described by Sando and others (2008), and accurate characterization would require additional analyses beyond the scope of this study.

The FLDFRQ3 model uses a Bayesian approach (O'Connell and others, 2002) with a maximum likelihood method (Stedinger and Cohn, 1986). The FLDFRQ3 model allows for specification of uncertainties for magnitudes and timing of hydrologic events and for thresholds derived from paleoflood data that arise due to flow-rate, stratigraphic, and chronologic uncertainties. Additionally, the FLDFRQ3 model allows for specification of uncertainties in the gaged record, with uncertainties assigned (Table 2) on the basis of general reliability of the datasets. For this study, uncertainties of ±10 percent were assigned for the most reliable peak-flow records (recent gaged records from locations near the benchmark sites). Progressively larger uncertainties (as much as 33 percent) were assigned for flow values derived using various methods of estimation as described in the previous section "Development of Modern Peak-Flow Chronologies." Especially large flow values generally were assigned uncertainties of ±33 or 50 percent, depending on professional judgment regarding factors such as sources of data and extrapolation required for applicability to study reaches.

In the maximum likelihood approach used by the FLDFRQ3 model, especially large flows can be used as constraints, or perception thresholds, on the magnitude and timing of the peak flows. When incorporating perception thresholds for paleofloods, a range of ages can be used. In most analyses, thresholds were based on stratigraphic and geochronologic evidence. In order to be consistent with the input values of the PeakfqSA

Table 2. Modern peak-flow chronologies (gaged records) for paleoflood study reaches.

[Shaded cells indicate special computations for the lower Rapid Creek reach, as noted in text. Blank rows signify a gap in the chronology. %, estimated uncertainty, in percent, for use in selected flood-frequency analyses; (H), historical value; --; no data]

Water year	Spring Creek		Rapid Creek				Boxelder Creek				Elk Creek	
			Lower reach		Upper reach		Upstream sub-reach		Downstream sub-reach			
	Annual peak flow (ft^3/s)	%	Annual peak flow (ft^3/s)	%	Annual peak flow (ft^3/s)	%	Annual peak flow (ft^3/s)	%	Annual peak flow (ft^3/s)	%	Annual peak flow (ft^3/s)	%
1878	--	--	7,060 (H)	50	--	--	--	--	--	--	--	--
1883	--	--	7,900 (H)	50	--	--	--	--	--	--	--	--
1904	493	20	--	--	--	--	533	10	578	15	--	--
1905	691	20	2,350	15	--	--	559	10	606	15	--	--
1906	--	--	922	15	--	--	--	--	--	--	--	--
1907	--	--	12,200 (H)	50	--	--	16,400	33	17,700	33	10,400 (H)	50
1915	--	--	654	15	566	20	--	--	--	--	--	--
1916	--	--	217	15	187	20	--	--	--	--	--	--
1917	--	--	287	15	248	20	--	--	--	--	--	--
1920	--	--	7,540 (H)	50	--	--	--	--	--	--	--	--
1929	--	--	870	15	752	20	--	--	--	--	--	--
1930	--	--	213	15	184	20	--	--	--	--	--	--
1931	--	--	170	15	147	20	--	--	--	--	--	--
1932	--	--	747	15	646	20	--	--	--	--	--	--
1933	--	--	1,690	15	1,460	20	--	--	--	--	--	--
1934	--	--	128	15	111	20	--	--	--	--	--	--
1935	--	--	479	15	414	20	--	--	--	--	--	--
1936	--	--	110	15	95	20	--	--	--	--	--	--