



The proposal

Every year our community heads out to the Black Rock Desert over July 4th to enjoy the moon-like expanse of dried Lake Lahontan and the surrounding geology. We endeavor to leave no trace, and last year built a small grey water evaporation pond. The use is minimal, mostly dish and hand washing. Even so, and even in this desert climate, not all the grey water would evaporate before we were ready to leave.



So I wondered if there were any local, native plants that had a high enough transpiration rate to assist with the evaporation ponds. With advice from fine folks at the Wilbur D. May Arboretum and Botanical Gardens, the Bureau of Land Management Winnemucca Field Office, and the

Dry Creek Garden Company, I created a potential plant list for the experiment, and plugged the plants into the bamboo construction I designed and built especially for this purpose.



The GreyWater Garden has a shallow basin to wash in, to reduce running water used for washing. The water drains through a second bowl that has a removable screen to keep particulate and particularly stinky matter from infesting the rest of the garden.



The water runs off somewhat equally into three locations:

- one into a closed bamboo container filled with seedlings
- one down a bamboo rivulet into a couple of 1 gallon plant containers and then drains into an evaporation pool
- and the third down a bamboo rivulet directly into an evaporation pool with no plants (as a control comparison).



The result

This year, we produced much less grey water, probably due to a combination of having a bowl to wash in, and not dumping just anything (for example, old soy milk) into the evaporation ponds. We washed only in the bowl for dish and hand/face washing, with a biodegradable soap, and nothing was put directly into the ponds without going through the bowl (and thus, the screen) first. People enjoyed having plants around, and also enjoyed using the garden for washing.

The bamboo container was liked visually by most folks, but filled up with water very quickly after one round of washing dinner plates. For best results, drill a hole at the base to let grey water drain through it into an evaporation pond, plant it with rocks down the interior length to allow for some water flow under the silty soil, and buy seedling plugs/tubes and plant them in the bamboo in advance.



The 1 gallon plants appeared to be the most successful. The riparian plant (*Shepherdia argentea*, Buffalo Berry) did fine so long as attention was paid to taking it on and off the water line, lest it get over-watered from above. The desert savvy plant (*Rhus aromatica*, Fragrant Sumac) was happy sitting directly in the evaporation pond with no water from above, but it is uncertain how much it contributed to the evaporation process. Both plants needed to be tied down with a bit of rope to remain upright during windstorms.

This year's GreyWater Garden was a small-scale test to determine which native plants do assist with evaporating the ponds' water. I am interested to try this on a larger scale, particularly using the 1 gallon pots directly in

much larger ponds that get more usage. This would give a greater garden feel to the space, and be most effective. The bamboo container was liked and commented on the most, though its effectiveness appeared negligible.

The unexpected

As one Winnemucca Ranger exclaimed: "This is great! We love seeing installations like this – Now just plant those trees right in the ground directly. What we need around here are trees, many more trees."

The GreyWater Garden trees, of course, were not planted in the desert, but were instead happily accepted by the May Arboretum.

But as the drought broke this year, the Black Rock Desert offered up a rare sight: its own garden of green breaking out of the cracked earth. Large meadows of what I think were *Allenrolfea occidentalis* (Pickleweed) covered miles and miles of usually empty desert.



Interestingly, the Glamis Mining Company is working (with the BLM?) on a similar scenario to the GreyWater Garden. In an effort to create zero runoff during rains from the mines, they are working to create evaporation ponds using native plants, which will intercept the polluted mining water and evaporate the water before it hits the lakes and water tables.

Their situation is challenged by the plants needing to remain in place year round; such that, part of the year the plants are inundated in a pond, and the other part of the year they are in drought. Apparently, trees have been the most successful plant so far, particularly at the Marigold Mine (which is located just east of Winnemucca, on the other side of where we camp). My BLM friend says, "In 15-20 years we should know what plants will work best."

The resources

Sagebrush Country, by Ronald Taylor - Great Basin specific plant book, with good pictures.

Suggested Plant List for experimentation:

Atriplex canescens, Fourwing Saltbush (recommend)
Atriplex confertifolia, Shadscale Saltbush (recommend)
Carex douglasii, Douglas' sedge (uncertain)
Distichlis spicata, Inland Salt Grass (uncertain)
Juncus balticus, Baltic Rush or Wire Grass (uncertain)
Leymus triticoides, Creeping Wild Rye (uncertain)
Mimulus guttatus, Monkeyflower (uncertain)
Polypogon monspeliensis, Annual Rabbitsfoot Grass (uncertain)
Rhus aromatica, Fragrant Sumac (recommend)
Sarcobatus vermiculatus, Greasewood (recommend)
Shepherdia argentea, Buffaloberry (recommend)
Also: sedges, rushes, willow, soapberry, buckthorn.

Possible nurseries for acquiring plant tublings via mail:

Comstock Seed, <http://www.comstockseed.com/>
Cornflower Farms, <http://www.cornflowerfarms.com/index.htm>
Forest Farms, <http://www.forestfarm.com/>
Great Basin Natives, <http://www.greatbasinnatives.com/>
Plants of the Wild, <http://www.plantsofthewild.com/>
Sierra Valley Farms, <http://www.sierravalleyfarms.com/>

Local Nevada resources for plants and info:

Wilbur D. May Arboretum and Botanical Garden, <http://www.maycenter.com/>
Bureau of Land Management, Winnemucca Field Office, <http://tinyurl.com/87vvn>
Dry Creek Garden Company, <http://www.drycreekgarden.com/>
Washoe Nursery, http://www.forestry.nv.gov/main/nursery_w.htm
Nevada Native Plant Society, <http://heritage.nv.gov/nnps.htm>

