

NCRWQCB
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the material supplied to them by landslides initiated during this period. Fluvial sediment yield from differing terrain types within these basins ranges from 2,500 tonnes/km² to 97,000 tonnes/km².

COGHAN 1981

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MAIN CHANNEL RESPONSE TO INCREASED SEDIMENT SUPPLY, UPPER REDWOOD CREEK, CALIFORNIA

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In 1947 the Redwood Creek watershed in northern California was essentially undisturbed. Since then extensive road-building and timber harvest activities have affected most of the watershed. A combination of landuse impacts, naturally unstable terrain, and six major storms has substantially increased the basin's sediment yield. Most of the main channel has been extensively altered, and there has been a large increase in the amount of channel-stored sediment.

These changes can be illustrated by outlining those occurring along the stream's uppermost 21 km. of channel (D.A. 110 km²). By 1962 48% of this reach had been logged. Extensive harvesting had also occurred along the tributary channels. Approximately 160 new main channel landslides had been initiated. The channel had widened locally, and about 41,000 t. of sediment had been deposited. The 1964 storm caused widespread landsliding, bank erosion, and aggradation. By 1966 about 100 new main channel slides had occurred, and most of the older ones had increased in size. Most of the post-1947 landslide contributions from tributary as well as from main channel hillslopes had occurred. The amount of stored sediment had increased to 2,202,000 t. By 1973 40% of this material had left the reach, representing a bedload transport rate of 850 t/km²/yr attributable to erosion of the streambed.

In total, by 1980 about 360 new main channel slides had occurred, releasing about 1,920,000 t. of slope material. 68% of the channel had been logged. The channel had degraded to nearly its 1942 level; however 1,100,000 t. of sediment was still in storage, 35% of which formed fill terraces dating from the 1964 and 1972 storms. Sediment storage varies from 316 to 5550 m³/100m of channel, and its distribution correlates roughly with channel gradient.

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