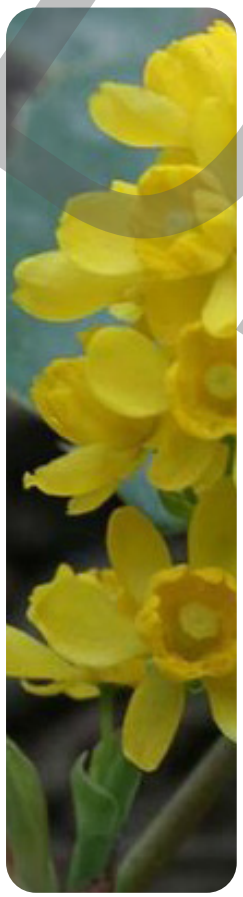
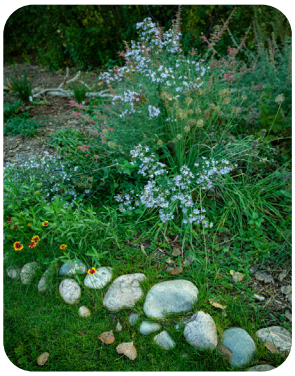
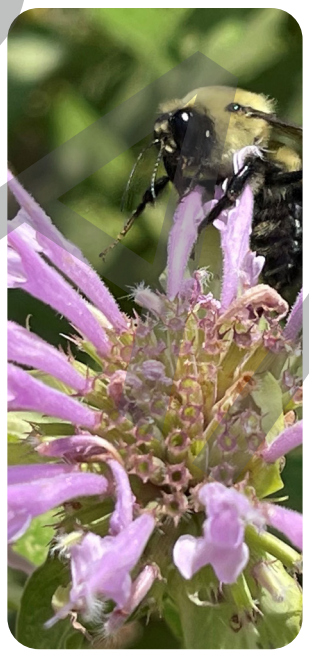
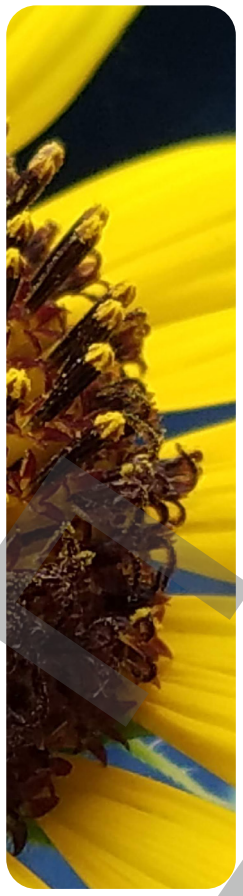
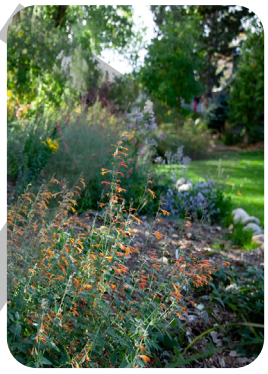
City of Fort Collins

Design Guide







Chapter 4: Low Water Lawn April 2024

An Introduction to Diversifying Urban Landscapes in Fort Collins

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City of Fort Collins

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Design Guide:

An Introduction to Diversifying Urban Landscapes in Fort Collins

Introduction

Overview of the Guide

The purpose of this guide is to showcase a wide variety of diverse urban landscape options in Fort Collins. This guide will help you determine which landscape options are best for you, whether you are a homeowner, renter, business owner, school, developer, or part of a Homeowners Association. The overarching goal is to provide inspiration for your next dream landscape.

The examples in this guide apply to Northern Colorado Front Range ecosystems, however the context may be appropriate for projects in other regions, as well.

In this guide, you will find an introduction and the main considerations needed for installing each landscape option. Tips for design, installation, and maintenance are included in each chapter. In addition, each landscape option comes with its own curated plant list to help you select plants that will thrive in your landscape.

Thank you for creating diverse, beautiful, and resilient landscapes!

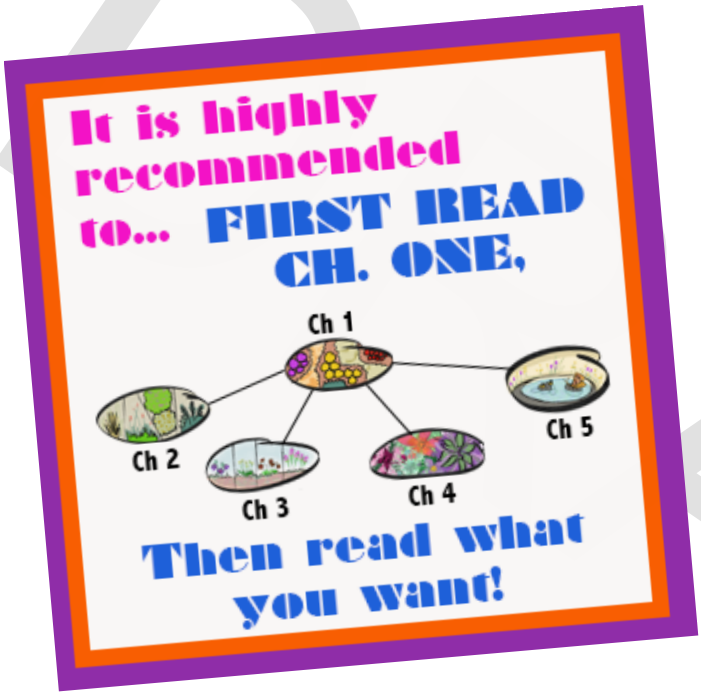
Why Diversify Landscapes?

Diverse landscapes are beautiful and resilient. They contain a variety of native and adapted species that provide important habitat and resources for wildlife and pollinators. They are naturally adapted to the Front Range's semi-arid climate and native soils, which translates to lower water and chemical inputs, and a better ability to withstand short- and long-term changes in climate. They invoke a Colorado landscape aesthetic and establish a sense of place. Spending time in them benefits our physical and mental health. In short, moving towards diverse landscapes is more sustainable and brings nature into the city, which provides considerable ecological, economic, and social benefits.

The use of plants that are native to Colorado is highly encouraged when you diversify your landscape. Native plants have evolved here and are adapted to our climate and soil types. In addition, our local pollinators and wildlife co-evolved with these plants and many are dependent on specific native plant species for survival. As such, native plants form the base of local food webs. However, it is also important to recognize that native plants may not be appropriate in all situations, e.g., your aesthetic preferences, the level of activity on site, HOA policies.

Navigating the Guide

This guide is broken into chapters (see Table of Contents), which primarily revolve around different landscape options (e.g., Pollinator Gardening, Lw Water Lawn). The guide also includes chapters on other relevant landscaping topics (e.g., Soil Amendment, Weed Management). It is highly recommended to start with Chapter One – Site Characteristics and Planning.



Within each chapter, you will find information on the following (when applicable):

- Overview of topic
- Physical requirements
- Design examples or case studies
- Irrigation
- Maintenance
- Plant list
- Additional resources
- Installation tips
- Fun fact!

FUN FACT

Converting your yard from turf to a xeriscape and or native garden is On TREND!

Over 390 residential projects in Fort Collins were granted Xeriscape Incentive Program (XIP) funding for a total of 462,100 square feet of converted landscape. That is 10 acres or approximately 7.5 football fields!

XERISCAPE INCENTIVE PROGRAM

fcgov.com/xip

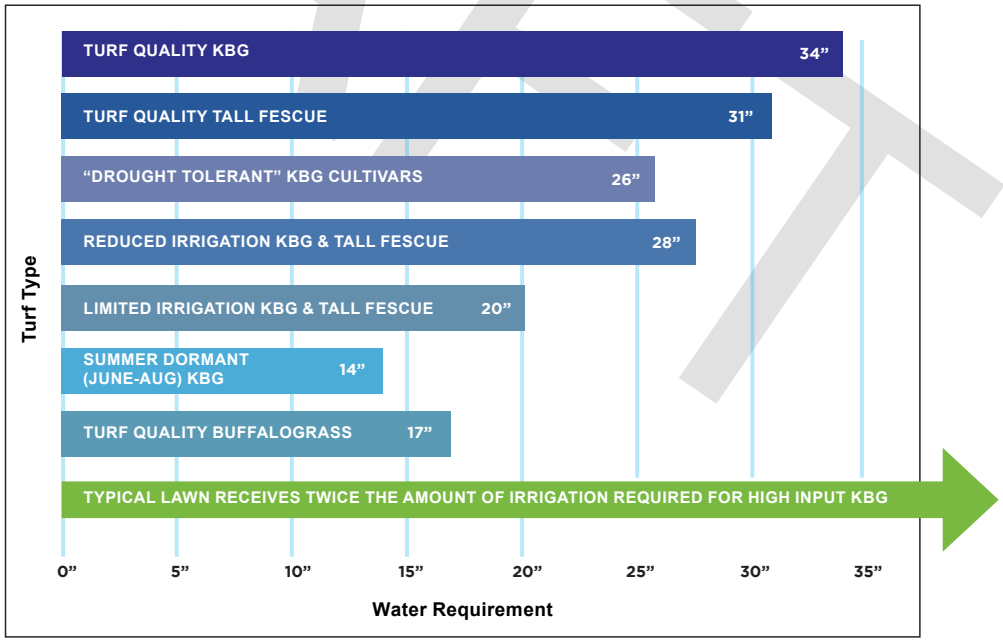
Definitions	
Adapted Species	Non-native species that grow well in a given habitat with human adjusted changes to the environment such as water or nutrients.
Aggregate	A material or structure formed from a loosely compacted mass of larger soil or rocks.
Aspect	The direction the land is facing. eg: north, south, northeast etc.
Cues to Care	(CTC) are landscape elements that are immediately recognizable as designed, and that signal continuing human presence to care for a landscape.
Complementary Colors	Colors opposite from each other on the color wheel. They have a strong contrast that increases how noticeable they are when placed close together.
Exotic Plants	Plants not native to the area where they are planted.
Forb	A herbaceous flowering plant that is not a grass.
Hydrozone	Areas where plants with similar water needs are grouped together - very low water, low water, medium water, and high water plants should be grouped by water needs.
Impervious Surface	A hard surface that does not let water soak into the ground, causing puddling or resulting in runoff.
Larval Host Plants	Plants required for the growth and development of insect larvae such as caterpillars. Butterflies are often particular about the species where they host their eggs to support the larva.
Microclimate	Small areas that have a different climate than the overall climate of a site. They can be created by structures, topography, water, boulders, and impervious surfaces.
Native Plant	A plant species that grew in an area before colonization of that area.
Organic Matter	Any of the carbon-based compounds that exist in nature or material that comes from living things. This can include carbon-rich soils, manure, mulch, or compost.
Perennial	Any plant that persists for several years, usually with new herbaceous growth from a part that survives from growing season to growing season.
Permaculture	Permacultre stands for permanent agriculture. It uses whole systems thinking to create spaces for planting that encourages naturally flourishing ecosystems.
Pruning	Selective removal of certain parts of a plant such as branches, buds, or roots.
Resilient	Ability to bounce back after experiencing a setback.
Slope	A surface of which one end is at a higher level than the other; a rising for falling surface.
Soil Amendment	Anything that is added to a soil to improve water retention, nutrients, or drainage.
Xeriscape	Principles of sustainable design including use of low water plants, and sustainable gardening techniques.

Chapter 4
Low Water Lawn

Northern Colorado has a semi-arid climate and receives, on average, only 16 inches of rain each year. With a rapidly growing population and the increasing impacts of climate change, there is concern about the future of water security on the Front Range. Urban lawn watering is the single largest demand on most municipal water supplies because traditional Kentucky bluegrass (KBG), the most common grass species used for turf, requires a lot of water to keep it from going dormant and turning brown during the summer.

If you want to conserve water and reduce your water bill, you don't have to eliminate turf altogether but instead consider how you can reduce the amount of turf in your yard. In addition to reducing turf size, you can also convert high water turf to low water turf. Converting a traditional Kentucky bluegrass lawn to a low water turf variety, can reduce your water usage by up to 75%.[1] A 5,000 sf plot of Kentucky bluegrass needs on average 18,500 gallons of water a month, while the same area of buffalograss would need only 3,000 gallons once established.[2]

If you want to make the switch to a low water landscape, don't forget to check with your utility company to see if they provide incentives. Many utility companies in Northern Colorado offer incentive programs that will pay you to convert to low water landscaping. The City of Fort Collins has several programs such as the Xeriscape Incentive Program.[3]



This graphic from CSU Extension compares the seasonal water requirements (including rainfall and irrigation) of different lawn options.

1. https://extension.colostate.edu/topic-areas/yard-garden/buffalograss-lawns-7-224/#:~:text=Buffalograss%2C%20a%20%E2%80%9Cwarm%2Dseason,hard%20frost%20in%20the%20fall.

2. https://extension.colostate.edu/topic-areas/family-home-consumer/water-conservation-in-and-around-the-home-9-952/

3. https://www.fcgov.com/utilities/residential/conserve/water-efficiency/xeriscape/incentive-program

Key Considerations When Converting to Low Water Turf

USAGE: Will this area have high usage? Consider whether the species you select are durable for high activity areas. The City of Fort Collins requires irrigated turf grass in high usage areas.

SOIL: Have you done soil testing? Will the species you are selecting do well in your soil type?

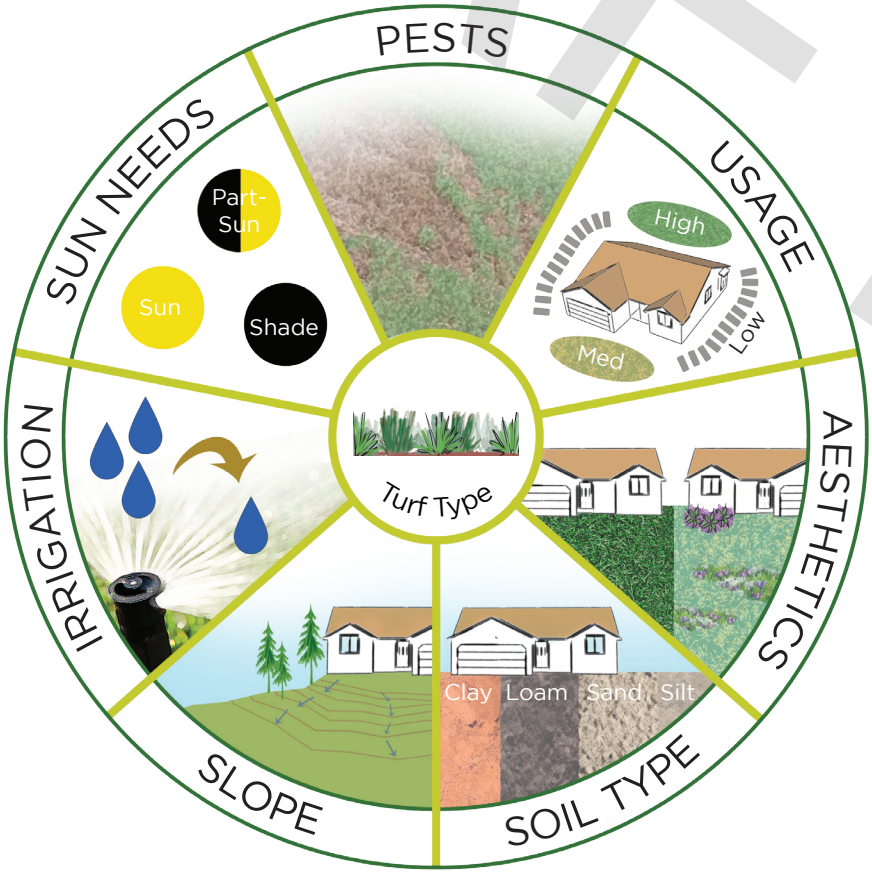
SLOPES: Will your turf be on a slope? Slopes, particularly south or west facing, tend to be drier. Grass species selection is important for these types of sites.

AESTHETICS: Do you want a more traditional looking lawn? Or are you okay with the more natural look of native turf?

IRRIGATION Irrigation systems often need to be retrofitted for low-water turf. Low water turf will need to be in a separate zone from traditional turf and pop-up heads may need to be converted from 4” to 6” heads.

PESTS: Is there a history of disease or insect issues in current turf? Native turf is more resistant to these issues.

SUN: How much sun does the area being converted receive throughout the day? Kentucky bluegrass and tall fescue fares okay in partially shade conditions while native turf species require full sun.

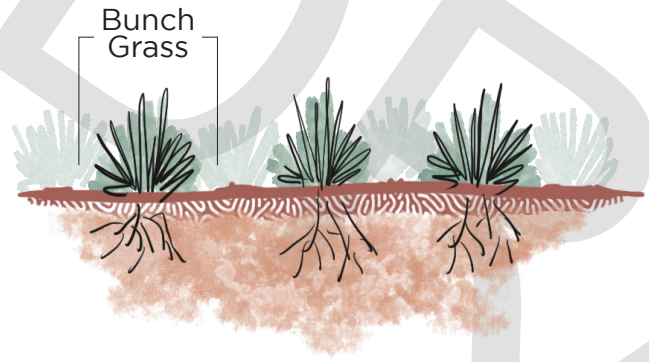


What is turf grass?

Traditionally, turf is composed of non-native grass species. In Colorado, the most common species used for turf are non-native Kentucky bluegrass (*Poa*), fescues (*Festuca*), and rye grass (*Lolium*) species that have high water, maintenance, and fertilization needs. Conventional non-native turf can be replaced with more drought tolerant non-native grass species, native turf species, or low water perennial beds. Turf grass encompasses a variety of grass species adapted to frequent mowing and foot traffic. Turf grass species are selected for traits such as tolerance to shade, drought, foot traffic, and disease resistance.

Types of Grass and Definitions

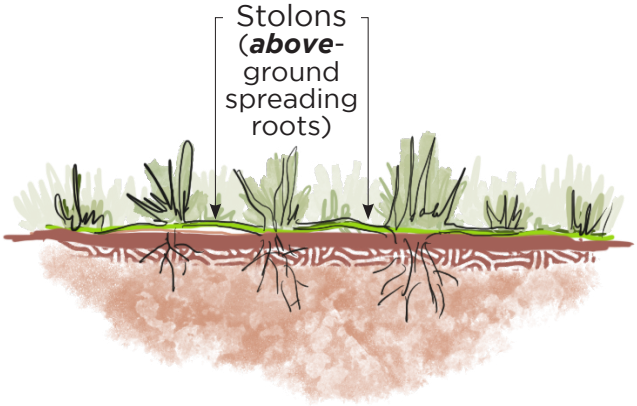
- **BUNCH GRASS:** A grass that grows in clumps and reproduces through seed dispersal. Low water turf is sometimes comprised of bunch grasses. Example: Blue Grama



Example: Blue Grama
Photo courtesy of Lady Bird Johnson Wildflower Center

Blue Grama Lawn
Photo courtesy of Colorado Springs Utilities Xeriscaping

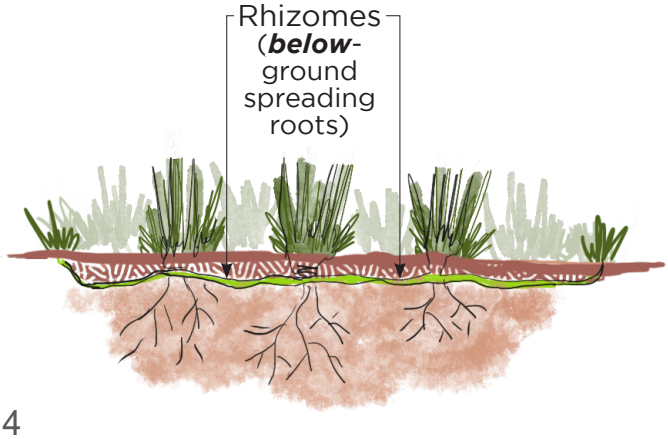
- **RUNNER GRASS:** A grass that grows using stolons to reproduce, sending out runners, and creeping outward along the ground. Example: Buffalograss



Example: Buffalograss
Photo courtesy of City of Fort Collins Recommended Plant List Database

Buffalograss Lawn
Photo courtesy of Dyck Arboretum

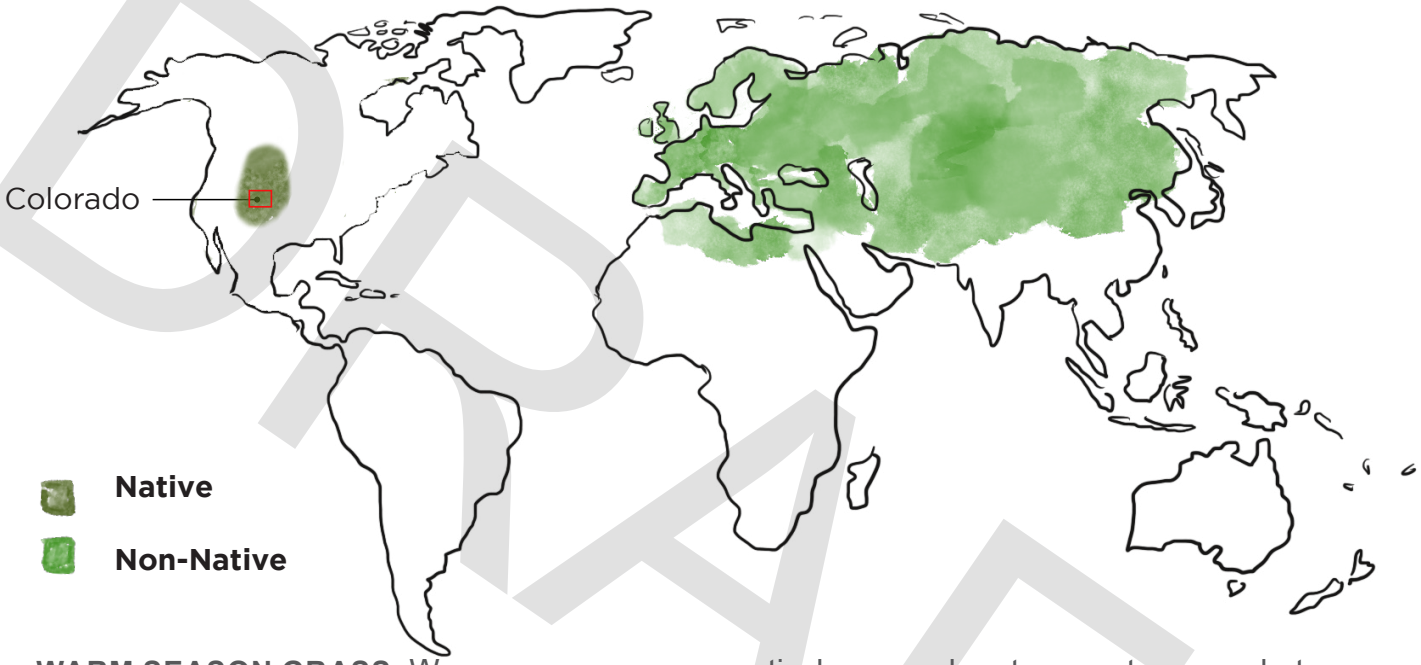
- **RHIZOMATIC GRASS:** A grass that has continuously growing, horizontal or underground stem, which puts out lateral shoots and adventitious roots at intervals. Example: Bermuda Grass



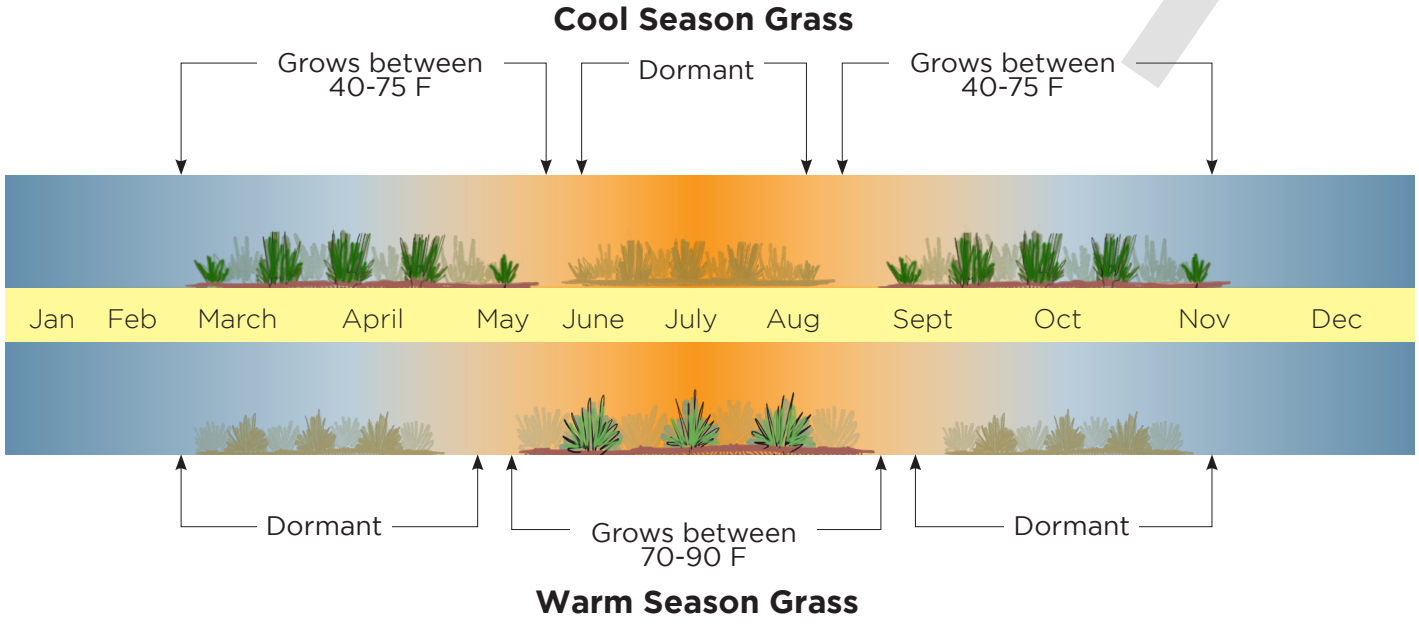
Example: Western Wheatgrass
Photo courtesy of City of Fort Collins Recommended Plant List Database

Western Wheatgrass Lawn
Photo courtesy of Western Native Seed

- **NATIVE PLANT:** A plant species that evolved and occurs naturally in a particular region, ecosystem, and/or habitat.
- **NON-NATIVE PLANT:** A plant introduced to a new place or new type of habitat where it did not evolve and was not previously found. Note: Not all non-native plants are invasive.



- **WARM SEASON GRASS:** Warm season grasses actively grow when temperatures are between 70-90 F, approximately May-September, and are dormant the rest of the year. Example: Blue Grama
- **COOL SEASON GRASS:** Cool season grasses actively grow when temperatures are between 40-75 F, approximately March through October. These species are dormant during the hottest parts of summer and the winter. Example: Kentucky Bluegrass



Low Water Turf Options for Northern Colorado

Turf Species	Advantages	Disadvantages	Growth Season	Water Needs	Planting Timing
Buffalograss *Buchloë dactyloides* **Blue Grama** *Bouteloua gracilis* **Turf Type:** Native	• Requires minimal water once established • Good for sunny areas • Very heat & drought tolerant • Goes dormant when stressed & can stay dormant for long periods • Requires less inputs and improves soil • Minimal labor and Inexpensive to maintain	• Not very traffic tolerant during dormancy (Oct-May) • Weed control can be a problem • Doesn't perform well as a lawn above 6,500ft elevation • Doesn't perform well in shady areas	Warm	Low	Seed: April-July Plug/Sod: June-mid Aug
Kentucky bluegrass (low water cultivars) *Poa pratensis* **Turf Type:** Non-native	• Tolerates heavy traffic • Some drought resistant varieties are available • Goes dormant when drought-stressed • Can survive several months of drought • Good for yards with dogs/kids	• Requires regular supplemental irrigation • Some disease and insect problems • Requires more maintenance and fertilization	Cool	Med	Seed: Mid-Aug-Sept Plug/Sod: Spring or Fall
Tall Fescue *Lolium arundinaceum arundinaceum)* **Turf Type:** Non-native	• Shade tolerant • Tolerates heavy foot traffic • Has few disease or insect issues • Bunch grass that won't spread • Doesn't require a lot of fertilizer	• Requires supplemental irrigation • Can develop bare spots that will need to be reseeded	Cool	Med	Seed: March-early June; mid-Aug-Sept Plug/Sod: Spring or Fall
Plant Select, Dog Tuff* *Cynodon sp. 'PWIN04S'* **Turf Type:** Non-native	• Drought tolerant and resistant to dog urine. • Grows well on dry slopes. • Does well with moderate foot traffic and recovers quickly from heavy usage.	• Has the potential to be weedy and spread aggressively through stolons. Should only be planted in areas surrounded by hardscape.	Warm	Low	Plugs: late May-mid July

* The City of Fort Collins does not allow this species to be planted adjacent to Natural Areas, Natural Habitat Buffer Zones, Certified Natural Areas, and other ecologically sensitive areas.

Preparing to Plant Low Water Turf

Before converting to low water turf you will have to kill or physically remove the existing vegetation including pre-existing turf. The timing of this process depends on which method you choose to physically remove or kill turf. Your removal method will also depend on how you plan to establish your new low water turf. If you are seeding or using plugs, any method will work. If you plan to install new sod, you will need to use a sod cutter to remove your current sod. For more information on the different methods and to find out what will work best for your space, check out the Turf Removal Chapter 6.

Tilling your soil or scalping your lawn is not recommended. These methods are not effective for killing turf. Tilling will disturb the soil and encourage weed growth. Grass will grow back after being scalped. Kentucky bluegrass is persistent and will not be killed by tilling or scalping.

If your irrigation system needs to be retrofitted to accommodate your new low water turf, check with an irrigation specialist, or contact your water utility company for more resources.

If you have bare soil and are not ready to replant right away, you can protect and improve the soil by planting a cover crop of annual grass until you are ready to replant your turf. The chart has several types of annual seeds that can be used as a cover crop. Cover crops should be mowed before they go to seed to prevent them from popping up in your new turf.

Cover Crop Options

Species (Common Name)	Growth Season	Pounds of Pure Live Seed/Acre	Planting Depth (Inches)
Oats	Cool	35-50	1-2
Spring Wheat	Cool	25-35	1-2
Millet	Warm	3-15	1/2-3/4
Winter Wheat	Cool	20-35	1-2
Winter Barley	Cool	20-35	1-2

Research and information from Mile High Flood District:

Native Low Water Turf Selection

Native turf in Northern Colorado is most commonly a mix of buffalograss (*Buchloë dactyloides*) and blue grama (*Bouteloua gracilis*). Buffalograss is a runner grass and blue grama is a low growing bunch grass. Blue grama and buffalograss are commonly available as seed and plugs. Buffalograss sod is available, but can be difficult to source and is more expensive than establishing turf using seed or plugs. Plugs typically produce quicker results than seeding.

Native turf can be more time intensive to establish, but once established will require less maintenance, fertilizer, and water than traditional Kentucky bluegrass (KBG) turf. Native turf is also resistant to many of the diseases and pests that cause issues with non-native turf.

Recommended Native Turf Varieties:

- Buffalograss:
  - Seed: Bison, Bowie, Cody, Plains, and Topgun.
  - Plugs: Legacy, Prestige
  - Sod: Legacy, Prestige, and Turffalo
- Blue Grama:
  - Seed or Plugs: Hachita

Situations where native turf is not ideal:

- Shady areas
- Areas with high foot traffic, pets, high use.
- Where a traditional KBG type lawn is desired: watering and fertilizing a native lawn in an effort to make it look like bluegrass turf can result in weed problems.
- Elevations above 6500 feet. The growing season is too short but there are other native grasses like western wheatgrass (*Pascopyrum smithii*) and junegrass (*Koeleria macrantha*) that can grow at elevation.

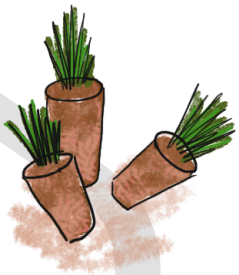
City of Fort Collins Warm and Cool season Grass Seed Mix see table below:

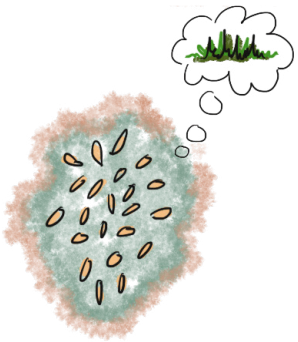
City of Fort Collins Warm & Cool Season Grass Seed Mix

	Common Name	Scientific Name	% of Total	Pounds of Pure Live Seed (PLS)/Acre
GRASSES	Sideoats Grama	*Bouteloua curtipendula*	10%	3.28
	Buffalograss	*Buchloë dactyloides*	10%	9.33
	Blue Grama	*Bouteloua gracilis*	10%	0.72
	Inland Saltgrass	*Distichlis stricta*	5%	0.50
	Bottlebrush squirreltail	*Elymus elymoides*	10%	2.75
	Idaho fescue	*Festuca idahoensis*	15%	1.74
	Rocky Mountain fescue	*Festuca saximontana*	15%	0.00
	Prairie Junegrass	*Koeleria macrantha*	5%	0.11
	Alkali muhly	*Muhlenbergia asperifolia*	10%	0.22
	Galetta	*Hilaria jamesii*	10%	3.29
GRASSES TOTAL* **			100%	21.93

****Please note: This is a custom mix and you can ask a local seed provider to create it for you or you can use local native seed mixes created by your local seed provider.*

Plugs





Seeds

Sod

Installation Steps for Seed

1. Determine how much seed you will need and where you can purchase it. Buffalograss and blue grama should be seeded at a rate of 3-4 pounds per 1000 square feet[4]. Seeding should take place between April to July, so that grasses have time to establish before the first hard freeze.
2. Locate existing irrigation. Flag all irrigation heads and boxes to avoid damaging the irrigation system.
3. Remove existing lawn. If you have solarized or used chemical application, mow the area as low as possible or to 2-3 inches. If you sheet mulched or used a sod cutter, you can plant directly into the soil.
4. Consider what to do with removed existing lawn. If a sod cutter is used and turf is not composted in place, you will also want to add about 2-3” of topsoil to replace the sod that was removed.
5. Aerate project site. Use a hollow, tine core aerator that pulls a 2-to-3-inch plug. Aerate aggressively to make lots of holes for seed. Make at least three passes going different directions.
6. Hand broadcast seed. Cover seed with only ¼ - ½ inch of soil using a drag harrow or rake. Do not plant deeper, native seeds need sunlight to germinate.
7. Apply fertilizer. Use a low fertility, slow release, organic fertilizer the day you plant.
8. Irrigate your seed beds. Soil should stay consistently moist when attempting to germinate grass seed. Irrigate every 4-5 hours during the day to maintain even moisture, avoiding the hottest parts of the day.

Installation Steps for Plugs

1. Choose when to plant. Buffalograss and blue grama plugs should be planted between June to mid-August.
2. Remove existing lawn. If you have solarized or used chemical application, mow the area as low as possible or to 2-3 inches. If you sheet mulched or used a sod cutter , you can plant directly into the soil. Leaving dead turf in place, will help prevent weeds and you can plant directly into it shortly after treating it.
3. Consider what to do with removed existing lawn. If a sod cutter is used and turf is not composted in place, you will need to haul your pre-existing sod away. In this case you will also want to add about 2-3" of topsoil to replace the sod that was removed.
4. Irrigate project site ahead of planting plugs. Irrigate the ground thoroughly several days ahead of planting the plugs so that soil is moist when plugs are installed.
5. Plant plugs 12-18 inches apart. You can use a hori-hori, metal bar, or an auger to create a 1" deep hole. An auger will make this easier if you must plant several trays of plugs.
6. Apply a low fertility, slow release, organic fertilizer the day you plant.

Installation Steps for Sod

1. Remove existing lawn. If you are converting high water turf to low water turf, you will need to use a sod cutter to remove your pre-existing sod. The sod you cut can be flipped and composted in place, if you plan several months ahead.
2. Consider what to do with removed existing lawn. If you don't compost in place, you will need to haul your pre-existing sod away. In this case you will also want to add about 2-3" of topsoil to replace the sod that was removed.
3. Determine how much sod you will need and where you can purchase it. Buffalograss is not readily available as sod, but you may be able to find it regionally with the suppliers listed above. Sod is more expensive than the previous methods but is the quickest way to get a weed free native lawn. Blue grama does not come in sod but can be interplanted.
4. Lay sod and begin irrigating. Buffalograss sod should be given enough water to maintain a moist, but not saturated, root zone under the sod.

Please note: Buffalograss sod can quickly turn brown following planting, even though it is being irrigated. The grass goes dormant while it develops an adequate root system over the following one to two weeks. New, white root growth can be seen on the bottom of the sod after a few days of watering. After enough rooting has occurred, buffalograss should green up. It is important that you keep watering the sod, even if it turns brown and appears to be dead.

4. https://extension.colostate.edu/topic-areas/yard-garden/buffalograss-lawns-7-224/#:~:text=Buffalograss%2C%20a%20%E2%80%9Cwarm%2Dseason,hard%20frost%20in%20the%20fall.

Looking for professional landscape help?

Check out the Xeriscape Incentive Program resources page for a contact list of professional landscape service providers. You can use the webpage below to filter for the services you need including Sod cut and haul-off only projects and native seedling projects:

https://www.fcgov.com/utilities/residential/conserve/water-efficiency/xeriscape/incentive-program/resources/

Xeriscape Professionals

Visit our professional services page to find an expert who can guide you through the design, installation and rebate processes.

Maintaining Native Low water Turf

Irrigation

When establishing seed, sod, or plugs, irrigate every 4-5 hours during the day to maintain even moisture, but not constant saturation. Reduce irrigation to once or twice a week once seedlings germinate and rooting occurs. Water during the winter the first year, if there is not regular precipitation.

After the first year, native lawns can generally be irrigated quite minimally. During very dry summers, all native lawns will become dormant without supplemental irrigation. Un-mowed native grasses will have better drought tolerance. To maintain green growth, buffalograss and blue grama turf need 1-2 inches of water every 4-5 weeks during a dry summer. In a dry spring, irrigation can begin in late May when these warm season grasses begin growing. Irrigating earlier in the spring will encourage weed growth.

Fertilization

During the establishment period you will fertilize at planting, then again four weeks later.

After the first year, fertilize buffalograss/blue grama once yearly in July or August with a low fertility, slow-release fertilizer.

Excessive fertilization will promote weed growth

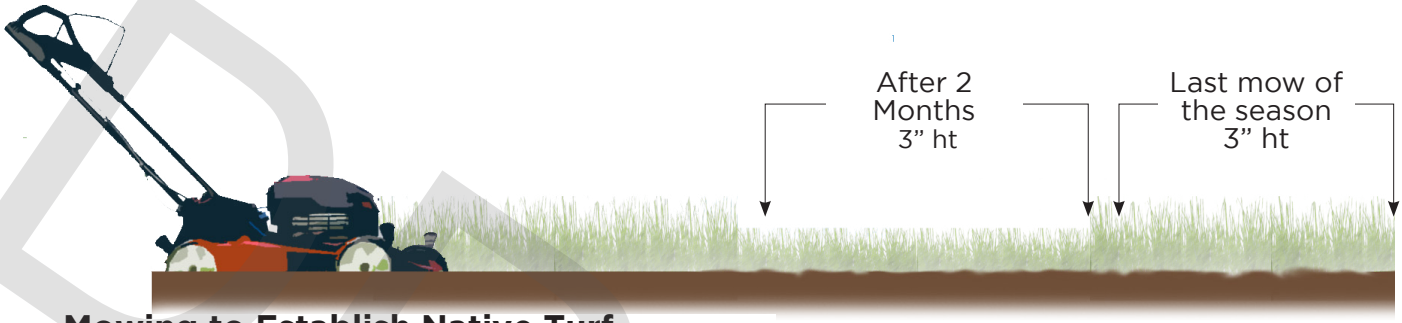
Mulching

If you start your lawn using plugs or seed, mulching with erosion control matting or straw mulch can help retain moisture and prevent erosion in steep areas. Make sure that mulch is applied lightly and that it does not cover the plugs.

Mowing

Two months after planting, cut the grass to a height of 3 inches to help stimulate growth.

In the long term, mowing is not necessary unless city codes require it. Leaving native turf un-mowed will help with drought tolerance and will help prevent weeds. An established native lawn can be cut 1 or 2 times to a height of 3 to 4 inches over the course of the summer if you want a more manicured look. Keep the last mow of the season high, to help prevent weed germination in spring.



Mowing to Establish Native Turf

Weed Control

As you are establishing native turf it is important to control weeds, especially early in the season when warm season grasses are still dormant and not actively growing. Weeds can be controlled using hand pulling or selective herbicides.

Integrated Pest Management can help you manage your weeds with the least toxic methods. For more information, check out Chapter 7: Weed Management.

Interplanting Wildflowers

It is easiest to establish wildflower patches once your turf is healthy and weeds are under control. Turf will need to be thinned in the wildflower areas so that seed can be planted. Alternatively, you can also plant mature flower plants or bulbs instead of seeds.

Non-native Low Water Turf Selection

There are several options for non-native, drought tolerant turf species. Non-native Kentucky bluegrass cultivars and tall fescue have been bred for drought resistance for those wanting a more traditional looking lawn that will also cut water costs. Research is ongoing but current data suggests that Texas and Kentucky bluegrass hybrids such as Reveille, Longhorn, Thermal Blue, Solar Green, Dura Blue and Bandera have better than average drought resistance and heat tolerance.[5] These Kentucky bluegrass cultivars are widely available in sod, plugs, and seed. Tall fescue can develop deep roots and drought tolerance in amended clay soil or more porous soil. In unamended clay soil, tall fescue may not be able to develop a deep root system and may need more supplemental water than KBG. Tall fescue is widely available in seed, but sod can be difficult to source and expensive.

5. https://planttalk.colostate.edu/topics/lawns/1544-modern-bluegrass-varieties-better-heat-tolerance-drought-resistance/

Installing Non-native Low Water Turf

If you want a more manicured lawn that can hold up to high traffic, two good options are drought tolerant Kentucky bluegrass cultivars or tall fescue cultivar. See the chart on pg. 6 for more info on the difference between these turf types.

Irrigation

Watering deeply and less frequently will increase your turf's drought tolerance.

Drought tolerant KBG and tall fescue will need supplemental water to survive. Water requirements vary depending on microclimates and location, but a high-quality lawn may need up to 2.25 inches of water per a week during hot, dry summer conditions. Turf should be irrigated so that the entire root zone is moistened. In clay soils, it can help to water for shorter periods, multiple times in a day to allow water to soak in before applying additional water.

Mulching

If you start your lawn using plugs or seed, mulching with erosion control matting or straw mulch can help retain moisture and prevent erosion in steep areas. Make sure that mulch is applied lightly and that it does not cover the plugs.

Weed Control

As you are establishing turf it is important to control weeds while your turf fills in. Weeds can be controlled using hand pulling or selective herbicides.

Integrated Pest Management can help you manage your weeds with the least toxic methods. For more information, check out Chapter 7: Weed Management for Alternative Landscapes.

Fertilization

Kentucky bluegrass should be fertilized in the spring, summer, and fall. In March/April apply 0.5 lbs of nitrogen/1000 sq ft of turf. Apply the same amount of nitrogen fertilizer in May-mid June. In August/September apply 1-1.5 lbs. of nitrogen fertilizer per 1000 square feet.

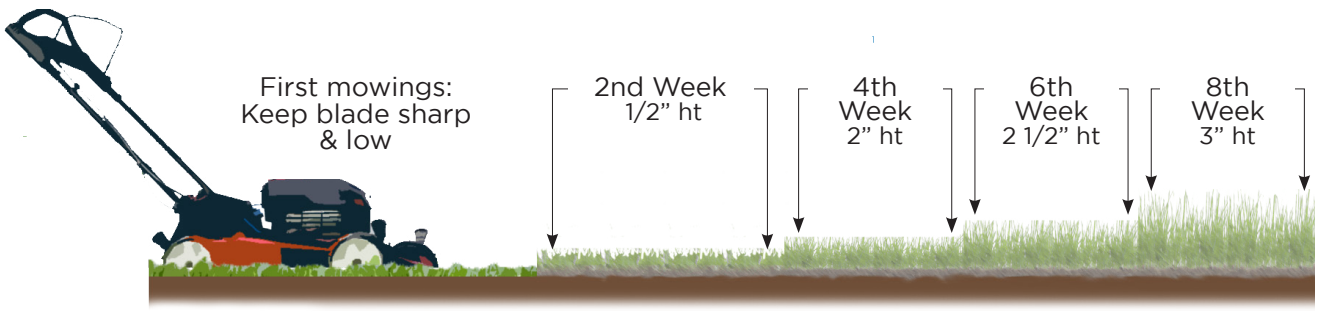
Tall Fescue should be fertilized only in the spring and fertilization should be avoided during the hottest parts of the summer. In mid-March and in May, apply 0.5 lbs. of fertilizer per 1000 square feet.

Mowing:

While turf is establishing, keep your first mowings at a lower setting with a sharpened blade. Raise your mower height every one to two weeks until it hits about two-and-a-half to three inches. This added height will protect the root system from heat and will help retain moisture in Colorado's arid climate.

Do not cut turf short before winter. It is best to leave turf long in fall to help prevent weeds in spring.

Mowing to Establish Non-Native Turf



A Tale of Three Lawns: Native Lawn Conversion Case Studies

Converting to low water turf can be an undertaking but hopefully this chapter has helped outline and lay out the steps required to make the switch. Converting to low water lawns can help save water and money. Below are several examples of native lawn conversions in Fort Collins. These case studies showcase the aesthetic of native lawns and provide information on what the conversion process was like for two small scale residential home projects and a larger scale project in the Rigden Farms HOA.

Small Scale Residential Projects:

Residential Example 1: Scott's lawn established in 2020

What method did you use to remove your original turf?

I sprayed glyphosate twice then used a sod cutter to cut and flip sections upside down (root side up). Finally, I let the roots sit in the sun for a week or two. Excess sod was used for mounding, also stacked upside down.

What did you do for install i.e. amended soil and then installed via seed or plug or sod?

I kept amendment to a minimum, just a little compost mixed in. I used leftover dirt, compost, and pea gravel to level low spots, but the those areas have actually had less robust growth compared to the less-amended areas. For seeding, I first broadcasted blue grama at roughly 3-4 lbs/ft2 and hand raked, then I planted buffalograss plugs at less than the recommended density (plugs are a lot more expensive than seed). I did this in mid-May. We also spread a straw mulch with tackifier to help retain soil moisture. In the fall we planted early blooming bulbs, crocuses and irises, so that they would bloom in early spring while the grass was still brown.

How much water did you use to establish and now maintain your native lawn?

This was variable over the 2021 growing season. We hand-watered to just wet the surface several times a day to get good germination. Once the seed germinated, I switched to watering more deeply and less often by hand, then to a sprinkler. Right after germination, that looked like watering 2-5 minutes two or three times a day, then to 1-2x/day for 5-7 minutes, then worked down to 1x/week or 1x/2 weeks but for 20-25 minutes. I also ignored the 'don't water in October' advice since October was hot and dry and the grass was still active. This year we have only been watering once a week or two for 10-20 minutes, depending on the weather.

Maintenance practices?

We have a bad bindweed problem and we knew that was going to be an issue. The year we seeded/plugged we just hand-weeded while the grass was young and sensitive and still establishing, and to protect the bulbs. I think the straw mulch had some annual grass weed seeds, so I also targeted those before they went to seed. But that is not really sustainable long-term (it took a lot of time). I spot-sprayed an herbicide with quinclorac this year in late spring/early summer, and will probably do that one more time in fall 2022/spring 2023 and then hand weed after that.

Would you do it again?

Absolutely. The only hesitation I have is with foot traffic – I think blue grama/buffalo can take more foot traffic than people think but I haven't really found the right amount yet.

Site Visit Photos: Residential Yard 1

If you want to visit a low water native lawn and see and feel for your self, check out the Xeriscape Incentive Program Self-Guided Tour [6]

Residential Buffalograss/Blue Grama Lawn
Image credit: Desneige Sodano

Wildflower lawn border-pictured here: Rocky Mt. Penstemon & Buckwheat
Image credit: Desneige Sodano

Close up of Residential Buffalograss/Blue Grama Lawn
Image credit: Desneige Sodano

Lawn comparison
Image credit: Desneige Sodano

6 https://storymaps.arcgis.com/stories/d0d0e04c6d7f490e93bc656990384735

Residential Example 2: Arlo's Lawn established in 2008

What method did you use to remove your original turf?

I sprayed glyphosate to kill off the existing bluegrass lawn.

What did you do for install i.e. amended soil and then installed via seed or plug or sod?

Rototilled the dead grass and amended with cow manure compost. Installed plugs on approx. 12" spacing.

How much water did you use to establish and now maintain your native lawn?

Followed (mostly) recommended instructions for establishment that came with the plugs. Currently watering about ½" once a week.

Maintenance practices?

Mow about once every 2 weeks. Mostly to keep weeds down.

Would you do it again?

Yes. I've learned some lessons that would change my approach. Here are some other thoughts:

1. I have had some volunteer Kentucky bluegrass. If I did it again, I'd do two rounds of spraying.
2. I feel like the cow manure compost I used introduced a lot of weeds. I'd probably do something different next time.
3. I'm looking to switch to a single 1" deep watering every two weeks. I've gone to hunter MP rotators for low and slow watering.
4. Have also planted some early-blooming bulbs on the west edge of the yard.
5. Bindweed has become a major issue in the yard. Been fighting it and will probably have to spray quinclorac as well.

My goal was not to have a picture-perfect lawn but lower my water usage and mowing frequency, which I did!

Site Visit Photos: Residential Yard 2

Residential Buffalograss/Blue Grama Lawn
Image credit: Desneige Sodano

Close up of Residential Buffalograss/Blue Grama Lawn
Image credit: Desneige Sodano

Side yard grass comparison
Image credit: Desneige Sodano

Lawn Issues
Image credit: Desneige Sodano

Rigden Farms Case Study Photos

Buffalograss/Blue Grama Lawn at Rigden Farms
Image credit: Desneige Sodano

Buffalograss/Blue Grama Lawn - Light green color
Image credit: Desneige Sodano

Some areas beginning to go dormant during the summer heat
Image credit: Desneige Sodano

Close up of Buffalograss/Blue Grama Lawn
Image credit: Desneige Sodano

Mild spot fixing needed due to rabbit damage
Image credit: Desneige Sodano

Additional Resources

Denver Water: https://www.denverwater.org/business/efficiency-tip/right-grass-right-place

Watering Established Lawns: https://extension.colostate.edu/topic-areas/yard-garden/watering-established-lawns-7-199/

CSU Extension – Attracting Native Bees to Your Landscape: https://extension.colostate.edu/topic-areas/insects/attracting-native-bees-landscape-5-615/

Buffalograss Turf https://extension.colostate.edu/topic-areas/yard-garden/buffalograss-lawns-7-224/#:~:text=Buffalograss%2C%20a%20%E2%80%9Cwarm%2Dseason,hard%20frost%20

Native Lawn Fact Sheet: https://www.fcgov.com/natureinthecity/files/native-lawn-fact-sheet-2020.pdf

The Bumble Bees of Colorado: https://www.colorado.edu/cumuseum/sites/default/files/attached-files/thebumblebeesofcolorado-2017.pdf

General Lawn Care Information from CSU- good information on irrigating turf: https://extension.colostate.edu/topic-areas/yard-garden/lawn-care-7-202/

US Forest Service – Pollinator-Friendly Best Management Practices for Federal Lands

Tony Kioski's Turf Resources: https://agsci.colostate.edu/csuturf/resources/lawn-care/

Tall Fescue: https://planttalk.colostate.edu/topics/lawns/1519-tall-fescue-lawns/in%20the%20fall.

FUN FACT

Buffalograss requires 50-75% less water than most warm season lawn grasses. This means you could save big on your water bill! Buffalo grass originates from the area along the rocky mountains and is adapted to dry weather and clay soils. Fossil evidence indicates Buffalo grass has been growing in the west for at least 7 million years and is a favorite food for bison.