

Planting

By Brad Lancaster

(some of the following is excerpted with permission from [*Eat Mesquite and More: A Cookbook for Sonoran Desert Foods and Living*](#))

Plant the rain before planting any plant

That way passively captured rainfall and stormwater runoff from adjoining surfaces can be the primary or even sole water sources for the plants once they are established (fig. 1). And that rain and stormwater is free, contains beneficial nutrients and microorganisms, and has no plant- and soil-life-harming salts (municipal water does)!

We've found this planting of the rain doubled our success rate when compared to plantings without water harvesting in the Dunbar/Spring Neighborhood Forest.

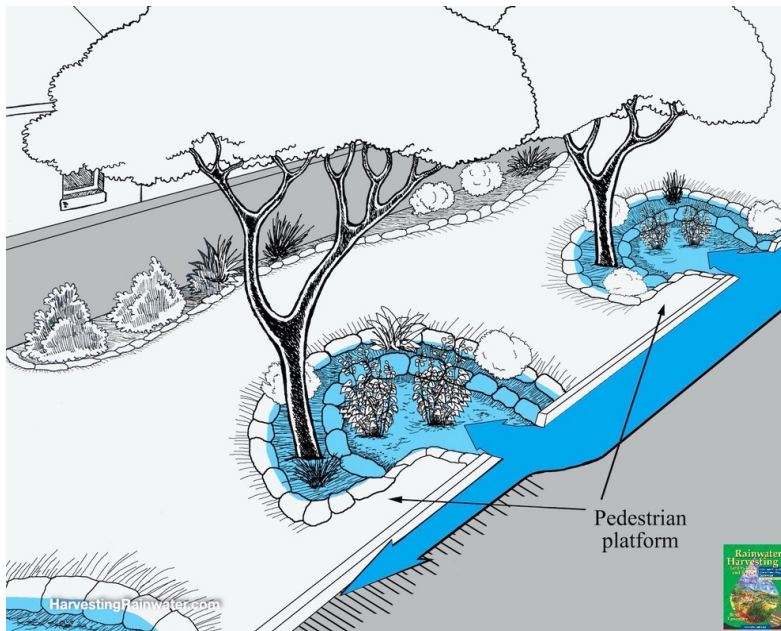


Fig. 1. Street runoff directed to street-side basins via curb cuts enables the street to irrigate the street trees for free. Illustration by Joe Marshall; reproduced with permission from Rainwater Harvesting for Drylands and Beyond, Volume 2, 2nd Edition, by Brad Lancaster

Once you've planted the rain with a passive water-harvesting earthwork or rain garden, you can plant your plants...

- by seed
- by transplants
- by cuttings
- or by plant nursery-grown plants

We'll briefly cover each here.

Planting from seed:

The cheapest and easiest way to plant vegetation is from seed when both the seed and rain are falling. Collect seed from the plants with the characteristics you seek, such as best flavors, most bountiful fruit sets, and best ripening times (though keep in mind that plants grown from seed can differ in some characteristics from the mother plant). Plants grown *in situ* from seed are more drought hardy and grow faster than those planted from nursery stock because their roots were never bound in a pot or cut, and they were not dependent on regular irrigation. Plant seed when the rains begin in its ideal [rain garden zone](#) within water- harvesting earthworks, or within all three zones (bottom, terrace, and top zones), and let the seed decide which zone it prefers.

Plant at least three seeds in a growing area to improve chances of germinated seedlings. As they grow they can be thinned out, leaving the most vibrant specimens with the best harvest characteristics. Protect seedlings from hungry rabbits and other critters by using chicken wire fencing or hardware cloth. Hard seed (palo verde, mesquite) typically needs to be scarified to enhance germination.

Note: Some plants like our native mesquite and palo verde trees readily cross and hybridize with non-natives (native mesquites will cross with non-native mesquites; native palo verde cross with non-native palo verde and palo brea). So for those plants that readily cross, I harvest their seed out in the desert far from the non-native plants I don't want them crossing with.

While I do collect seed in the city and suburbs from other native plants like the desert ironwood tree, which I have not (at least yet) found to readily cross with non-native trees.



*Fig. 2. Palo verde seed scarified after nicking side of hard seed coat with toe nail clippers. See the Planting Tips sections in the book *Eat Mesquite and More* for seed scarification tips for other native food-producing plants.*

*Photo credit: Brad Lancaster. Reproduced with permission from *Eat Mesquite and More: A Cookbook of Sonoran Desert Foods and Living*, by Desert Harvesters*

Native wildflower seed planting tip:

I like to plant wildflower seeds in a shallow 1-inch deep trench at the perimeter of a water-harvesting basin and along the basin's planting terraces. Trench is filled in after sowing the seed. When the seed germinates in the rainy season, it is then easier for me to differentiate the emerging seedlings from weeds because the wildflowers are all growing in the line of the trench.



Fig. 3. Sowing native wildflower seed in a shallow 1-inch deep trench on the perimeter of a street-runoff harvesting basin. Photo credit: Brad Lancaster



Fig. 4. Wildflower seedlings growing from seed trenches. Photo credit: Brad Lancaster

Planting from cuttings:

Cactus such as prickly pear and cholla are easy to propagate from cuttings, which produce clones of the mother plant. Choose a healthy pad from a prickly pear or a cane from a cholla. Mark what side of the pad or cane faces south

before you cut it from the mother plant. Plant it cut-side in the ground keeping mark south-facing to avoid sunburn. (If planting cutting in a nursery pot to grow roots before you plant the cutting the ground – mark the side of the planting pot that must face south with an X). As with seed, the cutting will do best when planted within or beside a water-harvesting basin during the rainy season. *Note: Staghorn and buckthorn cholla have an amazing range of flower colors. You can select and propagate cuttings based on edible flower-bud quality (size, lack of thorns, flavor, etc), flower color, and growth form of the mother plant. (Mark characteristics on planting pot if planting first in pots).*



Fig. 5. Each bucket contains cuttings from a different staghorn cholla plant. Each with its own unique flower color. Next step is to plant each cutting in a pot with native soil to grow roots.

Planting from transplants:

Cacti is easy to transplant if the plant is not too big and unwieldy. Woody perennials are a little trickier (the smaller the plant the easier it is). I use this technique when I have an overabundance of desirable plants that need thinning, such as at the inlet to a street-side water harvesting basin (fig. 6). It is easier to succeed in the rainy growing season when the plants are plump and

verdant, the soil is easy to dig, and the moist soil is more likely to hold together and on the plant's root ball.

Mark the winter sun-/south-facing side of the plant with a piece of ribbon or flagging tape (so you can replant at the same orientation, reducing sunburn).

Cacti I often transplant directly to the spot where I want it to grow, but I can also transplant to a pot temporarily until its roots regrow and I have a spot for it in the landscape.

Woody perennials I typically transplant to a pot temporarily to reestablish its roots before planting in the landscape. I can place my potted plant nursery where I can and will easily check and tend to it every day (often right outside my front door).

Push a pointed shovel blade straight down, and all the way into the ground, around the plant you want to transplant until you have a circle the diameter of the planting pot you'll place the plant into.

Plant surrounded by the shovel blade circle, carefully reinsert the shovel blade fully into the soil and try to pry up the root ball intact. The more intact the root ball—the greater your success. Place the root ball whole into the planting pot, then backfill as needed with native soil to fill the pot and cover all the remaining roots in soil.

Water the plant, and water every other day to spark new root growth. After a minimum of two full months of watering the pot in the growing season, the plant can be planted within or beside a rain garden (irrigate it regularly to get it established).



Fig. 6. Desert honeysuckle volunteers by inlet of street-side water-harvesting basin just before digging them out and potting them up. Photo credit: Brad Lancaster



Fig. 7. Desert honeysuckle volunteers removed from street-side basin inlet, and potted up to grow back more roots then transplant elsewhere in the neighborhood. Photo credit: Brad Lancaster

Planting from nursery stock:

Buying plants from local nurseries means your money stays in your community. Such nurseries are often more receptive to growing the native plants you request. One- to five-gallon-sized plants are cheaper and less likely to be root bound, since they haven't been constrained by pots as long as bigger plants. Once in the ground, these smaller plants tend to grow faster than larger ones and outsize them after just a few years of growth.

Plant each plant in an ideal rain garden zone (see fig. 8). Irrigate to get new plantings established, usually one to three years. In the hot months, irrigate every other day for the first three weeks after planting, then cut back to a good watering once a week. Eventually water once a month, until established. To avoid the cost, leaks, and hassle of a drip irrigation system, you can water by hose, drip bucket, or water trailer until the plant is established (see fig. 9).



Fig. 8. Each plant placed where it is to be planted within its ideal rain garden zone. Photo credit: Brad Lancaster



Fig. 9. Irrigating newly planted plant with drip irrigation bucket. Photo credit: Brad Lancaster

The Dunbar/Spring Neighborhood Foresters planting accomplishments:

Since 1996

- Planted over 1 million gallons of stormwater annually harvested in street-side and in-street rain garden basins
- Planted over 1,600 native trees and hundreds of native understory plants throughout the neighborhood.
- Planted over 9,600 linear feet of trees and understory plantings in the neighborhood's public rights-of-ways.

Between 10-2018 and 6-2020

- Created 17 new street-side water harvesting basins, drilled 17 new curb cores, and made 3 curb notches. *Combined stormwater capacity of these new basins* (each averaging 300- to 600-gallon capacity per storm or 3,600 to 7,200 gallons per year) – of 77,000 to 109,000 cumulative gallons per year
- Planted 32 native, food-bearing trees, 265 native understory plants, 1 pound of native wildflower seed, and 1 pound of native restoration seed mix in the neighborhood.

- Worked with City of Tucson to create Rain and Tree planting permitting process for neighborhoods that removes many of the previous barriers (excessive permit and barricade plan fees for every address, Lot info only available on City staff maps, and a lack of clarity on [stewarding responsibilities](#) once installation work is completed.