Calculating Watersheds for Frijoles:

Working in Project **CapulinFrijolesDEM.aprx** and primarily in **WatershedsAlpha.gdb**

Download from “3DEP LidarExplorer” https://prd-tnm.s3.amazonaws.com/LidarExplorer/index.html#/

mosaic together 2016 DEMs

I queried Bandelier National Monument as AOI and downloaded the following DEMs that overlapped the Frijoles and Capulin Watersheds:

USGS\_one\_meter\_x37y397\_NM\_NorthCentral\_B2\_2016.tif

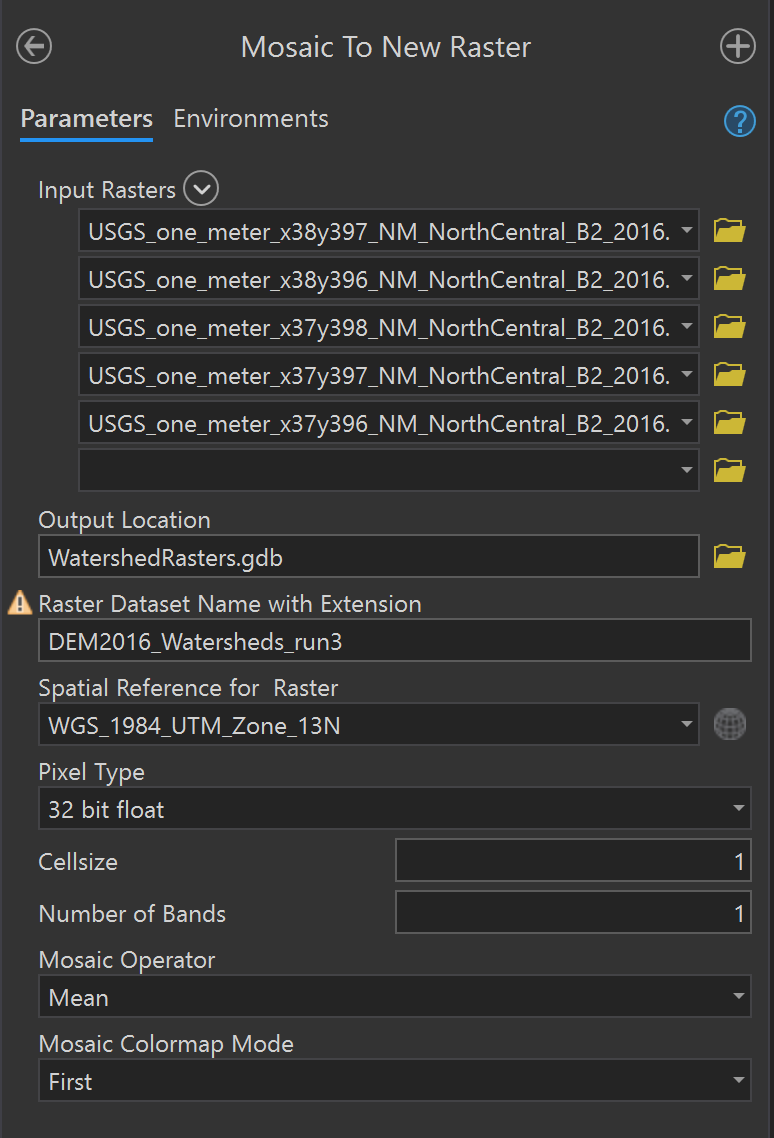
USGS\_one\_meter\_x37y397\_NM\_NorthCentral\_B2\_2016.tif

USGS\_one\_meter\_x37y398\_NM\_NorthCentral\_B2\_2016.tif

USGS\_one\_meter\_x38y396\_NM\_NorthCentral\_B2\_2016.tif

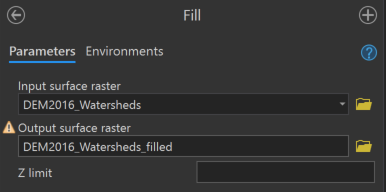
USGS\_one\_meter\_x38y397\_NM\_NorthCentral\_B2\_2016.tif

“Mosaic to New Raster”

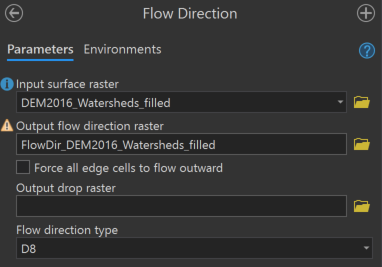


Make sure to change the “Pixel Type” to match the source files (32 bit float). Set “Cellsize” to 1. Output is single raster file, **DEM2016Watersheds\_run3**

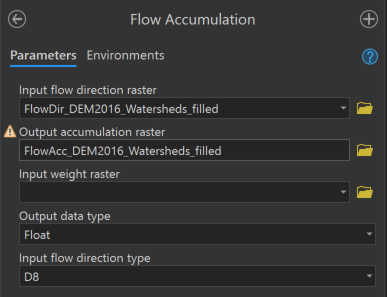
Fill DEM:



Calculate Flow Direction Raster:



Calculate Flow Accumulation raster:



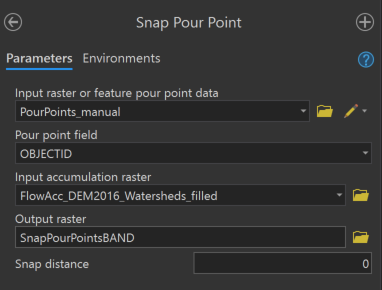
Symbolize Flow Accumulation Raster with classified color ramp so high acc thalwegs are apparent

*Con Flow Accumulation at 50 thousand*

*Stream to feature – to get thalweg do these steps, not done right now*

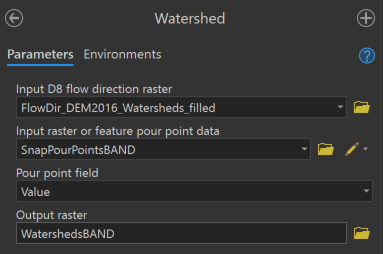
Create point feature class and manually insert at intersections of thalweg and StreamReach divisions: **PourPoints\_manual**

Snap pour points of FrijolesStreamReach markers:

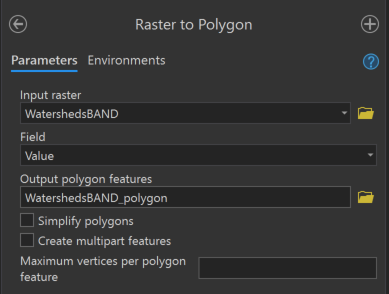


Raster of snapped pour points: **SnapPourPointsBAND**

Calculate watersheds:



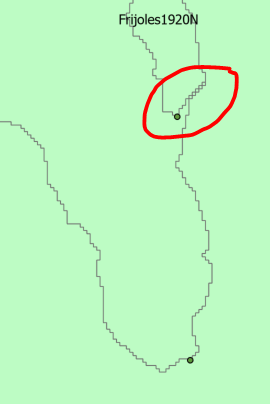
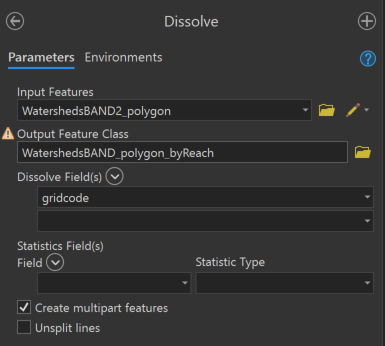
**Convert Raster layer to polygons**



Be sure to uncheck “Simplify polygons”

**Manually “Edit -> Reshape” the lowermost reaches (Frijoles01 and Capulin01) so that they include riparian deltas from BANDBottom layer**

“Dissolve” features by gridcode- polygons like this will be merged with the rest of their watersheds instead of being independent 1 m^2 polygons



Populate attributes with StreamReach and Canyon (manually)

Final polygon: **WatershedsBAND2\_polygon\_byReach** (CapulinFrijolesDEM.aprx -> WatershedsAlpha2.gdb)

Split Frijoles and Capulin

Select by attributes -> Canyon = “Frijoles” -> Feature to Feature -> **WatershedsFrijoles\_polygon\_byReach**

Select by attributes -> Canyon = “Capulin” -> Feature to Feature -> **WatershedsCapulin\_polygon\_byReach**

Buffer Frijoles

Clip DEMs to extent of buffered polygon