and_gardens_(1910)_(18158596011).jpg).

Figure 2.06. *Dowmetal Magnesium: The Metal of Motion*. 1944. Science History Institute. https://commons.wikimedia.org/wiki/File:Dowmetal_Magnesium-The_Metal_of_Motion_-_DPLA_-_bd5f74c37a9df920ed206fb5ce17b2f.jpg.

Figure 2.07. UBC Library Digitization Centre. 2014. *The Superior Lawn Mower*. https://www.flickr.com/photos/ubclibrary_digicentre/14245218784/. [https://commons.wikimedia.org/wiki/File:The_superior_lawn_mower_\(14245218784\).jpg](https://commons.wikimedia.org/wiki/File:The_superior_lawn_mower_(14245218784).jpg).

Figure 2.08. Hopkins, Henry. 1887. *Handy Notes and Queries*. <https://www.flickr.com/photos/internetarchivebookimages/14596971509/> Source book page: <https://archive.org/stream/handynotesquerie01hopk/handynotesquerie01hopk#page/n79/mode/1up>. [https://commons.wikimedia.org/wiki/File:...._Handy_notes_and_queries_\(1887\)_\(14596971509\).jpg](https://commons.wikimedia.org/wiki/File:...._Handy_notes_and_queries_(1887)_(14596971509).jpg).

Figure 2.09. Perkins, J. M., and Henry G. Gilbert Nursery and Seed Trade Catalog Collection. 1902. *Seed Catalogue*. <https://www.flickr.com/photos/internetarchivebookimages/20378392048/> Source book page: <https://archive.org/stream/CAT31285724/#page/n65/mode/1up>. [https://commons.wikimedia.org/wiki/File:Seed_catalogue_\(1902\)_\(20378392048\).jpg](https://commons.wikimedia.org/wiki/File:Seed_catalogue_(1902)_(20378392048).jpg).

Figure 2.10. *SHOOT TO KILL - PROTECT YOUR VICTORY GARDEN*. 1941. National Archives at College Park. https://commons.wikimedia.org/wiki/File:SHOOT_TO_KILL_-_PROTECT_YOUR_VICTORY_GARDEN_-_NARA_-_515408.tif.

Figure 2.11. Simone. n.d. *Drought Tolerant Plants in Yard*. Adobe Stock. Accessed March 27, 2024. <https://stock.adobe.com/images/drought-tolerant-plants-in-yard/252563743>.

Figure 2.12. Hoffman, Maria T. n.d. *A Colorful Backyard Pollinator Garden, Long Island, New York*. Stock Photo. Adobe Stock. Accessed March 27, 2024. <https://stock.adobe.com/images/a-colorful-backyard-pollinator-garden-long-island-new-york/430420184>.

Figure 2.13. "House Garage Images | Free Photos, PNG Stickers, Wallpapers & Backgrounds." n.d. Rawpixel. Accessed March 27, 2024. https://www.rawpixel.com/search/house%20garage?page=1&path=_topics&sort=curated.

Figure 2.14. Shankbone, David. 2008. *Suburbia*. Own work. https://commons.wikimedia.org/wiki/File:Suburbia_by_David_Shankbone.jpg.

Figure 2.15. Oehme van Sweden | OvS. n.d. *18th Century Horse Farm, New England*. <https://www.ovsla.com/portfolio-items/18th-century-horse-farm/>.

Figure 3.01. Hammes, Julia. 2024. *Methodology Process Overview*. Adobe Indesign.

Figure 3.02. Hammes, Julia. 2024. *Survey questions*. Qualtrics.

Figure 3.03. Hammes, Julia. 2024. *Start of Online Survey*. Qualtrics.

Figure 3.04. Hammes, Julia. 2024. *Notes from Test Running Survey*. Photograph.

Figure 3.05. Hammes, Julia. 2024. *Precedent Study List*. Adobe Indesign.

Figure 3.06. Hammes, Julia. 2024. *Existing Site Conditions*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.

Figure 3.07. Hammes, Julia. 2024. *View of Pottawatomie Lake 2 campsite*. Photograph.

Figure 3.08. Hammes, Julia. 2024. *Pottawatomie Lake 2*. Photograph.

Figure 3.09. Hammes, Julia. 2024. *Heritage Hills*. Photograph.

Figure 3.10. Hammes, Julia. 2024. *Single-Family Context*. Photograph.

Figure 3.11. Hammes, Julia. 2024. *View of Stream Bank*. Photograph.

Figure 3.12. Hammes, Julia. 2024. *East road of site*. Photograph.

Figure 3.13. Hammes, Julia. 2024. *View of Dam Looking Towards the Site*. Photograph.

Figure 3.14. Hammes, Julia. 2024. *Housing overlooking the lake*. Photograph.

Figure 3.15. Hammes, Julia. 2024. *View of Heritage Hills from site*. Photograph.

Figure 3.16. Hammes, Julia. 2024. *Duplex Context*. Photograph.

Figure 3.17. Hammes, Julia. 2024. *Northeast site intersection*. Photograph.

Figure 3.18. Hammes, Julia. 2024. *Highpoint of Site*. Photograph.

Figure 3.19. Hammes, Julia. 2024. *Site Conditions - Developable Slope*. Adobe Photoshop. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.

Figure 3.20. Hammes, Julia. 2024. *Site Conditions - Hillshade*. Adobe Photoshop. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.

Figure 3.21. Hammes, Julia. 2024. *Methodology Conclusion Tasks*. Adobe Indesign.

Figure 4.01. Hammes, Julia. 2024. *Participant Background: Gender*. Qualtrics.

Figure 4.02. Hammes, Julia. 2024. *Participant Background: Employment Status*. Qualtrics.

Figure 4.03. Hammes, Julia. 2024. *Participant Background: Age*. Qualtrics.

Figure 4.04. Hammes, Julia. 2024. *Participant Background: Ethnicity*. Qualtrics.

Figure 4.05. Hammes, Julia. 2024. *Participant Background: Race*. Qualtrics.

Figure 4.06. Hammes, Julia. 2024. *Participant Background: Kansas Residents*. Qualtrics.

Figure 4.07. Hammes, Julia. 2024. *Participant Background: Zipcodes*. Qualtrics.

Figure 4.08. Hammes, Julia. 2024. *Participant Background: Ability to change landscapes appearance*. Qualtrics.

Figure 4.09. Hammes, Julia. 2024. *Participant Background: Property Size*. Qualtrics.

Figure 4.10. Hammes, Julia. 2024. *Participant Background: Lawn (routinely maintained space)*. Qualtrics.

Figure 4.11. Hammes, Julia. 2024. *Plant composition*. Qualtrics.

Figure 4.12. "A Classic Country White Garden Revisited - Traditional - Landscape - New York - by Deborah Cerbone Associates, Inc." n.d. Houzz. <https://www.houzz.com/photos/a-classic-country-white-garden-revisited-traditional-landscape-new-york-phvw-vp~44862889>.

Figure 4.13. OhanaSurf. 2020. *Oak Savanna at Picnic Grove Park, Fox River Grove, IL*. https://commons.wikimedia.org/wiki/File:Oak_Savanna_at_Picnic_Grove_Park,_Fox_River_Grove,_IL.jpg.

Figure 4.14. Peterwchen. 2012. *Swale at Russell R. Kirt Prairie; a Marsh and Pond Can Be Seen in the Background. Illinois, USA*. https://commons.wikimedia.org/wiki/File:Russell_R._Kirt_Prairie_swale.jpg.

Figure 4.15. Sixflashphoto. 2017. *A Prairie at Three Creeks Metro Parks (Columbus, Ohio). The Prairie Takes Advantage of a Lot of Undeveloped Park Land by Heron Pond*. https://commons.wikimedia.org/wiki/File:Three_Creeks_-_Prairie_in_Ohio_1.jpg.

Figure 4.16. Hammes, Julia. 2024. *Aesthetic preferences: planting bed edges*. Qualtrics.

Figure 4.17. Adobe Firefly. Response to "Cottage landscape with suburban home + fenced landscape." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.18. Adobe Firefly. Response to "Cottage landscape with suburban home + mulched landscape border." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.19. Adobe Firefly. Response to "Cottage landscape with suburban home + turf landscape border." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.20. Adobe Firefly. Response to "Cottage landscape with suburban home." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.21. Hammes, Julia. 2024. *Aesthetic preferences: planting color*. Qualtrics.

Figure 4.22. Adobe Firefly. Response to "Cottage landscape with suburban home + Low flowering plants." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.23. Adobe Firefly. Response to "Cottage landscape with suburban home + Turf lawn." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.24. Adobe Firefly. Response to "Cottage landscape with suburban home + Turf and flowering shrubs." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.25. Adobe Firefly. Response to "Cottage landscape with suburban home." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.26. Hammes, Julia. 2024. *Aesthetic preferences: planting bed extent*. Qualtrics.

Figure 4.27. Adobe Firefly. Response to "Cottage landscape with suburban home + Turf landscape." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.28. Adobe Firefly. Response to "Cottage landscape with suburban home + Turf portion of landscape." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.29. Adobe Firefly. Response to "Cottage landscape with suburban home + More turf portion of landscape." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.30. Adobe Firefly. Response to "Cottage landscape with suburban home." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.31. Hammes, Julia. 2024. *Aesthetic preferences: planting height*. Qualtrics.

Figure 4.32. Adobe Firefly. Response to "Cottage landscape with suburban home + Turf landscape." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.33. Adobe Firefly. Response to "Cottage landscape with suburban home + Low wildflower landscape." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.34. Adobe Firefly. Response to "Cottage landscape with suburban home." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.35. Adobe Firefly. Response to "Cottage landscape with suburban home + Tall wildflowers." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.36. Hammes, Julia. 2024. *Aesthetic preferences: plant groupings*. Qualtrics.

Figure 4.37. Adobe Firefly. Response to "Cottage landscape with suburban home + Low flowering plants." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.38. Adobe Firefly. Response to "Cottage landscape with suburban home + Turf landscape." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.39. Adobe Firefly. Response to "Cottage landscape with suburban home + Turf and flowering shrubs." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.40. Adobe Firefly. Response to "Cottage landscape with suburban home + Low flowering plants." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.

Figure 4.41. Hammes, Julia. 2024. *Aesthetic preferences: precedents*. Qualtrics.

Figure 4.42. Adams, Curtis. 2020. *American Suburban Family House*. Pexels. 2020. <https://www.pexels.com/photo/american-suburban-family-house-4469133/>.

Figure 4.43. 14937921412_6575ee9d1a_k. n.d. Adobe Stock. <https://stock.adobe.com>.

Figure 4.44. 37393507100_1cf807cb50_k. n.d. Adobe Stock. <https://stock.adobe.com>.

Figure 4.45. 29719915. n.d. Adobe Stock. <https://stock.adobe.com>.

Figure 4.46. Skabelund, Lee. n.d. *Minnesota Household*. Photograph.

Figure 4.47. Skabelund, Lee. n.d. *Jackson Meadow 1*. Photograph.

Figure 4.48. USEPA Environmental-Protection-Agency. 2017. *WS-Outdoor-West-Gallery-40. WS-outdoor-west-gallery-40*. [https://commons.wikimedia.org/wiki/File:WS-outdoor-west-gallery-40_\(32751871504\).jpg](https://commons.wikimedia.org/wiki/File:WS-outdoor-west-gallery-40_(32751871504).jpg).

Figure 4.49. Hahn, Howard. n.d. *Naturalistic Landscape*. Photograph.

Figure 4.50. Hammes, Julia. 2024. *Do you actively incorporate a naturalistic landscape?* Qualtrics.

Figure 4.51. Hammes, Julia. 2024. *Interest & Appeals*. Qualtrics.

Figure 4.52. Hammes, Julia. 2024. *Deterring Factors & Challenges*. Qualtrics.

Figure 4.53. Hammes, Julia. 2024. *Desired space for naturalistic plantings*. Qualtrics.

Figure 4.54. Hammes, Julia. 2024. *Confidence in skills when designing, installing, maintaining naturalistic landscapes*. Qualtrics.

Figure 4.55. Hammes, Julia. 2024. *Naturalistic landscape installation individual*. Qualtrics.

Figure 4.56. Hammes, Julia. 2024. *Confidence in maintenance practices regarding naturalistic landscapes*. Qualtrics.

Figure 4.57. Hammes, Julia. 2024. *Hours of maintenance per week dedicated to traditional non-food landscape during a typical growing season*. Qualtrics.

Figure 4.58. Hammes, Julia. 2024. *Familiarity with the following naturalistic landscape design strategies*. Qualtrics.

Figure 4.59. Hammes, Julia. 2024. *Hours of maintenance per week dedicated to your naturalistic non-food landscape during a typical growing season*. Qualtrics.

Figure 4.60. Hammes, Julia. 2024. *Is maintenance with a naturalistic landscape more or less than with a non-naturalistic landscape?*. Qualtrics.

Figure 4.61. Hammes, Julia. 2024. *Source of inspiration for naturalistic landscape*. Qualtrics.

Figure 4.62. Hammes, Julia. 2024. *Source of interest for naturalistic landscape*. Qualtrics.

Figure 4.63. Hammes, Julia. 2024. *Frequency of feedback on naturalistic landscape*. Qualtrics.

Figure 4.64. Hammes, Julia. 2024. *Positivity ranking of feedback on naturalistic landscape*. Qualtrics.

Figure 4.65. Hammes, Julia. 2024. *Comments from neighbors regarding their naturalistic landscapes*. Qualtrics.

Figure 4.66. Hammes, Julia. 2024. *Reflections and advice from homeowners with naturalistic landscapes*. Qualtrics.

Figure 4.67. Hammes, Julia. 2024. *City code restriction on one's naturalistic landscape*. Qualtrics.

Figure 4.68. Hammes, Julia. 2024. *Inclination to report a landscape*. Qualtrics.

Figure 4.69. Hammes, Julia. 2024. *Do you think a naturalistic landscape compared to a neighborhood of manicured (short mown) lawns lowers a community's sense of unity?*. Qualtrics.

Figure 4.70. Hammes, Julia. 2024. *Naturalistic landscape challenges as a homeowner*. Qualtrics.

Figure 4.71. Hammes, Julia. 2024. *Survey findings conclusion*. Indesign. Information obtained from:
 "A Classic Country White Garden Revisited - Traditional - Landscape - New York - by Deborah Cerbone Associates, Inc." n.d. Houzz. <https://www.houzz.com/photos/a-classic-country-white-garden-revisited-traditional-landscape-new-york-phvw-vp~44862889>.
 Adobe Firefly. Response to "Cottage landscape with suburban home." AI-generated image. Adobe, January 29, 2024. <https://firefly.adobe.com>.
 USEPA Environmental-Protection-Agency. 2017. *WS-Outdoor-West-Gallery-40*. *WS-outdoor-west-gallery-40*. [https://commons.wikimedia.org/wiki/File:WS-outdoor-west-gallery-40_\(32751871504\).jpg](https://commons.wikimedia.org/wiki/File:WS-outdoor-west-gallery-40_(32751871504).jpg).

Figure 5.01. Hammes, Julia. 2024. *Precedent study overview*. Adobe Photoshop.

Figure 5.02. Oehme van Sweden | OvS. n.d. *Katama Road 1*. <https://www.ovsla.com/portfolio-items/marthas-vineyard/>. Used with permission.

Figure 5.03. Oehme van Sweden | OvS. n.d. *Katama Road 2*. <https://www.ovsla.com/portfolio-items/marthas-vineyard/>. Used with permission.

Figure 5.04. Oehme van Sweden | OvS. n.d. *Katama Road 3*. <https://www.ovsla.com/portfolio-items/marthas-vineyard/>. Used with permission.

Figure 5.05. Oehme van Sweden | OvS. n.d. *Graenest Ridge Road 1*. <https://www.ovsla.com/portfolio-items/wilton-ct/>. Used with permission.

Figure 5.06. Oehme van Sweden | OvS. n.d. *Graenest Ridge Road 2*. <https://www.ovsla.com/portfolio-items/wilton-ct/>. Used with permission.

Figure 5.07. Oehme van Sweden | OvS. n.d. *Graenest Ridge Road 3*. <https://www.ovsla.com/portfolio-items/wilton-ct/>. Used with permission.

Figure 5.08. Oehme van Sweden | OvS. n.d. *Graenest Ridge Road 4*. <https://www.ovsla.com/portfolio-items/wilton-ct/>. Used with permission.

Figure 5.09. Oehme van Sweden | OvS. n.d. *Riversville Road 1*. <https://www.ovsla.com/portfolio-items/greenwich-ct-3/>. Used with permission.

Figure 5.10. Oehme van Sweden | OvS. n.d. *Riversville Road 2*. <https://www.ovsla.com/portfolio-items/greenwich-ct-3/>. Used with permission.

Figure 5.11. Oehme van Sweden | OvS. n.d. *Riversville Road 3*. <https://www.ovsla.com/portfolio-items/greenwich-ct-3/>. Used with permission.

Figure 5.12. Oehme van Sweden | OvS. n.d. *Riversville Road 4*. <https://www.ovsla.com/portfolio-items/greenwich-ct-3/>. Used with permission.

Figure 5.13. Oehme van Sweden | OvS. n.d. *North Street 1*. <https://www.ovsla.com/portfolio-items/greenwich-ct-north-street/>. Used with permission.

Figure 5.14. Oehme van Sweden | OvS. n.d. *North Street 2*. <https://www.ovsla.com/portfolio-items/greenwich-ct-north-street/>. Used with permission.

Figure 5.15. Oehme van Sweden | OvS. n.d. *North Street 3*. <https://www.ovsla.com/portfolio-items/greenwich-ct-north-street/>. Used with permission.

Figure 5.16. Miridae. n.d. *Mid-Century Haven 1*. <https://www.miridae.com/midcentury-haven>. Used with permission.

Figure 5.17. Miridae. n.d. *Mid-Century Haven 2*. <https://www.miridae.com/midcentury-haven>. Used with permission.

Figure 5.18. Miridae. n.d. *Mid-Century Haven 1*. <https://www.miridae.com/midcentury-haven>. Used with permission.

Figure 5.19. Miridae. n.d. *Boules and Buckwheat 1*. <https://www.miridae.com/boules-and-buckwheats>. Used with permission.

Figure 5.20. Miridae. n.d. *Boules and Buckwheat 2*. <https://www.miridae.com/boules-and-buckwheats>. Used with permission.

Figure 5.21. Miridae. n.d. *Boules and Buckwheat 3*. <https://www.miridae.com/boules-and-buckwheats>. Used with permission.

Figure 5.22. Hahn, Howard. n.d. *Cedar Acres Residence 1*. Photograph.

Figure 5.23. Hahn, Howard. n.d. *Cedar Acres Residence 2*. Photograph.

Figure 5.24. Hahn, Howard. n.d. *Cedar Acres Residence 3*. Photograph.

Figure 5.25. Hahn, Howard. n.d. *Cedar Acres Residence 4*. Photograph.

Figure 5.26. Design Workshop. n.d. *Prospect House 1*. <https://www.designworkshop.com/projects/prospect-house.html>. Used with permission.

Figure 5.27. Design Workshop. n.d. *Prospect House 2*. <https://www.designworkshop.com/projects/prospect-house.html>. Used with permission.

Figure 5.28. Design Workshop. n.d. *Prospect House 3*. <https://www.designworkshop.com/projects/prospect-house.html>. Used with permission.

Figure 5.29. Design Workshop. n.d. *Charlie Mountain Ranch 1*. <https://www.designworkshop.com/projects/charlie-mtn-ranch.html>. Used with permission.

Figure 5.30. Design Workshop. n.d. *Charlie Mountain Ranch 2*. <https://www.designworkshop.com/projects/charlie-mtn-ranch.html>. Used with permission.

Figure 5.31. Design Workshop. n.d. *Charlie Mountain Ranch 3*. <https://www.designworkshop.com/projects/charlie-mtn-ranch.html>. Used with permission.

Figure 5.32. Design Workshop. n.d. *Charlie Mountain Ranch 4*. <https://www.designworkshop.com/projects/charlie-mtn-ranch.html>. Used with permission.

Figure 5.33. Skabelund, Lee. 2024. *Jackson Meadows 1*. Photograph.

Figure 5.34. Skabelund, Lee. 2024. *Jackson Meadows 2*. Photograph.

Figure 5.35. Skabelund, Lee. 2024. *Jackson Meadows 3*. Photograph.

Figure 5.36. "Google Earth - Jackson Meadows." n.d. https://earth.google.com/web/search/jackson+meadow/@45.19262438,-92.78346772,290.66889429a,2317.27635854d,35y,92.45318842h,0.29033972t,0r/data=CigiJgokCbtnY9n5_ONAEYwLrBDM_0NAGbdZu_TyVLAIQ4IMn3ryVLAOgMKATA.

Figure 5.37. Hahn, Howard. n.d. *Prairie Crossing 1*. Photograph.

Figure 5.38. Hahn, Howard. n.d. *Prairie Crossing 2*. Photograph.

Figure 5.39. Hahn, Howard. n.d. *Prairie Crossing 3*. Photograph.

Figure 5.40. Hahn, Howard. n.d. *Prairie Crossing 4*. Photograph.

Figure 5.41. Hahn, Howard. n.d. *Prairie Crossing 5*. Photograph.

Figure 5.42. Hahn, Howard. n.d. *Fox Ridge 1*. Photograph.

Figure 5.43. Hahn, Howard. n.d. *Fox Ridge 2*. Photograph.

Figure 5.44. Hahn, Howard. n.d. *Fox Ridge 3*. Photograph.

Figure 6.01. Hammes, Julia. 2024. *Neighborhood layout design*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.

Figure 6.02. Hammes, Julia. 2024. *Neighborhood layout design with hillshade overlay*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.

Figure 6.03. Hammes, Julia. 2024. *Zoom-in neighborhood layout design*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.

Figure 6.04. Hammes, Julia. 2024. *Neighborhood layout design*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.

Figure 6.05. Hammes, Julia. 2024. *Greenbelt neighborhood amenity*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.

Figure 6.06. Hammes, Julia. 2024. *Neighborhood layout design with slope overlay*. Adobe Fresco. Information obtained from: "USGS.Gov." n.d. <https://www.usgs.gov/>.

Figure 6.07. Hammes, Julia. 2024. *Household naturalistic plan*. Adobe Fresco.

Figure 6.08. Hammes, Julia. 2024. *Household naturalistic plan vs traditional turf lawn*. Adobe Fresco.

Figure 6.09. Hammes, Julia. 2024. *Naturalistic landscapes at different planting extents*. Adobe Fresco.

Figure 6.10. Hammes, Julia. 2024. *Street view of naturalistic landscaping across property lines*. Adobe Fresco.

Figure 6.11. Hammes, Julia. 2024. *General Aesthetic Guidelines*. Adobe Fresco & Excel.

Figure 6.12. Hammes, Julia. 2024. *Plant Palette Overview*. Adobe Photoshop.

Figure 6.13. Hammes, Julia. 2024. *EMAW pridescape plant palette*. Adobe Fresco & Excel.

Figure 6.14. Hammes, Julia. 2024. *Beginner biodiverse garden plant palette*. Adobe Fresco & Excel.

Figure 6.15. Hammes, Julia. 2024. *Pollinator paradise plant palette*. Adobe Fresco & Excel.

Figure 6.16. Hammes, Julia. 2024. *Shady oasis plant palette*. Adobe Fresco & Excel.

Figure 7.01. Hammes, Julia. 2024. *Design Guidelines: Page 1*. Adobe Indesign.

Figure 7.02. Hammes, Julia. 2024. *Design Guidelines: Page 2*. Adobe Indesign.

Figure 7.03. Hammes, Julia. 2024. *Design Guidelines: Page 3*. Adobe Indesign.

Figure 7.04. Hammes, Julia. 2024. *Design Guidelines: Page 4*. Adobe Indesign.

Figure 7.05. Hammes, Julia. 2024. *Design Guidelines: Page 5*. Adobe Indesign.

Figure 7.06. Hammes, Julia. 2024. *Design Guidelines: Page 6*. Adobe Indesign.

Figure 7.07. Hammes, Julia. 2024. *Design Guidelines: Page 7*. Adobe Indesign.

Figure 7.08. Hammes, Julia. 2024. *Design Guidelines: Page 8*. Adobe Indesign.

Figure 7.09. Hammes, Julia. 2024. *Design Guidelines: Page 9*. Adobe Indesign.

Figure 7.10. Hammes, Julia. 2024. *Design Guidelines: Page 10*. Adobe Indesign.

Figure 7.11. Hammes, Julia. 2024. *Design Guidelines: Page 11*. Adobe Indesign.

Figure 7.12. Hammes, Julia. 2024. *Design Guidelines: Page 12*. Adobe Indesign.

Figure 7.13. Hammes, Julia. 2024. *Design Guidelines: Page 13*. Adobe Indesign.

Figure 7.14. Hammes, Julia. 2024. *Design Guidelines: Page 14*. Adobe Indesign.

Figure 7.15. Hammes, Julia. 2024. *Design Guidelines: Page 15*. Adobe Indesign.

Figure 7.16. Hammes, Julia. 2024. *Design Guidelines: Page 16*. Adobe Indesign.

Figure 7.17. Hammes, Julia. 2024. *Design Guidelines: Page 17*. Adobe Indesign.

Figure 7.18. Hammes, Julia. 2024. *Design Guidelines: Page 18*. Adobe Indesign.

Figure 7.19. Hammes, Julia. 2024. *Design Guidelines: Page 19*. Adobe Indesign.

Figure 7.20. Hammes, Julia. 2024. *Design Guidelines: Page 20*. Adobe Indesign.

Figure 7.21. Hammes, Julia. 2024. *Design Guidelines: Page 21*. Adobe Indesign.

Figure 7.22. Hammes, Julia. 2024. *Design Guidelines: Page 22*. Adobe Indesign.

Figure 7.23. Hammes, Julia. 2024. *Design Guidelines: Page 23*. Adobe Indesign.

Figure 7.24. Hammes, Julia. 2024. *Design Guidelines: Page 24*. Adobe Indesign.

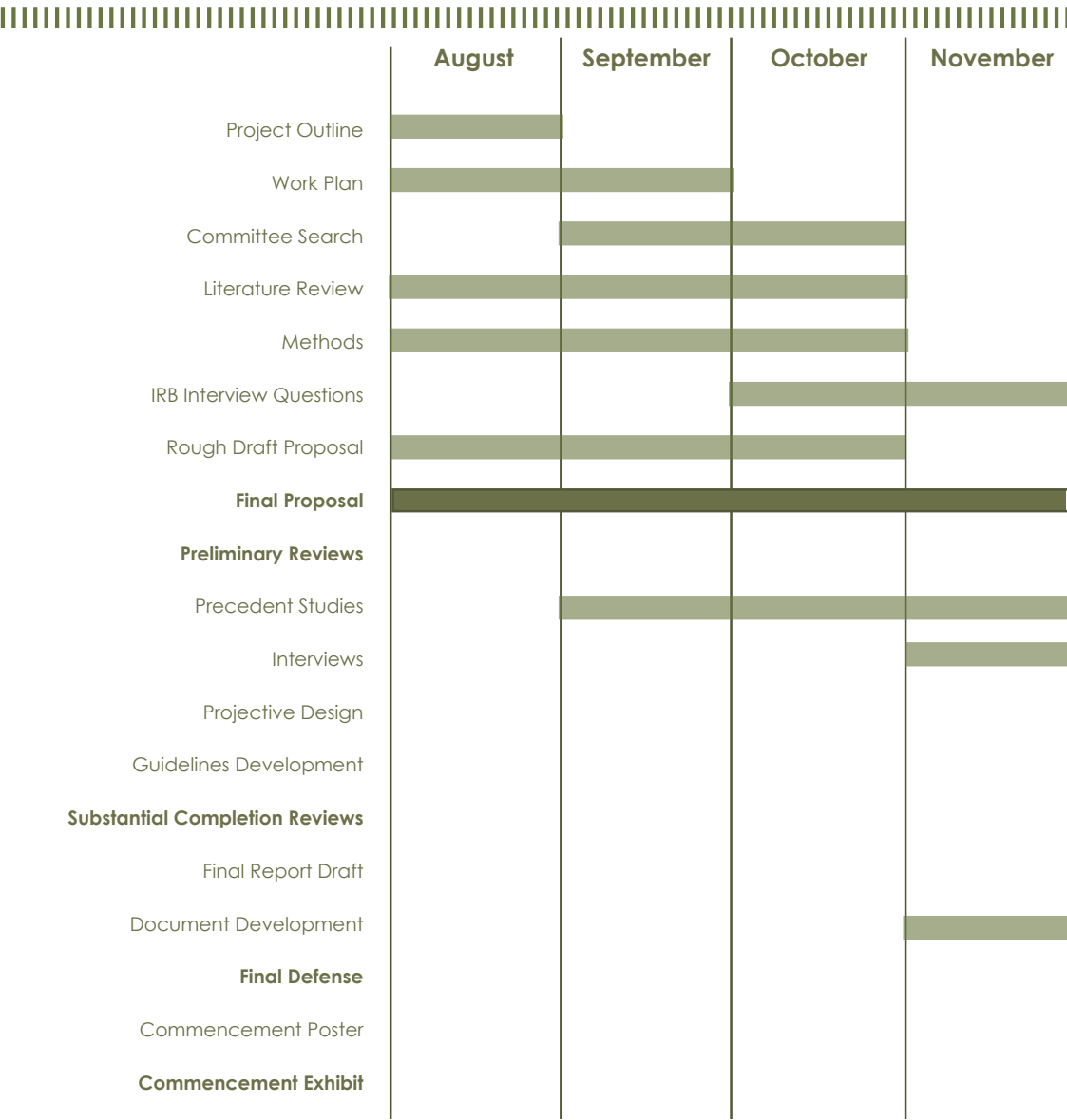
Figure 7.25. Hammes, Julia. 2024. *Design Guidelines: Page 25*. Adobe Indesign.

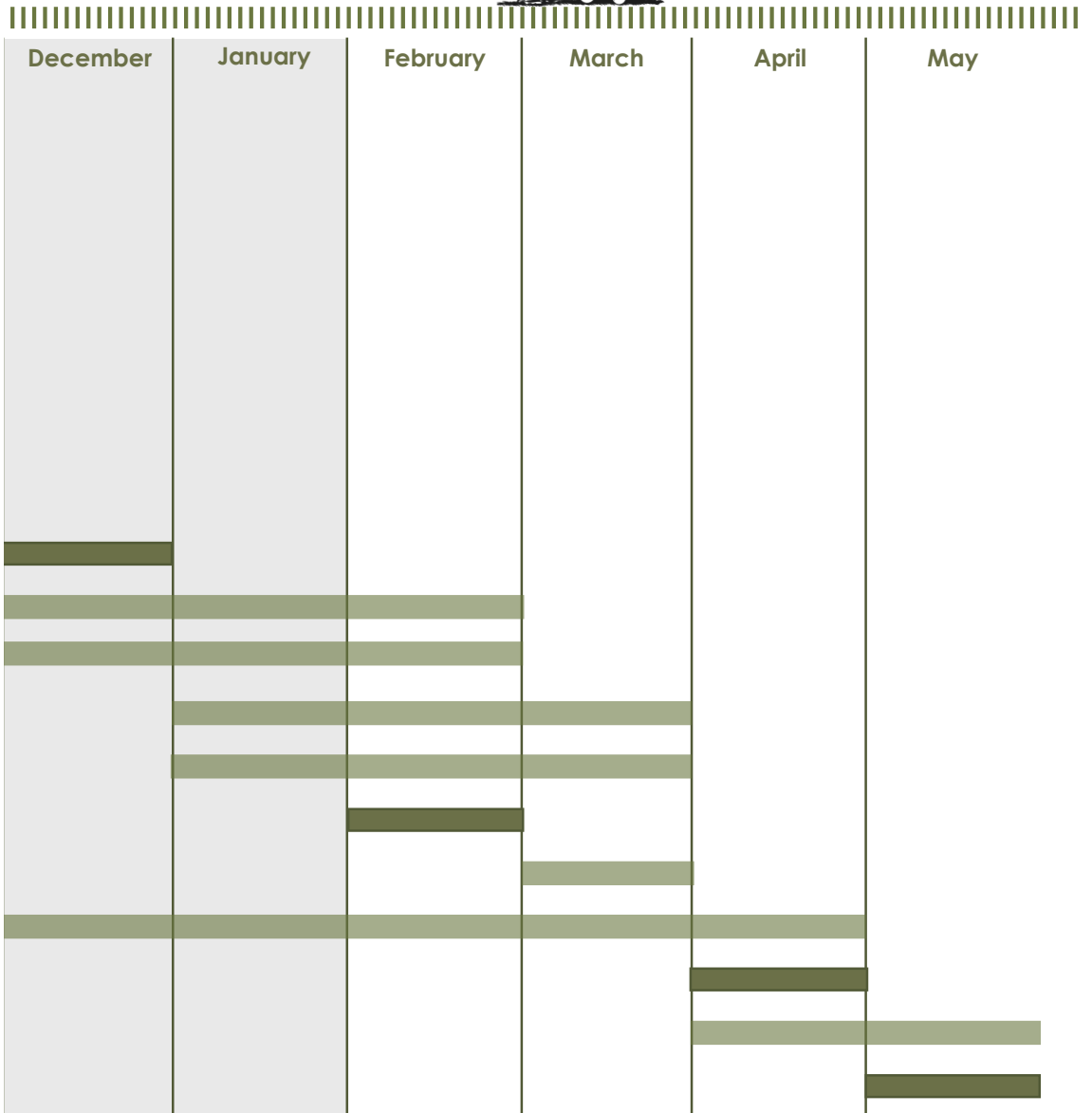
Figure 7.26. Hammes, Julia. 2024. *Design Guidelines: Page 26*. Adobe Indesign.

Figure 7.27. Hammes, Julia. 2024. *Design Guidelines: Page 27*. Adobe Indesign.

APPENDIX

PROJECT SCHEDULE





LITERATURE MAP





Sources

1. Aldous 1999
2. Bailey 2016
3. Bormann et al. 2001
4. Bremer et al. 2013
5. Burr et al. 2019
6. Clarke & Freedman 2019
7. Canaway 2010
8. Colomina 1999
9. Cristina et al. 2012
10. EPA 2004
11. Fraser et al. 2016
12. Ghys 2013
13. Hines 2002
14. Ignatieva et al. 2020
15. Ignatieva et al. 2017
16. Jenkins 1994
17. Larson et al. 2009
18. Lerman et al. 2018
19. Lindsey 2005
20. MacCaskey 1985
21. Martin 2007
22. Monterio 2017
23. Oehme van Sweden 2017
24. Penn & Wilbur
25. Robbins & Birkenholtz 2003
26. Rockwell & Hollrock 1929
27. Sewell et al. 2010
28. Shern & Slocum 1996
29. Steinberg 2005
30. S. Wasowski & A. Wasowski 1993
31. Tallamy 2019
32. Teyssot 1999
33. Veder 2000
34. Vickers 2006
35. Weigert 1994
36. Williamson & Sunset 1964
37. Yandik 2001
38. Zhang et al. 2015

IRB APPROVAL



TO: Howard Hahn
Landscape Archt & Comm Plan
Manhattan, KS 66506

Proposal Number: IRB-12036

FROM: Lisa Rubin, Chair
Committee on Research Involving Human Subjects

DATE: 02/08/2024

RE: Proposal Entitled, "The Perception and Environmental Impacts of Manicured and Naturalistic Lawns."

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is EXEMPT from further IRB review. This exemption applies only to the proposal - as written – and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, **45 CFR §104(d), category:Exempt Category 2 Subsection ii.**

Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.

Electronically signed by Lisa Rubin on 02/08/2024 3:17 PM ET

203 Fairchild Hall, Manhattan, KS 66502 | (785) 532-3224 | fax: (785) 532-3278

SURVEY DELIVERY EMAIL

2024 Hort Newsletter

No. 6 February 12, 2024

<https://hnr.k-state.edu/extension/info-center/newsletters/index.html>

Blog Post: <http://www.ksuhortnewsletter.org>

Video of the Week: [Pruning Fruit Trees](#)

ANNOUNCEMENTS

We asked. You answered. We are grateful you took the time to share your thoughts about the 2023 Horticulture Newsletter. We have been reviewing responses and making lists of changes for the 2024 Hort Newsletter. We are working on formatting updates of the email and pdf versions of the newsletter but this will take some time.

Several of you shared amazing stories of your garden. Since this survey is anonymous, we cannot follow up with you. Please contact Cynthia at cdom@ksu.edu if you are willing to share your garden adventures. If you didn't have a chance to complete the survey you can access it here: [Horticulture Newsletter Needs Assessment](#).

Tech Complications

As you know, K-State has experienced campus-wide IT complications. We are pleased to tell you our online bookstore is available again. This means the links shared in earlier newsletters should now function properly.

Student Research Opportunity

We are inviting you to participate in the following survey: "The Perception and Environmental Impacts of Naturalistic and Manicured Lawns." These anonymous survey results will only be used for research purposes and will help build the knowledge base for naturalistic landscapes. The survey is easy to complete with an estimated time of 10-20 minutes and will be open for 3 weeks. At the conclusion of the survey, participants will have the option to receive an incentive for the new K-State Extension publication of naturalistic landscaping scheduled for Fall 2024. Thank you for your time and we appreciate your consideration to participate! https://kstate.qualtrics.com/jfe/form/SV_0kdIFqOKRybBiey

GARDEN CALENDAR

- Start seeds indoors: Cabbage, Broccoli, Cauliflower, Lettuce
- Prune fruit trees now through March

FLOWERS

Sharing the Love – Valentine's Day Flowers

Americans celebrate Valentine's Day with gifts of flowers, candy, cards and more. In 2023, customers spent an estimated \$2.5 billion on flowers for Valentine's Day. The rose is the most widely recognized and celebrated flower. Roses accounted for about 84 percent of the 2023 sales. Sixty-nine percent were red roses.

The rose is beautiful and versatile. Roses can be used in any type of design, from classic to contemporary. There are an abundance of commercially-grown varieties available in vibrant colors, sizes and shapes.

Bloom size, shape, speed of opening, color, petal count, petal texture, fragrance, and foliage are all points to consider as you select roses for your event.

The rose symbolizes love, romance and passion, so it's no surprise that red roses are the most popular flower choice for Valentine's Day. By following a few simple practices, you can ensure the longest-lasting roses.

1. Roses often come in a plastic sleeve which retains moisture. The sleeve should be removed after purchase.
2. Cut 1½ to 2 inches of each stem with a clean, sharp knife or flower snips. Uncut stems cannot efficiently absorb water needed by the flower to open fully. (Current research suggests that cutting stems under water is not necessary.)
3. Remove any leaves that will be underwater once stems are arranged in the vase.
4. Follow directions on flower food packet to mix the right amount of cold water to food ratio into the vase. Flowers need to be nourished. Professional flower food generally contains three ingredients:
 - a. Carbohydrate - (sugar) nutritional source
 - b. Acidifying agent - lowers the solution pH and improves water uptake
 - c. Microbiocide- reduces microbial growth
5. Arrange freshly cut stems into the vase.
6. Check the water level daily, repeat steps 2-5 every 2-3 days so flowers last as long as possible. Keep flowers away extreme cold, heat, direct sunlight and sources of ethylene gas (fruits and vegetables). (Irina Sheshukova)

SURVEY DELIVERY EMAIL CONTINUED

FRUIT

Time for Fruit Trees

If you're considering growing fruit planning is important. You will need plenty of space in full sun to accommodate fruit trees. Some varieties of trees will require multiple plants for pollination while others are self-fruitful. Know your soil and ensure it drains well. Be realistic about how many fruit trees you have time to manage.

Following thorough planning procedures is the best prevention against diseases and pests. This will save you time and money while also protecting beneficial insects from unnecessary pesticide use. Here is a guide from K-State Research and Extension for [Planning your Fruit Garden](#).

[Small- and Tree- Fruit Cultivars](#), is another great resource that provides information about types of fruits to consider including their harvest timing, size and pollination requirements.

Pruning Fruit Trees

For most of Kansas, it is time to start pruning fruit trees. This should be completed before active growth begins, which is typically in March. Folks in southern Kansas may need to finish pruning earlier.

Fruit trees have to be managed to promote the highest yield and healthiest plants. Pruning helps maintain the size of the trees for ease of harvest and to support the weight of the fruit. It is important to allow sunlight to reach the leaves so they can produce sugars to feed the plant. Methodically removing branches prevents parts of the tree from being shaded and negatively affecting fruit production.

Proper pruning also allows the root system to better support a smaller structure allowing the remaining branches to grow more vigorously.

Here are some of our publications with specifics for fruit tree pruning:

[Pruning Apple and Pear Trees](#)

[Pruning Peaches, Plums, Cherries and Other Stone Fruits](#)

Peach Leaf Curl

Last year, did leaves on your peach, nectarine or apricot trees appear swollen and/or curled? Were there reddish or purplish colors on the leaves? Did the trees have premature leaf and fruit drop?

These are symptoms of the fungus, *Taphrina deformans*, commonly referenced as: peach leaf curl. If your tree(s) had it last year, prepare for a resurgence unless trees are treated in early spring.

This fungus overwinters on the bark of the tree. Spring rains wash the spores to developing buds and leaf tissue spreading and infecting the new tissues. For this reason, it is important to treat the tree with fungicide prior to bud swell. Applying fungicide after symptoms appear as trees leaf out is ineffective. Fungicide must be applied during spring dormancy or during fall when most of the leaves have dropped. Always follow label instructions when using pesticides.

Prevention is the best recommendation for controlling diseases. Start your orchard with fruit tree cultivars with resistance or tolerance to peach leaf curl. Provide proper care to strengthen trees and prevent stress.

For more information about peach leaf curl and fungicide recommendations visit: [K-State Research and Extension: Peach Leaf Curl and Plum Pocket](#)

VEGETABLES

Square Foot Gardening

Limits on space for vegetable gardening combined with the desire for food security led to the square foot gardening method in the late 90's. Through our Horticulture Newsletter Needs Assessment we learned some of our readers are looking for ways to garden in limited space. Square foot gardening solves that need but is also a practical strategy gardeners with unlimited space may want to consider.

The concept is simple: divide each raised bed into one-square-foot sections. Plant the garden according to the provided charts following the recommended number of plants that can grow in each square foot section. Achieve the maximum harvest with minimal space. The planting recommendations take into consideration the size of the plants at maturity as well as compatibility for growing in close proximity. The website: squarefootgardening.org is a valuable resource for this practice.

Here are some tips to get you started:

- Build a raised bed that is 4'x4'. Though an in-ground bed can be used, starting with a square-shaped raised bed allows for precise measurements. This size allows you to grow a variety of vegetables and is easy to maintain. The raised bed can be made from wood, recycled plastic, concrete blocks and various other materials. The goal is to create a structure to outline the garden.
- Fill the raised bed with a quality growing mix. A combination of peat moss, compost and vermiculite provides aeration, good water-holding capacity as well as nutrients for the plants.
- Create a grid with one-foot square openings that lays over your garden space. The grid can be made from wooden lath boards or another material.

School Garden Tip: Educators, can't you just imagine all the connections between square foot gardening and math??? This method is perfect for schools because of the educational value as well as making the most out of limited space, time and budget. If you're looking for ways to incorporate math into the garden reach out to us for resources.

[Square Foot Gardening Planting Chart](#)

DISEASES/PESTS

Scale Insects

Varying in size and host, scale insects cause damage by sucking sap from plants. Their damage is not restricted to just trees and shrubs. They can devastate crops of herbaceous ornamentals as well. The time for investigating plants for scale is here and early detection is the best way to prevent crop damage.

Many scale varieties have white, tan or brown shell-like coverings that are round or oval in shape. They can blend into the bark so close inspection is necessary. If signs of scale are found, a dormant oil can be used as long as the plant is in dormancy and the temperature is above 40 degrees F. Dormant oils are beneficial because they can combat a wide range of life stages for scale insects. They are also less detrimental to beneficial insects because of the application timing and are less toxic than chemical controls. Read more about the use of [dormant oils](#) from K-State Extension Entomology.

Here are some resources to check out for more information about specific scale insect varieties and their hosts.

[Euonymus Scale](#)

[Magnolia Scale](#)

[Pine Needle Scale](#)

[San Jose Scale](#)

COMMUNITY GARDEN CORNER

Growing for the Community

Community gardens serve a number of purposes including fresh produce, social interaction and learning opportunities. I once helped establish a community garden in downtown Baltimore, MD where the goal was to turn abandoned lots into productive garden spaces. City beautification is among the many benefits community gardens can bring. With all these advantages come challenges too. Some are familiar to all gardeners but some are unique to community gardening.

Everyone has their own style of gardening. Some gardeners are meticulous about weeding while others are not. In a shared space, allowing weeds to set seed has an impact on the surrounding gardeners as well. Using community garden funds to keep a large mulch pile onsite for gardeners to use is one strategy to prevent this scenario. Planning regular "community workdays" where all gardeners are encouraged to work side-by-side is another option. Turn workdays into fun social events by playing music and having a potluck lunch when the work is done.

Clear, concise rules and regular communication go a long way for success in the community garden. February is a great time to bring the gardeners together for a planning meeting. Allow everyone to contribute and establish the rules for the year based on what worked well and what needs to improve from last year. During this meeting create a contact list with everyone's email and phone number. Plan the calendar for the year including several celebrations. Focus on building community and get everyone working towards the same goals.

Funding is another challenge for community gardens. Charging a fee to individual gardeners who grow in each plot helps to offset these costs. This also results in the gardeners being more invested (literally) in caring for their space. Another source for funding is sponsorships. You may seek funding, even small amounts, from neighboring businesses who appreciate the beautification work your group is doing. Sponsors may be recognized with their company logo on community garden t-shirts, signage or by having their name(s) engraved on the tools they helped purchase.

If you are looking for resources to establish a new community garden or find an existing community garden in your area, contact your local extension office.

QUESTION OF THE WEEK

"Fall came and went and I never got my tulip and daffodil bulbs in the ground. Should I try to plant them now or wait until next fall?"

This is a common question this time of year. The problem with waiting to plant the bulbs until next fall is they are likely to rot due to unsuitable conditions.

Examine the bulbs. If they are still firm go ahead and plant them. They will probably not bloom in the spring. In fact, they may not bloom for a full year, but at least they weren't wasted.

Alternatively, the bulbs can be forced to bloom indoors. Remember, many spring-flowering bulbs require a certain number of weeks of cold temperatures. You can plant the bulbs in containers and keep them chilled for the required time. Then move the containers to a bright room indoors to promote blooming.

Either way, planting the bulbs gives them a much better chance of survival than storing them any longer.

COMING UP NEXT WEEK

The Return of the Permaculture Feature

In the Permaculture feature next week the topic of "Growing Native Plants" will be highlighted. Why should we use native plants? What are some good options for urban landscapes? Can I grow native plants in my balcony garden? These questions and more will be considered. Stay tuned!

SURVEY DELIVERY EMAIL CONTINUED

Contributors:

Cynthia Domenghini, Instructor and Horticulture Extension Specialist
Irina Sheshukova, Instructor and Floral Design Extension Specialist
Raymond Cloyd, Professor of Entomology (photos of scale)
Kansas Garden Guide

Department of Horticulture and Natural Resources
1712 Claflin, 2021 Throckmorton
Manhattan, KS 66506
(785) 532-6173

For questions or further information, contact: cdom@ksu.edu OR cdipman@ksu.edu
This newsletter is also available on the World Wide Web at:
<http://hnr.k-state.edu/extension/info-center/newsletters/index.html>

The web version includes color images that illustrate subjects discussed. To subscribe to this newsletter electronically, send an e-mail message to cdom@ksu.edu or cdipman@ksu.edu listing your e-mail address in the message.

Brand names appearing in this newsletter are for product identification purposes only. No endorsement is intended, nor is criticism implied of similar products not mentioned.

K-State Research and Extension is committed to making its services, activities and programs accessible to all participants. If you have special requirements due to a physical, vision or hearing disability, or a dietary restriction please contact Extension Horticulture at (785) 532-6173.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service K-State Research and Extension is an equal opportunity employer. Issued in furtherance of Cooperative Extension Work, Acts of May 8 and June 30, 1914, as amended. Kansas State University, County Extension Councils, and United States Department of Agriculture Cooperating, Ernie Minton, Dean.

SURVEY USER DISPLAY LOGIC

#	USER GROUP	QUESTION
Key N - Non-homeowners HN - Homeowners W/ No Interest HI - Homeowners W/ Interest HL - Homeowners W/ Naturalistic Landscapes		
1	ALL	Project Participation Consent (see additional document)
2	ALL	If you agree to participate in this survey, please proceed by clicking yes button below. Thank you!
3	ALL	Naturalistic Landscape Definition Throughout this survey the term naturalistic landscape is used. The following definition of a naturalistic lawn/landscape is what the survey is referring to. A naturalistic landscape has diverse plant species growing within it, with infrequent mowing or fire being the only disruption to the natural processes, typically native species or cultivars.
4	ALL	In your current living situation, are you able to change your landscape's appearance?
5	ALL	How appealing are the following naturalistic landscapes in terms of plant composition?
6	ALL	Look and compare the following images. How appealing are the following naturalistic landscapes in terms of planting edges?
7	ALL	Look and compare the following images. How appealing are the following naturalistic landscapes in terms of color?
8	ALL	Look and compare the following images. How appealing are the following naturalistic landscapes in terms of extent of planting?
9	ALL	Look and compare the following images. How appealing are the following naturalistic landscapes in terms of height?
10	ALL	Look and compare the following images. How appealing are the following naturalistic landscapes in plant groupings?
11	ALL	Compared to the traditional residential landscape, how appealing are the following landscapes?
12	ALL	Do you actively incorporate a naturalistic landscape at your residence?
13	HNO, HI	What deters and/or challenges you in incorporating (or considering a) naturalistic landscaping?
14	HNO, HI	Why did/do you want to install a naturalistic landscape?
15	HI	How much space do you want to dedicate to naturalistic plantings?
16	HI, HNL	How confident do you feel performing the following skills when designing, installing, or maintaining naturalistic landscapes: Mapping the sun and shade areas to influence planting design Understanding Soil Conditions Budgeting for Materials Sourcing Appropriate Plants Creating a Naturalistic Landscaping Design Prepping Landscape for install (removing existing lawn or plantings) Installing Plant Material Maintaining the Naturalistic Landscape

SURVEY USER DISPLAY LOGIC CONTINUED

17	HNL	Who installed your naturalistic landscape?
18	HNL	How confident do you feel performing the following maintenance practices with naturalistic landscapes: Establishing Plantings Managing Weeds Managing Pests Managing Disease Pruning & Thinning
19	HI, HNO	How many hours of traditional per week do you currently dedicate to your traditional non-food landscape during a typical growing season?
20	HNL	How many hours of maintenance per week do you currently dedicate to your naturalistic non-food landscape during a typical growing season?
21	HNL	*Is this more or less than with a non-naturalistic non-food producing landscape?
22	HNL	How challenging have the following topics been with naturalistic landscapes as a homeowner: Educational Challenges (myself & others) Native Plant Sourcing Managing Aesthetics with Expectations Adapting to Changing Weather Conditions Wildlife Concerns Safety Concerns Fire Concerns Negative Reactions by City or Neighbors Other: Other: Other:
23	HI	Where did your interest for naturalistic landscapes come from?
24	HNL	Where did inspiration for your naturalistic landscape come from?
25	ALL	Are you familiar with any of the following naturalistic landscape design strategies: Composing masses of plants rather than intermixing individual plants Using plants with different leaf sizes/shapes for visual contrast Using plants of different height groups
26	HNL	Were there any city codes that restricted the design of your naturalistic landscape?
27	HNL	How frequently have you received feedback on your naturalistic landscape?
28	HNL	*If you have received feedback on your landscape were these comments primarily positive or negative experiences?
29	HNL	*Explain what these comments generally consisted of.
30	HNL	Reflecting on your experiences with having a naturalistic landscape, is there any advice about challenges or unexpected positives that you would share with someone considering naturalistic plantings?
31	ALL	How inclined would you feel to report a resident if you felt their landscape violated city/Homeowner Association (HOA) ordinances?
32	ALL	Do you think a naturalistic landscape in the context of traditional landscapes detracts from a strong sense of unified community?

33		We would like to have an understanding of the general makeup of the participants in this program. The following demographic questions will be used in summary form for program reporting purposes only (every response is anonymized). They are similar to questions asked on the U.S. Census.
34	ALL	Are you a resident of Kansas?
35	ALL	What is your zip code?
36	ALL	In which state or country is your primary residence located?
37	ALL	What is your gender?
38	ALL	How old were you at the end of 2023?
39	ALL	What is your current employment status?
40	ALL	What is your Race?
41	ALL	What is your ethnicity?
42	HNO, HI, HNL	How large is your property size?
43	HNO, HI, HNL	How large is your lawn (routinely maintained) space?
44	ALL	Add any additional comments.
45	ALL	Thank you for taking the time to respond to this survey! Your response is greatly appreciated.
46	ALL	Would you like to receive a link (via email) to the new naturalistic landscaping K-State Extension publication in Fall 2024? Your survey response will stay anonymous.
1		Please provide your name.
2		Please provide your email.
Thank you at end of the survey.		

ONLINE SURVEY



Project Title: The Perception and Environmental Impacts of Manicured and Naturalistic Landscapes

Project Approval Date: February 8, 2024 | **Project Expiration Date:** March 25, 2024 | **IRB Project Number:** IRB-12036 | **Length of Study:** 5 months

Principal Investigator: Associate Professor Howard Hahn Kansas State University | The Department of Landscape Architecture and Community Planning & Design (LARCP).

Surveyor: Julia Hammes, graduate student (LARCP) Anticipated length of Survey: The survey will take 10-20 min and be open for 3 weeks.

Contact Details for Problems/Questions: hhahn@ksu.edu

IRB Chair Contact Information: Lisa Rubin, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224; Brad Woods, Associate Vice President for Research Compliance, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.

Purpose: The survey is conducted to gain knowledge about user perception and lessons learned from naturalistic residential landscapes.

Survey Procedure: This survey was developed in accordance with the protocols associated with Research Involving Human Subjects and was reviewed and approved by the Institutional Review Board (IRB) at Kansas State University.

Survey responses will be documented digitally and used in preparation of a master's project and report expected to be published in May 2024. The project report will be publicly available online through the KSU Research Exchange (<https://krex.ksu.edu/dspace/>). The final report will summarize the survey's findings.

Anticipated Risks: Anticipated risks to the interview subjects are judged by the researchers to be minimal to none.

Benefits of Study: The goal of the research is to present design [guidelines] that address concerns or reinforce benefits known from residents and bring greater acceptance of naturalistic plantings.

Terms of participation: I understand this project is research, and that my participation is voluntary. I also understand that if I decide to participate in this survey, I may withdraw my consent at any time without penalty or loss of benefit. I can stop participating at any time without explanation.

Identifiers will be removed from the identifiable private information and that, after such removal, the information could be used for future research studies or distributed to another investigator for future research studies without additional informed consent.

By checking yes this indicates I have read and understand this information sheet, and willingly consent to participate in this project and survey under the conditions described.

Thank you for taking the time to respond to this survey.

If you agree to participate in this survey, please proceed by clicking the yes button below.

Thank you!

Yes
No

Throughout this survey the term **naturalistic landscape** is used. The following definition of a naturalistic lawn/landscape is what the survey is referring to. A naturalistic landscape has diverse plant species growing within it, with infrequent mowing or fire being the only disruption to the natural processes, typically non-food, native species or cultivars.

In your current living situation, are you able to **change your landscape's appearance**?

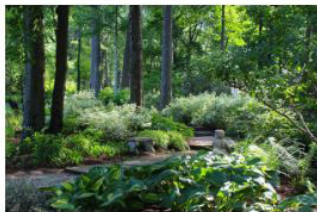
Yes

No

How appealing are the following naturalistic landscapes in terms of **plant composition**?

Not Appealing

Highly Appealing



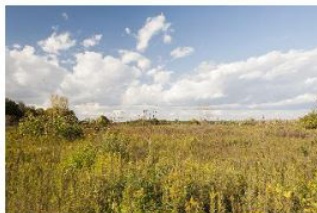
Woodland



Oak Savanna



Meadow



Prairie

ONLINE SURVEY CONTINUED

Look and compare the following images. How appealing are the following naturalistic landscapes in terms of **planting edges**?

Not Appealing

Highly Appealing



Look and compare the following images. How appealing are the following naturalistic landscapes in terms of color?

Not Appealing

Highly Appealing



ONLINE SURVEY CONTINUED

Look and compare the following images. How appealing are the following naturalistic landscapes in terms of the amount of planting?

Not Appealing

Highly Appealing



Look and compare the following images. How appealing are the following naturalistic landscapes in terms of height?

Not Appealing

Highly Appealing



ONLINE SURVEY CONTINUED

Look and compare the following images. How appealing are the following naturalistic landscapes in terms of plant groupings?

Not Appealing

Highly Appealing





Compared to the traditional residential landscape as seen above, how appealing are the following landscapes?

Not Appealing

Highly Appealing



1



2



3



4



5



6



7

ONLINE SURVEY CONTINUED

Do you actively incorporate a naturalistic landscape **at your residence**?

Yes, Full / Large Majority

Yes, Part / Some Areas

Not currently, but I am interested

No

What **deters and/or challenges** you in incorporating (or considering a) naturalistic landscaping?
(Select all that apply)

Appearance

Unfamiliar with Concept

Prefer the Traditional Lawn

Installation & Establishment Challenges

Maintenance Challenges

Social Pressure from Neighbors and Public

Potential Decrease in Property or Resale Value

Pest & Wildlife Concern

Homeowner Association Guidelines or Local Laws

Monetary Concern

Lack of Time

None

Other:

Other:

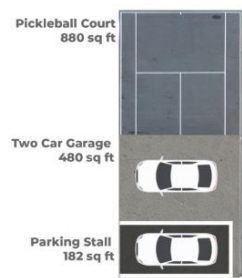
Other:

Why did/do you **want to install** a naturalistic landscape? (Select all that apply)

Appearance
Increase Wildlife Habitat
Increase Pollinator Population
Increase Plant Biodiversity
Water Conservation
Lower Maintenance Requirements
Connection to Nature
Potential Increase in Property or Resale Value
Educational Benefits
Lower Cost
Other
Other:
Other:

ONLINE SURVEY CONTINUED

How much **space do you want to dedicate** to naturalistic plantings?



Multiple containers / pots

Less than 20 sq ft

20 - 100 sq ft

100 - 400 sq ft

more than 400 sq ft

Unsure

How confident do you feel performing the following skills when **designing, installing, or maintaining naturalistic landscapes**:

Not ConfidentConfident

Mapping the sun and shade areas to influence planting design

Understanding soil conditions

Budgeting for materials

Sourcing appropriate plants

Creating a naturalistic landscaping design

Prepping landscape for install (removing existing lawn or plantings)

Installing plants

Maintaining the naturalistic landscape

Who **installed** your naturalistic landscape? (Select all that apply)

Myself / household

Non-family high school / college students

General handyman

Single-operator lawn care business

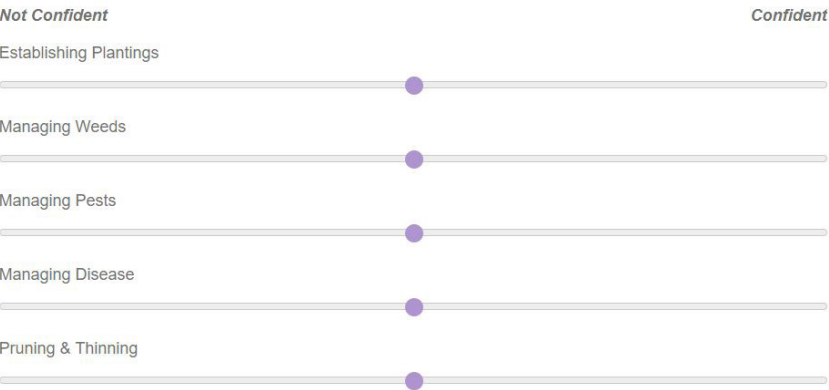
Nursery / Landscaping company

Landscape design / build / maintenance company

The landscape was already present.

Other:

How confident do you feel performing the following **maintenance practices** regarding naturalistic landscapes?



ONLINE SURVEY CONTINUED

How many **hours of maintenance per week** do you currently dedicate to your traditional non-food landscape during a typical growing season?

Less than 1 hour

1 - 3 hours

3 - 5 hours

5 - 10 hours

10+ hours

I do not maintain my landscape

I hire an outside source to maintain my landscape

Unsure

How many **hours of maintenance per week** do you currently dedicate to your naturalistic non-food landscape during a typical growing season?

Less than 1 hour

1 - 3 hours

3 - 5 hours

5 - 10 hours

10+ hours

I do not maintain my landscape

I hire an outside source to maintain my landscape

Unsure

Is this maintenance **more or less** than with a non-naturalistic landscape?

Significantly Less

Significantly More

Move the slider to best fit your response.

☐ Not Applicable

How **challenging** have the following topics been with naturalistic landscapes as a homeowner?

Not challenging

Challenging

Educational Challenges (myself and others)



Native Plant Sourcing



Managing Aesthetics with Expectations



Adapting to Changing Weather Conditions



Wildlife Concerns



Safety Concerns



Fire Concerns



Negative Reactions by City or Neighbors



Other:



Other:



Other:



ONLINE SURVEY CONTINUED

Where did your **interest** for naturalistic landscapes come from? (Select all that apply)

College class
Community group class
Master Gardener / extension publications
Book(s)
Website / Online videos (e.g. YouTube)
Social Media
Spouse
Children
Other family / friends
Existing landscape
Landscaping Company
This survey
Other:
Other:
Other:

Where did **inspiration** for your naturalistic landscape come from? (Select all that apply)

College class

Community group class

Master Gardener / extension publications

Book

Website / Online videos (e.g. YouTube)

Social Media

Spouse

Children

Other family / friends

Existing landscape

Landscaping Company

Other:

Other:

Other:

How familiar are you with the following **naturalistic landscape design strategies**?

	Never heard of.	No intention on applying design strategies.	Heard of but have not attempted to apply.	Heard of and attempted to apply.	Applied successfully.
Composing masses of plants rather than intermixing individual plants	☐	☐	☐	☐	☐
Using plants with different leaf sizes/shapes for visual contrast	☐	☐	☐	☐	☐
Using plants of different height groups	☐	☐	☐	☐	☐

Were there any **city codes that restricted** the design of your naturalistic landscape?

Yes

No

ONLINE SURVEY CONTINUED

How frequently have you **received feedback** on your naturalistic landscape?

Little to none

Frequently

Move the slider to best fit your response.



Were these comments primarily **positive or negative** experiences?

Negative

Positive

Move the slider to best fit your response.



Explain what these comments generally consisted of.

Reflecting on your experiences with having a naturalistic landscape, is there any **advice about challenges or unexpected positives** that you would share with someone considering naturalistic plantings?

How inclined would you feel to **report a resident** if you felt their landscape violated city / Homeowner Association (HOA) ordinances?

Little to none

Very Inclined

Move the slider to best fit your response.



Do you think a naturalistic landscape compared to a neighborhood of manicured (short mown) lawns **lowers a community's sense of unity**?

Yes

No

Unsure



What is your gender?

Female

Male

Choose not to provide

How old were you at the end of 2023?

18 - 29 years

30 - 39 years

40 - 49 years

50 - 59 years

60 - 69 years

70+ years

Choose not to provide

What is your current employment status?

Not Employed

Part-time

Full-time

Student

Retired

What is your Race? (Check all that apply)

American Indian or Alaskan Native

Asian

Black or African American

Native Hawaiian or Other Pacific Islander

White or Caucasian

Choose not to provide

ONLINE SURVEY CONTINUED

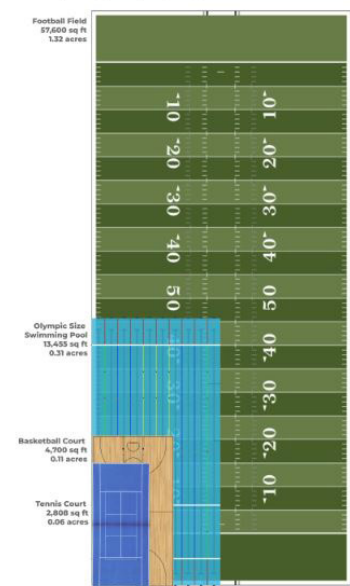
What is your Ethnicity?

Hispanic or Latino

Not Hispanic or Latino

Choose not to provide

How large is your property size?



Less than 5,000 sq ft (0.11 acres)

5,000 - 15,000 sq ft (0.11 - 0.34 acres)

15,000 - 30,000 sq ft (0.34 - 0.69 acres)

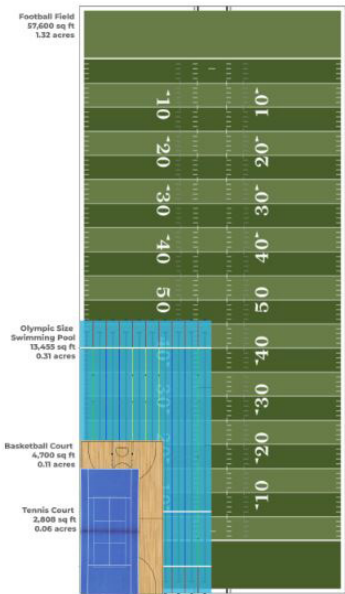
30,000 - 45,000 sq ft (0.69 - 1.03 acres)

45,000 - 60,000 sq ft (1.03 - 1.38 acres)

> 60,000 sq ft (1.38 acres)

Unsure

How large is your lawn (routinely maintained) space?



Less than 5,000 sq ft (0.11 acres)

5,000 - 15,000 sq ft (0.11 - 0.34 acres)

15,000 - 30,000 sq ft (0.34 - 0.69 acres)

30,000 - 45,000 sq ft (0.69 - 1.03 acres)

45,000 - 60,000 sq ft (1.03 - 1.38 acres)

> 60,000 sq ft (1.38 acres)

Unsure

Add any additional comments.

ONLINE SURVEY CONTINUED

Thank you for taking the time to respond to this survey! Your response is greatly appreciated.

Would you like to receive a link (via email) to the new naturalistic landscaping K-State Extension publication in Fall 2024? Your survey response will stay anonymous.

Yes

No

Please provide your name.

Please provide your email.



We thank you for your time spent taking this survey.
Your response has been recorded.

SURVEY DATA

Q2 - If you agree to participate in this survey, please proceed by clicking the yes button below. Thank you!

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	If you agree to participate in this survey, please proceed by clicking the yes button below. Thank you!	4.00	4.00	4.00	0.00	0.00	270

#	Field	Choice Count
4	Yes	100.00% 270
5	No	0.00% 0
		270

Q4 - In your current living situation, are you able to change your landscape's appearance?

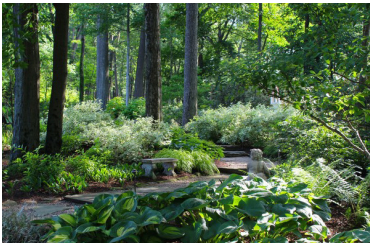
#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	In your current living situation, are you able to change your landscape's appearance?	1.00	2.00	1.13	0.33	0.11	269

#	Field	Choice Count
1	Yes	87.36% 235
2	No	12.64% 34
		269

SURVEY DATA CONTINUED

Q5 - How appealing are the following naturalistic landscapes in terms of plant composition?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Woodland	0.00	10.00	8.92	1.75	3.05	263
2	Oak Savanna	0.00	10.00	7.40	2.44	5.97	239
3	Meadow	0.00	10.00	7.82	2.17	4.70	248
4	Prairie	0.00	10.00	7.14	2.70	7.28	243



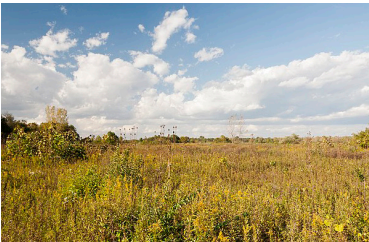
Woodland



Oak Savanna



Meadow



Prairie

Q6 - Look and compare the following images. How appealing are the following naturalistic landscapes in terms of planting edges?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	1)	0.00	10.00	6.72	2.70	7.29	243
2	2)	0.00	10.00	7.18	2.11	4.47	227
3	3)	0.00	10.00	7.01	2.22	4.91	227
4	4)	0.00	10.00	8.27	2.07	4.27	250



SURVEY DATA CONTINUED

Q7 - Look and compare the following images. How appealing are the following naturalistic landscapes in terms of color?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	1)	0.00	10.00	4.98	2.42	5.88	228
2	2)	0.00	10.00	2.65	2.32	5.40	230
3	3)	0.00	10.00	6.53	2.29	5.25	242
4	4)	0.00	10.00	8.55	1.77	3.14	260

1)



2)



3)



4)



Q8 - Look and compare the following images. How appealing are the following naturalistic landscapes in terms of the amount of planting?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	1)	0.00	10.00	2.11	2.18	4.74	241
2	2)	0.00	10.00	5.17	2.26	5.13	211
3	3)	0.00	10.00	6.47	1.91	3.64	229
4	4)	0.00	10.00	8.20	2.04	4.15	254

1)



2)



3)



4)



SURVEY DATA CONTINUED

Q9 - Look and compare the following images. How appealing are the following naturalistic landscapes in terms of height?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	1)	0.00	10.00	2.13	2.31	5.31	235
2	2)	0.00	10.00	6.35	2.27	5.17	223
3	3)	0.00	10.00	7.58	2.00	4.00	250
4	4)	0.00	10.00	6.04	2.64	6.97	245

1)



2)



3)



4)



Q10 - Look and compare the following images. How appealing are the following naturalistic landscapes in terms of plant groupings?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	1)	0.00	10.00	4.42	2.38	5.69	229
2	2)	0.00	10.00	2.01	2.14	4.57	239
3	3)	0.00	10.00	5.96	2.29	5.26	227
4	4)	0.00	10.00	7.53	2.16	4.65	247

1)



2)



3)



4)



SURVEY DATA CONTINUED

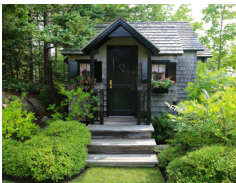
Q11 - Compared to the traditional residential landscape as seen above, how appealing are the following landscapes?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	1)	0.00	10.00	6.82	2.50	6.23	248
2	2)	0.00	10.00	5.69	2.76	7.60	249
3	3)	0.00	10.00	3.61	2.42	5.84	249
4	4)	0.00	10.00	6.16	2.41	5.80	249
5	5)	0.00	10.00	3.92	2.46	6.05	232
6	6)	0.00	10.00	7.84	1.91	3.67	252
7	7)	0.00	10.00	5.61	2.55	6.49	248



Example shown.

1)



2)



3)



4)



5)



6)



7)



Q12 - Do you actively incorporate a naturalistic landscape at your residence?

#	Field	Choice Count
1	Yes, Full / Large Majority	12.34% 29
2	Yes, Part / Some Areas	63.40% 149
3	Not currently, but I am interested	19.15% 45
4	No	5.11% 12
		235

Q13 - What deters and/or challenges you in incorporating (or considering a) naturalistic

landscaping? (Select all that apply)

#	Field	Choice Count
1	Appearance	11.22% 23
2	Unfamiliar with Concept	4.88% 10
3	Prefer the Traditional Lawn	6.83% 14
4	Installation & Establishment Challenges	17.07% 35
5	Maintenance Challenges	10.24% 21
6	Social Pressure from Neighbors and Public	8.78% 18
7	Potential Decrease in Property or Resale Value	4.88% 10
8	Pest & Wildlife Concern	6.34% 13
9	Homeowner Association Guidelines or Local Laws	4.39% 9
10	Monetary Concern	6.83% 14
11	Lack of Time	9.76% 20
12	Other:	5.85% 12
13	None	0.00% 0
15	Other:	2.44% 5
16	Other:	0.49% 1
		205

Other:	Other:	Other:	Other:
Not sure about HOA rules or enforcement	N/A	N/A	N/A
Design	N/A	N/A	N/A
need turf while kids are young so they have big yard to play in	Prefer the traditional "groomed" look in the front but would likd to trun soem of back yard and side yard edges to native plants	N/A	N/A
Plant diversity	companion plants	native plant design	native plant design
Lack of moisture in Western KS	Planting in dry shade areas	N/A	N/A
I like edibles landscapes so most of my plantings are disqualified	N/A	N/A	N/A

SURVEY DATA CONTINUED

Organizational	Lack of assistance	N/A	N/A
code compliance	N/A	N/A	N/A
Fire danger	N/A	N/A	N/A
spouse likes lawn	N/A	N/A	N/A

Q14 - Why did/do you want to install a naturalistic landscape? (Select all that apply)

#	Field	Choice Count
1	Appearance	7.73% 17
2	Increase Wildlife Habitat	9.09% 20
3	Increase Pollinator Population	16.82% 37
4	Water Conservation	15.45% 34
5	Lower Maintenance Requirements	13.18% 29
6	Connection to Nature	14.09% 31
7	Educational Benefits	2.27% 5
8	Lower Cost	5.00% 11
9	Other	1.36% 3
10	Potential Increase in Property or Resale Value	0.45% 1
11	Other:	0.00% 0
12	Other:	0.00% 0
13	Increase Plant Biodiversity	14.55% 32
		220
	Other	
	reduce footprint	
	Attractiveness	
	reduce the use of a mower, fall leaf clean up	

Q15 - How much space do you want to dedicate to naturalistic plantings?

#	Field	Choice Count
4	100 - 400 sq ft	35.56% 16
3	20 - 100 sq ft	13.33% 6
5	more than 400 sq ft	33.33% 15
7	Unsure	13.33% 6
1	Multiple containers / pots	2.22% 1
2	Less than 20 sq ft	2.22% 1
		45

Q16 - How confident do you feel performing the following skills when designing, installing, or maintaining naturalistic landscapes:

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Mapping the sun and shade areas to influence planting design	0.00	5.00	3.92	1.17	1.38	214
2	Understanding soil conditions	0.00	5.00	3.58	1.27	1.61	213
3	Budgeting for materials	1.00	5.00	3.66	1.24	1.53	216
4	Sourcing appropriate plants	0.00	5.00	3.52	1.34	1.79	218
5	Creating a naturalistic landscaping design	0.00	5.00	2.82	1.31	1.72	209
6	Prepping landscape for install (removing existing lawn or plantings)	0.00	5.00	3.19	1.45	2.11	211
7	Installing plants	0.00	5.00	4.04	1.10	1.21	219
8	Maintaining the naturalistic landscape	1.00	5.00	3.66	1.18	1.39	218

Q17 - Who installed your naturalistic landscape? (Select all that apply)

#	Field	Choice Count
1	Myself / household	71.18% 163
2	Non-family high school / college students	1.75% 4
3	General handyman	1.75% 4
4	Single-operator lawn care business	3.06% 7
5	Nursery / Landscaping company	4.37% 10
6	Landscape design / build / maintenance company	3.06% 7
7	The landscape was already present.	10.48% 24
8	Other:	4.37% 10

229

Other:

Lot for our build was left as natural as we could

Here when we bought the place!

My pond and hardscape patio was installed and designed by a professional pond builder. I created and designed all the gardens on my property.

landscape company & handyman

Senior living Cooperative under direction of Audubon with grant support. Senior members take day to day responsibilities with support of consultants, occasional help from others

Nature - area was not maintained or managed for 50 years

It is partially as it was when we moved in, but the mowing area has been reduced. While the mowing area is less it generates less waste that other areas and may actually take less time to maintain as mowing occurs only 4 to 6 times a year with any removed clipping or leaves composted.

SURVEY DATA CONTINUED

Q18 - How confident do you feel performing the following maintenance practices

regarding naturalistic landscapes?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Establishing Plantings	1.00	5.00	4.07	0.98	0.96	207
2	Managing Weeds	0.00	5.00	3.62	1.23	1.52	205
3	Managing Pests	0.00	5.00	3.28	1.23	1.52	198
4	Managing Disease	0.00	5.00	2.95	1.27	1.61	198
5	Pruning & Thinning	1.00	5.00	3.91	1.03	1.06	206

Q19 - How many hours of maintenance per week do you currently dedicate to your

traditional non-food landscape during a typical growing season?

#	Field	Choice Count
1	Less than 1 hour	5.26% 3
2	1 - 3 hours	43.86% 25
3	3 - 5 hours	28.07% 16
4	5 - 10 hours	15.79% 9
5	10+ hours	5.26% 3
6	I do not maintain my landscape	0.00% 0
7	I hire an outside source to maintain my landscape	0.00% 0
8	Unsure	1.75% 1

57

Q20 - How many hours of maintenance per week do you currently dedicate to your

naturalistic non-food landscape during a typical growing season?

#	Field	Choice Count
1	Less than 1 hour	14.04% 25
2	1 - 3 hours	34.27% 61
5	3 - 5 hours	24.16% 43
6	5 - 10 hours	15.17% 27
7	10+ hours	10.11% 18
8	I do not maintain my landscape	1.12% 2
9	Unsure	0.56% 1
10	I hire an outside source to maintain my landscape	0.56% 1

178

Q21 - Is this maintenance more or less than with a non-naturalistic landscape?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Move the slider to best fit your response.	0.00	5.00	2.01	1.21	1.46	143

Q22 - How challenging have the following topics been with naturalistic landscapes as a homeowner?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Educational Challenges (myself and others)	0.00	5.00	2.80	1.36	1.85	143
2	Native Plant Sourcing	0.00	5.00	2.95	1.41	2.00	157
3	Managing Aesthetics with Expectations	0.00	5.00	3.39	1.04	1.07	153
4	Adapting to Changing Weather Conditions	0.00	5.00	3.07	1.26	1.59	147
5	Wildlife Concerns	0.00	5.00	2.51	1.45	2.10	150
6	Safety Concerns	0.00	5.00	1.26	1.15	1.32	142
7	Fire Concerns	0.00	5.00	1.32	1.31	1.73	147
8	Negative Reactions by City or Neighbors	0.00	5.00	1.89	1.57	2.46	149
9	Other:	1.00	5.00	3.52	1.03	1.06	27
10	Other:	1.00	5.00	3.42	1.19	1.41	12
11	Other:	0.00	5.00	3.88	1.62	2.61	8
Other:		Other:		Other:			
Water		N/A		N/A			
Drought		N/A		N/A			
wasps are a problem		N/A		N/A			
deer		N/A		N/A			
Cost		Rogue plants		N/A			
creating attractiveness in design thru yard areas		maintaining colors throughout seasons		N/A			
Confusing info at first because experts can't seem to agree on most things.		N/A		N/A			
Wind		Aging		Tree removal			
HOA restrictions		N/A		N/A			
Managing aggressive plants		N/A		N/A			

SURVEY DATA CONTINUED

Biggest challenge has been the nonnative grasses that were planted before me for erosion prevention. These don't allow the natives to establish.	N/A	N/A
HOA restrictions - hts, designated areas	N/A	N/A
Weedy woody seedlings	Overly bright street lights disturb the habitat I am creating	Listening to neighbors gas powered equipment
Watering	N/A	N/A
HOA rules	N/A	N/A
As we age some chores become more difficult	N/A	N/A
Water needs	N/A	N/A
Destruction by chickens	N/A	N/A
Watering	N/A	N/A
getting rid of invasive plants	N/A	N/A
Invasive species	N/A	N/A
soil is too rich in places	N/A	N/A
HOA	N/A	N/A
N/A	I have Southern Blight in 2 sites in my yard and it's taken more energy than I can find to conquer.	N/A
Dealing with weeds that will take over and poison ivy.	N/A	N/A
Anticipating climate change	Preparing for water insecurity	N/A
A naturalistic landscape seems to have an increased physical challenge to removed small trees that seem to want to germinate. Seasonal clean up to remove winter kill....	N/A	N/A

Q23 - Where did your interest for naturalistic landscapes come from? (Select all that apply)

1	College class	4.72%	5
2	Community group class	3.77%	4
3	Master Gardener / extension publications	30.19%	32
4	Book(s)	11.32%	12
5	Website / Online videos (e.g. YouTube)	11.32%	12
6	Social Media	5.66%	6
7	Spouse	3.77%	4
8	Children	0.00%	0
9	Other family / friends	12.26%	13
10	Existing landscape	4.72%	5
11	Landscaping Company	0.94%	1
12	Other:	7.55%	8
13	Other:	0.00%	0
14	Other:	0.00%	0
15	This survey	3.77%	4
			106
Other:			
Probably a combination over time			
neighbor landscapes			
Career			
I just like natural things			
Everything I've read and learned over years of study			
personal preference			
Environmental Studies			
Classes I teach			

SURVEY DATA CONTINUED

Q24 - Where did inspiration for your naturalistic landscape come from? (Select all that apply)

#	Field	Choice	Count
1	College class	2.27%	12
2	Community group class	4.16%	22
3	Master Gardener / extension publications	23.44%	124
4	Book	15.69%	83
5	Website / Online videos (e.g. YouTube)	14.93%	79
6	Social Media	6.43%	34
7	Spouse	2.08%	11
8	Children	0.57%	3
9	Other family / friends	8.32%	44
10	Existing landscape	10.02%	53
11	Landscaping Company	2.27%	12
12	Other:	6.62%	35
13	Other:	2.08%	11
14	Other:	1.13%	6
			529

Other:	Other:	Other:
Appreciation from growing up on a farm.	N/A	N/A
this is how it grows	N/A	N/A
Kansas Grazing Lands Collation	NRCS	N/A
responsibility to conserve water resources	desire to enhance habitat for pollinators	reduce maintenance as we age
visiting famous gardens	group visits/courses	N/A
Master Naturalist program	Mo. Dept. of Conservation	Mo Prairie Foundation
travel to other gardens/parks	N/A	N/A
The woods behind my house.	N/A	N/A
Extension Master Naturalists	Visiting native landscapes: konza, baker Wetlands, Anita Gorman discovery Center, seminars	N/A
Magazines	N/A	N/A
Piet Oudolf's work	Dr Jared Barnes	N/A
Nature walks	What deer devour	Childhood memories
Grow native /Deep Roots	N/A	N/A

Grow native /Deep Roots	N/A	N/A
Volunteering as a master gardener in established native gardens	N/A	N/A
Botanical gardens	Native prairies	N/A
Deep roots	N/A	N/A
Master Gardenener classes	N/A	N/A
Kansas Landscape	N/A	N/A
Moved onto this property as a new build and no grass only dirt. I had it sodded and now I keep digging out grass and replacing with flower and hard scape gardens.	N/A	N/A
I have a degree from Kansas State University in Natural Resources Management and I was a District Conservationist and Asst. State Conservationist with the Natural Resources Conservation Service in Kansas	N/A	N/A
I believe in landscaping for nature and with native plants	I do not believe in burning gasoline for my yard maintenance	I believe all property owners should take into account the ecosystem and run-off in their landscape planning
Myself, i enjoy landscaping	N/A	N/A
Plant supplier website	N/A	N/A
Working at a nursery	N/A	N/A
seeing what others do in their yards	N/A	N/A
Members of our Senior Living Cooperative	N/A	N/A
Concern about pollinators	concern about habitat for animals and birds	Concern about chemicals
Scientific publications	N/A	N/A
Master Naturalist program	N/A	N/A
Membership and employment with environmental group.	Newspaper article about that group, The Nature Conservancy.	Time spent outdoors, recreation and hunting.
travels	N/A	N/A
I need plants that are drought resistant as watering can be too time consuming.	N/A	N/A
National speakers and books	N/A	N/A
NRCS	N/A	N/A
local gardening publication	N/A	N/A

SURVEY DATA CONTINUED

Q25 - How familiar are you with the following naturalistic landscape design strategies?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Composing masses of plants rather than intermixing individual plants	9.00	13.00	11.61	1.00	0.99	268
2	Using plants with different leaf sizes/shapes for visual contrast	9.00	13.00	11.96	0.94	0.88	269
3	Using plants of different height groups	9.00	13.00	12.19	0.77	0.60	269

#	Field	Never heard of.	No intention on applying design strategies.	Heard of but have not attempted to apply.	Heard of and attempted to apply.	Applied successfully.	Total
1	Composing masses of plants rather than intermixing individual plants	4.85% 13	4.10% 11	35.07% 94	36.94% 99	19.03% 51	268
2	Using plants with different leaf sizes/shapes for visual contrast	2.60% 7	2.23% 6	23.79% 64	39.03% 105	32.34% 87	269
3	Using plants of different height groups	1.12% 3	1.49% 4	11.15% 30	49.81% 134	36.43% 98	269

Q26 - Were there any city codes that restricted the design of your naturalistic landscape?

#	Field	Choice Count
1	Yes	19.21% 34
2	No	80.79% 143

177

Q27 - How frequently have you received feedback on your naturalistic landscape?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Move the slider to best fit your response.	0.00	5.00	2.71	1.49	2.22	154

Q28 - Were these comments primarily positive or negative experiences?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Move the slider to best fit your response.	1.00	5.00	3.89	0.91	0.83	123

Q29 - Explain what these comments generally consisted of.

Explain what these comments generally consisted of.

Attractiveness of flowers in bloom

We have 3 acres with a variety of hardwood trees and eastern red cedar. We leave half natural, but maintained with mowing native grasses, pruning trees, and removing invasive species. Around the house, we have planted buffalo grass. The landscaping is comprised of grasses, drought and deer resistant plants. We installed all ourselves. Compliments on the choice of plants, well maintained, natural looking.

i like the wild look of your flowers

Compliments and questions.

I give away plants

Eye appeal, layout and use of tall grass prairie as back stop, using natural color like Red Bud, False Blue Indigo and natural Tall Grass Prairie pollinator plants. Including Buffalo Grass in mowed areas.

Oh that's a native.. oh this is the wild section of your yard

Beautiful. Amazing. Looks designed and organized even though it is natural looking. Not weedy looking. Have so many wonderful birds in the garden.

From the HOA, they are concerned about how long your dumpster stays out on trash day. Otherwise they pretty much leave me alone.

Don't remember

Neighbors appreciated the flowers, took pictures, and posted them on facebook.

questions about not cleaning up the garden in the fall but leaving debris for insect/other habitats; how often we have to water; where to source native plants; we live in a HOA neighborhood so our front yard has more lawn than we would like but we have designed the planting beds in front to include mostly native plants

pleasing to look at, enjoy the watching the pollinators

I have been planting naturalistically for over 20 Years: Oudolf and his gang of co-authors and others--- I read a lot. And now the Americans like Vogt, Diblick and norris. Some neighbors would stop buy and ask about grasses (when not too many "average American gardeners") were using in the front gardens. They would also comment on how neat it look etc. The HOA never complained even though I have more garden in front than allowed . Are you interested in taking part on a project?

Considered flower lady by canoeists. Neighbor uses yard as backdrop for family photos.

Attracts pollinators

Questions on species, where to find natives, maintenance

People appreciate how I eliminated grass in my front yard and used low growing herbs (primarily varieties of Thyme) where grass used to be planted. Through the center of this garden, I have lovely stepping stones so that I can reach all areas of my garden

Mu pollinator garden is outside the city limits but very close to town, we do not weed or water, we have had good feed back.

I love this plant or that plant. I love how it blooms at different times.

None

Comments are positive. Liked are the color and variety

Neighbors think my garden is beautiful. Walkers in neighborhood have asked to see my back yard also

Wow! What beautiful gardens!! I go out of my way to walk by your house so I can see your yard. What plant is this? It's gorgeous. Can I sit on your bench and enjoy your garden and fountain? Look at all the butterflies!

SURVEY DATA CONTINUED

folks love more flowers or more interest than just a lawn. especially if there are signs that provide information on the plants being grown.

We have a beautiful piece of property, great views.

neighbors enjoyed the flowers.

I could never do that, oh how pretty, that looks weird

Statements that the flowers are pretty.

Appreciated that I stayed within city guidelines and HOA rules

People like the variety of plants. They like having bees and butterflies around.

I garden mainly in the front yard. Have installed Pollinator pathways on the hellstrip. It's has become the neighborhood walk-by destination. I teach Naturalistic design via extension classes.

I like the variety of colors and the native tall grasses

like the natural look, enjoy seeing different plants, inspired to try the same thing

Looks like a lot of work (it's not) Beautiful and full!

Neighbor commented on how pretty one section was when the Packera and Phlox were in bloom

Love the colors. Love the variety of trees.

That looks nice You need to clear that back I can't see out of my driveway I love to look at your house out my back window I'm worried about snakes and mice Those trees help block the wind Thanks for the produce I always wanted a mimosa tree Thanks for the forsythia bush Do you need help taking that tree down The kids love picking plums and daffodils at your house May I have a start of that plant Why are you vacuuming your flower bed I keep hitting the rocks you put around your bushes with my new mower

Neighbors liked the look and the "low" maintenance.

Peaceful surroundings

Neighbors and family enjoy seeing color and variety.

Admiration

Admiration of the beauty my gardens

Great use of height in flowers and variety of the same plant (sunflowers of different colors). Good use of plants with rock .

Loved the free flowing textures

Walkers compliment native flowers by street

That we're maintaining a savanna rather than filling the area with trees, and they like the decision to do this.

The city keeps citing me for having "weeds," even though my plants are native flowers - they are tall, but that does not mean they are weeds!

Love walking by our house, questions about what is planted.

Most people like it early in tht season, not as .much later when it becomes a little unruly

Natural feel, many pollinators, and good contrast

Have done it in areas of my backyard-people have commented on how pretty-number of birds and butterflies I have in my yard-and other pollinators- so they notice

Surprised by the diversity

Love your garden!

Happy that I don't mow.

The landscaping in your yard is nice. Like how it looks in different seasons.

My friends and neighbors have told me my pond and gazebo look beautiful with all the plants and flowers and hard scape. The comments have been positive.

Amazement! That native plants can be this beautiful and that it is so alive with the massive swarms of bees, butterflies and other wildlife. And there are NO perceived weeds. If seeking "garden beauty", even native plants should follow design principles and be continually groomed and manicured. I do not want a "low maintenance" garden. I want to be in the garden every day, tending and pruning and weeding.

It looks weedy and a little out of control

I love your daffodils/ hosta/ packera (what is this is the question on this one), asters, volunteer evening primrose. Moving away from non natives into higher percentage of natives. Some comments messy, but almost all positive especially walkers saying how they look forward to seeing my yard.

Liked the color and vary if plants

You're yard looks nice

Generally compliments on planting

When in bloom, commenters liked the looks.

Just simple phrases - I like your backyard. Not much discussion.

We moved a house onto our property in the fall of 2019, and my landscaping started in 2020, and my yards are a mix of natural and other. Trying for as much native as possible, but that is not always available for my budget. It is definitely not a total native scenario, but the amount of pollinators and birds of all kinds have been increasing in numbers. Especially noticeable is the amount lightning bugs we have seen in the last 2 years. We always have the evening country cruisers that stop in to ask questions and compliment my plantings.

aesthetically pleasing. Nice variety of plants.

Most people like it. But it is a work in progress right now.

Friends let me know that the new landscaping is much better than the previous landscaping.

I have one area of pollinator habitat on 2 acres of my farm. I receive a number of comments on this area. Very positive While I prefer my yard to be mostly grass species and I keep it mowed, I have native grassland buffers surrounding the yard. I have to be careful not to have tall grass by my house because of wildfire danger. Plus our chickens tend to keep me from having a pristine, single species yard. But even weeds look good mowed. Plus we have a pond and creek fairly close to our house so we have many varied landscapes. I have found that in order to have trees it is necessary (for me at least) to have native tree species. I tend to stick with Oaks, Apple trees, Crab Apples, Redbuds, Cottonwoods, Flowering and actual pears, peaches, cherries, grapes, etc. At least for me those are the species that do the best out here. Since we have so much natural habitat around us, its nice to have an actual yard near the house where we can walk easily, play games, easily walk to our sheds, etc.

like how everything looks and are envious

family and friends enjoy the landscape. Some issues with HOA.

Family and neighbors say they like the birds and butterflies attracted to my natural landscape areas. They also say they look peaceful as they walk by.

Like it

There is always something new flowering. The scent of the milkweed is heavenly. I can tell you care about our environment.

Enjoyed the plants and the birds that they bring to my yard. I also do water gardening

The little bit I've done is located on the west side of our home, which isn't visible from the street or by neighbors.

Too new of a garden to receive comments

Colors, variety, leaves, blooms throughout seasons, variety of insects & pollinators.

SURVEY DATA CONTINUED

I grow flowers herbs and vegetables together in beds and pots around my house. Small yard, people often comment positively. I do have strict HOA rules against leaving common areas natural. We pay to mow these areas weekly - very expensive.

The only comments I get are generally folks saying 'I like your garden!' when things are in bloom in the summer. I imagine there are others who don't like my garden much who don't say so. :~)

The conversation generally begins with how much they love the space, but the grades into but I could never do that. They also speak to the discomfort they have with doing anything but traditional turf grass. There is a lot of brainwashing that needs to be undone to convince homeowners that they too can do it. When it has been done, the comments I get are typically: "This space is amazing" "I just want to move in here" "This is so beautiful" "It's so relaxing"

Praise for enhancing view, increasing pollinators, providing opportunities to work in nature, friendships generated through mutual enjoyment

Your place looks nice.

Only hear the compliments, but aware that next door neighbor (who has a manicured lawn monoculture) is unimpressed. I have to plant valued plants away from property line to avoid overspray of pesticides. I keep my garden as tidy as possible without impact to my habitat.

That's different Why ? Kids are walking through it

Lots of foliage, more flower beds than lawn, looks lush, chickens are enjoying it

Positive comments about the color and flow of the plants and design.

Generally that they liked my garden I think mostly because of the color

Love the movement with the wind. Like the height variation.

Design, color, time of season, variety of plants, visual beauty, using native plants and grasses

People notice all the life (pollinators, birds, amphibians, etc) in the gardens everywhere

Location, location, location; beautiful setting; good dirt! Nice color mix; love the shade gardens (lots of trees). Nice paths (lots of mulch on walkways). Integrated mix (not 100% native). Nice compliment of hardscape. "so many butterflies"! Relaxing

backyard is pleasant, private

Variety of plants. Succession of flowers, hard scape

Comments on how they liked the garden, but did not understand the native/naturalistic concept until I explained it to them.

City has cited me 3 times in past 5 years for having "weeds," telling me that neighbors have complained. Neighbors deny. My "weeds" are native prairie flowers and grasses.

What are the names of those flowers?

Appreciation for the prairie, woodland, and riparian, diversity that provided a green corridor that draws wildlife. Also the educational opportunity it provided.

"Will you help me do this at my property?" How did you do this by yourself? I'll bet you spend all your time working on this! (No, very little...wish I could spend all my time out here!) People think there's some voodoo knowledge, and I try to show them a few books that can help them develop their own landscape. People are generally too lazy to change, I believe.

Only that they admired the appearance of my yard and I took it as an opportunity to explain my philosophical change in gardening. I'm raising bird food; I plant native plants to be consumed by insect larvae that will be fed to nestling birds. I drank the Tallamy Kool Ade ;))

My areas are obviously a work in progress. So any comments acknowledge this. I'm learning what works by trial and make adjustments each year. Four years in and things are starting to look better, but I have limited funds.

Live in a neighborhood of manicured lawns. Peer pressure

People appreciate the color variety

Recognizing that we had naturalized a portion of the yard

compliments regarding flower beds and overall "niceness" of the landscape

It must be nice to not have to mow so much.

Looks nice but afraid of bees

Generally curious or positive

If people understand the negative impact of chemically treated lawns and landscape; the comments are positive. Others don't understand why I work to minimize the green space to only access the native areas.

People enjoy my natural area (back of my backyard). It looks very different and attracts LOTS of wildlife. I do very little management except removing poison ivy and bush honeysuckle.

People walking by comment often on our front garden - which is landscaped but almost entirely native plants and flowers. Lots of flowers for bee habitat and milkweed for butterfly habitat. Our garden is typically frantic with energy during the summer months with pollinators.

This is in my side yard which is partially hidden by my house. My neighbor commented it could look like an English garden.

Happy to see anyone involved in maintaining bee habitat

nice colors,

Q30 - Reflecting on your experiences with having a naturalistic landscape, is there any advice about challenges or unexpected positives that you would share with someone considering naturalistic plantings?

After establishment, it is way less work than mowing and raking leaves, maintaining a typical lawn. Positives are all over the place. It's pretty, it's easy, it attracts beneficial insects, it feeds an ecosystem.

Allow time for maturity , one to four years. Consult KSU for publication information . Look around town to see what looks good to you and discover if it'll work in your own landscape.

Asters and comfrey will take over if not contained.

Be aware of guidelines such as HOAs, don't plant more than you can manage

Be brave and know what you like and try it. It costs money and time to change a garden. You have to teach yourself: read, visit gardens, do Youtube etc. If you like all your ducks in a row wearing perfect tuxedos...this is not for you.

Be kind to yourself. This takes time and you may need to change things around. It is part of the process and shouldn't become drudgery. There are some natives who don't play nice and need to be reprimanded.

Be patient and definitely make sure all invasive varieties such as bindweed and Bermuda grass are controlled before planting

Be sure you have your information about what it is you are planting and be ready to defend it as natural, native, nativar, and not a weed or a pest of a landscape!

Be sure you know the type of soil required for different plantings.

Biggest challenge is deciding what plants to plant in the space available. My yard has a lot of shade and I like color - flowers!!

Challenge of keeping weeds out.

Challenges would be preparing the space for planting and then the lack of success using seeds.

Check with neighborhood restrictions before going hog wild in your project

Check with your extension office. Library books on the subjects Ask other people who have applied this

SURVEY DATA CONTINUED

Choose from plant lists appropriate for the location and climate. Avoid invasive plant choices. Include pollinator host plants and those providing successive blooming flowers. Download an audio bird call identifier app to enjoy the results of your labor. Spend time in your outdoor environment.

Consider heights so back ground plants are taller than those in front border. Use drought resistant ground covers.

Contact your Extension Office/master gardeners and use KSU resources

Do it for the bees and butterflies!

Do tour research

Do work in the appropriate seasons. Visit established natural plantings. Talk to native plant specialists.

Don't expect perfection or huge displays of perennial color. If something doesn't work, don't be afraid to rip it out and try again.

Don't give up. It doesn't happen overnight.

Don't go too big , just a few areas so your neighbors aren't upset. A whole front yard seems too much when I see them. Back yards are better choices for many neighborhoods

Don't plant trees too close to the house.

Don't be afraid to try out new plants or new combinations of plants and don't be afraid to move things if they don't work out where you plant them.

Don't use too many tall weedy plants. Have a clearly defined border. Do a good spring clean up. Group plants. Mix in some non native well behaved plants. Grow some herbs in grouping.

Educate yourself

Educate yourself and start to gradually incorporate native plants and mass plantings. Evaluate as you go and expect the change to involve effort.

Enjoy watching the insects and butterflies that will find your space!

First would be to start now if they have mostly traditional plantings as the changing climate is becoming more obvious in our own landscapes; to start with a small area to convert rather than a "do it all at once" (unless they can afford to hire it done) starting small ensures some immediate success and allows time to experience the new "look" that will often inspire a new perspective on what the homeowner considers "beautiful" and they'll want to do more. Many natives are slower growing and patience can be challenging. Positives are many but after the beauty of a naturalistic garden I think people are surprised and delighted with the abundance of life they will discover in their gardens with more butterflies, insects, birds. The decrease in the amount of water necessary after the first year or so will be another unexpected benefit.

Get help from extension folks

Give garden time, takes more than 1 season to mature

Give it a try-start small, can learn also as you go

Go in phases, don't try and do the whole thing at once

Group plants by their needs. Site those that need more water in a low spot or down stream from a downspout, baby them until they get established and then cut back on water. It's amazing how little water some of them really need. Don't try to do it all at once. Don't feel guilty about using non-natives occasionally. I will always use caryopteris in my yard because it ALWAYS blooms during fall Monarch migration and they love it.

HOAs may not approve. I am lucky that mine is pretty forgiving, but others in nearby neighborhoods would not be allowed to have such a large naturalistic garden. Our daughter's new neighborhood nearby has to have HOA approval for removal/replacement of every single shrub/tree.

I feel like I am creating a habitat for swarms of paper wasps who make damaging nests on my house and now some hornets

I have a relative who spends 5 times as much time as I do maintaining a monoculture lawn in the same area in which I have a garden and natural landscape brimming with wildlife and garden produce. I would share that a naturalistic landscape takes some time to develop but anyone can do it.

I have to keep it simple because I don't have the time to work the plantings over. Also I have to get a self supporting community going where desirable plants crowd out the weeds for the same reasons. Everything looks a lot better that way too.

I just love my naturalistic landscape; but it needs to have plants within it that are evergreen throughout all the seasons. That's the trick;, IMHO

I keep my front yard neat and tidy but use beds in the back yard for naturalistic and wildlife friendly plantings.

I live in the country with neighbors far away...I do not have to deal with City ordinances, etc., but know of people that do. This is certainly something to be considered and the overall maintenance of the sight, regardless of location, should be highly considered when designing.

I love most of the nature that frequents my backyard. There are a few critters that are not so welcome, like the pack rats, mice, harmful insects and water snakes, I try to live and let live until they interfere with my koi or my gazebo, plants shrubs and general safety for myself and my grandchildren and dogs.

I really struggle with the notion of killing everything off with chemical in order to plant natives. It just seems counterintuitive but I clearly struggle to establish the perfect prairie absent doing this first. I'm happy with my choice here but the journey to success will be longer. The deer like these non-native grasses I refer to, especially in Jan/Feb, so they do serve a purpose in our savanna.

I would say that a persons yard is a very personal decision. I have seen some very beautiful naturalistic yards (well kept and maintained). I have seen some very poorly maintained "natural" yards that I would be ashamed to live next to. For some people, a single species yard, well maintained, is a source of tremendous satisfaction! They may have a job where there stuck inside all week. Coming home and mowing a maintaining a yard is for them maybe the "one thing they can control" and exceed in. Mowing the yard is one of the few jobs that you can see the immediate satisfaction and accomplishment of completing something that turns out nice. I understand that and I feel satisfied when I mow the grass around my house! For me, whether it is a manicured lawn or a naturalistic landscape, each can be an individual work of art (for that individual). Each will derive a level of satisfaction. My brother in Tucson, AZ has a rock (gravel) yard since water is short. I assume for him, he derives a level of satisfaction from that... especially since there is not much else he can do!

I would suggest that if people had an interest in preserving the world they would give up chemicals and appreciate what nature gives us, and one way to do that is to give up the manicured look and go wild to provide for and protect all different species--including humans.

If you can't create a naturalistic landscape in your front yard due to HOA rules, utilize space in your back yard! It's also been fun and helpful to learn about the different insects (both beneficial and pests) that native plants attract.

Intersperse flowers that the public recognize...zinnias, cosmos, sedums, asters

It DOES need some maintenance. It is not plant it and forget it.

It does take time, physical ability to do the work, access to consultants with knowledge of possibilities and "how to" suggestions, understanding that some folks will see it as "too much work"!

It feels good to be doing something good for the earth

It is NOT maintenance-free! It still requires management to keep out weeds and other invasive plants.

It is difficult to keep weeds and small trees out of the area.

It really wasn't a low maintenance as all my neighbors thought. The color I was able to infuse was a plus.

It's going to look messy sometimes but bees and pollinators will love it.

It's just such a joy to me to see which plants thrive in my different spots in my yard. I love getting to know my house and my place in this neighborhood/city/world through this practice.

It's not rocket science. Don't be afraid to experiment. Choose the plants you like that are appropriate to your conditions.

It's time consuming if you want it to look nice. You have to stay on top of pulling weeds or they will take over the native plants. More of a high maintenance Landscape

K-State lacks publications and public resources on this topic

Keep trying - don't give up.

Keep working on it.

Learn more about insects that are part of this type of planting, ie, aphids, milkweed bugs, etc that come to the orange butterfly milkweed plants. Don't need to kill everything. Learn how long it takes for things to get established. Be aware of plant spread and how they propagate.

Looks a bit messy but really fills out mid-summer

Making an attractive composition of plants is a challenge.

Many plant species do not do well near the eastern red cedar. Know your limestone rock for landscaping some are harder and more durable than others. Use deer resistant species.

SURVEY DATA CONTINUED

My limited experience is it is very low maintenance and people enjoy it.

My yard attracts lots of birds, squirrels, possums, deer, etc. I do not attempt to keep any of them away. I have a lot of shade and have had a hard time figuring out what plants work best in those areas. I love being creative in my yard. I also love the fact that I don't have to apply chemicals or do much time consuming maintenance.

Natives spread! I think you have to accept that you are going to have a wandering garden if you plant a lot of native plants. I had to come to terms with the movement of the garden and working around the natural tendency of the plants to spread out, reseed, and pop up in other areas of our yard.

Natural planting is a big plus for bees, other pollinators, birds. Looks lovely mixed with mown lawns. Less water and maintenance costs than turf lawns.

Naturalistic landscapes still require management. Otherwise they quickly get out of control and look unkempt. Not a look that is accepted in a standard city sub-division.

Naturalistic needs to be carefully orchestrated to provide color, texture and movement. Different seasons look better than others unless the designer is mindful of seasonal deficits and deaths which is often why naturalistic gardens are not appreciated in a manicured HOA.

Need to have patience and fortitude to out-smart the wind, lack of humidity and sparse rain. Also, overcoming the persistence of wild animals.

No

No

No

Once established the native landscape is beautiful and attracts many birds, butterflies and beneficial insects which are a delight to watch. The soil benefits from the use of compost and allowing the winter plant material to stay in place along with the leaves.

Once established, it takes less input producing more output and the gardener's well-being. What Oudolf referred to as Emotive landscape. It's alive and well, instead of dead and uninteresting.

Patience

Patience is hard but essential

Pay attention to what species is already around you. Try for those types of plants/plantings. Don't be afraid to incorporate unique logs or stumps, adds dimension, visual interest, and it's intrinsically part of nature, and all beautiful in it's their own way. Remember if you are trying to "invite" nature back into your yard, you can't be picky on which nature comes visiting- nothing is "deer or rabbit proof". You have to find a happy middle of the road, mix plants they don't like the taste of into the plantings of their favorites (hostas/hydrangeas). It's a constant ebb and flow of what works and what doesn't, just get out and do it. You won't be sorry.

Personal pleasure in seeing beauty a different way from our currently conventional gardens. The pleasure and enjoyment of creating a "live" garden with insect and bird activity. Remember native plants take a few years to settle in, be patient.

Prepare yourself to understand why it is important. This can be done on YouTube.

Read up on characteristics of natives you intend to incorporate in your gardens, such as height, vigorousness, and which pollinators it attracts (you don't want a favorite of bees planted around an outside searing area).

Realize nothing will ever be "perfect" but the wildlife doesn't care and that is the whole point! Be patient. Stop using chemicals indiscriminately. It takes a while for everything to balance out-the insects, the birds, the diseases and the plants. When it does, you will be so happy with the results.

Research

Research and understand your area and what your expectations are.

Research the plants you intend to grow! Some can be invasive and very difficult to eradicate once established. The amount of wildlife visiting your yard grows exponentially with native plantings!

Seek some professional advice, even if it's just at the garden center/nursery. Knowing how something is going to look when it's mature is so helpful.

Sourcing native plants can be a challenge, as always right plant right location.

Start slowly with reading and visiting naturalistic gardens. Do nothing until you have EDUCATED yourself about plants and their buddies, the microbes and the insects. Be honest with yourself about your level of commitment and available time to maintain. Start very small and draw your design on paper before planting a single plant. Never plant a specimen unless you have studied it to ensure that your space is appropriate for it to thrive. PATIENCE is essential. Naturalistic gardens are not necessarily easier, but are so much better for your soul as you learn to be part of natural processes.

Start small and work your way up. Not everything grows just anywhere.

Start with a manageable area then expand. The birds and insects will reward you.

Still do some mowing but a lot less energy wasted mowing less grass. Low maintenance in fall cleanup, as in - I don't do it. Love the 'soft landings' approach to material under trees, leaving it in natural state thru the winter. Enjoy an abundance of birds and pollinators since we don't disturb their winter homes. Advise people that there is no such thing as "NO" maintenance, but "Low" maintenance is achievable. Sorry for those who have to deal with HOA's as they adapt/move to natural landscapes, don't have those in our rural setting. Hope that city codes become more accommodating. Native plantings are highly recommended, but don't have to sacrifice non-native favorites (as long as they're not invasives); a blended landscape is wonderful.

Take time to plan, do your research, plant the right plant in the right place. Native plants take time to established but worth it.

Takes time. Lots of trial and error. Always changing.

The challenge is having Neighbors who applied the design with no education or understanding. Their yards look terrible and it makes a negative impact on people who are trying to do it correctly.

The challenges is that plants can move, and you need to be willing to sometimes embrace that. However the biggest challenge is keeping woody seedlings from cropping up. We are in an urban forest, and we get some unwelcome visitors that can take over. We do get more, bees, butterflies, birds and wildlife in general. Because we embrace the whole yard we are able to use a wide array of species. Our yard is also a few degrees cooler than surrounding properties. It is a natural area and park on a 50x120 urban lot!

The greatest positive is watching nature just explode around you; watching the butterflies, birds, bees, and all the insects flying about. Walking through the neighborhood with the traditional landscapes of lawn and a few shrubs and trees scattered here and there are just dead, with an occasional bird just flying through. It is just such a stark contrast. The greatest challenge is getting rid of the old landscaping with invasive plants and now what has died with the changing weather and drought. I have to replant with the old roots and poor soil and it's hard to overcome that.

The increase in birds and other wildlife in my yard has been exponential. The beauty is not limited to the plants, it extends to the butterflies and bees, and birds that constantly visit what they see is a more accommodating landscape.

The main positive would be the reduction in chemical fertilizers with native plants and the reduction in water required to keep plants alive.

The more work you do planning, the more time it saves you down the line.

The planning is always a challenge. The uncertainty and lack of confidence is sometimes draining.

The positive for me is that I love spending the time outside and learning about the benefits of natural landscapes for our wildlife and our planet.

The time I spend in my yard is enjoyable instead of being a chore.

There is more visual interest with a naturalistic landscape compared to a lawn.

They are not maintenance and weed free. Not aware KS has any publications. I'll recheck. Master Gardeners think everything, including natives, need amended and mulch mulch mulched conditions. HOAs are the biggest problem.

They need to come listen to all the birds and insects in my garden. There are animals here 12 months a year, and all kinds of birds year round, without artificial birdfeeders. It is extremely peaceful, and well worth all the work I put in. I teach them how to grow perennial native plants using the winter sowing method and they are shocked at how easy that is. They are also surprised at how water soaks in, at how little I ever water anything, and how I don't seem to ever have the mud they have. I worked hard on swales that are so gentle most don't notice them. I mow very infrequently as I have buffalograss and microclover.

Use as many native plants as you can. Got to local nurseries instead of Big Box for advice. Ask fellow Master Gardeners and KState resources for advice .

Very rewarding. I'd say ask for forgiveness rather than permission.

Watch out for aggressive plants

Watching the pollinators and wildlife is an added benefit. It takes work to maintain a naturalistic landscape so it doesn't grow out of control.

SURVEY DATA CONTINUED

We live in the sandhills and have a fescue lawn with sprinklers over the "lawn" area but would like to have buffalo or lower maintenance, less water required. If no grass, stickers take over. Finding help to accomplish this has been an unfulfilled challenge. Working on changing strategy to groups/areas of plants that will be self-sustaining, but it is a slow transition.

Weather is a big factor to success. Get info from extension or master gardeners' websites and materials.

Weeding still needed, but less as you keep on it. Surprised by how it is filling in after 1st season. Interesting to see the changes through the year.

With any landscape, know your plants. Design is about contrast- color, texture, size etc. Have fun and keep learning and experimenting.

Working with shade has been the most challenging. I have big trees, and most Kansas native plants are sun loving. I try to use natives where I can.

You cannot do it all at once so start early. I wish I had this information 40 years ago.

attracts critters for the coverage it provides

challenge of dealing with weed pressure

consider drip systems or xeriscaping

get spouse or other living mates on board

hard to find sources for plants,

incorporate a diversity of colors, bloom timings, and plant structures.

my front yard is largely naturalistic. It looks lovely in the spring, summer and fall. The winter season is mostly dormant, so that's disappointing. Most yards tend to be like this in the winter

native plants that come back year after year take several years to fully produce, and even then the flowering each year is for a short time compared to flowering annuals. Knowing which native is correct for the soil composition, the sun/shade composition, and the eye appeal is challenging. Obtaining the corrective native for the soil composition, the sun/shade composition, and the eye appeal is challenging.

pollinators will come and are very interesting to observe

the tree plant today may be costly to remove in 30 years Beware of thug ground covers they take over the world Persimmon trees spread by their roots and will take over your vegetable garden Bringing in fresh manure to enrich the soil insures a fresh crop of invasive weeds usually bind weed. Manure benefits vanish in two years keep on shoveling Quince has thorns and never stops growing Dwarf plants are no longer dwarf after 25 years Brush killer can spread through the roots and kill other nearby plants 17 yr Cicadas kill a lot of young branches Skunks like to live under buildings All kinds of birds fly into large windows and die it is illegal to keep them call a wild life center Red birds repeatedly fly into your windows and sound like someone is throwing baseballs at your home. They also leave greasy smears Woodpeckers would like to drill hole in the side of your house and move in Was always nest over a doorway Terminal animals will always die in your yard The more you fertilize a yard the more you have to mow it Rename your weeds to make them socially acceptable dandelions are now imported German carpet mums, hen bit is K-State purple Haze Matt If you planted you must water it the first year and during drought Feeding wildlife increases wildlife scat Lineman clearing electrical lines will always Park their huge trucks on your lawn and flower beds Cable companies will always leave the lines on top of the ground until you slice them for the 10th time Anything you plant close to the road the snow plow will cover with salt Hail storms always come a week after you plant your broccoli Don't believe everything you read in a plant catalog Sound advice it changes year by year even when you get it from the same expert Covid and any other ailment always strikes during perfect weather when you need to be outside doing maintenance work. Being housebound really makes gardeners CRABBY

those people who have lawns but fail to maintain leaf removal for the grass. It you have deciduous trees & shrubs it complicates naturalistic plantings... all of the photos in this survey seem to represent a really small window of time in a year of landscape care.

Q31 - How inclined would you feel to report a resident if you felt their landscape violated city / Homeowner Association (HOA) ordinances?

#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Move the slider to best fit your response.	0.00	5.00	1.31	1.39	1.94	246

Q32 - Do you think a naturalistic landscape compared to a neighborhood of manicured
(short mown) lawns lowers a community's sense of unity?

#	Field	Choice	Count
1	Yes	11.15%	30
2	No	65.43%	176
4	Unsure	23.42%	63
			269

Q34 - Are you a resident of Kansas?

#	Field	Choice	Count
23	Yes	94.44%	255
24	No	5.56%	15
			270

Q35 - What is your zip code?

67601	11	66210	4	67217	2	66207	1	66762	1
66061	10	67212	3	66217	2	66547	1	67219	1
66049	9	67204	3	66227	2	67215	1	66054	1
66212	7	66048	3	67052	2	66604	1	67228	1
66109	7	67530	3	67235	2	66413	1	66839	1
66204	7	66012	3	66219	2	66605	1	66502	1
66106	5	66220	3	66071	2	67277	1	66205	1
67206	5	67218	3	67205	2	66609	1	67301	1
66047	5	66801	3	66002	2	67432	1	67002	1
66044	5	66938	3	66067	1	66610	1	67423	1
66206	5	66215	3	67544	1	67501	1	66218	1
66213	4	67401	2	66111	1	66611	1	67449	1
66503	4	66006	2	66528	1	66086	1	67147	1
66221	4	66030	2	67211	1	66614	1	67481	1
66203	4	66085	2	66023	1	66066	1	67152	1
66223	4	67232	2	66439	1	66618	1	66509	1
66062	4	66531	2	66535	1	66209	1	67156	1
66208	4	66046	2	67466	1	66725	1	66202	1
67226	4	66216	2	66544	1	66224	1	67202	1
								66521	1

SURVEY DATA CONTINUED

Q36 - In which state or country is your primary residence located?

In which state or country is your primary residence located?	
Missouri	
Minnesota	
Kansas	
Missouri	
Nebraska	
Missouri	
Missouri	
Missouri	
Missouri	
Mo	
Missouri	
Missouri	
Nebraska	

Q37 - What is your gender?

#	Field	Choice Count
3	Female	76.87% 206
4	Male	21.64% 58
11	Choose not to provide	1.49% 4
		268

Q38 - How old were you at the end of 2023?

#	Field	Choice Count
2	18 - 29 years	1.49% 4
3	30 - 39 years	5.58% 15
4	40 - 49 years	9.29% 25
10	50 - 59 years	8.55% 23
11	60 - 69 years	36.43% 98
12	70+ years	35.69% 96
13	Choose not to provide	2.97% 8
		269

Q39 - What is your current employment status?

#	Field	Choice Count
2	Not Employed	2.22% 6
3	Part-time	8.52% 23
4	Full-time	24.07% 65
5	Retired	64.44% 174
6	Student	0.74% 2
		270

Q40 - What is your Race? (Check all that apply)

#	Field	Choice Count
1	American Indian or Alaskan Native	0.74% 2
2	Asian	0.74% 2
3	Black or African American	0.37% 1
4	Native Hawaiian or Other Pacific Islander	0.00% 0
5	White or Caucasian	90.74% 245
7	Choose not to provide	7.41% 20
		270

Q41 - What is your Ethnicity?

#	Field	Choice Count
1	Hispanic or Latino	1.50% 4
2	Not Hispanic or Latino	90.23% 240
3	Choose not to provide	8.27% 22
		266

Q42 - How large is your property size?

#	Field	Choice Count
2	Less than 5,000 sq ft (0.11 acres)	9.57% 22
3	15,000 - 30,000 sq ft (0.34 - 0.69 acres)	19.57% 45
4	30,000 - 45,000 sq ft (0.69 - 1.03 acres)	10.87% 25
5	45,000 - 60,000 sq ft (1.03 - 1.38 acres)	3.04% 7
7	Unsure	2.61% 6
9	5,000 - 15,000 sq ft (0.11 - 0.34 acres)	33.48% 77
10	> 60,000 sq ft (1.38 acres)	20.87% 48
		230

SURVEY DATA CONTINUED

Q43 - How large is your lawn (routinely maintained) space?

#	Field	Choice Count
1	Less than 5,000 sq ft (0.11 acres)	35.34% 82
3	5,000 - 15,000 sq ft (0.11 - 0.34 acres)	28.88% 67
6	> 60,000 sq ft (1.38 acres)	8.62% 20
7	Unsure	4.74% 11
8	15,000 - 30,000 sq ft (0.34 - 0.69 acres)	12.93% 30
9	30,000 - 45,000 sq ft (0.69 - 1.03 acres)	5.60% 13
10	45,000 - 60,000 sq ft (1.03 - 1.38 acres)	3.88% 9
		232

Q44 - Add any additional comments.

Add any additional comments.

I am removing lawn little by little

The area that we maintain is planted to buffalo grass. Only half of this area has an irrigation system.

Great designs make a Difference as does proper maintenance.

I have reduced lawn to add gardens and trees.

At least 1/2 acre they tell me. Everyone says it's big. I love data and statistics but not in my garden

Limited by zoning laws, health and mobility constraints, poor urban soil.

Home is on lakefront in county.

I started with a garden in my hell-strip because grass didn't grow well there, and now I've transformed almost all of my flower beds/added new flower beds + trees to native.

There are answers that could be 'it depends.' What part of the state do you live? Natural rain and soil type? Your woodland example doesn't appear to be native plants. Looked very ornamental so I nixed it for that reason, not that woodland isn't desirable. Etc.

There is no grass in my front yard; it is plantings and mulch pathways. My back yard has grass that is mown and we add new plantings every year to make the grass part smaller.

Good project. This kind of thing would work well out where I live. I expect in town would be a challenge. The kind of native landscape you're talking about takes maintenance that most homeowners aren't used to and can quickly go from looking nice to a weedy looking mess that would not be accepted in most subdivisions. I have a very large yard and can mess around a bit without anybody noticing much, but I'd still keep a traditional look in the front of the house.

Our yard is 1/4 of a city block. Approximately half of it is naturalistic, the other half lawn.

property is ringed with unmanicured (wild?) woods and approx. half of lot is wooded

I have fairly extensive landscaping that has been designed and adapted to require as little maintenance as possible and water only in extreme cases. Roughly 8000SF of turf are also watered at most 5-7 times per season and allowed to go dormant in drought. Roughly 45mins of mowing and trimming on a weekly basis, or 1.5 hrs during rapid growth of early season

It's hard to do this in a neighborhood, especially a prairie as it can appear messy. I don't report yards in my neighborhood but I do complain to friends but not so much as the settings I'm advocating for...just plant some natives and make it look nice. If it is done tastefully I can wholly accept it, especially for the pollinators.

I am glad that someone at K-State is doing this. We need to move forward with this type of landscape. Currently, there are so much confusion due to untrained professionals. Providing a quality certification would be helpful

really boring survey. Too many similar pictures and too many pages to click through.

Handicapped

Backyard is entirely beds, concrete, mulch No turf

I've been wanting to install a native landscape for years but I lack the ability to do it myself and finding a company/individual to assist has been the challenge

Enjoy looking at pictures or walking by natural landscapes for ideas.

Should explain the slider initially.

Sometimes one has to compromise with one's spouse regarding lawn vs. native garden esthetics.

Unity in a neighborhood is largely dependent upon how cohesive landscapes are done in a development/neighborhood. I think a planned community using these principles could be quite appealing and beautiful.

I live on a farm that isn't seen from the county road, so my landscaping is not hindered by what the neighbors think. Unfortunately, we have to haul water on to our property, so we have to water to keep plants alive, so I tend to look for drought resistant plants.

Most of our turf has been removed and replaced with vegetables, herbs, fruits, and native plants attractive to pollinators.

No

I live in a very traditional suburb-Leawood ,KS-very manicured yards and many yards done and kept up by companies

I am not opposed to naturalistic landscaping, but many people tend to abuse or go overboard and do not keep it from being overgrown which invites unwanted animals.

I actually don't maintain a traditional lawn.

I would LOVE to deep six the majority of my manicured lawn. We do not water the grass (although I suspect our neighbors would like us to). It's a gross mixture of crab grass and Bermuda. Ripping it out and creating a total natural landscape is daunting. And expensive.

I have no lawn, only occasionally mowed weeds and the rest either planting beds or natural (prairie, wetlands, savannah and woodlot) on my 27 acres. Obviously rural, so perhaps this disqualifies me from the survey?

We have a large shop on our property that takes up quite a bit of space.

Lawns don't need to be manicured golf courses, we need diversity in our ecosystems for things to thrive, but they also don't need to look like a city of pack rats lives there. Just because it is a more natural setting does not mean it cannot have nutritional and/or medicinal value. There are many things in my landscapes that can be eaten or used medicinally, and they are beautiful, and pollinators love them. Gardening is good for the body and soul, we all need to get back to it.

Very well designed survey. Thanks, congrats.

We live on 20 acres, a mixture of woods, pasture, lawn.

I am not against turfgrass in general, just it's overuse as a field. As I get more experience, Landscaping, I view it like the black lines in a coloring book. They help the rest of the pictures stand out, they are not the focus.

Thanks!

Backyard is entirely beds, concrete, mulch No turf

I've been wanting to install a native landscape for years but I lack the ability to do it myself and finding a company/individual to assist has been the challenge

Enjoy looking at pictures or walking by natural landscapes for ideas.

Should explain the slider initially.

SURVEY DATA CONTINUED

Sometimes one has to compromise with one's spouse regarding lawn vs. native garden esthetics.

Unity in a neighborhood is largely dependent upon how cohesive landscapes are done in a development/neighborhood. I think a planned community using these principles could be quite appealing and beautiful.

I live on a farm that isn't seen from the county road, so my landscaping is not hindered by what the neighbors think. Unfortunately, we have to haul water on to our property, so we have to water to keep plants alive, so I tend to look for drought resistant plants.

Most of our turf has been removed and replaced with vegetables, herbs, fruits, and native plants attractive to pollinators.

No

I live in a very traditional suburb-Leawood ,KS-very manicured yards and many yards done and kept up by companies

I am not opposed to naturalistic landscaping, but many people tend to abuse or go overboard and do not keep it from being overgrown which invites unwanted animals.

I actually don't maintain a traditional lawn.

I would LOVE to deep six the majority of my manicured lawn. We do not water the grass (although I suspect our neighbors would like us to). It's a gross mixture of crab grass and Bermuda. Ripping it out and creating a total natural landscape is daunting. And expensive.

I have no lawn, only occasionally mowed weeds and the rest either planting beds or natural (prairie, wetlands, savannah and woodlot) on my 27 acres. Obviously rural, so perhaps this disqualifies me from the survey?

We have a large shop on our property that takes up quite a bit of space.

Lawns don't need to be manicured golf courses, we need diversity in our ecosystems for things to thrive, but they also don't need to look like a city of pack rats lives there. Just because it is a more natural setting does not mean it cannot have nutritional and/or medicinal value. There are many things in my landscapes that can be eaten or used medicinally, and they are beautiful, and pollinators love them. Gardening is good for the body and soul, we all need to get back to it.

Very well designed survey. Thanks, congrats.

We live on 20 acres, a mixture of woods, pasture, lawn.

I am not against turfgrass in general, just it's overuse as a field. As I get more experience, Landscaping, I view it like the black lines in a coloring book. They help the rest of the pictures stand out, they are not the focus.

Thanks!

We welcome visitors and others with an interest in creating spaces for naturalistic landscaping. Our area is really the detention pond area of our property

Naturalistic landscapes are attractive in an appropriate setting. In my community, homes are very close together and yards are quite small. Naturalistic landscaping would look more like weeds as there is not enough space for mass planting variety. I don't believe this practice is suitable to every home landscape

I have a 10k sq ft lot with 3k sq ft maintained lawn. The garden is certified as a natural habitat by NWF and Monarch Watch. I began my pesticide free gardening around 2012. I began this in earnest around 2016 when I discovered the landscaping style of Piet Oudolf which morphed into a practice of gardening for wildlife. I stopped pesticides mostly out of concerns of the impact to pets and humans. I saw the results firsthand of how my small habitat attracted a diverse collection of insects, birds, and wildlife that does not require as much attention to pests. I manage pests when necessary via mechanical control.

Live in the county. Have a 14 acre fenced area from pasture for cattle. Many areas of native plants, naturalistic, shrubby areas, but still too much lawn. Will continue to decrease.

Rural property 20 acres

The lawn is mixed growth grass with lots of clover and weaves around between the garden beds that mostly surround the trees. We own two lots in our housing neighborhood.

Native landscapes in residential areas are the future. It must be implemented in a planned and responsible manner to prevent blighted properties. Unfortunately, at present the majority of the general public is not educated enough to know where to begin such projects or maintain them properly. Changes to municipal codes to allow native landscapes will need to be done in a very precise manner to ensure invasive species and noxious weeds are not allowed to proliferate. Development of strict standards and education will be key to successful implementation.

We've removed almost all of our lawn and replaced it with ground cover, flowers, native plants, fruit and veg gardens, and non-turf pathways.

I would love to have someone assist me in designing and implementing a native habitat in my yard

We are outside city limits, have a small lawn, but my questions have been answered regarding the extended property planted with KSU recommended species of grasses, forbs, shrubs, and trees. If honeysuckle and lespedezia had not invaded, it would have been a low maintenance, grand idea. Except for a modest lawn around the house, the rest of the 120+ acres are either original or restored.

I am a Johnson County master gardener. I realize that manicured lawns are an environmental disaster, and I am all for alternatives, if they can be done on an attractive basis.

You need an additional response for larger acreages and properties without lawns. I maintain 10 acres of landscaped native plants, ornamentals and ponds. It doesn't fit in these boxes.

I maintain my lawn in my front yard only enough to keep the grass alive. It is mixed Bermuda and fescue, it is fertilized twice in fall. The back yard has little lawn left, mostly paths to get around.

I think a clear definition of what a "naturalistic landscape" is in Kansas would be a good thing to define. (and even more so, the "naturalistic landscape" may look very different in Western KS, vs. Eastern KS.) Some of the landscapes you were having us compare in this survey were like comparing apples to oranges, yet you were calling them all "naturalistic"?

Big food producing garden, fruiting vines, shrubs and trees.

Moderation

We have acres of buffalo and have recently planted 3 acres of native grasses and forbs. We are a mom and pop greenhouse and nursery, I still maintain a green lawn of 8K sq. ft.

so far my natural landscape is in the back yard, but i would like to get it going in the front if i live long enough. i have lived in this house less than 2 years and the front was landscaped, but several shrubs are dying.

Q46 - Would you like to receive a link (via email) to the new naturalistic landscaping K-

State Extension publication in Fall 2024? Your survey response will stay anonymous.

#	Field	Choice Count
1	Yes	84.53% 224
2	No	15.47% 41
		265