

# Hydrogeology for Tevis Horses in El Dorado Canyon

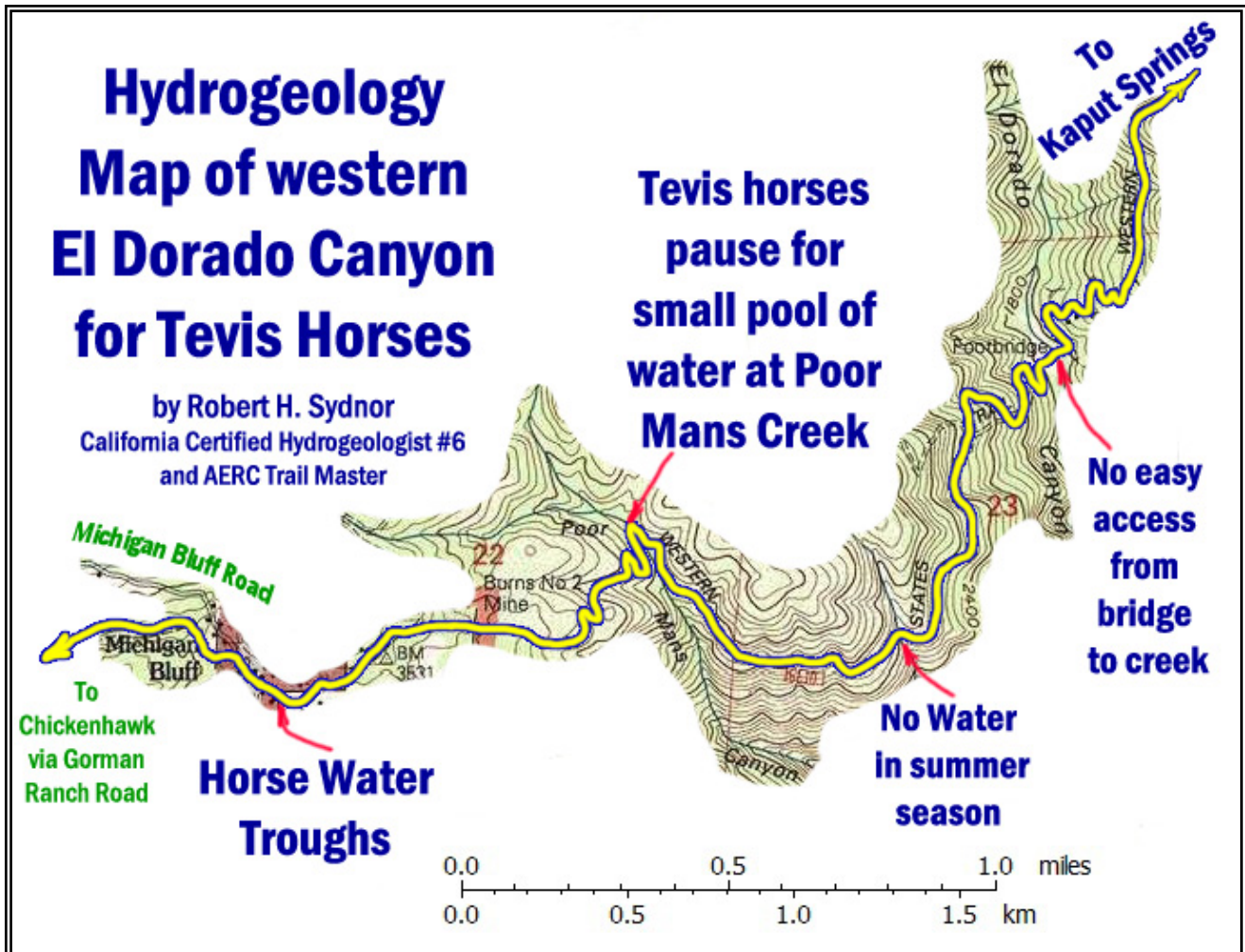
*from Deadwood, across El Dorado Creek, to Michigan Bluff,  
with emphasis on horse hydration at Poor Mans Creek  $\approx$  Milepost 61½*

**Western States Trail Foundation**    [www.teviscup.org](http://www.teviscup.org)

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The Western States Trail map shown below is annotated to indicate locations where horse water *may* be available (or perhaps *not* likely in a drought year) during the Tevis Cup. The recommended strategy is to pause for water at Poor Mans Creek, then proceed one mile further to Michigan Bluff where horse water troughs can be relied upon. Details follow.



## Introduction

The purpose of this report is describe locations for horse hydration during the Tevis Cup for the segment between Deadwood and Michigan Bluff. The emphasis is for Tevis horses climbing the 1,664-foot elevation gain out of El Dorado Canyon in afternoon high-heat conditions (typically about 95°F to 102°F), and *why Poor Mans Creek is important for hydration.*

## Deadwood Vet-Check

Horses need to be hydrated at the **Deadwood Vet-Check** (Milepost 55 at the hand-pump water well) where multiple horse troughs are available. After pulling 1,562 feet in elevation gain from the Swinging Bridge to Devil’s Thumb, horses are fatigued and need water. This is a “no-hold” vet-check. Riders will adequately hydrate their horses, quickly eat lunch provided by the volunteer crew, pulse-down, pass through the vet-check, then proceed past Deadwood Cemetery (Milepost 56), and drop down into the burning afternoon heat of El Dorado Canyon.



*At left:* View of water-troughs at Deadwood Vet-Check.

*At right:* Robert Sydnor (in tan hat) holds Roger Yohe’s horse who enjoys clean water, soaked hay, and carrots. August 1, 2009



## Kaput Springs

Kaput Springs (about Milepost 58) will have diminished seasonal flow that is highly dependent on the winter snowpack. In a drought year (such as 2013), the supply of horse water at Kaput Springs is minimal.

On June 21, 2013, hydrology maintenance was performed by **Greg Kimler** (WSTF Governor & 3 Tevis Buckles), **Joe Larkin** (WSTF Governor Emeritus & 10 Tevis Buckles), **Mike Shackelford** (WSTF Governor and AERC Trail Master), and **Chuck Mather** (WSTF Governor Emeritus & 5 Tevis Buckles) at Kaput Springs to improve the inflow of the catchment pipe.

Be aware of the potential for yellow jackets near this spring who are also hydrating.



## Bridge across El Dorado Creek

Proceed down the steep trail to the **footbridge across El Dorado Creek** (Milepost 59.5). In the summer months of July and August, the creek is about half of the peak flow in March. However, there is no convenient access to horse water because the bridge is situated across a narrow gorge that is about 25 feet deep. From the footbridge to Michigan Bluff is a steep climb of 1,664 feet.

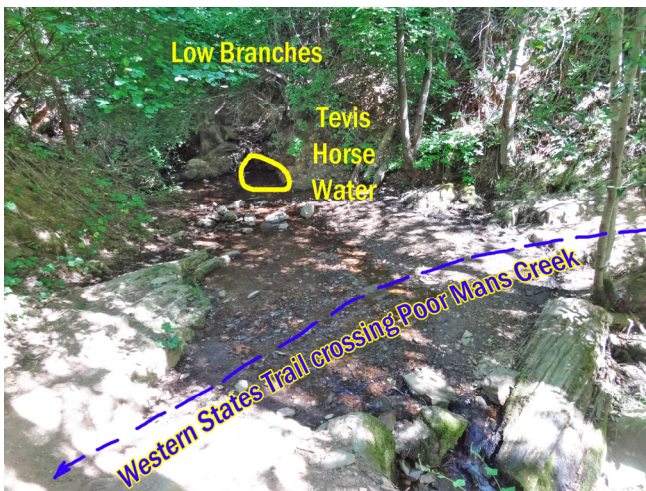


Footbridge across El Dorado Creek



## Horse Hydration at Poor Mans Creek

Proceed up the steep switchbacks leading towards Michigan Bluff (refer to map). In two miles, the steep trail crosses **Poor Mans Canyon**, about Milepost 61½. There is good gravel footing where the trail crosses the creek. Look upstream about 25 feet. There is a **small pool of water in the creek channel about 18-inches deep, 4 feet wide, and 7 feet long** (during the Springtime). This plunge-pool is caused by turbulent flow during heavy rainstorms/snowstorms in February and March. A small 2-foot waterfall excavates the pool each Spring, moving gravel downstream. It is recommended that riders pause here and offer water to their Tevis horses.



Low Branches

Tevis  
Horse  
Water

Western States Trail crossing Poor Mans Creek



Low Branches Now Cut Away for  
Access to Horse Drinking Pool

Poor Mans Creek  
flows only about  
2 gallons per  
minute during  
seasonal droughts

*At left:* difficult clearance from low branches. *At right:* the Tevis Trail Crew has cut away the low branches, and full access is now available (=June 21, 2013) for mounted horses to drink.



**Pool of Horse Water at Poor Mans Creek on the Western States Trail**

Pause here for a few minutes and offer your horse the chance to drink. There is space only for one or two horses, so be gracious and wait your turn.

Reliable water is subsequently available one mile further at Michigan Bluff (= horse water troughs), but it is a steep 450-foot climb. So take advantage of the opportunity for horse hydration at Poor Mans Creek.

*Reason:* It will help your horse pass the subsequent vet-checks at Chickenhawk and Foresthill.



## Michigan Bluff

During the Tevis Cup, there will be sufficient water for Tevis horses at Michigan Bluff.

**Pause here for full hydration.** You will be able to admire the memorial to Eldon Hall, father of Gary Hall. Gary has served for many years on the Board of Governors of the Western States Trail Foundation. Gary Hall has also served on the “Welfare of the Horse” AERC Committee. His wife, Judy Hall, worked for many years on the staff of the American Endurance Ride Conference at AERC headquarters in Auburn. The Halls are now retired and enjoying their historic home in Michigan Bluff. This hydrogeology report is dedicated to the Hall Family, who have graciously contributed many decades and thousands of hours of volunteer work for the Tevis Cup.



Eldon Hall Memorial Horse Water Trough at Michigan Bluff



One Thousand Mile Tevis Buckle



## Hydrogeology Background for El Dorado Canyon

The bedrock underlying El Dorado Canyon is composed of **gray Paleozoic metamorphic rocks** that have been severely foliated as slate, schist, and gneiss. There are occasional dikes of white quartz.

The metamorphic rocks trend about North15° West, with steep near-vertical dips. The surficial drainage pattern emulates the fabric of the underlying bedrock, so Poor Mans Creek is also oriented about North15°West. These hard gray slates simply do not have much porosity, so very little groundwater is stored in the subgrade. (There are no aquifers of porous sandstone.) Most surface flow is seasonal and ephemeral. Some groundwater is stored in the overlying gravels of the Mehrten Formation (near Michigan Bluff and Chicken Hawk Ridge).

There are huge landslides, tens of acres in size, that are visible from the Western States Trail as you approach Michigan Bluff and pass through a dense forest of manzanita that has been partly clear-cut for fire-control purposes.



Paleozoic metamorphic rocks with vertical foliation along the trail. The blue Tevis Cup hat provides scale.