The Application of GIS Technology on Stream Management

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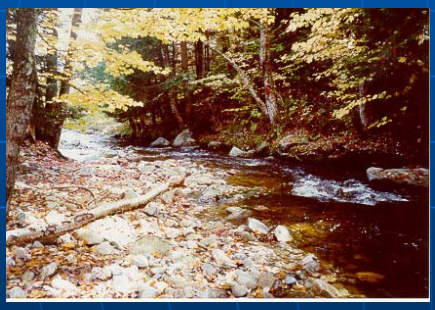
FOREST 592G

Stream Management

- Populations within stream systems
- Land use activities
- Riparian Areas
- Large Woody Debris

Northeastern Streams



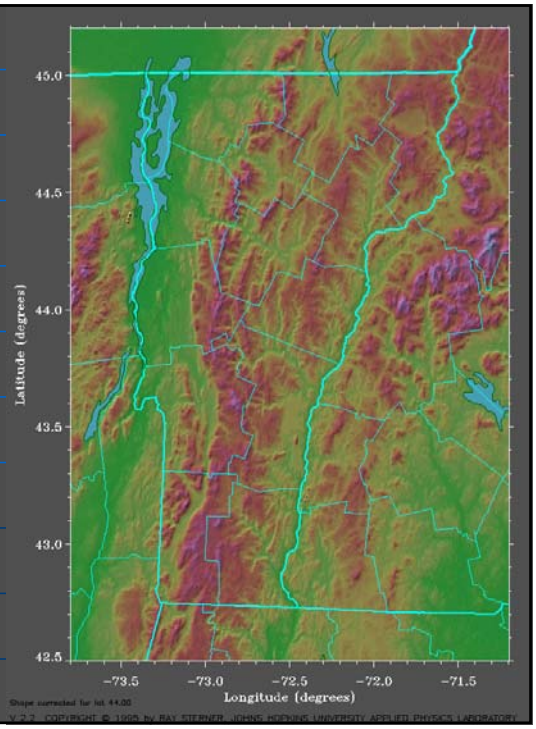
- Land Use Practices
- Lack of Old Growth Forests
- Loss of Large Woody Debris
- Lack of Habitat Diversity

Large Woody Debris

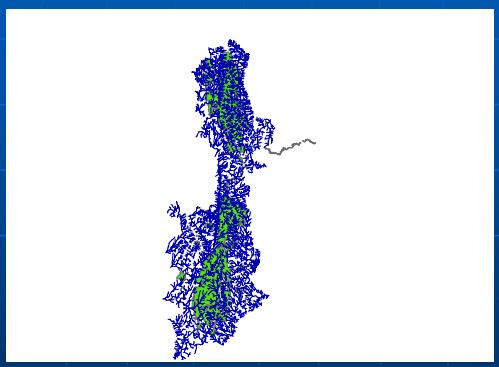
- Natural Variations of LWD
- Engineered Large woody Debris
- Habitat Diversity
- Pool Forming Qualities

Part I

GIS Analysis



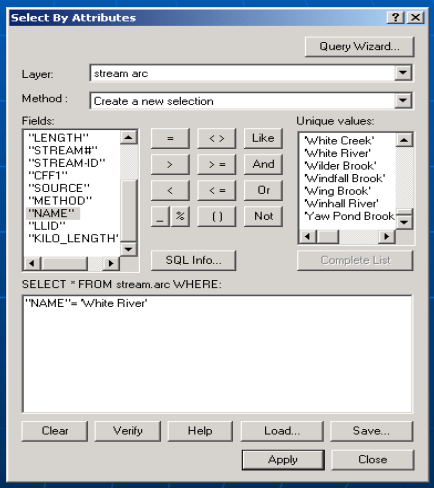
Green Mountain National Forest



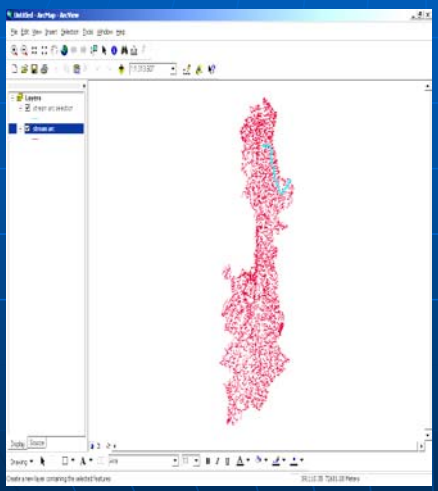
- Procured coverage files from the USFS
  - Info Folders
  - Coverage Files

Create Layers by Selection

- First: create layer of a mainsteam within a watershed
- Selection was created by the Name of the Main River within a watershed

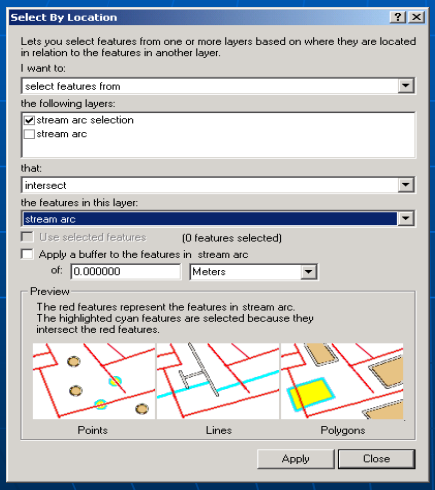


Creating Layer



- Following selection a stream would be highlighted and transformed into a layer i.e. White River

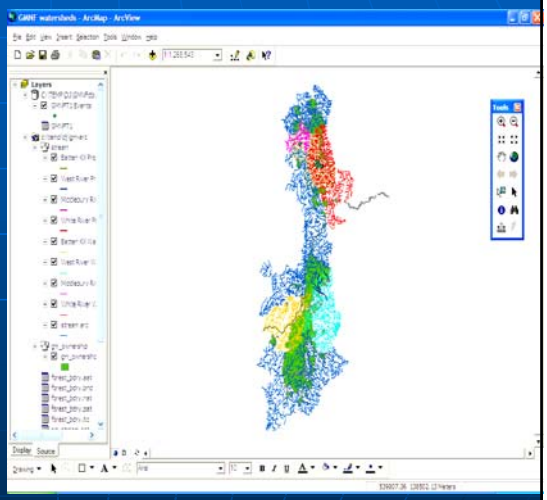
Creating Watersheds



- Used initial layer and added new layers through intersection
- Repeated process until finished

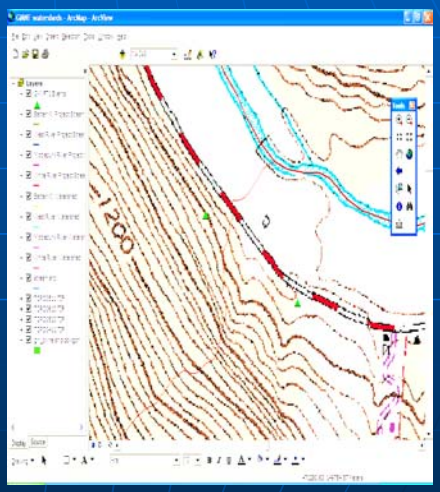
Event Theme Table

- Create a point layer
- UTM coordinates
- Event Theme Table through Microsoft Access



UTM Coordinates

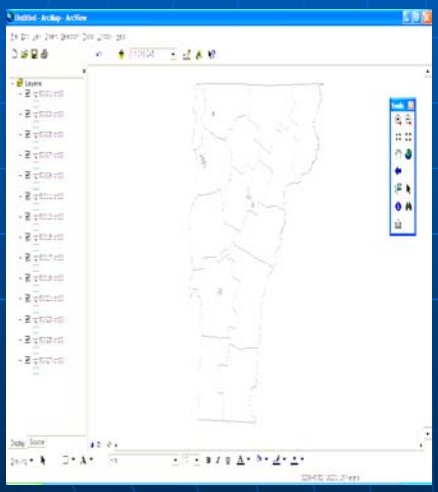
- Examined up close the error of the data points
- Had to guess and check what coordinates UTM were in
- Pulled in topo tif files to see error associated with point layer



Tiger Files

- Create a Vermont State image
- Compatible with GMNF boundary shape files
- Downloaded images from ESRI website from the Census 2000 polygon files

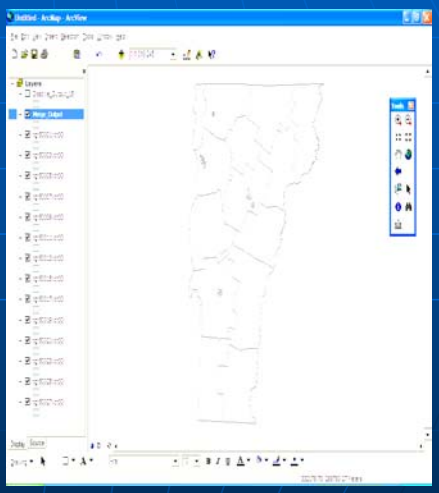
Tiger Files



- Procured from the ESRI Website
- Census boundaries for counties

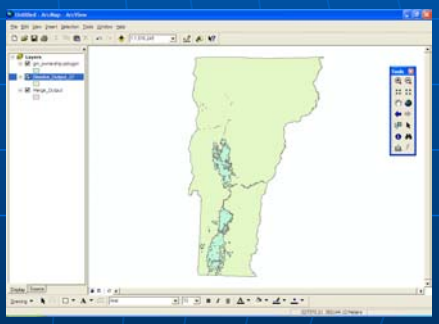
Merging of Layers

- Tools menu
- Geoprocessing Wizard
  - Merge Layers
  - Dissolve Features

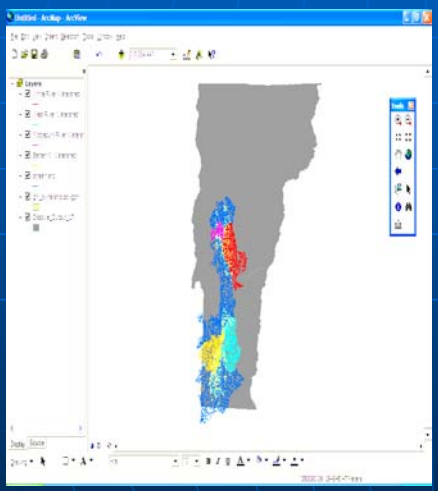


Wow it works !

- Pulled over the Green Mountain National Forest Boundary layer



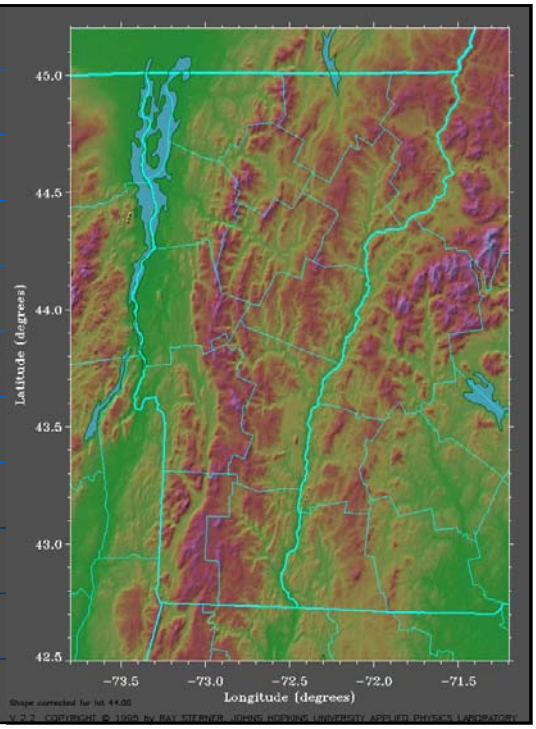
Green Mountain National Forest



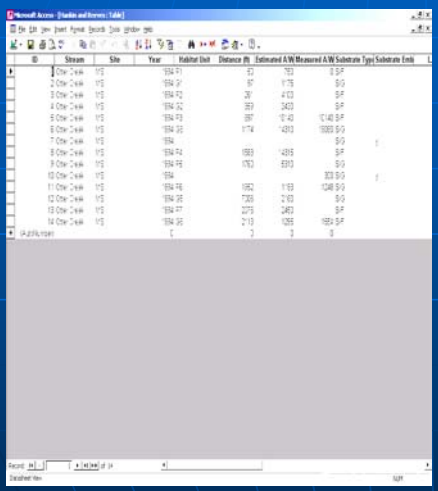
- Watersheds delineated and pulled onto the dissolved Census boundaries
- Saved as a layer file

Part II

Database Management



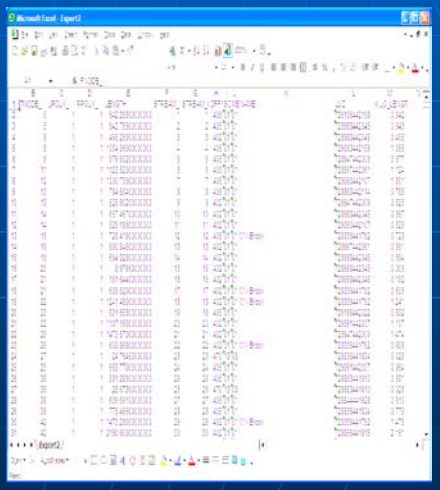
Microsoft Access Database



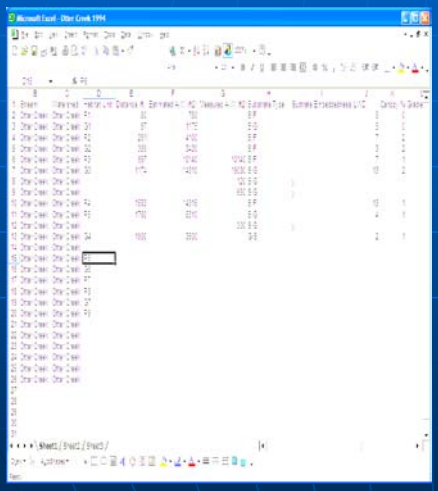
- Create Master Database for GMNF
- Two Primary Sources of Data
- Multiple Formats of Data
- Multiple Years of Data

Exporting of Attribute Tables

- Opened Stream arc attribute table
- Export data -> options button
- Reopened with Excel wouldn't open with Microsoft Access



Entering Miles of Data



- Difficult to decide what should be a primary key
- How should the data be entered?
- Miles to go…

Set Backs Ecountered

- Becoming familiar with new computer technology
- UTM coordinates
- Exporting Attribute Tables into Excel
- Database Management

Future Projections

- Create a complete Green Mountain National Forest fisheries program database
- Plot more GPS UTM points on the GMNF map
- Create a map layout that would be representative of the Engineered Large Woody Debris work on the GMNF.