

Water Quality Impacts from Artificial Turf and Xeriscaping



Adapted from "Developing Educational Tools for Sustainable Stormwater Management." Find the full report [here](#).

As water scarcity increases throughout the Western United States due to climate change and population growth, states are increasingly concerned about having enough water to meet projected demand (Utah Division of Water Resources, 2021). Utah's growth rates are expected to continue to exceed national rates over the next 50 years with population projected to nearly double by 2065 (Utah Division of Water Resources, 2021). More than 90 percent of Utah's residents reside in an urban setting or an area transitioning to urban living (Utah Division of Water Resources, 2021). Steps are being taken to stretch Utah's water supply, including higher density housing projects and landscape ordinances that require native plants and water-wise landscaping (Utah Division of Water Resources, 2021). In Utah, approximately 60 percent of residential water use is for irrigating landscapes (Utah Division of Water Resources, 2022). The prevalence of water-wise landscaping has been on the rise as homeowners are becoming more aware of how their watering practices impact water consumption in their communities (Endter-Wada et al., 2008; McCammon et al., 2009).

Two popular water-conserving landscape options are artificial turf and xeriscaping. Artificial turf is the use of synthetic, human-made fibers that look like real grass in place of traditional landscaping plants. Xeriscaping is the practice of designing a landscape to limit the need for irrigation by replacing traditional water-consuming turf grass with drought-tolerant grass, native plants, and hardscaping (rocks, gravel, brick, pavers, etc.). Xeriscaping is sometimes also known as water-wise landscaping or localscaping. There are plenty of resources on how to switch to artificial turf or xeriscaping, including best management practices for transitioning landscapes and planting, maintenance, and design guides; however, best management practices and guides for choosing a landscape with the lowest impact to water quality could not be found. This lack of resources indicates that the water quality of runoff from residential landscapes is often overlooked when considering water-conserving landscape solutions. While conserving water is highly important with continuing drought, climate change, and population growth, homeowners should also be aware that water leaving their properties carries pollutants to Utah's waterways. The choice of plants and turf, hardscaping materials, soil, and chemical

treatments impacts the water quality of landscape runoff. When planning a water-wise landscape, homeowners need to consider how to conserve water as well as how to minimize impacts to water quality.

Xeriscaping



Artificial Turf



Conserving water is highly important in Utah with continuing drought, climate change, and population growth. Concerned homeowners may choose to transition their yard to a water-wise landscape to reduce their water consumption. When planning a water-wise landscape, homeowners need to consider how to conserve water as well as how to minimize impacts to water quality. The choice of plants and turf, hardscaping materials, soil, and chemical treatments impacts the water quality of landscape runoff. Artificial turf and xeriscaping, two popular water-conserving landscape options, show promising results for conserving water use; however, both options have a higher potential for runoff and lower potential for rainfall capture and infiltration. Additionally, each option increases pollutants ending up in Utah's waterways. Artificial turf is known to contribute large amounts of microplastics to waterways, while also leaching harmful chemicals, metals, and organic micropollutants. Xeriscaping significantly increases sediment loads in runoff and leaches high amounts of nitrates into stormwater. There are many types of xeriscaping and artificial turf grass options. The design and material options of both landscape types produce various amounts of water conservation and impacts to water quality. It is important to weigh the advantages and disadvantages of each landscape option for both water conservation and water quality before switching.

This fact sheet presents a literature review and the current understanding of water quality impacts from two water-wise landscaping options (artificial turf and xeriscaping), including:

- Comparisons of the advantages and disadvantages of artificial turf and xeriscaping.
- Characterization of pollutants from both options.
- Microplastic pollutants from artificial turf.
- Findings from a comparison study of different water-conserving landscaping options, including differences in pollutants found in stormwater runoff from artificial turf and xeriscaping.

Click the link below to read more and download the fact sheet.

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