# A publically available database for studying ecological change in mountain ecosystems

It is a rare occasion when a long-term, high-resolution, spatially extensive, and ecologically and socially relevant dataset is unearthed. We have compiled and made publically available a spatially extensive database that extends the time depth for understanding the ecosystem dynamics of mountain landscapes. From 1888 to 1958, Canadian federal and provincial government agencies conducted cartographic surveys using photogrammetric technologies, which yielded a wealth of topographic and geological data. An early example of photo-topographic surveying, the Canadian collections are internationally distinctive, representing more than 120 000 high-quality oblique images (ie taken on an oblique angle rather than perpendicular to the subject like aerial photographs) of mountain landscapes. Most mountain regions in western Canada (Alberta, British Columbia, and the Yukon) are covered by systematic and comprehensive imagery, including that obtained through the extensive Yukon–Alaska International Boundary Survey. These historical images have value for ecologists who wish to understand past landscape patterns, ecological and human legacies,
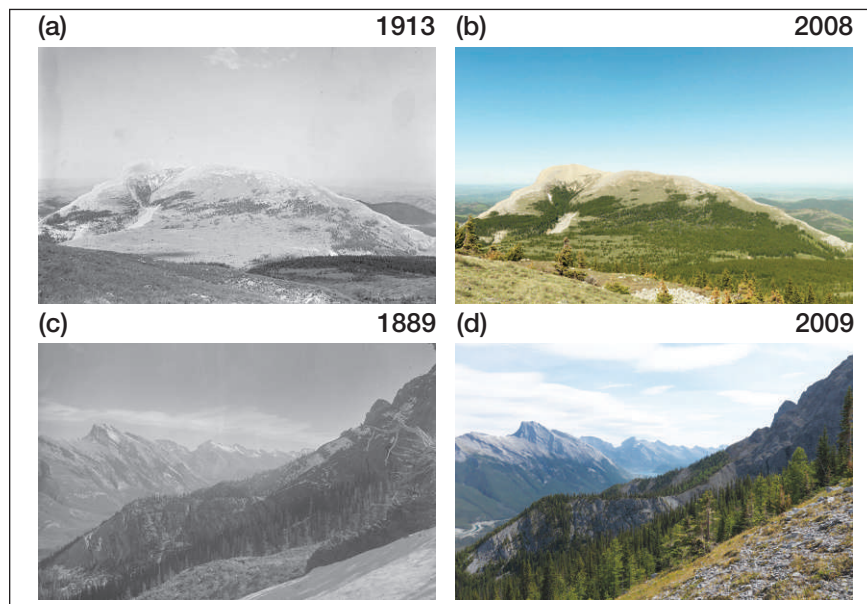
Figure 1. *Before-and-after image pairs from the Crowsnest Forest Reserve and Waterton Lakes National Park ([a] and [b]: 50°13'59"N, 114°29'25"W) and in the Goat Range near Canmore, Alberta, Canada ([c] and [d]: 51°2'55"N, 115°27'19"W).*

and changes in abiotic, biotic, and cultural processes over time. In many cases, the landscapes captured in these images represent ecosystems unaffected by the confounding effects of resource extraction and development.

To date, over 6000 of the images have been repeated through the use of professional-grade photographic equipment, with an emphasis on the eastern slopes of the Canadian Rockies (eg Figure 1). Digital images are archived in a database at the University of Victoria and served at http://explore.mountainlegacy.ca.

This platform provides user-friendly access to the before-and-after images for researchers and resource managers. These images, available under a Creative Commons license, can be downloaded, printed, and shared for non-commercial interests. We encourage you to explore and use these data.

Andrew J Trant[*], **Brian M Starzomski, and Eric Higgs**
School of Environmental Studies, University of Victoria, Victoria, Canada [*](atrant@uvic.ca)