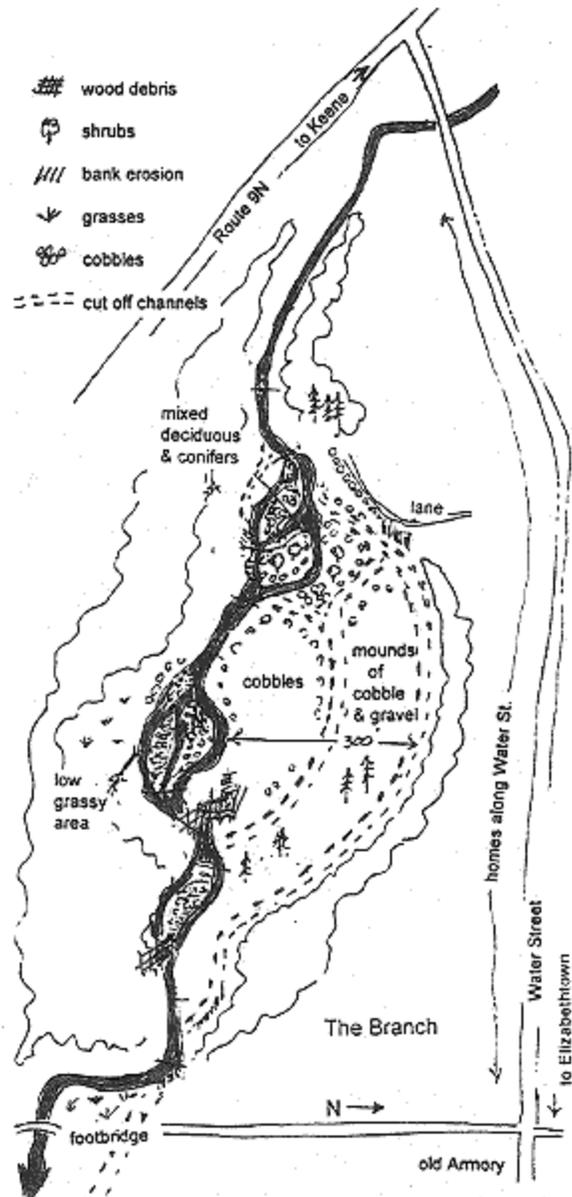


# STREAM MORPHOLOGY III BRASS GRANT PROJECT

What were we doing? Staff of the Boquet River Association, the Au Sable River Association, and summer college interns spent the summer with survey equipment in the two rivers. The purpose was to determine the type of reaches (stretches of river) in our watersheds and whether certain ones were stable or unstable.

Two tributary surveys, one on Barton Brook and another on The Branch, were interesting due to dam construction. Barton Brook was surveyed because BRASS had received a prior request for assistance from a dam owner. The dam had deteriorated and the owner wanted to know whether it should be re-built or taken out.

**Barton Brook.** Barton Brook flows southeast down Limekiln Mt., between Jackson Brook and Phelps Brook, north of Elizabethtown. The brook crosses under Denton Rd. by the Elizabethtown Highway Department and joins The Branch near the trailer park behind the Napa store on Water Street. Just downstream of the Highway Department is the dam in question. However, just upstream of Denton Rd. is the former location of an old dam (Denton's Dam) where ice used to be cut for Elizabethtown residents and businesses.



We decided to start the survey upstream of the old Denton's Dam, but not so far upstream as to get entangled in beaver dams and ponds. Barton Brook turned out to be a fairly stable, well vegetated, lovely tributary to the Boquet River. It is considered a "B4c" type stream from its physical dimensions, meaning its width/depth ratio, sinuosity, slope, access to flood plain, and channel bottom materials. (Prior newsletter articles described "C" type streams that are relatively slow-moving and meandering. A "B" stream is steeper and swifter. Barton Brook

drops 1620 feet in 6 miles. Snow melting on Limekiln Mt. will probably be in Elizabethtown within an hour.)



The brook has riffles, runs, pools and glides. Although the channel bed is predominately gravel, there are large cobbles and even a few boulders in riffle

areas. When we conducted 50-year flood measurements, all houses, driveways, and buildings were above the flood mark except for the base of a small roofed bridge over the brook and a small shed. Channel stability assessment showed some stress, including exposed tree roots, siltation of some pool areas, and growing mid-channel bars.

Personnel from NYSDEC, with landowner permission, helped BRASS with an assessment of the deteriorating dam. When the dam was built, the pool created was used as a swimming pool by guests staying at the Windsor Hotel. It must have been fairly deep, for an old postcard shows several persons in the act of diving. Now the pool has silted in with muck and a large mid-channel bar of sediment has formed. If the dam were to be removed, agency personnel fear a heavy runoff event could easily move sediment downstream. A large slug of sediment could cause flooding, and residents of the trailer park have already been evacuated in a prior flood. Therefore, DEC recommended the dam be repaired at its present, reduced height.

The Branch. The impact of former dams on The Branch have been of greater consequence to the stability of this tributary. Sometime around 1950, several dams were built on The Branch near Elizabethtown, upstream of the footbridge (near the old Armory building on Water Street). The dams created a large recreational pond, called Offset Pond. Possibly during the flood of Nov. '79, a dam was breached. At least the river cut through a meander bend according to '81 maps. Clearly, however, more recent flood events have turned a single channel stream into a multiple channel, or braided system.

BRASS survey workers struggled to get through large tree debris jams, created when floodwaters ripped out trees along the channel, downstream of the former dams. Workers also struggled to find "bankfull" indicators, since the river had moved massive amounts of cobble and gravel after it felled the trees. Water now finds its way in multiple courses between these mounds. Because of the cut-offs, multiple channels, and multiple bars, the channel stability was rated "in transition," the poorest rating of all river sections surveyed.

With funds provided by NYS through the State's Soil Water Conservation Committee for clean-up this year on the Boquet, BRASS and Elizabethtown will remove the large tree debris jams. Hopefully, this action will help The Branch try to regain a single channel.