



Red Rock Ranger Station Coconino National Forest

Active rainwater harvesting



SKYWATER®



t barnabas kane & associates
ENVIRONMENTAL DESIGN®

Red Rock Ranger Station

Project Overview

Active rainwater harvesting system for Coconino National Forest

- **Industry/Sector:** public
- **Client:** USDA, Coconino National Forest
- **Location:** Sedona, Arizona
- **Completion:** 2010
- **Description:** National Forest Service planned to create a demonstration garden at its busy visitor center near Sedona. We directed run-off from the hardscape into a series of terraces and basins, built by volunteers, to irrigate plantings. During dry seasons, the tank's water is pressurized and connected to the drip system, which will be used primarily for plant establishment and during extreme drought.



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Design Data

- **Water use:** landscape irrigation
- **Annual average rainfall:** 12 in.
- **Available roof area:** 1,450 sq. ft.
- **Roof material:** Asphalt shingles
- **Hardscape material:** concrete



Red Rock Ranger Station

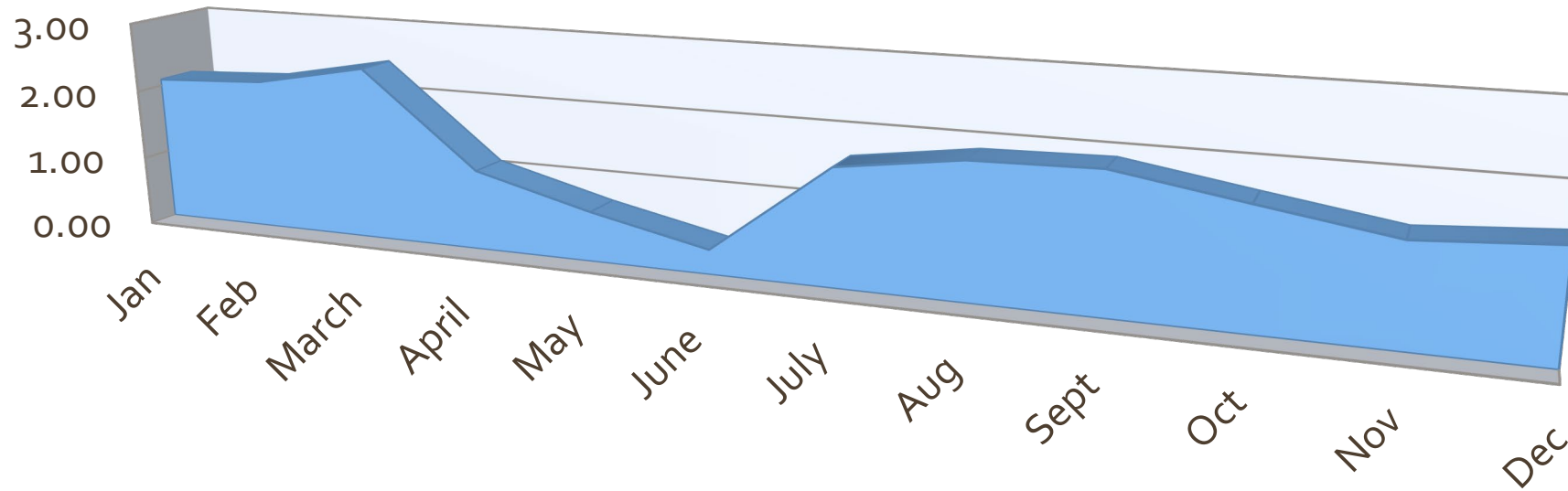
Rainwater System

- **Storage:** 1,320 gal.
- **System:** 1,320-gal. Bushman poly tank, passive landscape basins and soil
- **Filtration:** Rain Harvesting PVC filter and First Flush
- **Pump:** .5 hp submersible pump
- **Roof and surface conveyance:** wet
- **Irrigation:** gravity
- **Overflow:** landscape

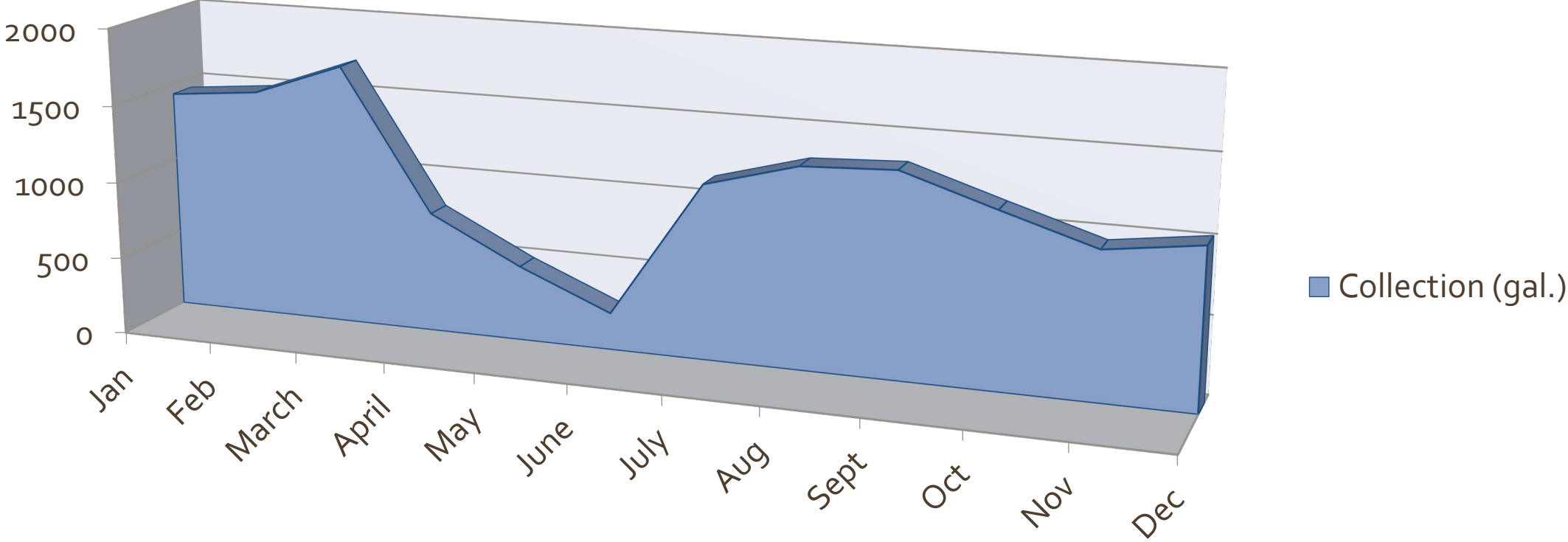


Red Rock Ranger Station

Average Annual Precipitation (in.)



Red Rock Ranger Station *Collection Potential (gal)*











A RESOURCE MOST PRECIOUS

More than sixty million U.S. residents rely on water that flows from National Forest lands.



A watershed is a geographic area defined by ridge tops in which all the water moving underground or on the surface drains into the same place (a river, a lake or the ocean).

Sedona is in the Verde River watershed.

A key part of the Forest Service mission is to conserve water resources. Maintaining healthy landscapes helps to prevent floods and ensure reliable, clean water supplies even in arid regions like the Southwest.

You can contribute to water conservation by using the techniques demonstrated in this garden: rainwater harvesting and the use of native plants.



The berms and basins in the rain garden capture runoff from the sidewalk (and roof runoff). This mimics the terracing technique used by prehistoric farmers.



Roof runoff is channeled to the tank.

After the tank fills, water flows into the garden.

One inch of rain will fill this 1,320 gallon tank.

The tank to your right is part of a "micro watershed" that consists of the building's roof, the tank itself and the garden below. Runoff from the roof is collected in the tank, then delivered to the plants via a drip irrigation system.

Apache Basket





Red Rock Ranger Station *Team*

- **Designer:** TBK Environmental Design
- **Installer:** High Desert Rain Catchment





Skywater

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