

## COOL, CLEAR WATER - WATER - WATER

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A precipitation catchment may not be the answer to the popular western song but it can provide water to grazing animals in range areas underutilized because of a lack of water. It also helps reduce grazing pressure at the water hole. With environmental pressures increasing on rangelands, this aspect of management is an important issue. Fortunately grazing animals do not demand the cool, clear water of song. Their primary demand is that it be wet.

In the last decade, renewed interest has developed in the precipitation catchment for storing water, a device dating back to biblical times. Greater success has been reported in the southwestern United States than elsewhere, mainly because more research has been done there. But problems associated with research in that area are not the same problems faced in the Great Basin rangeland.

Precipitation catchment research began at Squaw Butte in the late 1960s. Our objectives were to design, implement, and test a system that would catch, store, and dispense precipitation caught without pipes, valves, or floats. The system had to fit two requirements: capable of being delivered by a pick-up and being erected by hand. A final objective was that economic benefits must offset the cost associated with the system and its maintenance over the years of effectiveness.

Forage utilization studies conducted throughout the western range suggest that the distance between forage supplies and water should not exceed three-quarters of a mile, that a one-half mile distance may provide for greatest uniformity of grass utilization, and that in rougher topography, a one-quarter mile distance may be most desirable. Water intake studies suggest that the water requirement of yearlings varies from 8 to 10 gallons per day and water needs of the lactating cow may vary from 10 to 15 gallons.

Range condition and production differs throughout Great Basin rangelands. In excellent condition, only two acres may be required to support one animal unit per month (AUM). Most of our range is not that productive nor is it in excellent condition. The majority of our rangelands require at least 10 acres per AUM with the average requiring about 20 acres and sizable areas requiring 30 or more acres. Thus, when these factors are all considered, they suggest that a water catchment density that promotes uniform utilization should provide 5,000 to 30,000 gallons per location, depending upon the condition, productivity, topography of the rangeland, and the class of animal being managed.

Precipitation catchments (cover page) are being tested at Squaw Butte. They consist of a catchment apron and storage-drinking tank. The catchment apron is supported by standard steel fence posts. Commercial "steel studs"

are attached to them with a 1.5 inch pipe U-bolt. The apron is standard galvanized steel roofing sheets anchored to the steel studs with sheet metal screws. The apron has worked well, is easy to put up, and should require minimum maintenance for many years.

Units providing more than 1,500-gallon capacity require a storage tank of bottomless tank type construction. Our 5,000-gallon unit consists of a six-section, 18-foot diameter galvanized steel ring which is two-feet high. The tank bottom is sealed with a two-inch layer of pure bentonite. We do not know how effectively bentonite will perform.

Evaporation is a significant factor starting in July and through the fall months. Since it is possible to lose all stored water by evaporation, it is necessary to reduce evaporation by 80 percent or more. The problem is testing reduction methods for effectiveness and their maintenance. Floating six-mil plastic or a parafin surface work well -- but only for one year. Other materials will be tested.

We are just beginning a research program in precipitation catchments. There is no doubt in this researcher's mind that practical and operable solutions exist and that they will be found. Precipitation catchments one day will help us manage desert and forested rangelands as well as provide water for animals that graze there.

STREAMBANK EROSION IN A BLUE MOUNTAIN STRINGER MEADOW <sup>1</sup>  
IN RESPONSE TO LIVESTOCK AND BIG GAME GRAZING MANAGEMENT

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For several years, streambank erosion research has been conducted on Meadow Creek, Starkey Experimental Forest and Range, Union County, in conjunction with a larger project designed to study the vegetative, animal production, terrestrial, and aquatic habitats as they relate to several systems of livestock and big game grazing.

The experiments are being conducted on a four-mile long portion of Meadow Creek. The creek drains the Starkey Experimental Forest Range which lies at elevations between 3,680 and 4,500 feet. The stream varies in discharge from 2 to 195 cubic feet per second. Low flows generally occur in late August and peak discharges are associated with spring thaw in April.

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