Comment on "Peak flow responses to clear-cutting and roads in small and large basins, western Cascades, Oregon" by J. A. Jones and G. E. Grant

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Here we correct an error in the calculation of the percent change in peak discharges associated with timber harvest and road construction in small, experimentally treated basins by *Jones and Grant* [1996]. This correction reduces the estimated magnitude of changes, but it does not affect the direction or statistical significance of changes nor our interpretation of mechanisms.

In the work of *Jones and Grant* [1996] we used an index to describe the change in peak discharges in posttreatment relative to pretreatment periods for two small experimentally treated basins (watershed 1 or 3) relative to their control (watershed 2). We calculated the index I as

$$I = B/A \ 100, \tag{1}$$

where A and B are the mean differences in paired, log-transformed peak discharges in the treated versus control basins, for the pretreatment and posttreatment periods, respectively (columns labeled "mean" in Tables 1 and 2). We interpreted the index I as the percent change in peak discharges in the treated basin relative to the control. However, the index is not a measure of the percent change. The percent change P is

$$P = [\exp^{(B-A)} - 1]100. \tag{2}$$

The correct percent changes (Tables 1 and 2) are lower than we reported in the work of *Jones and Grant* [1996], but the direction, statistical significance, and interpreted mechanisms are not affected. For example, 25% harvest and roads are associated with the same magnitude of effect as 100% harvest on large (>0.4 years) peak discharges, although changes in the 100% clear-cut basin were not statistically significant for these two 5-year periods (Table 1). That is, 25% cutting and roads produced a 22–23% increase, whereas 100% cutting without roads produced a 20–25% increase, in >0.4 years peak discharges in the first 10 years after harvest (Table 1). Also, 25% harvest and roads are associated with the same magnitude of effect as 100% harvest on winter peak discharges (Table 1). That is, 25% cutting and roads produced a 22–23% increase, whereas 100% cutting without roads produced a 28–31% increase, in winter peak discharges in the first 10 years after harvest (Table 2).

References

Jones, J. A., and G. E. Grant, Peak flow responses to clear-cutting and roads in small and large basins, western Cascades, Oregon, *Water Resour. Res., 32,* 959–974, 1996.

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Table 1. Revised Table 2 from *Jones and Grant* [1996]: Magnitude and Duration of Peak Discharge Response by Size of Storm Flow Event From 1955 to 1988 in 1-km² Basins in the Western Cascades of Oregon Based on Mean Difference in Paired, Log-Transformed Peak Discharges for Treated Versus Control Basins for That Period[a]

Years	Treatment	All Sizes				Small (<0.13 Years)				Large (>0.4 Years)			
		n	Mean	I	P	n	Mean	I	P	n	Mean	I	P
100% Clear-cutting Without Roads (H. J. Andrews Watershed 1)													
1952–1961	none	74	0.70a	100	0[b]	29	0.67a	100	0[b]	16	0.73a	100	0[b]
1962–1966	100% clear-cut over 5 years	49	0.94b	134	27[b]	46	0.85a	127	20[b]	8	0.97a	133	27[b]
1967–1971	0–5 years postcut	50	1.08c	154	46[b]	18	1.18b	176	67[b]	9	0.91a	125	20[b]
1972–1976	6–10 years postcut	58	0.95b	136	28[b]	10	0.99ab	148	38[b]	16	0.95a	130	25[b]
1977–1981	11–15 years postcut	54	0.97bc	139	31[b]	21	1.02ab	152	42[b]	12	0.88a	121	16[b]
1982–1988	16–22 years postcut	67	0.96b	137	30[b]	19	1.03ab	154	43[b]	14	0.88a	121	16[b]
25% Clear-cutting With Roads (H. J. Andrews Watershed 3)													
1955–1958	none	43	0.50a	100	0[b]	10	0.62a	100	0[b]	15	0.44a	100	0[b]
1959–1962	6% roads	50	0.60a	120	11[b]	16	0.66a	107	4[b]	5	0.50a	114	6[b]
1963–1968	25% cut	69	0.75b	150	28[b]	20	0.93b	150	36[b]	14	0.65b	148	23[b]
1969–1973	6–10 years postcut	53	0.70bc	140	22[b]	17	0.86bc	139	27[b]	13	0.64b	146	22[b]
1974–1978	11–15 years postcut	56	0.66bc	132	17[b]	8	0.77ab	124	16[b]	14	0.56a	127	13[b]
1979–1983	16–20 years postcut	60	0.63c	126	14[b]	16	0.76ac	123	15[b]	18	0.56a	127	13[b]
1984–1988	21–25 years postcut	46	0.63c	126	14[b]	15	0.73ac	118	12[b]	6	0.58a	132	15[b]

[a]Means in the same column followed by the same letter are not significantly different from each other according to Tukey's highest significant difference multiple comparisons procedure with an overall protection level of $p < 0.05$. I, index; n, number, P, percent change.
[b]These values have been corrected.

Table 2. Revised Table 3 from *Jones and Grant* [1996]: Magnitude and Duration of Peak Discharge Response by Season of Storm Flow Event From 1955 to 1988 in 1-km² Basins in the Western Cascades of Oregon Based on Mean Difference in Paired, Log-Transformed Peak Discharges for Treated Versus Control Basins for That Period[a]

Years	Treatment	All Sizes				Fall (Aug.–Nov.)				Winter (Dec.–Feb.)				Spring (Mar.–July)			
		n	Mean	I	P	n	Mean	I	P	n	Mean	I	P	n	Mean	I	P
100% Clear-cutting Without Roads (H. J. Andrews Watershed 1)																	
1952–1961	none	74	0.70a	100	0[b]	27	0.73a	100	0[b]	33	0.68a	100	0[b]	14	0.68a	100	0[b]
1962–1966	100% cut	49	0.94b	134	27[b]	18	1.06b	145	39[b]	19	0.88b	129	22[b]	12	0.87a	128	21[b]
1967–1971	0–5 years	50	1.08c	154	46[b]	16	1.25c	171	68[b]	28	0.95b	140	31[b]	6	1.21b	178	70[b]
1972–1976	6–10 years	58	0.95b	136	28[b]	13	0.99b	136	30[b]	39	0.93b	137	28[b]	6	0.96a	141	32[b]
1977–1981	11–15 years	54	0.97bc	139	31[b]	17	0.94ab	129	23[b]	28	0.99b	146	36[b]	9	0.93a	137	28[b]
1982–1988	16–22 years	67	0.96b	137	30[b]	20	0.97b	133	27[b]	35	0.92b	135	27[b]	12	1.06ab	156	46[b]
25% Clear-cutting With Roads (H. J. Andrews Watershed 3)																	
1955–1958	none	43	0.50a	100	0[b]	16	0.61a	100	0[b]	20	0.43a	100	0[b]	7	0.46a	100	0[b]
1959–1962	6% roads	50	0.60a	120	11[b]	26	0.68a	111	7[b]	13	0.51ab	119	8[b]	11	0.51a	110	5[b]
1963–1968	25% cut	69	0.75b	150	28[b]	24	0.87b	143	30[b]	35	0.64b	149	23[b]	10	0.81b	176	42[b]
1969–1973	6–10 years	53	0.70bc	140	22[b]	19	0.82bc	134	23[b]	26	0.63b	147	22[b]	8	0.68ab	148	25[b]
1974–1978	11–15 years	56	0.66bc	132	17[b]	16	0.72ac	118	12[b]	32	0.62b	144	21[b]	8	0.67ab	146	23[b]
1979–1983	16–20 years	60	0.63c	126	14[b]	19	0.75abc	123	15[b]	33	0.58b	135	16[b]	8	0.53ab	115	7[b]
1984–1988	21–25 years	46	0.63c	126	14[b]	15	0.66a	108	5[b]	19	0.64b	149	23[b]	12	0.60ab	130	15[b]

[a]Means in the same column followed by the same letter are not significantly different from each other according to Tukey's highest significant difference multiple comparisons procedure with an overall protection level of $p < 0.05$.
[b]These values have been corrected.