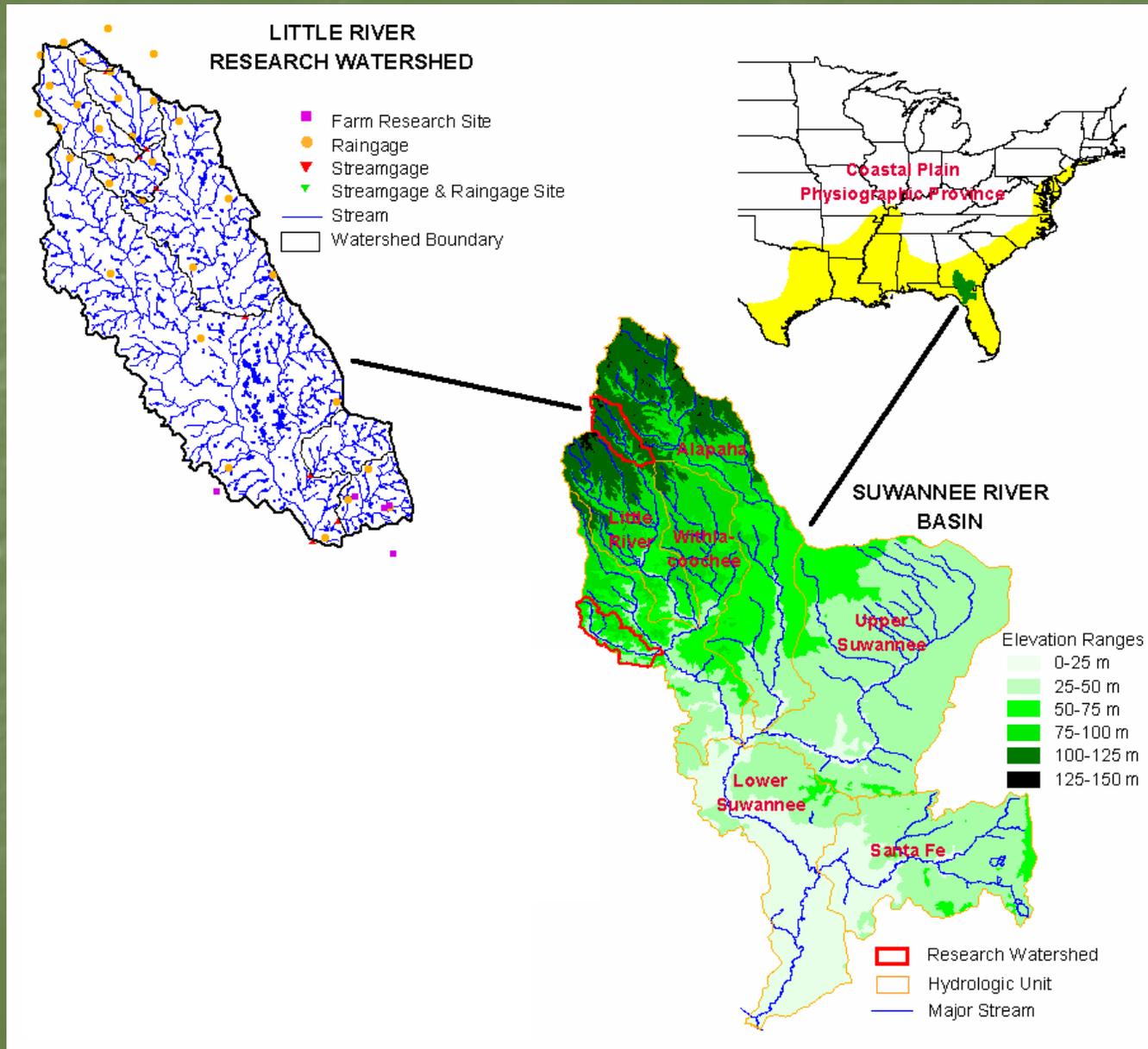


Southeast Watershed Research Lab



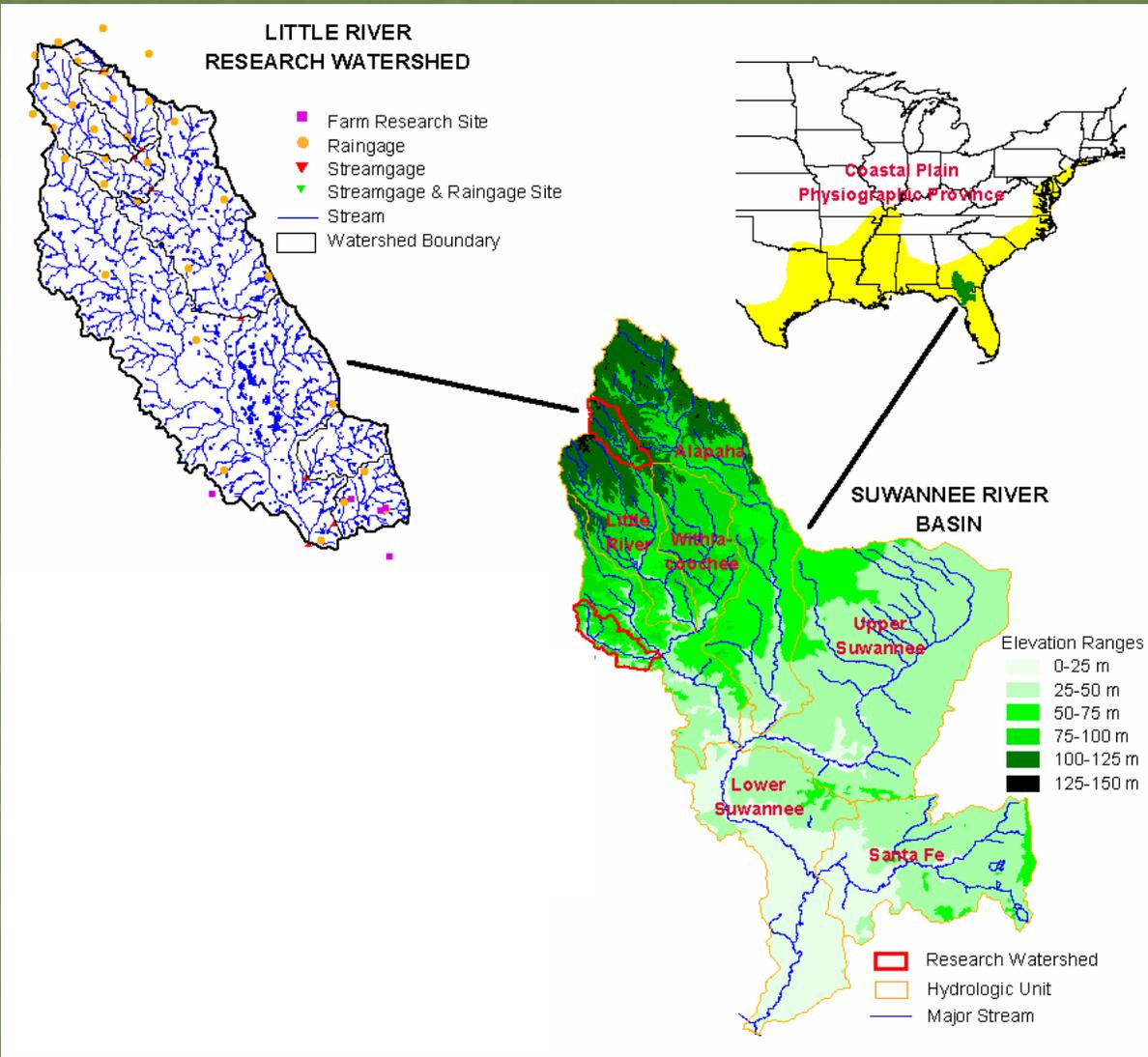
Objectives related to CEAP

- Evaluate controlling relationships between agricultural management and hydrologic and water quality responses for the Little River Experimental Watershed.

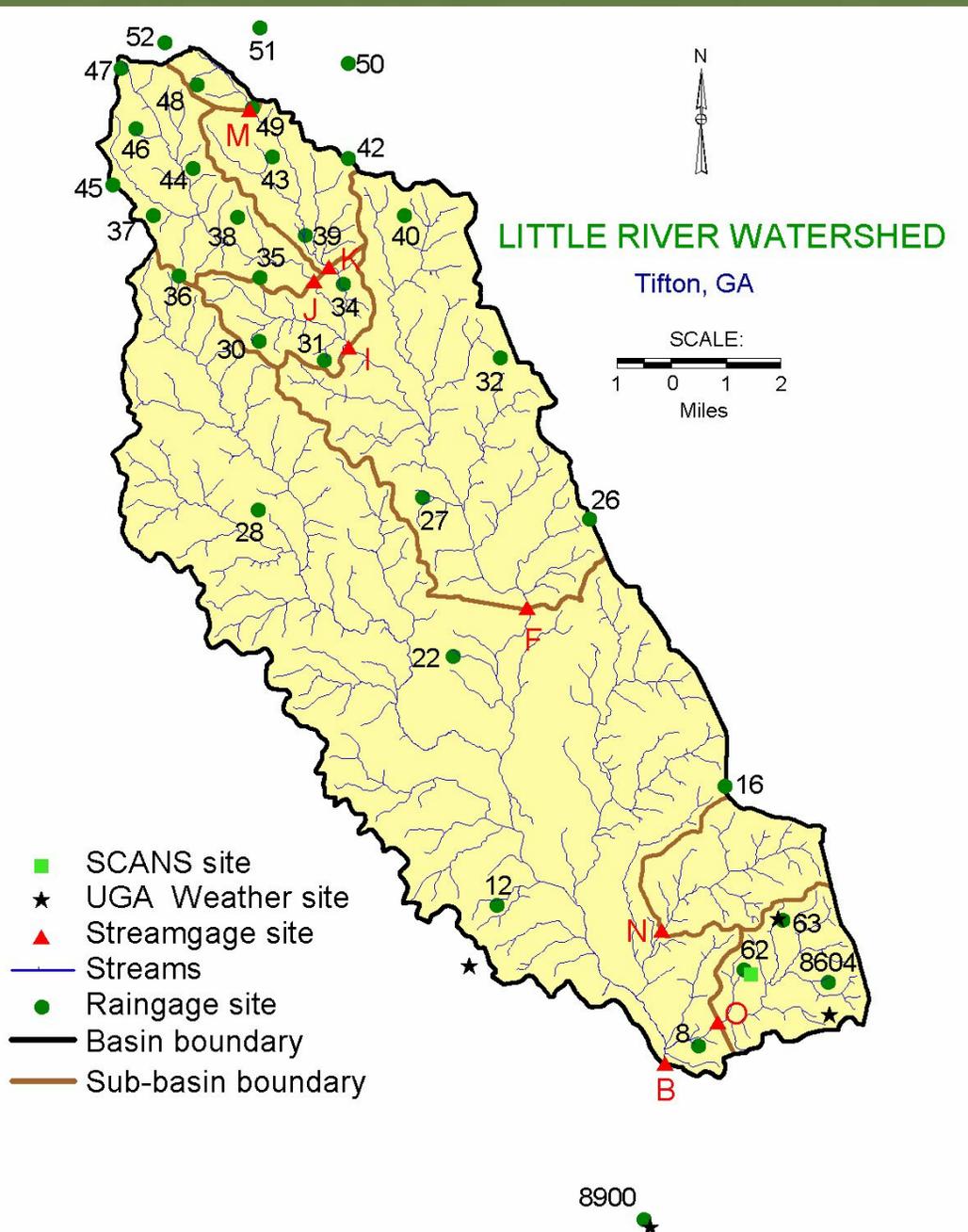
Approach and activities

- Relate existing BMPs to historical data
- Introduce BMPs on small watersheds and characterize response
- Validate and modify SWAT and AnnAGNPS using existing data sets
- Incorporate and test linkages between watershed models and REMM
- Characterize modeling errors

Little River Watershed



- 334 km² measurement area
- Located within LR 8 digit HUC (03110204)
- Headwaters of Suwannee River Basin

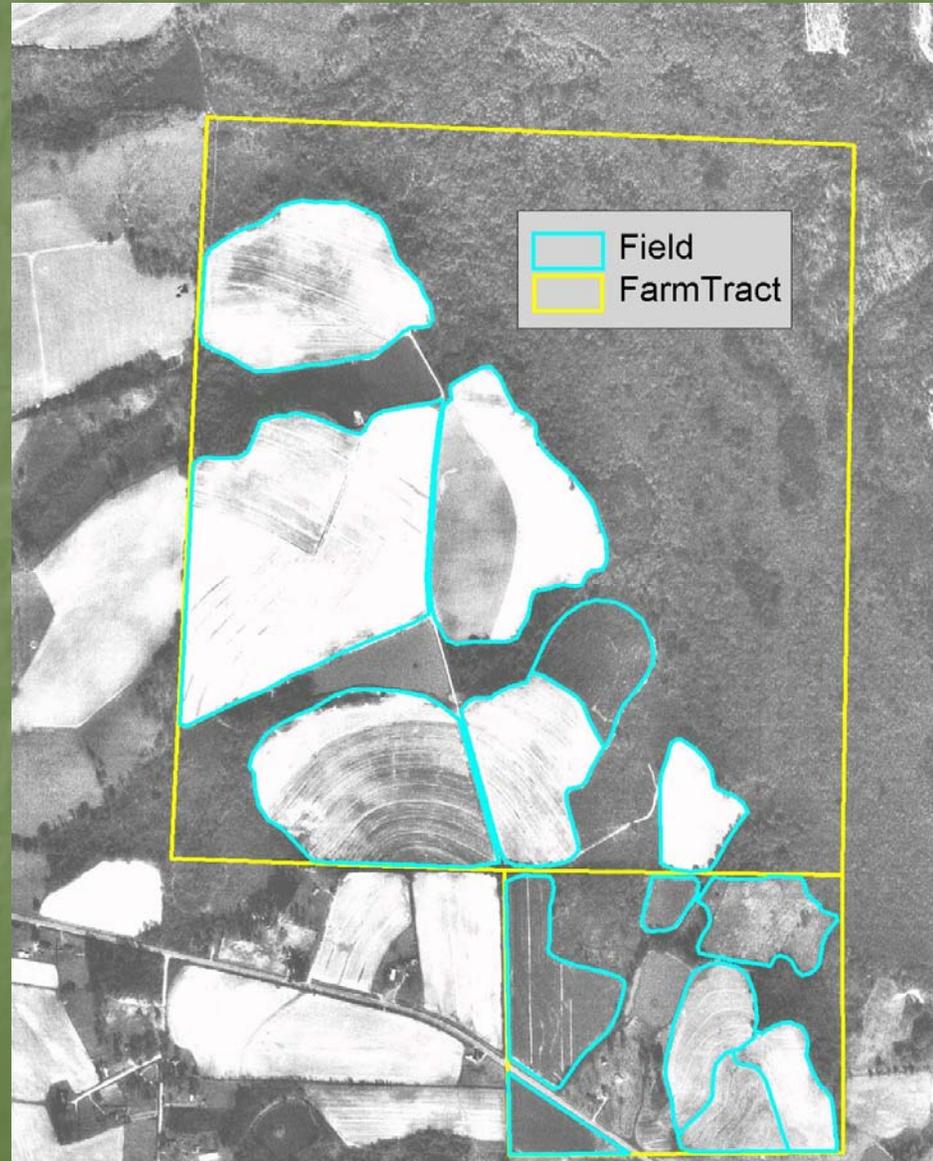


Instrumentation

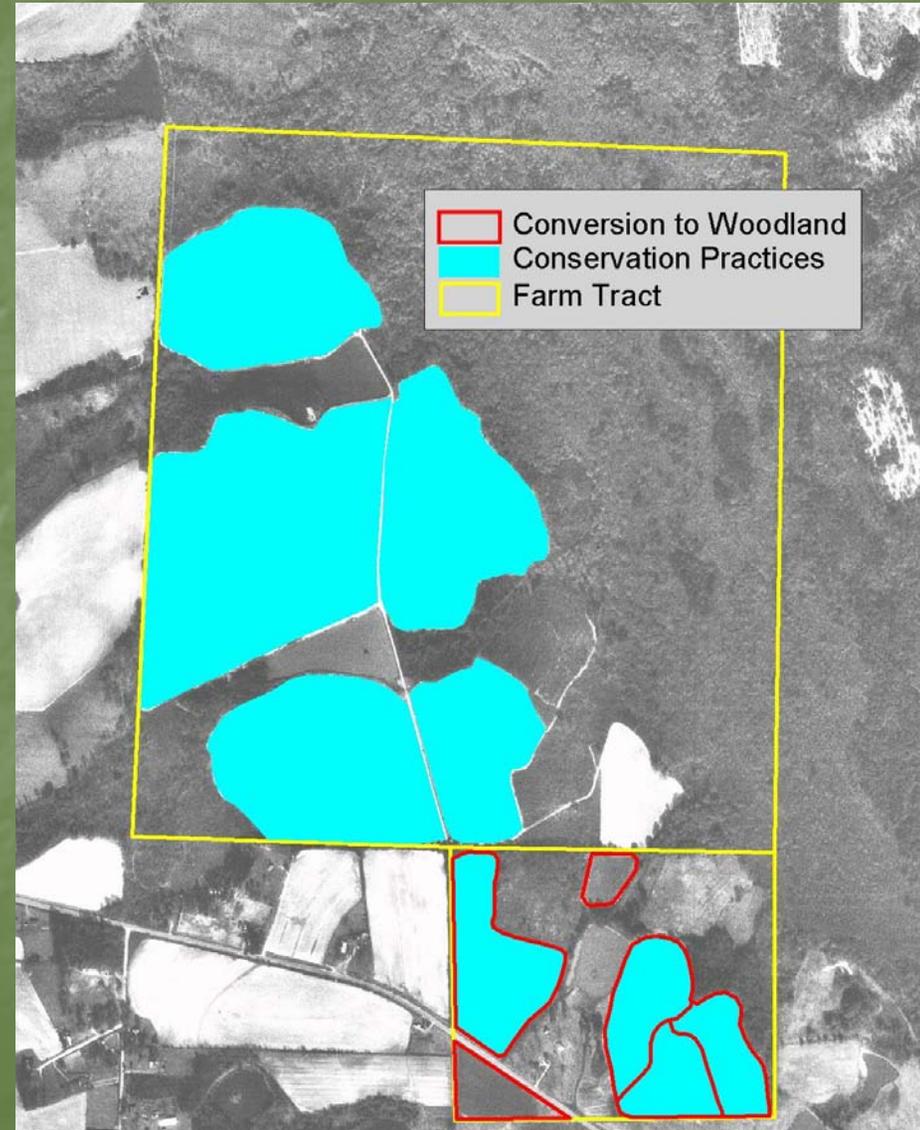
- 8 nested and paired watersheds ranging from 3 to 334 km²
- 36 rain gage sites
- Hydrologic and Water Quality measurements

BMP Characterization

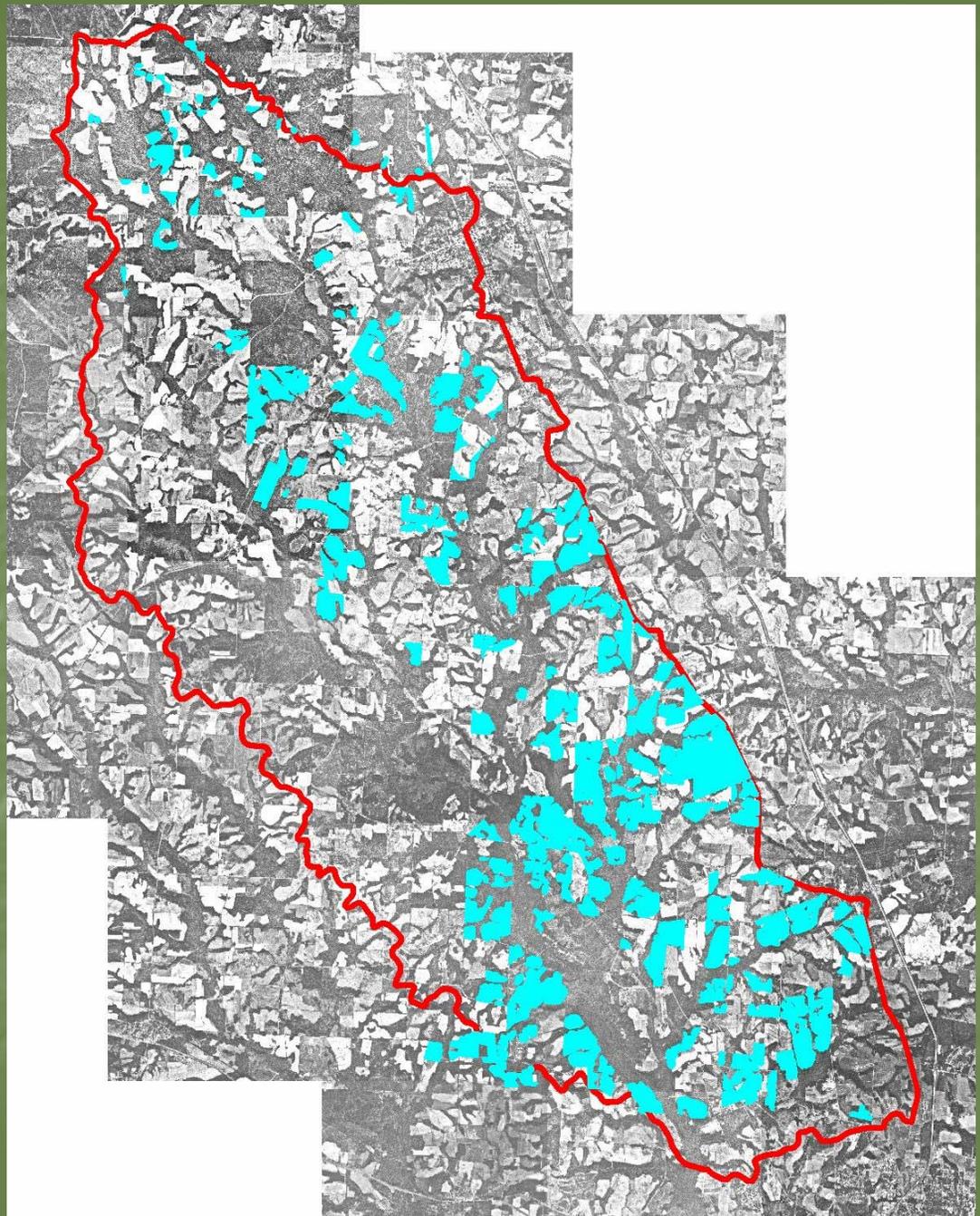
Farm by Farm
Characterization of
existing practices



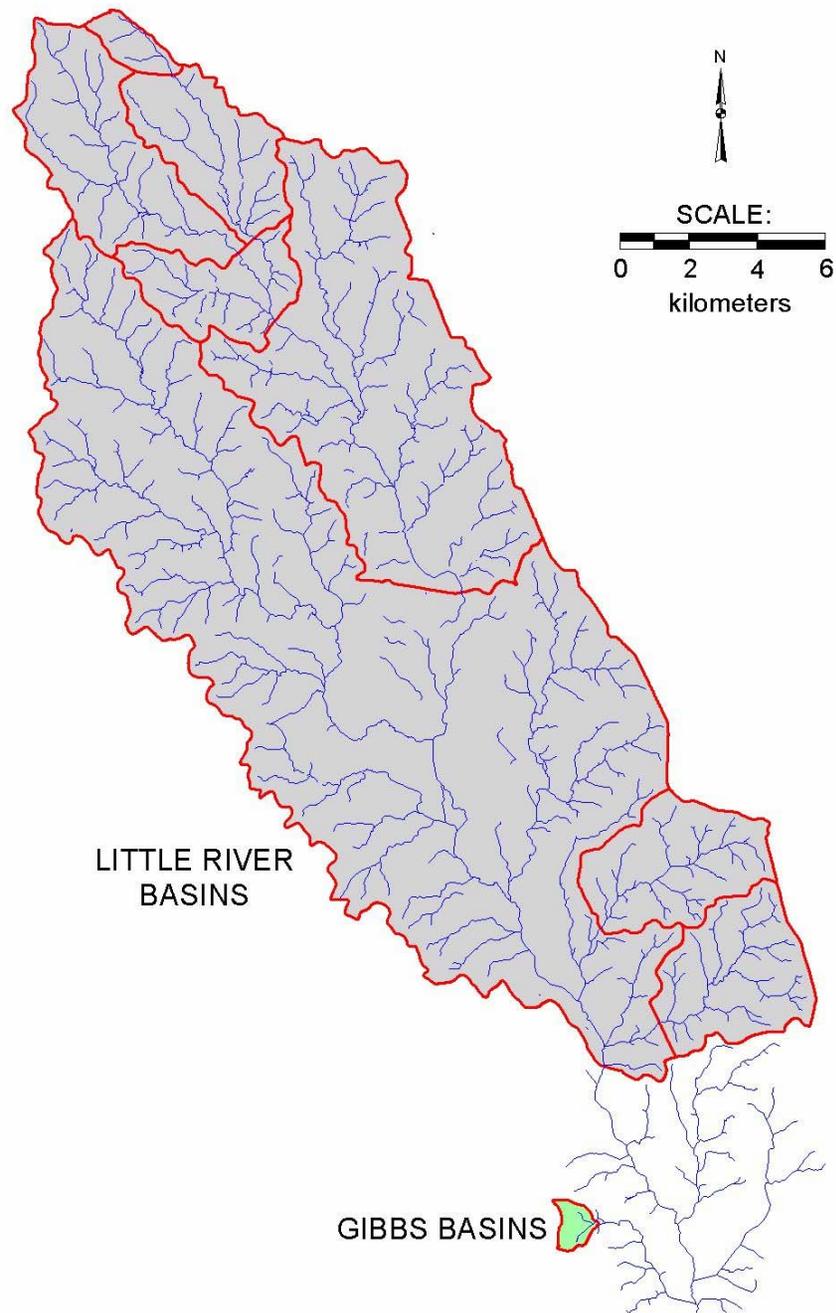
Characterization of
existing practices –
incorporate into
GIS



Little River – Characterization of Conservation Practices



**Gibbs Farm
Watershed (123 ha,
1.2 km²)**



Gibbs Farm Watersheds

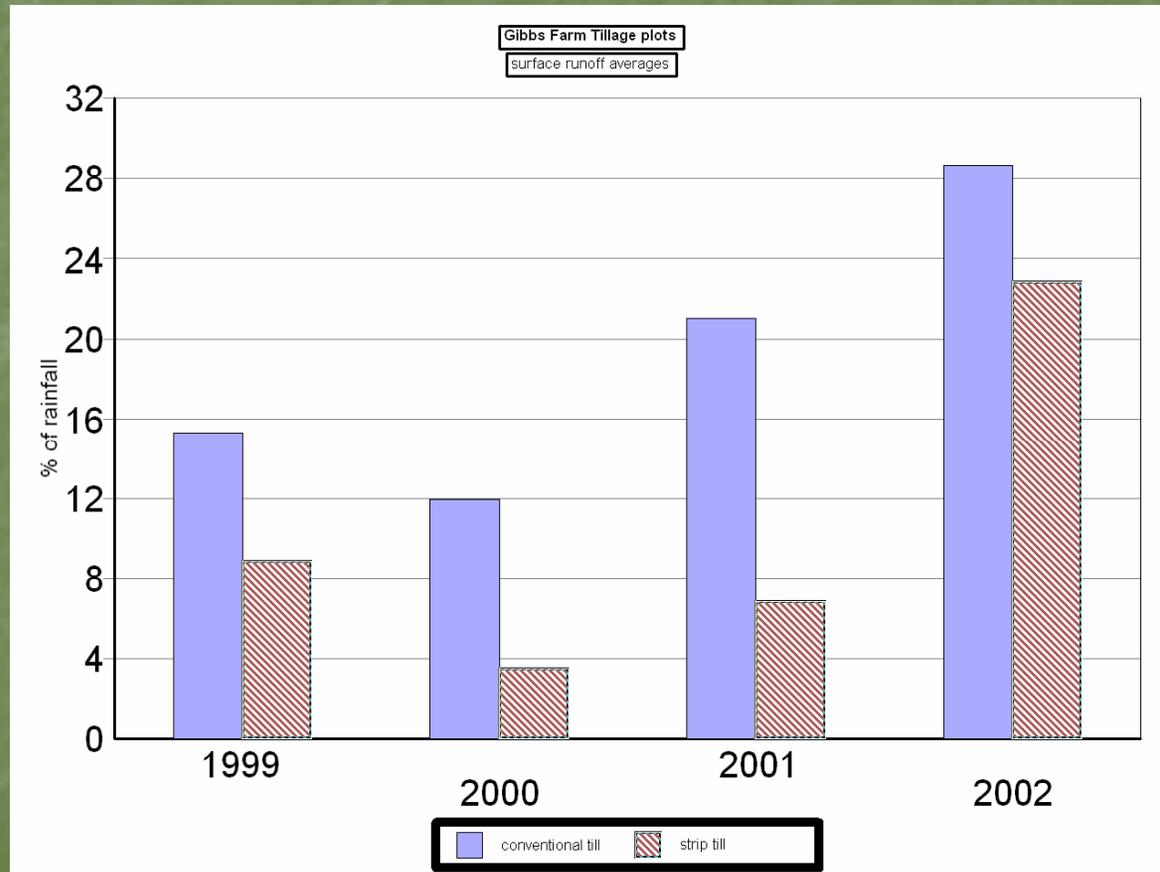


Gibbs Farm Cotton Tillage Plots



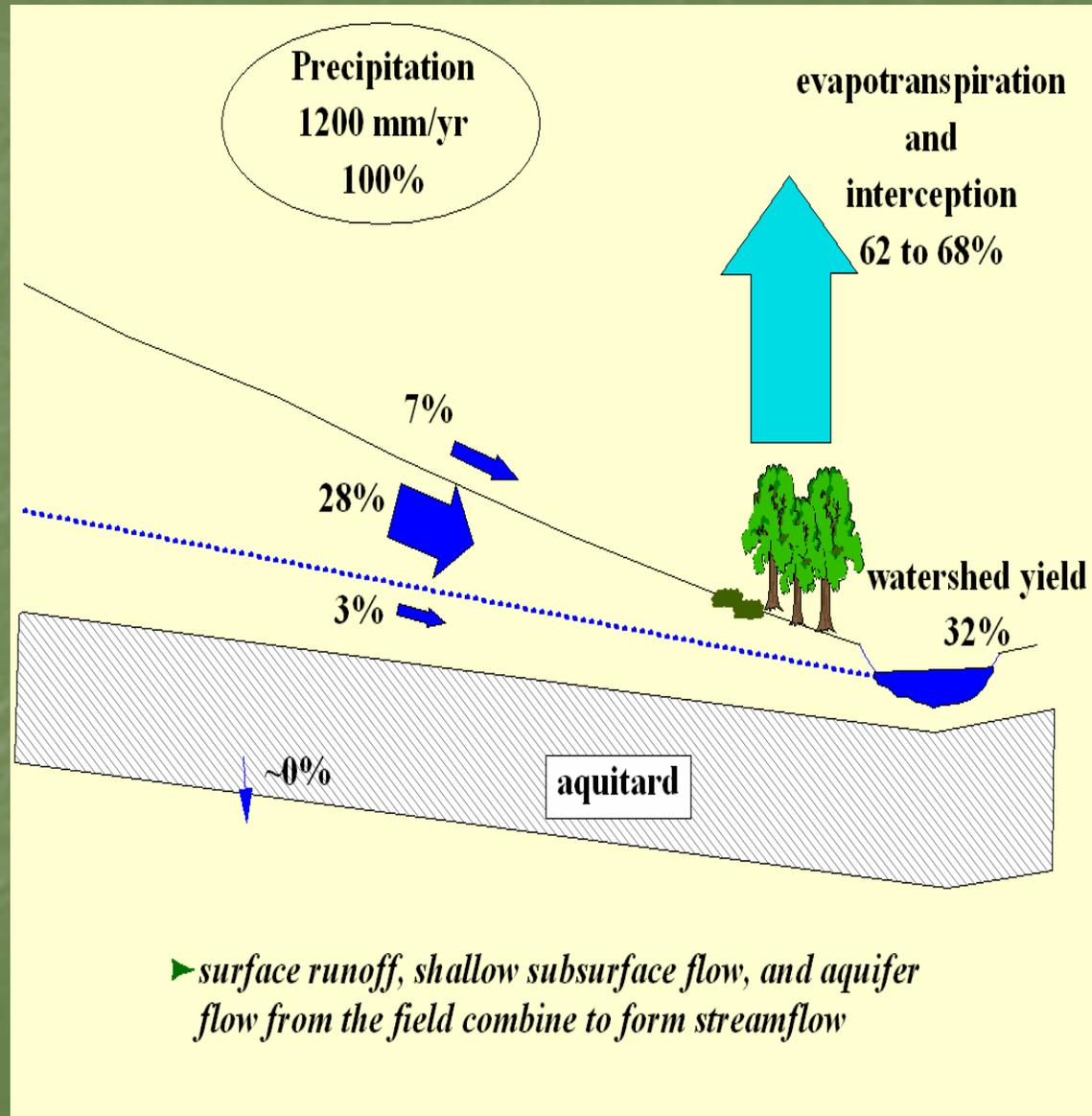
Impact of *Reduced Tillage*

- Reduces Runoff by a factor of 2-3
- Increases infiltration
- Increases plant available water
- Reduces Soil Loss by a factor of 2-3
- Increases soil carbon
- Reduces pesticide losses



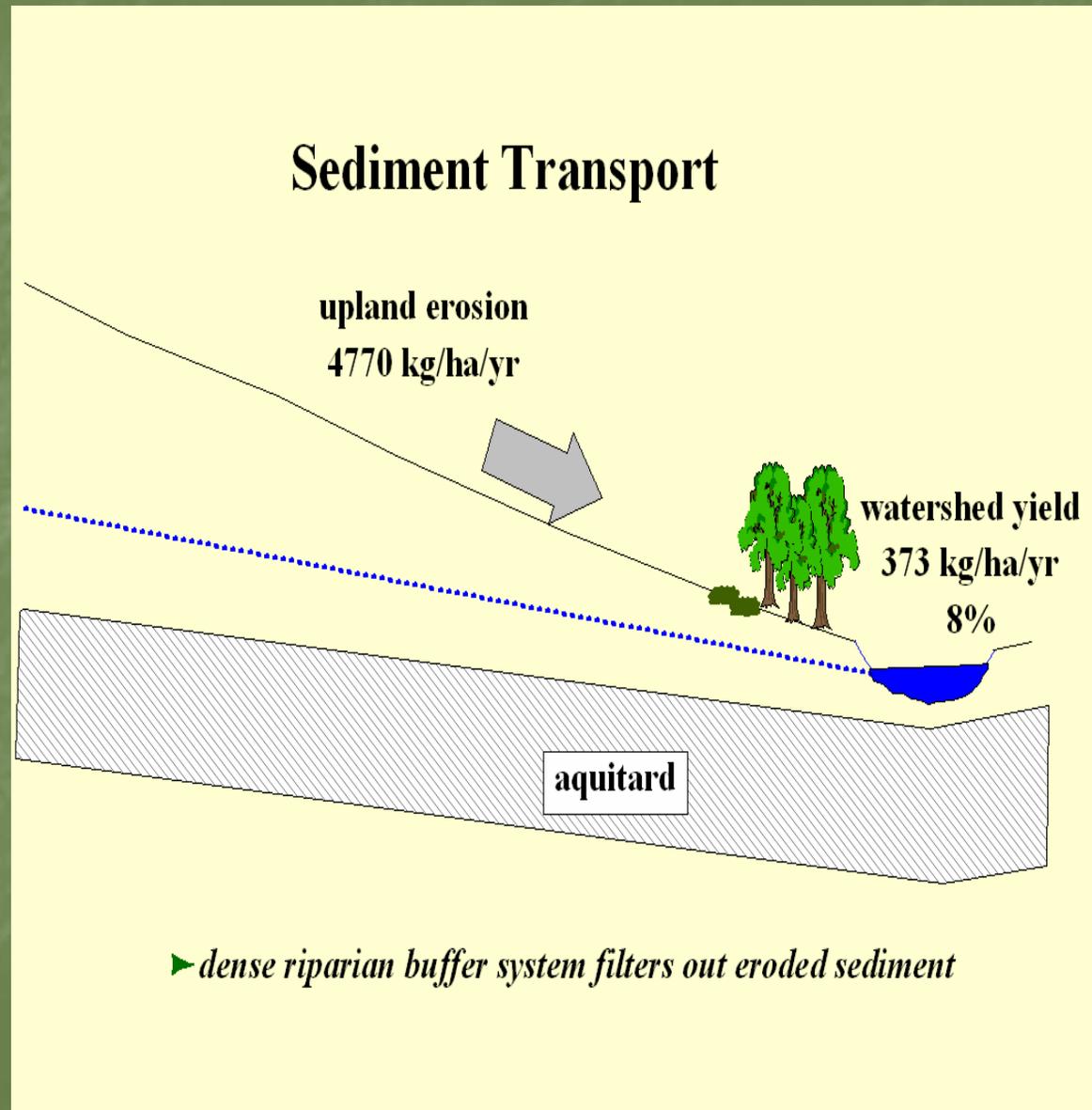
Impact of Grass and Riparian Buffers

- Increase infiltration
- Change flow from surface to subsurface
- Greater opportunity for plant uptake



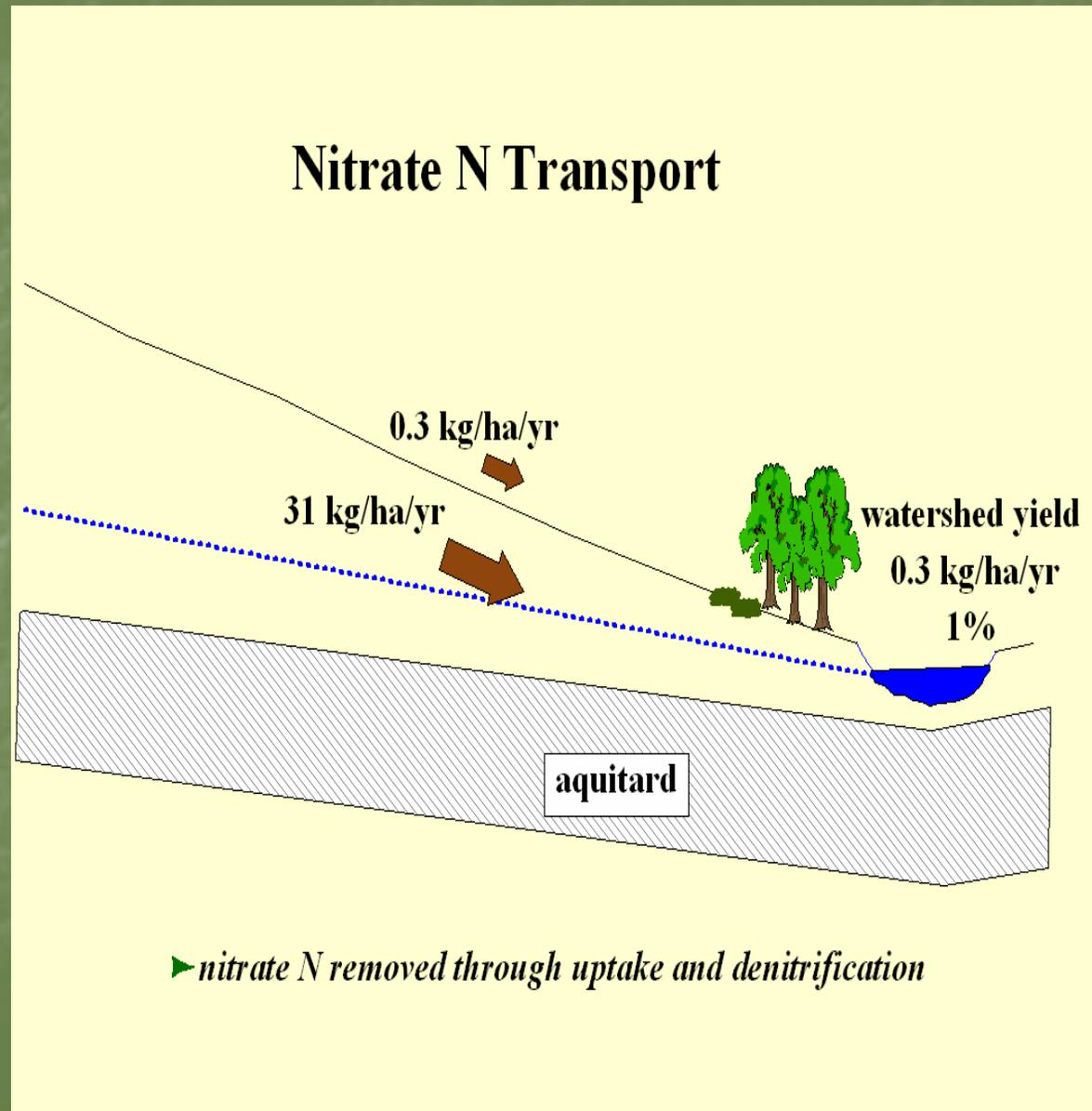
Impact of Grass and Riparian Buffers

- Increase sediment deposition

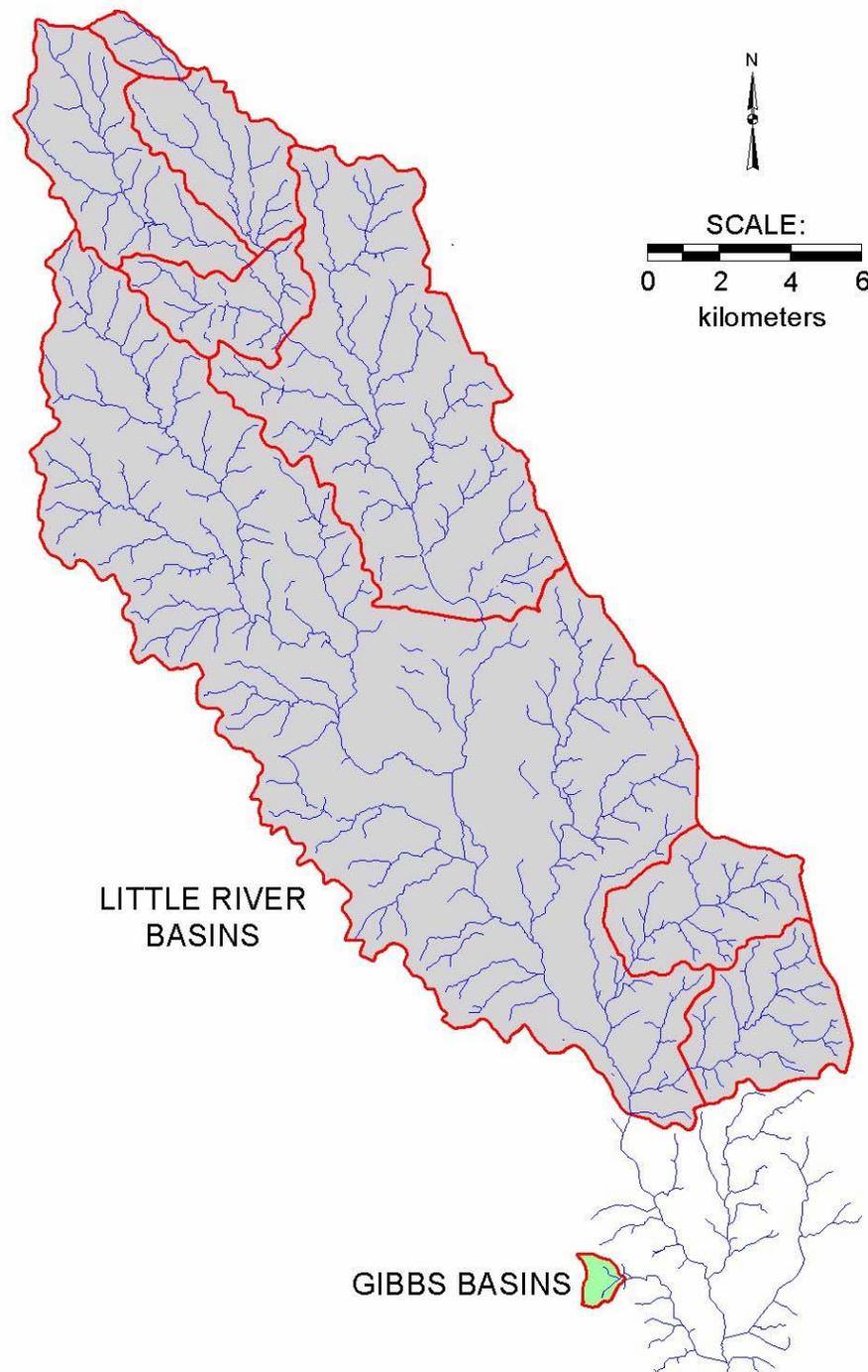


Impact of Grass and Riparian Buffers

- Improved Water Quality

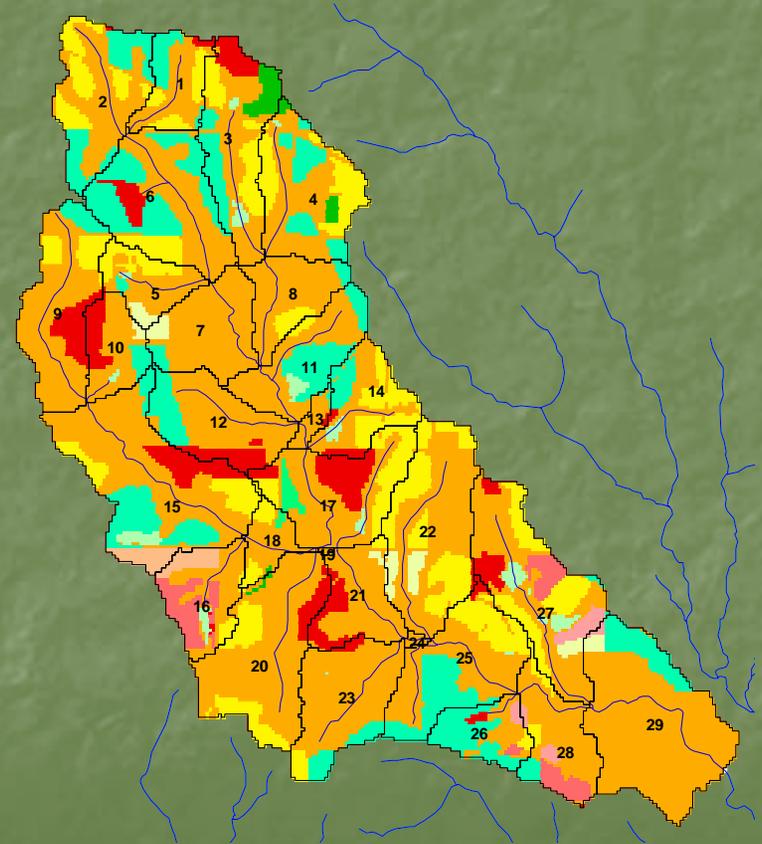


Relate Watershed Observations to BMPs and expected impacts



Watershed Scale Simulations

- SWAT model
- AnnAGNPS model
- REMM model



Progress to date

- Relate existing BMPs to historical data
 - BMP coverage 2/3 completed, historical data being analyzed
- Introduce BMPs on small watersheds and characterize response
 - evaluating feasibility
- Validate and modify SWAT and AnnAGNPS using existing data sets
 - hydrology completed
- Incorporate and test linkages between watershed models and REMM
 - in progress
- Characterize modeling errors
 - in progress