APPENDIX 8 PRECIPITATION DATA METHODOLOGY[37]

The Oregon Climate Service provided a dataset of monthly precipitation data derived from the Global Historical Climatology Network (GHCN) data set produced by the National Climatic Data Center (NCDC) in cooperation with the World Meteorological Organization (Vose, Schmoyer et al. 1992). The data was downloaded from NCDC's web site at www.ncdc.noaa.gov.

The first challenge was to fill in data voids, which are particularly problematic in the 1980s and 1990s. Data gaps were filled by computing average deviations from nearby stations and using these averages to estimate missing data. However, in cases where no comparable sites were available, or neighboring data was also missing, data gaps remained. These monthly data voids were filled using monthly averages in order to allow computation of an annual total. Data was then flagged to indicate the reliability of annual precipitation data depending on the number of months that had to be estimated.

The next challenge was to combine individual station data in order to arrive at some indicator of whether the basin as a whole was above or below average in precipitation for any given year. Averaging the raw data over the basin would be misleading due to variation in climate regimes and sub-basin size. The data were therefore normalized by computing the percent of average for each station and averaging the results. Thus if station A had an average precipitation year, station B was 20% below average and station C 20% above average, the basin precipitation for that year would be average. However, if all stations were above average a wet year is indicated for the basin and if all stations are below average a dry year is indicated.

This enables the display of a graph showing the number of events or the level of cooperation/conflict in a basin each year compared to that basin's relative wetness or dryness.

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[37] Jeanne Hoadley provided this methodological information, which describes her preparation of the precipitation data so that it could be used in statistical analyses.