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A WEB-BASED TIME MACHINE -- PICTURING TWO CENTURIES OF LANDSCAPE CHANGE

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Ever wondered what landscapes of 100 years ago looked like? The Landscape Change Program is a web-based, NSF-supported community archive of Vermont landscape imagery that answers this question.

The Program provides primary data (images of past landscapes) useful for understanding and managing present-day landscapes. The archive contains many thousands of images collected from or contributed by a variety of sources, all available free-of-charge, on-line at uvm.edu/perkins/landscape. Many of these images show both geologically- and landscape management-relevant subjects including floods, landslides, deforestation, reforestation, development, road building, and erosion.

Rephotography of archive images shows dramatic changes. For example, rephotography of a very early set of more than 60 oblique aerial photographs taken along river corridors just days after the flood of record for most of Vermont (1927), documents dramatic revegetation as well as floodplain and near-river development patterns over the past 75 years. Numerous images of gully erosion and shallow landsliding support the conclusion that clearcutting of New England slopes led to widespread increases in sediment yield, as once-forested but then-cleared hillslopes, failed. Examining photographs that include riparian corridors is a useful way of estimating change in streamside vegetation density and structure over time.

Paired before and after images of road building go way back in time! Dating from as early as 1908, such pairs show clearly the disturbance and hydrologic changes occasioned by roads. Early pairs of images (1908-1915) show improvements that smoothed and strengthened earthen roads during the transition from animal- to motor-powered transport. Later pairs (c. 1930) show the first road paving, straightening, and water diversion. The most recent pairs, from construction of the interstate highways (1950-1970), show landscape disturbance on an unprecedented scale and inform the current debate over building and expanding the road network in Vermont.

The Landscape Change Program provides a public, visual means for people to explore the complex inter-relationships between geology, geomorphology, human activity, and landscape change over time. We hope that the archive will serve as a model for investigators in other states to compile similar databases.

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