

**Geological mapping of plutonic and metavolcanic rocks,  
Eastern Caledonian Highlands, New Brunswick**

*S.M. Barr and C.E. White, Department of Geology  
Acadia University, Wolfville, Nova Scotia B0P 1X0*

Geological mapping in the eastern Caledonian Highlands of southern New Brunswick during the summer of 1985 covered an area of approximately 160 km<sup>2</sup> centred on the Fortyfive River pluton north of Alma. The purpose of this study is to examine in detail the distribution, field relations, lithology and chemical composition of the plutonic rocks in the area, as well as their host metavolcanic rocks, in order to interpret their petrogenesis and tectonic setting, assess their economic potential and compare them to units inferred to be of similar age elsewhere in the region, especially southeastern Cape Breton Island.

Preliminary results indicate that the plutonic rocks are mainly hornblende-bearing diorite, quartz diorite, leucotonalite, granodiorite and minor granite. There is no evidence for more than one age of plutonism, and the intrusions are inferred to be comagmatic. Host metavolcanic rocks are

mainly medium to fine-grained intermediate to felsic crystal tuffs, now metamorphosed to slate and phyllite. Primary textures are largely destroyed by development of metamorphic foliation and widespread pervasive cataclastic deformation which also affected the plutonic rocks. The Teahan Zn-Cu-Pb-Ag-Au prospect in the northern part of the map area is hosted by a felsic phyllitic unit. Similar units occur elsewhere in the map area and typically contain abundant pyrite. Pyritic quartz veins are also widespread. A major sedimentary unit (including arkose and conglomerate) may post-date the volcanic rocks, but has been deformed and metamorphosed with the older rocks. A less metamorphosed arkosic sedimentary unit with inter-layered amygdaloidal basalt flows occurs in the southern part of the map area. It is interpreted to unconformably overlie the other rock units, and may be Cambrian (or younger).