What is an oxbow? Larry Spencer, Retired Chair, Holderness Conservation Commission

This month's column deals with the question "What is an oxbow?" There is a straight forward answer to this question. An oxbow is a river meander that at some point gets cut off from the regular pathway that the river takes as it progresses from its headwaters to the sea or to where it joins another river. If we examine a watershed (the geographical area that feeds into creeks, streams, and rivers) we find that the upper reaches of a river are small streams that pretty much because of the angle of the topography flow in a straight line downhill. As the topography begins to be less steep, the water flow begins to meander (moving right or left) in the valley that it is flowing through. As the valleys flatten out even more, the meanders become broader and often move from one side of the valley to the other in a very sharp bend at the outer edge of the loop.

If you've ever paddled down the Baker River, you know that your lateral progress is often greater than the straight line distance. As you come into a meander, you will notice that the outer arc of the meander has cut into the bank and the bank is eroding away. On the inner edge of the meander, you progress from deposits that are very coarse and as you continue downstream become very fine as you exit the meander. If you've ever climbed Rattlesnake Mountain in Rumney and look to the east down the Baker River Valley, you can see lots of meanders of the Baker River.

In the case of the Pemigewasset River, many hundreds of years ago, long before the time of settlement of folks from down south, in the vicinity of the future towns of Plymouth and Holderness, the Pemi River began to move over towards the eastern side of the valley in a large loop. Sometime after the 1860s, the Pemi River on the western side of the valley decided to go straight south and cut off this loop and thus produced an oxbow. When the dividing line between Plymouth and Holderness was drawn it was drawn along the river before the cut off had occurred. In the early years to get from Holderness to Plymouth one came down to the river someplace in the vicinity of where North Ashland Road comes off of Route 175. Then later a bridge was built that crossed over the Pemi north of the meander roughly in the same place where the modern-day bridge crosses over from the Holderness Interval into the roundabout in Plymouth. At another time another oxbow was formed just south of the larger one.

When the river cut off the oxbows, suddenly small portions of Plymouth were now located inside Holderness. When Interstate 93 was constructed, the eastern bend of the large oxbow came to be covered over by the roadbed so that at one time coming north from Ashland, you would pass from Ashland into Holderness, then for a short while be in Plymouth, and then pass back into Holderness. This eastern limb of the oxbow still flows westerly under the Interstate by a large culvert. The hayfield that Milton Huckins used to mow lies to the east of the outer limb of the oxbow and before the Interstate was built, he used to be able to take his tractor to mow the large fields that lie to the west of the Interstate. These large fields are in Ashland and Holderness.

There are two maps associated with this column. The first is from the 18th century and shows the Pemi River as a large meander to the east. The second is a map of the new conservation area called the Pemigewasset Oxbow Preserve. That map does not show a northern limb of the large oxbow as that limb has somewhat become obliterated, but it does show the southern limb of the old oxbow as a stream drains the large pond that lies adjacent to the Interstate. Just south of the field that passes from the river to the Interstate is the second, smaller oxbow.

Lidar is a type of remote sensing imaging analysis and when one examines a lidar image of the area of the Pemigewasset Oxbow Preserve, one can see the remnants of a few different river channels from the past. In fact, in the present-day area of the preserve, particularly in the Ashland portion of the property, there are a number of ponds that represent old channels of the Pemi River that are now totally cut off.

The new preserved area has a few values to the local communities. Because of the lack of developments in the area, when flooding occurs, the fact that the water can move into the existing bottoms somewhat ameliorates the flood for areas to the south. These areas can slowly drain back the flood waters, although one can see by the lines on the Citgo Station that the whole Holderness Interval now and in the past is an area that flood waters occupy when flooding takes place. When the area is not flooded, it is widely used, in the wintertime by snowmobilers, cross-country skiers and snowshoers and in snowless times by walkers, bird watchers, dog walkers, and mountain bike riders. The five properties making up the preserve (two in Plymouth, one in Holderness and two in Ashland) were previously owned by the Lakes Region Golf. They were purchased with

Land Conservation and Heritage Investment funds and money in the Holderness Town Conservation Fund on August 27th from Phil Friel, III the owner of Lakes Region Golf. Thus, the preserve is now owned and managed by the Holderness Conservation Commission and the easement is held by the Squam Lakes Conservation Society.

Map Key:

On the 1761 map, notice the Pemi indent to the right near the left side of the map

On the Google map, the preserve is enclosed within the red line.