APPENDIX C: DATA USED TO CONSTRUCT STREAMSIDE LANDSLIDING ESTIMATES

Sediment production from streamside landsliding was estimated through field measurements of sediment production per unit stream length in sample channel reaches throughout the Redwood Creek basin (Figure 8). Sample sites were stratified based on geomorphic process domains (see Section 3.1) and Strahler stream order. In each sample reach, slope length, width, and depth of streamside landslides were measured; relative landslide age was estimated based on vegetation and scarp weathering; and landslide sediment storage on hillslopes was estimated (Table C1, C2). Calculation of average annual sediment production per unit channel length assumed that observed landslides occurred over the same duration as the photographic record used to map upslope landslides (Table C3). Average annual volumetric sediment production per unit channel length ($m^3m^{-1}a^{-1}$) for various geomorphic process domains and stream orders was then applied to the remaining channel lengths throughout the basin. Sediment production rates from streamside landslides were not applied to first-order channels where little streamside sediment production was observed, nor to fifth-order channels (mainstem of Redwood Creek downstream of Fern Creek) where the channel is buffered by a wide alluvial valley bottom.

Table C1. Streamside landslide data from sample reaches in the Redwood Creek basin.

Site #	Basin	Stream Order	Station		Length (m)	Width (m)	Depth (m)	% Delivery	Volume Delivered (m^3)
			Start	End					
1	Kent	2	83	86	3	2.5	0.5	1.0	3.75
1	Kent	2	92	95	3	3	0.75	1.0	6.75
1	Kent	2	92	95	3	5	3	0.5	22.5
1	Kent	2	112	118	6	5	1.5	1.0	45
1	Kent	2	147	157	10	6	0.1	0.2	1.2
1	Kent	2	178	184	6	4	0.1	0.2	0.48
1	Kent	2	182	189	7	3	0.5	1.0	10.5
1	Kent	2	219	230	11	7	0.5	0.9	34.65
1	Kent	2	100	105	5	4	0.5	1.0	10
1	Kent	2	210	240	30	22	2	0.5	660
1	Kent	2	243	253	10	7	1	0.5	35
6	Kent	3	20	32	12	20	2	1.0	480
6	Kent	3	98	108	10	10	1	0.0	0
6	Kent	3	98	101	3	4	1	1.0	12
6	Kent	3	213	218	5	4	0.5	0.0	0
6	Kent	3	241	261	20	15	0.5	1.0	150
7	Kent	3			11	25	1	0.5	137.5
7	Kent	3			3	8	8	0.5	96
7	Kent	3			10	5	0.5	0.5	12.5
4	No Name 3	3	21	24	3	3	0.5	1.0	4.5
4	No Name 3	3	58	63	5	6	0.5	1.0	15
4	No Name 3	3	68	72	4	6	0.5	0.7	8.4
4	No Name 3	3	74	80	6	8	1	0.8	38.4
4	No Name 3	3	93	113	20	12	0.5	0.1	12
4	No Name 3	3	96	110	14	5	1	0.8	56
4	No Name 3	3	120	134	14	10	1	0.3	42

Site #	Basin	Stream Order	Station		Length (m)	Width (m)	Depth (m)	% Delivery	Volume Delivered (m^3)
			Start	End					
4	No Name 3	3	150	165	15	8	0.5	0.6	36
4	No Name 3	3	187	200	13	10	1.5	0.6	117
4	No Name 3	3	202	206	4	5	0.5	1.0	10
4	No Name 3	3	238	241	3	5	0.5	0.6	4.5
2	No Name 3	2	268	276	8	6	1	0.8	38.4
2	No Name 3	2	285	289	4	5	0.5	1.0	10
2	No Name 3	2	303	307	4	3	0.5	1.0	6
2	No Name 3	2	305	315	10	3	0.5	1.0	15
2	No Name 3	2	348	363	15	4	0.5	1.0	30
2	No Name 3	2	418	419	1	15	0.5	0.5	3.75
2	No Name 3	2	420	421	1	10	0.5	0.5	2.5
2	No Name 3	2	435	437	2	10	0.75	0.7	10.5
3	Upper Redwood	2	1	6	5	3.6	1.5	1.0	27
3	Upper Redwood	2	53	54.3	1.8	2.3	0.8	1.0	3.312
5	Rattlesnake	3	14	16	2	2	3.4	0.5	6.8

Table C2. Streamside landslide estimates from sample reaches in the Redwood Creek basin.

Site #	Sub-basin	Vegetation	Stream Order	Length (m)	Sediment Production Rate[1] (m^3m^{-1})	Annual Sediment Production Rate[2] ($m3m^{-1}a^{-1}$)
1	Kent	Redwood	2	300	2.77	0.059
2	No name 3	Hardwood	2	202	0.58	0.012
3	Upper Redwood Creek	Redwood	3	100	0.30	0.006
4	No name 3	Hardwood	3	248	1.39	0.029
5	Rattlesnake	Redwood	3	100	0.07	0.001
6	Kent	Redwood	3	335	2.33	0.050
7	Kent	Redwood	3	187	0.58	0.012

[1] Sediment production rate determined from measurements of slope length, width, and depth of streamside landslides occurring in the reach.
[2] Assumes observed landslides occurred over the same duration as the photographic record used to map upslope landslides.

Table C3. Average annual sediment production rate from streamside landsliding.

Stream Order	Sediment Production Rate ($m^3m^{-1}a^{-1}$)
2	0.036
3 (hardwood)	0.029
3 (redwood)	0.003
3	0.009
4	0.031