Creation Of a Land Cover Dataset for 10 Subbasins

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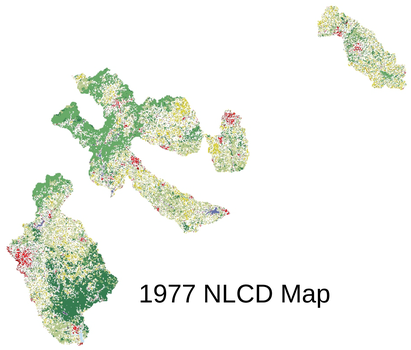
Objectives:

- ❖Create an Elevation Dataset for Watershed Delineation
  - Delineate 10 Subbasins
- ❖Create a Land Use Dataset for Analysis of Land Cover Change
  - Create a map of:
    - o1977 Land Use
    - o1992 Land Use
    - o2001 Land Use
- ❖Clip Land Cover for Each Subbasin

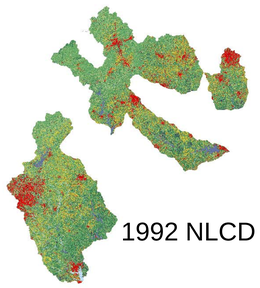
Introduction:

As humans impact their environment, it is likely to change the manner in which the natural system behaves. Land use is likely to impact many natural phenomena. One such effect is seen in changes in the hydrologic cycle and hydrologic behaviors. The effects of land cover change have been shown to impact hydrologic and geomorphic qualities in various studies (Price 2006, Bercher 2007, Kliment 2009, Chen 2005, et al.). In order to better understand the impact land cover change has on stream characteristics, a dataset must be created. Unfortunately, the Blue Ridge physiographic province has not received much attention with respect to the impact humans have had on stream channels (Price 2006). In order to analyze how streams have been impacted by land cover change, a dataset must be developed. This data must include a high spatial resolution elevation layer to allow for further watershed delineation as well as land cover data for the time period being studied. Once created, this data could be used for various hydrologic modeling, baseflow analysis, or other applications. In this study, the subbasins chosen were: the Lower Catawba, Saluda, Seneca, Tuckasegee, Upper Broad, Upper Chattahoochee, Upper French Broad, Upper Neuse, Upper Ocmulgee, and Upper Oconee (Figure 1).

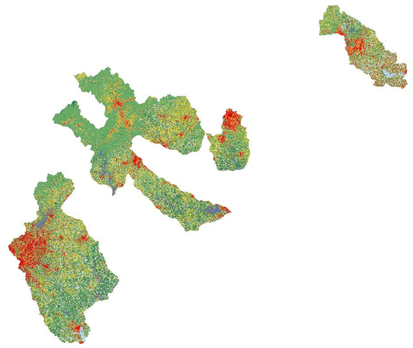
Land Cover Maps



1977 NLCD Map



1992 NLCD Map



2001 NLCD Map

Legend

- Open Water
- Residential
- Commercial/Industrial/Transportation
- Bare Rock/Sand/Clay
- Quarries/Strip Mines/Gravel Pits
- Transitional
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Orchards/Vineyards/Other
- Grassland/Herbaceous
- Other Agriculture
- Pasture/Hay
- Row Crops
- Urban/Recreational Grasses
- Woody Wetlands
- Emergent Herbaceous Wetlands

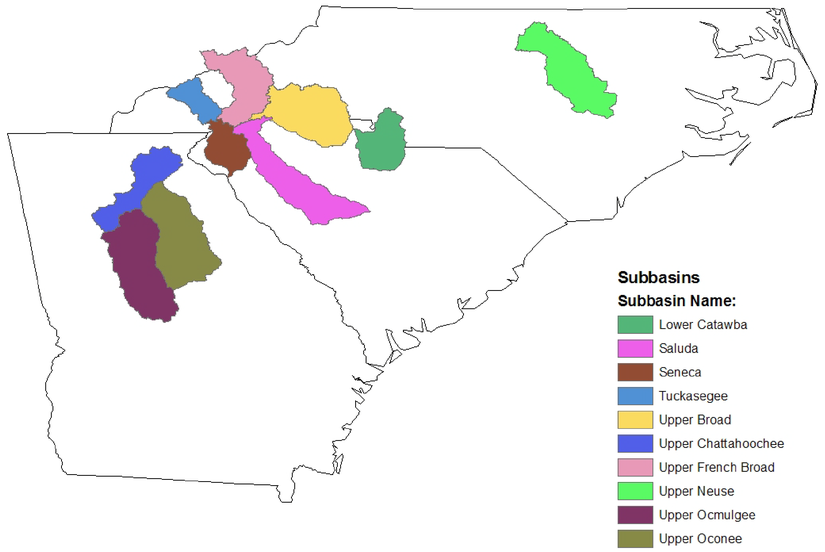
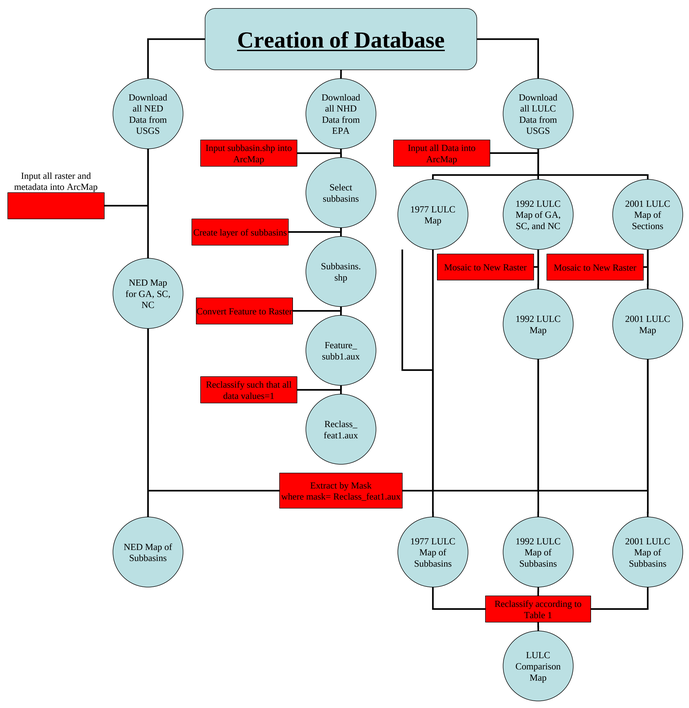


Figure 1. This map shows the location of each subbasin

NED Elevation Map

Methods:



1977

Value	Land Cover Classification	New Value	Reclassification Land Cover Classification
11	Residential	20	Residential
12	Commercial and services	23	Commercial/Industrial/Transportation
13	Industrial	23	Commercial/Industrial/Transportation
14	Transportation, communication, utilities	23	Commercial/Industrial/Transportation
15	Industrial and commercial complexes	23	Commercial/Industrial/Transportation
16	Mixed urban or built-up land	85	Urban/Recreational Grasses
17	Other urban or built-up land	85	Urban/Recreational Grasses
21	Cropland and pasture	81	Pasture/Hay
22	Orchards, groves, vineyards, nurseries, and ornamental horticultural	61	Orchards/Vineyards/Other
23	Confined feeding operations	80	Other Agriculture
24	Other agricultural land	82	Row Crops
31	Herbaceous rangeland	71	Grassland/Herbaceous
32	Shrub and brush rangeland	71	Grassland/Herbaceous
33	Mixed rangeland	71	Grassland/Herbaceous
41	Deciduous forest land	41	Deciduous Forest
42	Evergreen forest land	42	Evergreen Forest
43	Mixed forest land	43	Mixed Forest
51	Streams and canals	11	Open Water
52	Lakes	11	Open Water
53	Reservoirs	11	Open Water
54	Bays and estuaries	11	Open Water
61	Forested wetland	91	Woody Wetlands
62	Nonforested wetland	92	Emergent Herbaceous Wetlands
71	Dry salt flats	31	Bare Rock/Sand/Clay
72	Beaches	31	Bare Rock/Sand/Clay
73	Sandy areas not beaches	31	Bare Rock/Sand/Clay
74	Bare exposed rock	31	Bare Rock/Sand/Clay
75	Strip mines, quarries, gravel pits	32	Quarries/Strip Mines/Gravel Pits
76	Transitional areas	33	Transitional
91	Perennial snowfields	12	Perennial Ice/Snow

1992 Classification

Value	Land Cover Classification	New Value	Reclassification Land Cover Classification
11	Open Water	11	Open Water
12	Perennial Ice/Snow	12	Perennial Ice/Snow
21	Low Intensity Residential	20	Residential
22	High Intensity Residential	20	Residential
23	Commercial/Industrial/Transportation	23	Commercial/Industrial/Transportation
31	Bare Rock/Sand/Clay	31	Bare Rock/Sand/Clay
32	Quarries/Strip Mines/Gravel Pits	32	Quarries/Strip Mines/Gravel Pits
33	Transitional	33	Transitional
41	Deciduous Forest	41	Deciduous Forest
42	Evergreen Forest	42	Evergreen Forest
43	Mixed Forest	43	Mixed Forest
51	Shrubland	51	Shrubland
61	Orchards/Vineyards/Other	61	Orchards/Vineyards/Other
71	Grassland/Herbaceous	71	Grassland/Herbaceous
81	Pasture/Hay	81	Pasture/Hay
82	Row Crops	82	Row Crops
83	Small Grains	83	Small Grains
84	Fallow	84	Fallow
85	Urban/ Recreational Grasses	85	Urban/ Recreational Grasses
91	Woody Wetlands	91	Woody Wetlands
92	Emergent Herbaceous Wetlands	92	Emergent Herbaceous Wetlands

2001

Value	Land Cover Classification	New Value	Reclassification Land Cover Classification
11	Open Water	11	Open Water
12	Perennial Ice/Snow	12	Perennial Ice/Snow
21	Developed, Open Space	85	Urban/Recreational Grasses
22	Developed, Low Intensity	20	Residential
23	Developed, Medium Intensity	20	Residential
24	Developed, High Intensity	23	Commercial/Industrial/Transportation
31	Barren Land	31	Bare Rock/Sand/Clay
32	Unconsolidated Shore	31	Bare Rock/Sand/Clay
41	Deciduous Forest	41	Deciduous Forest
42	Evergreen Forest	42	Evergreen Forest
43	Mixed Forest	43	Mixed Forest
52	Scrub/Shrub	51	Shrubland
71	Grassland/Herbaceous	71	Grassland/Herbaceous
81	Pasture/Hay	81	Pasture/Hay
82	Cultivated Crops	82	Row Crops
90	Woody Wetlands	91	Woody Wetlands
91	Palustrine Forested Wetland	91	Woody Wetlands
92	Palustrine Scrub/Shrub	92	Emergent Herbaceous Wetlands
93	Estuarine Forested Wetlands	91	Woody Wetlands
94	Estuarine Scrub/Shrub	92	Emergent Herbaceous Wetlands
95	Emergent Herbaceous Wetland	92	Emergent Herbaceous Wetlands
96	Palustrine Emergent Wetland (Persistent)	92	Emergent Herbaceous Wetlands
97	Palustrine Emergent Wetland	92	Emergent Herbaceous Wetlands
98	Palustrine Aquatic Bed	92	Emergent Herbaceous Wetlands
99	Estuarine Aquatic Bed	92	Emergent Herbaceous Wetlands

Table 1. These tables demonstrate the reclassification values for each NLCD Map

References

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For projection and data sources, please see:
N:\users\harrell\GIS LandCover Data\POSTER\projdata.doc

Acknowledgements:

I would like to thank the following people for all of their help with this project:
Weston Dripps
Suresh Muthukrishnan
Amélie Y. Davis

Without them, this would not have been possible.