

ARAVAIPA CREEK – CHANNEL CHANGE 1994 TO 2002 PRELIMINARY REPORT

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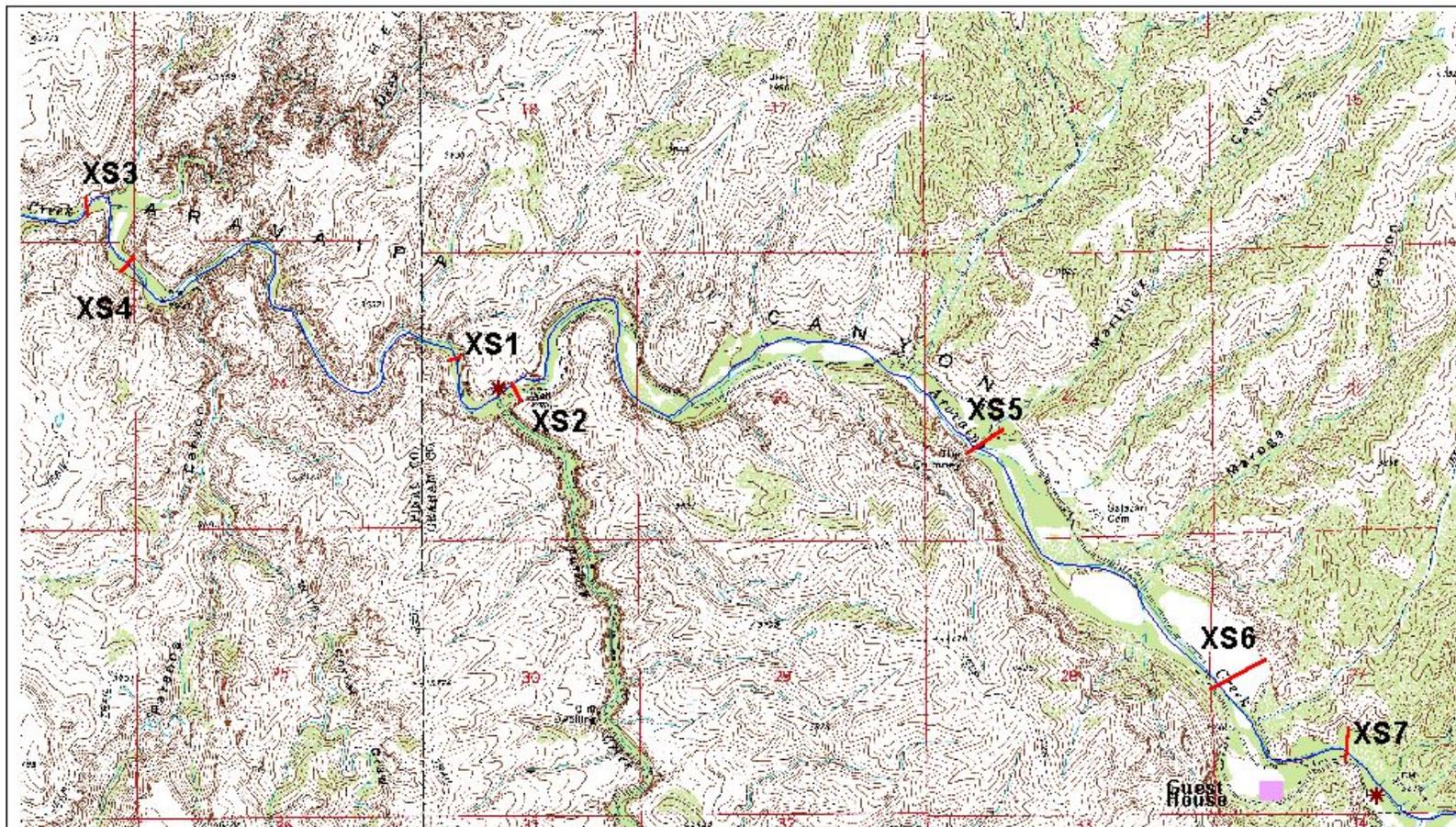
Thirteen(13) channel cross sections along Aravaipa Creek were initially surveyed for elevation and vegetation in 1994 by subcontractor Suzanne Fouty as part of a USBLM cooperative grant to the Conservancy. Suzanne provided her data in 2-part data summary. Cross section locations are shown in **Figure 1**.

Based on observations of Preserve staff, it was noted that considerable sedimentation has been occurring on the east side Preserve land. In an effort to quantify sedimentation (channel aggradation) from 1994 to 2002, four sections located on east side Conservancy land were resurveyed in April 2002 by Conservancy staff. Although vegetation categories were noted, the chief purpose of the resurvey was to document channel change from 1994 to 2002.

Elevation data for each of the four cross sections are shown in **Figure 2**. Inspection of the cross sections indicates that channel change has occurred at each of the section locations. The channel at Cross Section 1, the farthest downstream of the four resurveyed sections, shows the greatest channel stability. About 0.75 foot of aggradation has occurred on the left bank, but otherwise the section appears unchanged. The channel at Cross Section 2 shows about 0.5 to 1.5 feet of aggradation across the active floodplain, with the most aggradation occurring in the active channel. The channel at Cross Section 6 shows about 0.5 foot of aggradation in the active channel. In addition, the right bank has been cut back about 20 feet. The channel at Cross Section 7, the most upstream cross section, shows a maximum of about 2 feet of aggradation in the active channel. In addition, the right bank has been cut back about 5 feet.

Based on the degree of channel change that is documented by resurveying the sections originally surveyed in 1994, I recommend that: 1) the remaining nine cross sections be resurveyed and 2) three additional cross sections be established on Conservancy property upstream of cross section XS7.

It is apparent to me that excessive sedimentation is occurring throughout the length of the perennial reach of Aravaipa Creek. The result is reduced habitat diversity – pools are filled in and cobbly runs and riffles are replaced by shallow sandy runs. Although sediment-deprived scouring floods do occasionally occur from the bedrock tributaries in the canyon, the sediment balance in Aravaipa Creek is dominated by the large volume of sediment moving from the uplands and the upper channel down into the canyon. The cross sections established in 1994 provide an excellent opportunity to monitor long-term channel change. The existing cross sections should be augmented by establishing three additional cross sections on the upstream east side preserve land.



 Cross Sections and Identifiers

 Streamflow Monitoring Locations



FIGURE 1. LOCATION OF CROSS SECTIONS AT ARAVAIPA PRESERVE - EAST SIDE

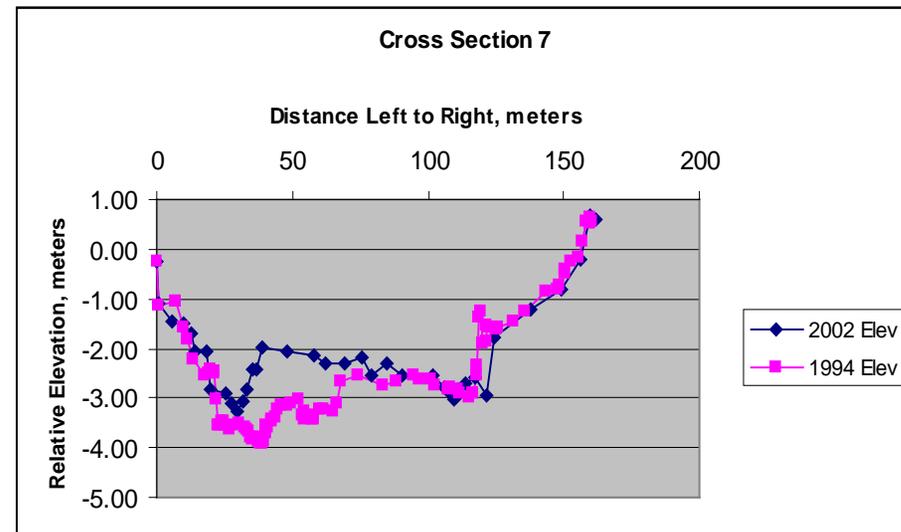
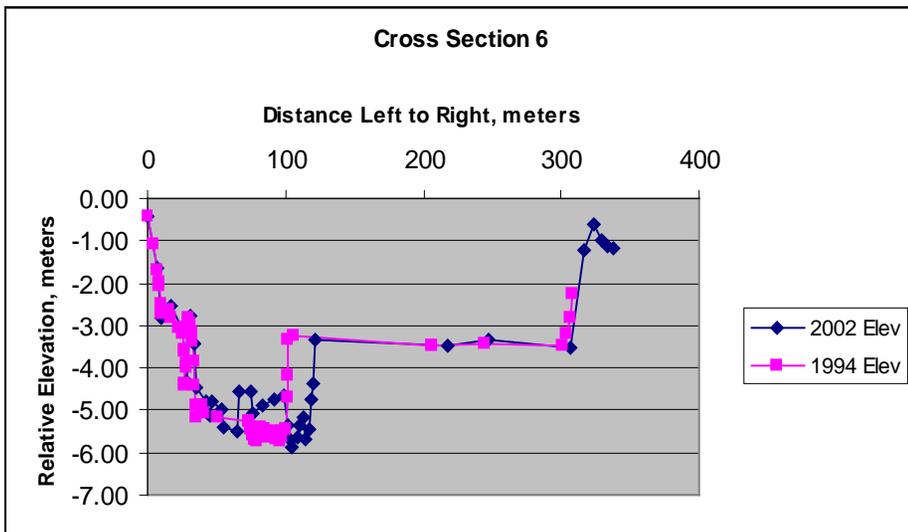
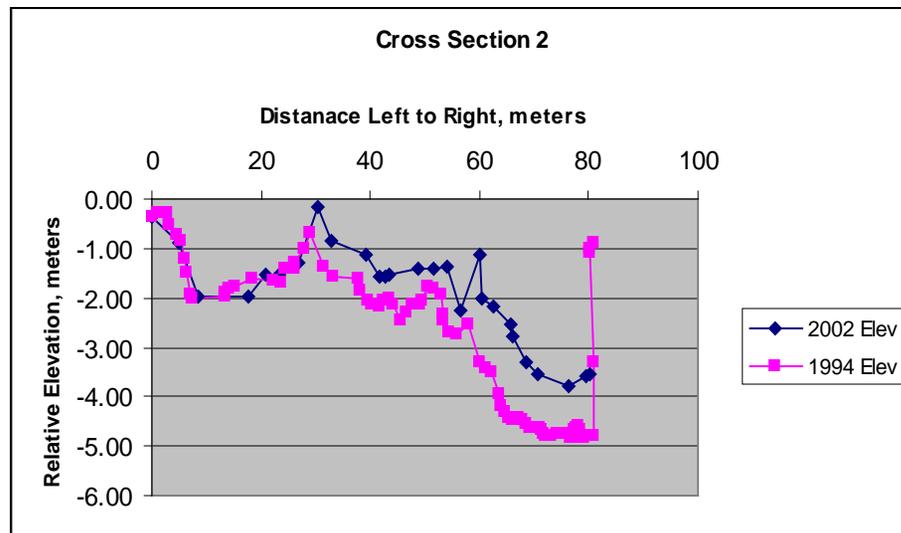
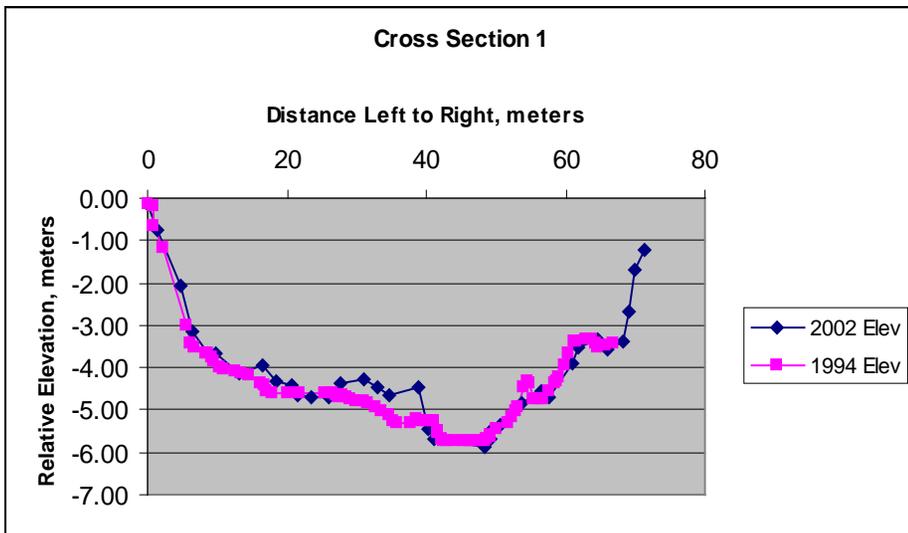


Figure 2. Cross Sections Showing Channel Change 1994 to 2002, Aravaipa Creek.