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**Landslides and Railways in the
Thompson River Valley, British Columbia**

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Landslides and Railways in the Thompson River Valley, British Columbia

Landslides in the mountain valleys of western Canada have challenged the development and operation of railways since the late 19th Century. In the 21st Century, pronounced economic and environmental repercussions occur when rail service is disrupted by landslide activity. In the section of the Canadian National and Canadian Pacific railway corridor that runs through the Thompson River valley in southern British Columbia there is a unique combination of complex glacial geology and active slope processes. To better understand and manage geological hazards and risks along this section of the transportation corridor, a small slow-moving landslide that is adversely impacting critical railway infrastructure and operation is now under collaborative investigation by the national railway companies, federal government agencies and universities through the Railway Ground Hazard Research Program <http://www.carrl.ca/RGHRP>. Radar satellite imagery, global positioning, borehole monitoring, fiber optical measurement of slope deformation, geological mapping, geophysical surveys and field observations provide information on the distribution of earth materials, landforms and deformation processes involved in the landslide. All techniques confirm movement across the main landslide body, with the greatest displacement at the south end in the vicinity of a lock-block retaining wall. Mapping and geophysical surveys indicate a high relief bedrock surface overlain by clay, till and gravel with saline groundwater in the main body and landslide toe. Planar sub-surface features revealed in geophysical profiles include tabular bedding and earth material contacts. Profiles also show discrete curvilinear features interpreted as failure planes in clay-rich layers beneath the retaining wall and rail ballast that extend below the Thompson River. Innovative research and development at this site provides national railway companies, governments and local communities with better information to predict landslide movement and reduce risks to the environment, economy, natural resources and public safety. The painting is a southward view of the Thompson River valley showing bedrock, glacial deposits, scattered boulders, landslide scarps, radar satellite monitoring prisms and global positioning stations flanking the rail tracks and retaining wall at the Ripley Landslide, near Ashcroft in south-central British Columbia. About the artist: Dr. David Huntley is a research scientist with the Geological Survey of Canada.



Ripley Landslide
David Huntley (2014)
Acrylic on paper, 9 x 12 inches

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