

FACT SHEET 3 (Prior FACT SHEETS 1 and 2 can be found [here](#) and [here](#))

On 17 February 2023, Grant Burningham, Environment, Water, and Open Lands Editor for the Salt Lake Tribune Tweeted: "We can't find an expert that says cutting trees will help (the) Great Salt Lake, but it popped up as a solution at the Legislature. So where did the idea come from?" <https://twitter.com/granteb/status/1626617147702272000?t=Ecggf73tkbETRZluq2ZmVw&s=01>

However, there are many credible advocates of tree thinning to increase water flows. For example,

The Nature Conservancy

The Nature Conservancy (TNC) is one of the most effective and wide-reaching environmental organizations in the world, with over one million members, diverse staff, and over 400 scientists; they impact conservation in 76 countries and territories

<https://www.nature.org/en-us/about-us/who-we-are/>

—> "The Nature Conservancy is a leading advocate of thinning our forests to restore a more natural, healthy balance and increase our water yield. New research now awaiting publication shows that [forest thinning in the Salt and Verde River basins](#) could yield substantially more water from the forest because there would be fewer trees competing for underground water. More underground water could mean more water for the streams and rivers, possibly offsetting water losses predicted from warming and drought conditions. [Accelerated forest thinning](#) would also reduce the risk of catastrophic forest fires that could befoul our streams and reservoirs with sediment and ash."

<https://www.nature.org/en-us/about-us/where-we-work/united-states/arizona/stories-in-arizona/restoring-arizonas-forests/>

International Water Association

The International Water Association (IWA) is the largest membership association for the global water sector, drawing exceptional professionals from more than 140 countries. The membership of the International Water Association brings together scientists, researchers, technology companies, water and wastewater utilities, and wider stakeholders involved in water management.

<https://www.thesourcemagazine.org/trees-became-enemy/>

When Trees Became the Enemy, "Why North American cities must thin overgrown forests to improve water supplies."

By Helen Poulos: a fire ecologist and postdoctoral teaching fellow at Wesleyan University's College of the Environment. Ms. Poulos has a Ph.D. from Yale University.

"The ... comfortable notion that more trees invariably result in more water, stability, livelihoods, clean air, or biodiversity has begun to look misguided at best and, at worse, catastrophic. Rather than replenish downstream runoff, aquifers, wetlands and streams,

aggressive afforestation tends to dry them out and clog them up ... But in the US, the mounting body of scientific literature on the effects of land clearing on forest hydrology suggests conventional wisdom is profoundly wrong, yet tenacious in its grip."

"Why? Because today's hottest and thirstiest parts of America are over-forested due to a vigorous and expensive federal fire-suppression initiative that has silently stocked semi-arid regions with what we estimate to be several billion trees too many."

—> "Of the 39 US states facing water scarcity, few feel stress more than those west of the 98th Meridian. 'Cities in the wilderness'—from Spokane to El Paso, Bozeman to San Diego, and Salt Lake City to Tucson—depend on forest lands where rain and snowfall filter through soil to supply water. Now, as billions of excess conifers drink up the tributaries of the Colorado, Columbia, Missouri, and Rio Grande, we've turned trees from friends into enemies."

<https://www.thesourcemagazine.org/trees-became-enemy/>

Utah Watershed Restoration Initiative (WRI)

"Utah's Watershed Restoration Initiative (WRI) is a partnership based program in Utah to improve high priority watersheds throughout the state. Since 2006, WRI has focused on improving three ecosystem values: 1) watershed health and biological diversity, 2) water quality and yield, and 3) opportunities for sustainable uses of natural resources. WRI is a bottom-up initiative where project planning, review, and ranking occur at a local level."

<https://watershed.utah.gov/>

National Science Foundation

"Forest thinning has increased in recent decades in an effort to stave off disastrous wildfires fueled by dense forests. **This study shows that restoring forests through mechanical thinning or wildfire can also save California billions of gallons of water each year.**"

The title of the news story is "Billions of gallons of water saved by thinning forests". The source of the story is the National Science Foundation and it can be found here:

https://www.nsf.gov/news/news_summ.jsp?org=NSF&cntn_id=245128#:~:text=By%20thinning%20out%20trees%2C%20fires,rivers%20and%20accumulates%20in%20groundwater.%22

Native American voices

"Tribes still not consulted as state tries to save Great Salt Lake"

A recent KSL news article states: "But when it comes to policy — specifically about saving the Great Salt Lake — Native representation is conspicuously lacking."

<https://www.ksl.com/article/50578490/tribes-still-not-consulted-as-state-tries-to-save-great-salt-lake>

Twitter handle @tvtalkclassic declares: "Let's get some Native American tribe members in office to clean house."

—> I, Dea Howard Theodore, am a member of the Cherokee nation. I am the elected Salt Lake County Councilmember for District 6, and I have a BS from the University of Utah in Biology.

Flip the Strip – Conservation or discrimination?

“Why it’s time for Utah to buy out alfalfa farmers and let the water flow” - A recent Salt Lake Tribune Editorial Board opinion

Although the Editorial Board states, “A more immediate solution would be to use some of the state’s anticipated cash surplus, and remaining federal aid that was intended to get us through the COVID-19 downturn, to offer to buy water rights from farmers upstream of the Great Salt Lake”, the Editorial Board does not identify the amount of money that should be paid to our farmers and ranchers to retire their alfalfa fields.

However, the popular Flip the Strip program does identify the dollar amount cities, water providers, and agencies determine is a fair price to pay Utahns to tear out their irrigated yard strips.

Although an acre-foot of secondary water is being purchased by the CUP for as little as \$1,400.00, well-intended lawmakers and officials have identified a much higher price they are willing to pay for that acre-foot to entice city dwellers to rip out the lawns on their park strips in the name of conservation.

Are those same lawmakers, officials, and Editorial Board, willing to pay our rural farmers and ranchers the same amount per acre-foot of water savings to retire their alfalfa fields? For example, urban homeowners are offered up to \$2.50 per square foot to flip their strip, with each square foot saving 17 gallons per year. Therefore, 19,167 square feet of “flipped-strip” saves 1 acre-foot of water (325,850 gallons per acre-foot / 17 gallons per square foot), at a cost of \$47,917 (2.5 x 19,167).

—> To be fair and equitable, should we pay the same amount per acre-foot of water savings to our farmers and ranchers as we pay our city residents? If yes, farmers would be paid a staggering \$191,893.60 to \$239,867.00 per acre to take their hay fields and crops out of production.

*****Outdoor secondary water is under \$500 per acre-foot (one west-side irrigation company delivers 1 acre-foot of water for only \$10). Most farmers use 4 acre-feet of water to irrigate an acre (except SL County - 5 acre-feet/acre), half of which flows back into the watershed.

https://digitalcommons.usu.edu/water_rep/399/

Farmers sell temporary water rights to Conserve Water

The Salt Lake Tribune suggests **“We should pay farmers to save the Great Salt Lake”, explaining that “Utah’s best option for conserving the necessary 1 million acre-feet (annually)” is having the farmers “give the excess to someone else”.**

<https://www.sltrib.com/opinion/commentary/2023/02/23/jennifer-morales-patrick-belmont/>

Utah’s total agricultural water use is 4 million acre-feet per year, roughly half of which returns to the system. Total depletion is therefore roughly 2 million acre-feet. The Great Salt Lake Basin represents roughly 30% of that agricultural use. There is simply not enough water-saving

potential if farmers further reduce their consumption and “give the excess to someone else”. Even if ALL farmers were to cease all production in the GSL basin, that would only save approximately 600,000 acre-feet per year, far short of the 1 million suggested in the article.

Conservation through maintenance

Much attention has been directed to water savings through improved farming practices; sprinkler vs flood irrigation, smart technology, lining ditches, and more.

<https://www.standard.net/news/environment/2022/jul/07/farmers-are-trying-new-water-saving-tech-in-utahs-drought/>

By directing that same attention to our local public utilities, leaked water can be contained and if needed, redirected.

According to public records,

- **Salt Lake City.** In 2020, Salt Lake City reported its "Estimated Water Loss Percentage" at 15.33% of 97,378.27 acre-feet. This equates to 14,928 acre-feet (4.8 billion gallons). In 2021, their reported loss is 13,171 acre-feet (4.3 billion gallons). This is 1.3 billion gallons more than their total “conservation” in 2022.

https://www.waterrights.utah.gov/asp_apps/viewEditPWS/pwsView.asp?SYSTEM_ID=11762

- **Sandy City.** In 2021, Sand City reported its "Estimated Water Loss Percentage" at 7.17% on 22,496.35 acre-feet. This equates to 1,612.98 acre-feet (0.525 billion gallons). In 2022, their reported loss is 1,423.67 acre-feet (0.463 billion gallons),

https://www.waterrights.utah.gov/asp_apps/viewEditPWS/pwsView.asp?SYSTEM_ID=1084

- **Provo City.** In 2020, Provo City reported its "Estimated Water Loss Percentage” at 18.41 on 29,744.86 acre-feet. This equates to 5,476 acre-feet (1.78 billion gallons). In 2021, their reported loss is 12.41% of 27,294.89 acre-feet which is 3,387 acre-feet (1.1 billion gallons).

https://www.waterrights.utah.gov/asp_apps/viewEditPWS/pwsView.asp?SYSTEM_ID=1010

The total leakage in 2021 for Salt Lake City, Sandy City, Provo City, and Ogden City is 23,739-acre feet. This is roughly one-quarter of the water in Deer Creek Reservoir. Or in other words, these four cities are leaking, every four years, approximately the amount of water as one Deer Creek Reservoir.

https://www.waterrights.utah.gov/asp_apps/viewEditPWS/pwsView.asp?SYSTEM_ID=1018

—> With a market value of roughly \$240 million dollars per year (24,000 acre-feet of Provo Reservoir shares which cost as much as \$10,000.00 per acre-ft), or nearly \$1 billion every 4 years, it seems our cities and towns should refocus their efforts to replace their aged and leaking underground culinary water lines.

Is Utah a net importer or net exporter of agricultural products requiring substantial water?

Much attention has been given to the water associated with growing and exporting alfalfa hay from Utah.

However, it is important for Utahns to consider the amount of water other states and countries use locally to grow and produce their exports, which become Utah’s imports.

“Utah imports 98 percent of the vegetables and 96 percent of the fruit we consume, according to a study by Envision Utah.” <https://www.upr.org/utah-news/2018-02-13/utah-working-to-improve-specialty-crop-production>

It would appear that Utah is a net importer of agricultural and other products requiring substantial water.

Fun Facts:

- A single avocado uses 60 gallons of water to grow.
- 1 orange requires 13 gallons
- 1 head of lettuce requires about 15 gallons
- 1 tomato requires about 5 - 6 gallons
- 1 pound of cotton requires 1320 gallons
- 1 cotton t-shirt requires 650 gallons
- 1 cotton pair of jeans requires 1800 gallons
- 1 pound of rice requires 449 gallons
- 1 pound of soybeans requires 216 gallons
- 1 pound of alfalfa requires 225 gallons
- 1 dozen eggs require 636 gallons

These products and their water content are imported to Utah and their water is added to our water system.

—> If not already available, it seems wholly appropriate for a think tank, a university, an agency, or engaged citizens to conduct a thorough review to compare the amount of water Utah imports from other states or countries in the produce we consume vs the water Utah exports in the small amount of Utah hay exported.

Land management – Tried, tested, proven

According to Chris Brown, the Utah Director of The Nature Conservancy, “Even though the Great Salt Lake hit record lows this summer, the preserve actually saw more water seep into its boundaries.”

“There has been more water this year than there has been in years,” he said.

—> Brown credited that good news to a multifaceted approach involving several partners to rid the area of the invasive phragmites, a grass that sucks the soil dry and can reach up to 15 feet tall. The conservancy has also used phragmites munching machines to mow down the weed, which covers the ground so densely it becomes useless for birds. Cattle, with funding provided by the state’s Grazing Improvement Program, are also used as efficient mowers, Brown said. <https://www.deseret.com/utah/2023/1/31/23578189/great-salt-lake-drought-shrinking-restoration-brings-more-birds-nature-conservancy>

According to Mike Siaperas, owner of the Range Valley Ranch in Carbon County, “I was experimenting with a way to do landscape scale conifer treatments without using fire. Our

goal was to build a diverse vegetative habitat that would be conducive to wildlife and recover from treatment in a very short period of time.”

—> "We were rewarded with an unintended bonus: The canyon on the property (aptly named Dry Canyon) had springs that had been dry for decades and they suddenly started to produce water. What we learned is that a 200-acre treatment of conifer removal and aspen introduction resulted in 4 new springs. This additional water has changed my ranch forever.”

<https://106reforest.com/>

According to Mike Styler with the Utah Watershed Restoration Initiative: "WRI projects restore natural processes to streams and the surrounding riparian areas."

—> "The long-term effects that fires can have on watersheds are actually very beneficial if they're done as nature would intend them, but where we've artificially built up fuel loads, where we've artificially allowed beetle kill timber to accumulate, where we've allowed invasive species, weeds, and plants to build up, then the fires burn unusually hot and they sterilize the landscape. If we are not going to have fires, then we need to go in and do the work that fires would have done. When we take out pinyon and juniper, we do it in a mosaic pattern. We don't take them all out. We try to emulate what a fire would do.”

Jenna Whitlock, BLM State Director claims, "We (WRI partners) are able to look more holistically at the landscape and restore where restoration needs to be."

Styler continues, "This initiative is wildly successful. We have nearly all of our neighbors in the western states coming to us and saying can you show us how you're accomplishing what you're doing because the results have been so dramatic and documentable.”

<https://www.youtube.com/watch?v=sLEKsTUxqY4&t=4s>

According to the Salt Lake Tribune, Forest Service Salt Lake District Ranger Bekee Hotze stated, "I've never thought it (tree thinning) was a possible solution [for] the Great Salt Lake."

This comment by Ms. Hotze is concerning due to the Forest Service's own Fool Creek watershed experiment at the Fraser Experimental Forest in Colorado. The forest was harvested using a pattern of alternating clearcut and forested strips in 1956. The Fool Creek report titled, "The effect of timber harvest on the Fool Creek watershed, 30 years later" states, "Today, with almost 30 years of postharvest record, subtle impacts on the hydrology of the watershed can be detected that were not significant in the past. In addition to the depositional increases in the snowpack in the openings, average peak water equivalent over the entire watershed has been increased (9%)."

[https://www.fs.usda.gov/research/treesearch/37738#:~:text=Today%2C%20with%20almost%2030%20years,has%20been%20increased%20\(9%25\).](https://www.fs.usda.gov/research/treesearch/37738#:~:text=Today%2C%20with%20almost%2030%20years,has%20been%20increased%20(9%25).)

—> It is also unfortunate that Ms. Hotze made no mention of possible studies and reports conducted by her office or others documenting water quantity changes that occurred as

the result of "clear-cutting" areas versus overgrown conifer stands on the high altitude, heavy snow pack, north-facing ski slopes in the Cottonwood canyons. These lands, mostly owned and managed by the US Forest Service, should be studied and monitored for water quantity purposes.