

The Application of GIS Technology on Stream Management

Dana M. Jedlicka
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

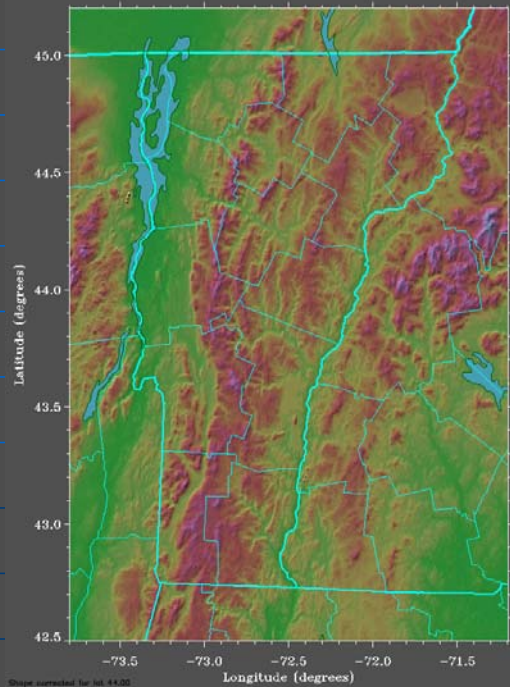
Large Woody Debris

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

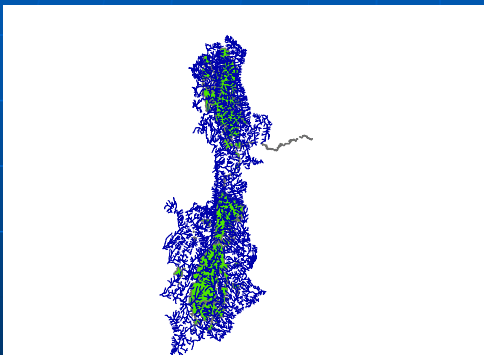


Part I

GIS Analysis



Green Mountain National Forest

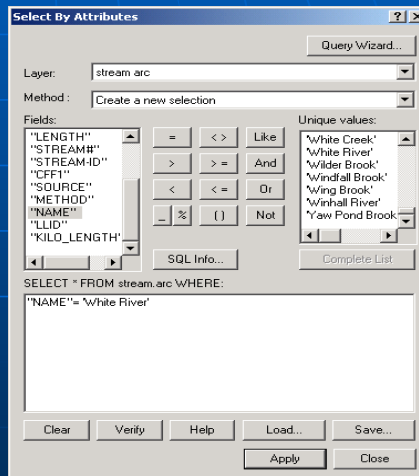


- Procured coverage files from the USFS
 - Info Folders
 - Coverage Files

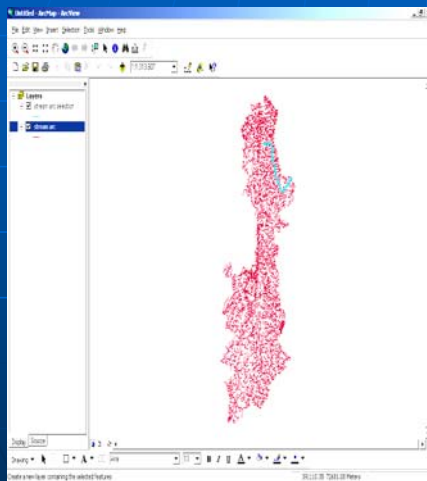


Create Layers by Selection

- First: create layer of a mainstream 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

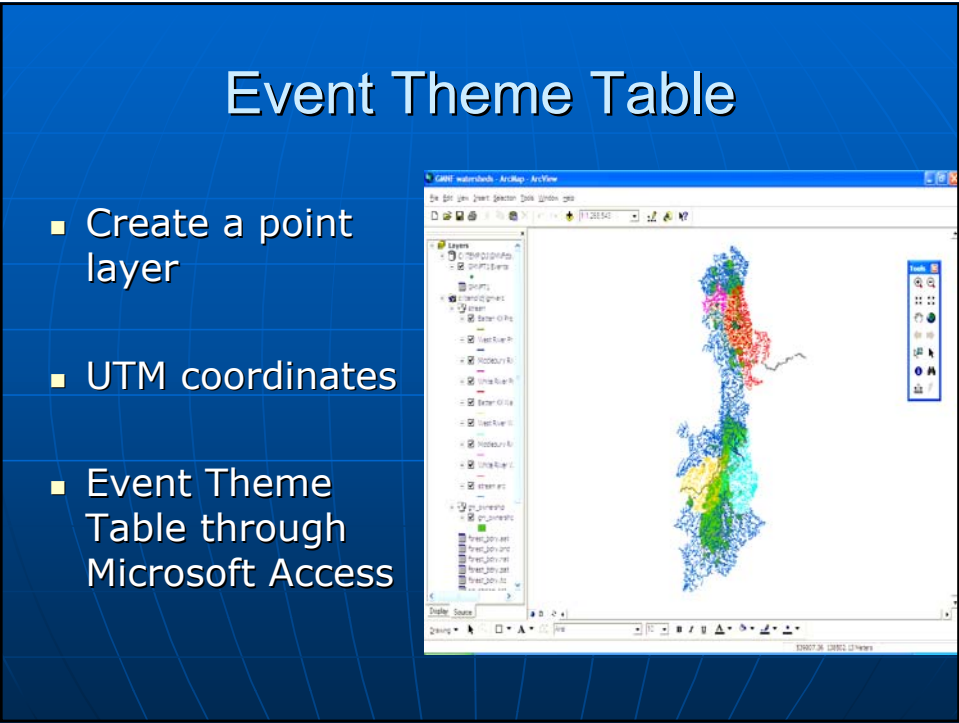
Creating Watersheds

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

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

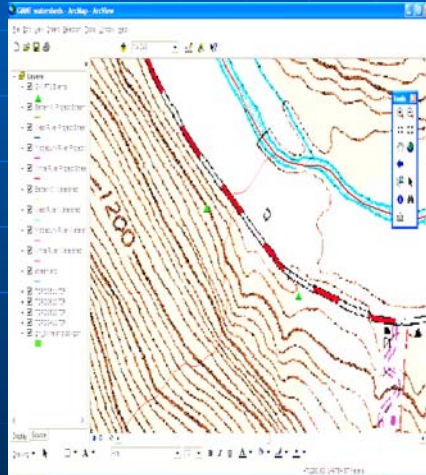
[illegible]

- [illegible]



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

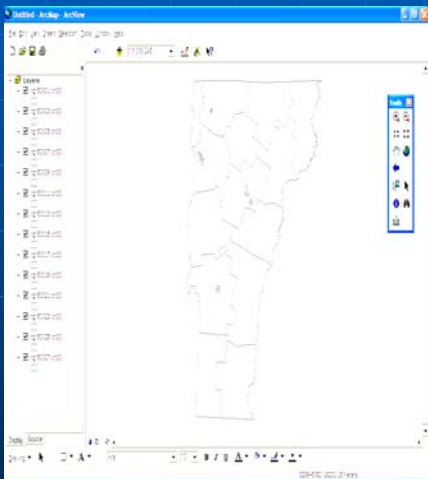


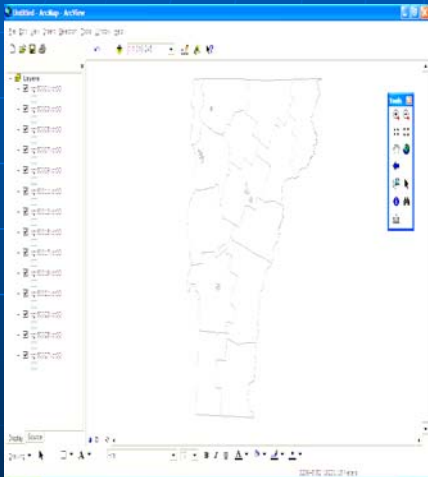
Tiger Files

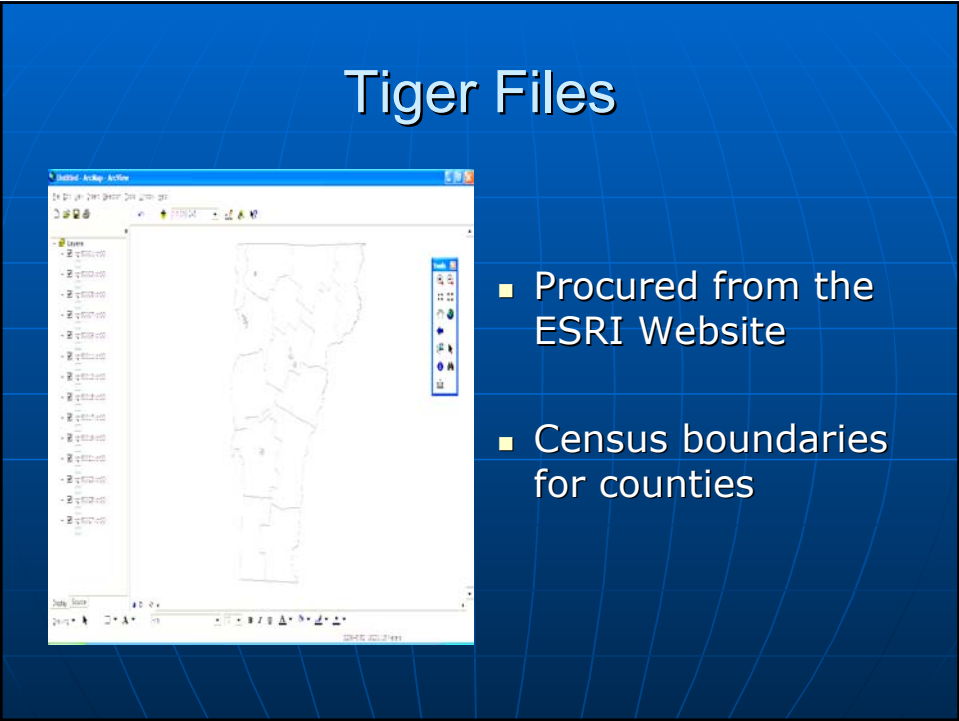
- Create a Vermont State image
- Compatible with GMNF boundary shape files
- Downloaded images from ESRI website from the Census 2000 polygon files

Tiger Files

- Procured from the ESRI Website
- Census boundaries for counties

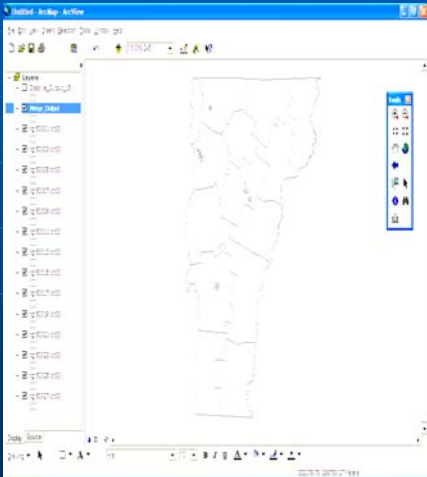


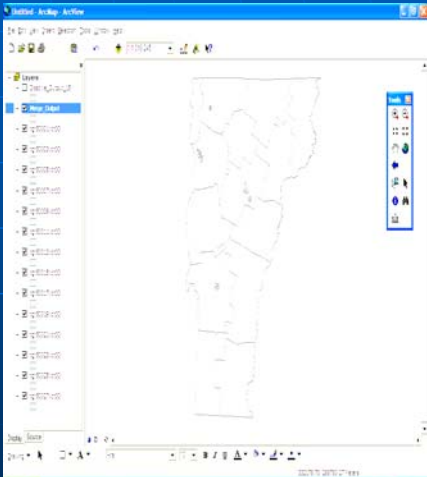
- # Tiger Files
- Procured from the ESRI Website
 - Census boundaries for counties
- 

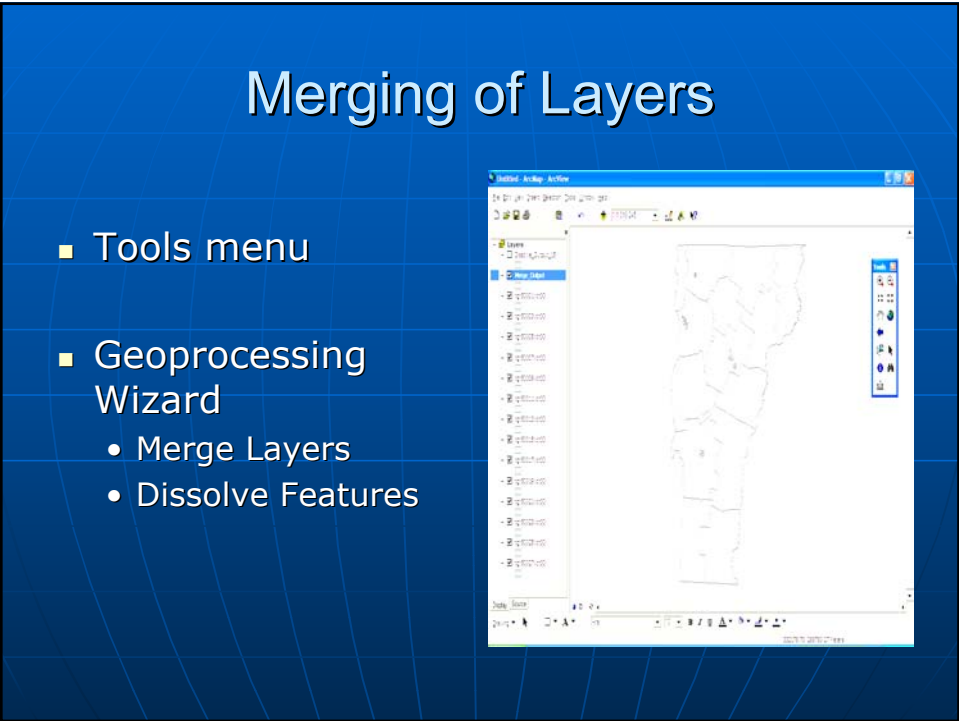


Merging of Layers

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

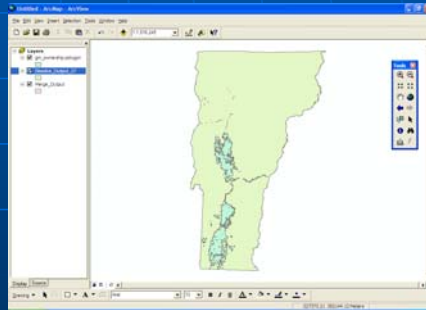


- # Merging of Layers
- Tools menu
 - Geoprocessing Wizard
 - Merge Layers
 - Dissolve Features
- 

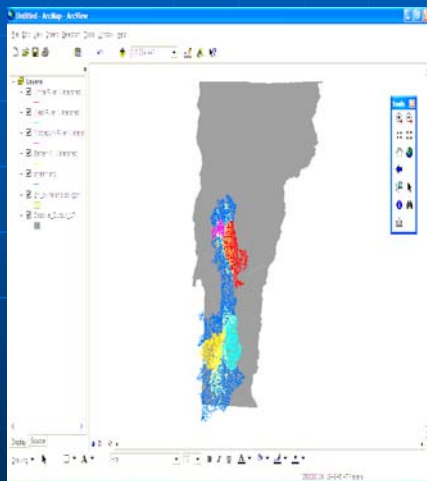


Wow it works !

- Pulled over the Green Mountain National Forest Boundary layer



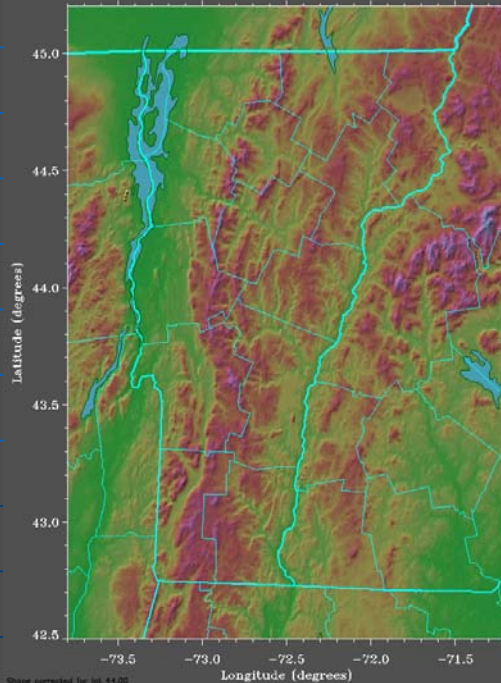
Green Mountain National Forest



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

Part II

Database Management



Microsoft Access Database

ID	Stream	Site	Year	Habitat Unit	Distance (ft)	Estimated A/W Measured A/W	Substrate Type	Substrate Size	Substrate Color
1	Old-Creek	1/1	1994-71	1	10	100	100	100	100
2	Old-Creek	1/2	1994-72	1	10	100	100	100	100
3	Old-Creek	1/3	1994-73	1	10	100	100	100	100
4	Old-Creek	1/4	1994-74	1	10	100	100	100	100
5	Old-Creek	1/5	1994-75	1	10	100	100	100	100
6	Old-Creek	1/6	1994-76	1	10	100	100	100	100
7	Old-Creek	1/7	1994-77	1	10	100	100	100	100
8	Old-Creek	1/8	1994-78	1	10	100	100	100	100
9	Old-Creek	1/9	1994-79	1	10	100	100	100	100
10	Old-Creek	1/10	1994-80	1	10	100	100	100	100
11	Old-Creek	1/11	1994-81	1	10	100	100	100	100
12	Old-Creek	1/12	1994-82	1	10	100	100	100	100
13	Old-Creek	1/13	1994-83	1	10	100	100	100	100
14	Old-Creek	1/14	1994-84	1	10	100	100	100	100

- 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

The screenshot shows a Microsoft Excel window with a table containing several columns of numerical data. The data appears to be a list of values, possibly coordinates or measurements, organized in rows and columns. The interface includes standard Excel menus and toolbars.

Entering Miles of Data

The screenshot shows a Microsoft Excel window with a table containing several columns of numerical data. The data appears to be a list of values, possibly coordinates or measurements, organized in rows and columns. The interface includes standard Excel menus and toolbars.

- 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.