

LICHENOMETRIC EVIDENCE OF CHANGE IN STREAM CHANNEL DIMENSIONS^{MA5}

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This study examined the possibility that the lichen *Xanthoria elegans* has recently colonized a lower zone on a segment of Soda Butte Creek in Yellowstone National Park. At two sites on the Lamar River, thallus cover diminished monotonically to the lower limit of distribution (rates: 1.1 and 1.4 % /cm respectively); thalli were submerged by up to 1.5 m of water during flood. The monotonic decline in cover percent suggests equilibration to an environmental gradient. Along a segment of Soda Butte Creek, a zone of monotonic decline (3.1 % /cm) terminated above peak stage height.

Below the monotonic decline a few small thalli were evenly distributed in a zone 0.6 m wide. The upper monotonic zone was interpreted to be a relic distribution. The lower zone appears to be colonized recently enough that equilibration to new conditions has not occurred. Lichen distribution on the Soda Butte segment was interpreted to be caused by a drop in stage height due to a change in channel dimensions. Early this century, browsing by elk (*Cervus elaphus*) eliminated tall willow from the adjacent floodplain, possibly leading to an increase in erosion rate.