The development of user-friendly publications to advance locally led watershed-scale assessment, protection and restoration in South Carolina.

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About the Projects

- Last 3 yrs
- USDA-NRCS & ESRI-SC
- Aim: Promote locally-led conservation

- 3, parts
  - Subbasin Resource Profiles (36 documents)
  - Summary of Resource Concerns in SC (1 Book)
  - Assessment Matrix of Conservation Practices
EXECUTIVE SUMMARY

Watershed Description

This subbasin is not to be confused with the Upper and Lower Broad subbasins which occur in the north of the state. The subbasin drains the Conestee River which originates near the town of Millstone and Fishes (Figure 2) and accepts drainage from College Savannah, Hunters Pond, Little Duck Branch, Duck Branch, Beth Branch (Ley Bay), Blood Hill Creek, and Cedar Branch. The channel flows Southeast to the Broad River, a tidal channel, in Sumter and Jasper County, South Carolina. The Conestee River flows into the Broad River at the head. It joins Cooper River channel Northeast and continues Southeast to the Atlantic Ocean at Port Royal Sound. The subbasin drains approximately 861 square miles (2,220,000 acres).

The Conestee subbasin’s headwaters are in Southeastern Harris (65). The river runs through the Middle Atlantic Coastal Plain (65) and the Broad River Tidal Channel flows through the Southeastern Coastal Plain elevation (Figure 1). A brief description of the Level III ecoregions in this watershed is available in this document’s Appendix. A more detailed description of the Level III and Level IV Common Resource Areas (Ecological Regions) is available online (see Griffith et al 2002 in References section).
Resource Profiles – What are they?

- One-stop shop summary of resource concerns / opportunities
- Publicly available information
- 8-Digit HUC level

SWAPA-H
Soil, Water, Air, Plants, Animals - Humans Framework
Look and Feel of Subbasin Profiles

- Exec Summary
  - General Description - Ecoregions (or CRA’s), Land Use, Conservation Progress

- Resource Concerns
  - Soils
  - Water Quantity and Quality
  - Plants
  - Fish and Wildlife
  - Domestic Animals

- Economic and Social Factors
EXECUTIVE SUMMARY

Watershed Description

This subbasin is not to be confused with the occur in the north of the state. The subbasin originates near the towers of Allendale and Fa Swallow Swamp, Masters Pond, Little Darke Bay, Broad Hill Creek, and Cedar Branch. 71 River, a tidal channel, in Beaufort and Jasper River flows into the Broad River at the head, and continues Southeast to the Atlantic Coast approximately 851 square miles (545,000 acres).

The Cooper shuts to the subbasin’s headwater as though the Middle Atlantic Coastal Plain (63) through the Southern Coastal Plain ecosystems III ecosystems in this watershed is available in description of the Level II and Level IV Cen in available online (See Griffiths et al 2002 in 1

RESOURCE CONCERNS

Domestic Animals

Some grazing livestock occur in the upper reaches of the subbasin, mainly in Allendale County, otherwise domestic animal livestock populations in this subbasin are small.

Table 20: WHOLE COUNTY GRAZING ANIMAL POPULATION DATA FROM 2002 AG. CENSUS

<table>
<thead>
<tr>
<th>County</th>
<th>Cows/Calfs</th>
<th>Grazing/Forage</th>
<th>County Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allendale</td>
<td>6,604</td>
<td>3,230</td>
<td>13</td>
</tr>
<tr>
<td>Beaufort</td>
<td>526</td>
<td>1,250</td>
<td>46</td>
</tr>
<tr>
<td>Hampton</td>
<td>2,696</td>
<td>2,174</td>
<td>40</td>
</tr>
<tr>
<td>Jasper</td>
<td>1,151</td>
<td>1,027</td>
<td>45</td>
</tr>
</tbody>
</table>

Table 21: CONFINED ANIMAL POPULATION (As given by SCGEELand 2001.0.0.0.1a)

- Beef Live Weight (A)/ 
- Dairy Live Weight (A)/ 
- Horse Live Weight (A)/ 
- Poultry Live Weight (A)/ 
- Sheep Live Weight (A)/ 
- Turkey Live Weight (A)/

FIGURE 6: TYPE AND SIZE OF CONFINED ANIMAL OPERATION

- Beef
- Dairy
- Other
- Poultry
- Sheep
- Turkey
Part 2 – Summary of Resource Concerns in SC
Purpose of Summary

- Bigger picture – step back from subbasin view
- Prioritize subbasins WRT each other, use “top 10 approach”
Look and feel of Summary

- USDA-NRCS Strategic Plan for 2005-2010, *Productive Lands, Healthy Environment*

Goals:

1. High-quality, Productive Soils
2. Clean and Abundant Water
3. Healthy Plant and Animal Communities
4. Clean Air
5. An Adequate Energy Supply
6. Working Farm and Ranch Lands

Chapters
Note that the maps may be misleading with respect to the area around Myrtle Beach (Coastal Carolina and Waccamaw subbasins) because the Agricultural Census data are by county with the majority of these subbasin lands in Horry County. In reality, it is expected that farms with less than $2,500 in sales and owned by people whose primary income is not farming are clustered around Myrtle Beach.

While urbanization is a concern, especially in the coastal areas, the 1992–2002 census data suggest that the shift in cropland has not been limited to urban land but other land uses such as recreation, wetland and forest use. This trend appears to be typical of a national trend observed by Tweeden (1998) who suggests the cause of this land use change is due more to a lack of farm profitability than pressures of urbanization.
## Part 3 - Assessment Matrix

### Subbasin: 03040201 - Middle Pee Dee

### Scenario: Crop - Southern Coastal Plain

<table>
<thead>
<tr>
<th>Primary Resource Concerns Addressed</th>
<th>% of CP's Addressing RC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheet and Rill</td>
<td>87%</td>
</tr>
<tr>
<td>Excessive Nutrients and Organics in Surface Water</td>
<td>8%</td>
</tr>
<tr>
<td>Wind</td>
<td>3%</td>
</tr>
<tr>
<td>T&amp;E Species: Declining Species, Species of Concern</td>
<td>1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Practice name</th>
<th>Count</th>
<th>Applied Amount</th>
<th>Units</th>
<th>Amt/1000 ac HUC8</th>
<th>Amt/1000 ac Scenario</th>
<th>Difference</th>
<th>% Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrient Management</td>
<td>276</td>
<td>4343</td>
<td>ac</td>
<td>24.4</td>
<td>32.9</td>
<td>(8.5)</td>
<td>-26%</td>
</tr>
<tr>
<td>Cover Crop</td>
<td>204</td>
<td>4129</td>
<td>ac</td>
<td>23.2</td>
<td>13.5</td>
<td>9.8</td>
<td>72%</td>
</tr>
<tr>
<td>Residue and Tillage Management, No-Till/Strip Till/Direct S</td>
<td>106</td>
<td>2304</td>
<td>ac</td>
<td>13.0</td>
<td>23.4</td>
<td>(10.5)</td>
<td>-45%</td>
</tr>
<tr>
<td>Pest Management</td>
<td>66</td>
<td>1392</td>
<td>ac</td>
<td>7.8</td>
<td>11.8</td>
<td>(3.9)</td>
<td>-33%</td>
</tr>
<tr>
<td>Early Successional Habitat Development/Management</td>
<td>34</td>
<td>102</td>
<td>ac</td>
<td>0.6</td>
<td>0.3</td>
<td>0.3</td>
<td>110%</td>
</tr>
<tr>
<td>Fence</td>
<td>19</td>
<td>40549</td>
<td>ft</td>
<td>228.2</td>
<td>54.1</td>
<td>174.1</td>
<td>322%</td>
</tr>
<tr>
<td>Conservation Crop Rotation</td>
<td>11</td>
<td>191</td>
<td>ac</td>
<td>1.1</td>
<td>8.5</td>
<td>(7.4)</td>
<td>-87%</td>
</tr>
<tr>
<td>Heavy Use Area Protection</td>
<td>5</td>
<td>1</td>
<td>ac</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>344%</td>
</tr>
<tr>
<td>Tree/Shrub Establishment</td>
<td>4</td>
<td>10</td>
<td>ac</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
<td>18%</td>
</tr>
<tr>
<td>Irrigation System, Sprinkler</td>
<td>4</td>
<td>265</td>
<td>ac</td>
<td>1.5</td>
<td>18.1</td>
<td>(16.6)</td>
<td>-92%</td>
</tr>
</tbody>
</table>
What is an Assessment Matrix?

- Planning tool:

  - Resource Concerns
  - Current CP’s
  - CP Physical Effects

  By HUC8

  Conservation Planning

  Plan:
  Type of CP, timing, placement, cost, est impact
Planning Basis: Historic Conservation Data

- 37,000 CP’s (2005-2007)
- Spatially referenced
- Tabular attributes include
  - Land use
  - Cons Practice (Code, name)
  - Amt applied
  - Program (e.g., EQIP, CTA, WHIP, CRP, WRP)
  - Primary Resource Concern
Analysis:

Total # of CP’s 2005-2007: 37,295

Land Use

Cons Practices

Crop
Pasture
Forest
Wildlife
Hay

Ecoregion

Cons Practices

So. Cstl Pl
So. Piedmt
Atl Cst
Fltwds
Ca Ga
Sndhls

Program

Cons Practices

EQIP
CTA-GENRL
CRP
CTA-GLC
WHIP
WRP

Resource Concern

Cons Practices

S&R
Prod, Hth
Vigor
T&E Spp
Exc Nut &
Org
Wind
Inad
Cov/Sh

Cons Practices

Inad Cov/Sh
Question: What factors influence CP usage? E.g., land use (no-brainer)

<table>
<thead>
<tr>
<th>Rank</th>
<th>Cropland</th>
<th>Pasture</th>
<th>Forestland</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nutrient Management</td>
<td>Nutrient Management</td>
<td>Upland Wild Hab Mangmt</td>
</tr>
<tr>
<td>2</td>
<td>Residue / Tillage Mngmnt</td>
<td>Pest Management</td>
<td>Prescribed Burning</td>
</tr>
<tr>
<td>3</td>
<td>Upland Wild Hab Mangmt</td>
<td>Prescribed Grazing</td>
<td>Forest Stand Improvement</td>
</tr>
<tr>
<td>4</td>
<td>Conservation Crop Rotation</td>
<td>Fence</td>
<td>Firebreak</td>
</tr>
<tr>
<td>5</td>
<td>Conservation Cover</td>
<td>Pasture and Hay Planting</td>
<td>Tree/Shrub Establishment</td>
</tr>
<tr>
<td>6</td>
<td>Pest Management</td>
<td>Heavy Use Area Protection</td>
<td>Tree/Shrub Site Preparation</td>
</tr>
<tr>
<td>7</td>
<td>Use Exclusion</td>
<td>Watering Facility</td>
<td>Land Clearing</td>
</tr>
<tr>
<td>8</td>
<td>Cover Crop</td>
<td>Pipeline</td>
<td>Forest Trails and Landings</td>
</tr>
<tr>
<td>9</td>
<td>Field Border</td>
<td>Waste Utilization</td>
<td>Early Suc Hab Dev</td>
</tr>
<tr>
<td>10</td>
<td>Early Suc Hab Dev</td>
<td>Water Well</td>
<td>Critical Area Planting</td>
</tr>
</tbody>
</table>
Question: What factors influence CP usage? E.g., CRA by cropland

<table>
<thead>
<tr>
<th>Rank</th>
<th>Piedmont</th>
<th>Southern Coastal Plain</th>
<th>Tidewater</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conservation Cover</td>
<td>Nutrient Management</td>
<td>Upland Wildlife Habitat Management</td>
</tr>
<tr>
<td>2</td>
<td>Nutrient Management</td>
<td>Residue Mngmt, Seasonal</td>
<td>Residue Management, Seasonal</td>
</tr>
<tr>
<td>3</td>
<td>Pest Management</td>
<td>Upland Wildlife Habitat Management</td>
<td>Cover Crop</td>
</tr>
<tr>
<td>4</td>
<td>Use Exclusion</td>
<td>Pest Management</td>
<td>Residue Tillage Mngmt</td>
</tr>
<tr>
<td>5</td>
<td>Conservation Crop Rotation</td>
<td>Conservation Crop Rotation</td>
<td>Pasture and Hay Planting</td>
</tr>
<tr>
<td>6</td>
<td>Residue Tillage Mngmt</td>
<td>Cover Crop</td>
<td>Nutrient Management</td>
</tr>
<tr>
<td>7</td>
<td>Contour Farming</td>
<td>Conservation Cover</td>
<td>Pipeline</td>
</tr>
<tr>
<td>8</td>
<td>Residue Mngmt, Seasonal</td>
<td>Use Exclusion</td>
<td>Wetland Wildlife Habitat Management</td>
</tr>
<tr>
<td>9</td>
<td>Waste Utilization</td>
<td>Field Border</td>
<td>Irrigation System, Microirrigation</td>
</tr>
<tr>
<td>10</td>
<td>Forest Stand Improvement</td>
<td>Early Suc Hab Dev</td>
<td>Water Well</td>
</tr>
</tbody>
</table>
Result: What do the data provide?

- Reflects large dataset of on-site assessments
- Diverse (and changing) opinions styles within the agency
- Empirical dataset (yes, with flaws) that provide a reasonable basis for planning
- Probably NOT user friendly to a general audience esp. at the local level
Conclusions

- Resource profiles are good references for 8-digit HUC’s – more geared to the conservation professional than public
- Summary of Resource Concerns – better job of giving overall picture of RC’s and helps rank HUC’s against each other
- Assessment matrix – not as user friendly as originally thought – planning tool at statewide level
Thoughts for the future

- Resource profiles and summary a resource of information to be used in combined with other media
- Spatial /electronic conservation practice data - a treasure
  - E.g., Use in combination with RS data, FSA farm field data, soils and other layers to ID signatures of CP’s
- Using video media – conservation themes