

NRESI RESEARCH COLLOQUIUM SERIES

FRIDAY

Sept 29, 2006

3:30 - 4:30 pm

**LECTURE
THEATRE**

7-158

**LIGHT
REFRESHMENTS
SERVED AT 3:20 PM**

Dr. Paul Sanborn *Ecosystem Science & Management Program* **UNBC**



The Nahanni Karst: a unique Canadian Landscape

The limestone (karst) landscapes of the southeastern Mackenzie Mountains, NWT, contain an assemblage of landforms that is globally unique for such high latitudes (61-62 °N). A complex labyrinth of vertical-walled canyons, limestone towers, and sinkholes is linked by underground drainage systems, and displays many of the small-scale limestone dissolution features typical of karst terrain.

The initial studies of this area in the 1970s suggested that formation of such landscapes in the subarctic would have required prolonged ice-free conditions, perhaps as much as 200,000 years. But more recent work on the glacial geology of the upper Mackenzie valley has shown that Laurentide ice extended well into the Cordillera during the most recent (Wisconsinan) glaciation that ended approximately 20,000 years ago.

Field studies of soils in the Nahanni karst were undertaken as part of a Parks Canada earth science expedition to the area in 2006. The degree of soil profile development suggested that glacial outwash surfaces within and adjacent to the karst are likely of Wisconsinan age. These observations make it unlikely that the Nahanni karst has a glacial history that is dramatically different from the rest of the Mackenzie Mountains.

New reconstructions of the meltwater lakes that occupied the South Nahanni watershed during deglaciation now suggest that the Nahanni karst occupies a logical drainage route for the former Lake Nahanni. Much of the canyon-cutting that formed the Nahanni labyrinth karst may have occurred during catastrophic lake drainage. Thus, the Nahanni karst landscape may represent an even more unusual combination of both karst landforms and channelled scablands.