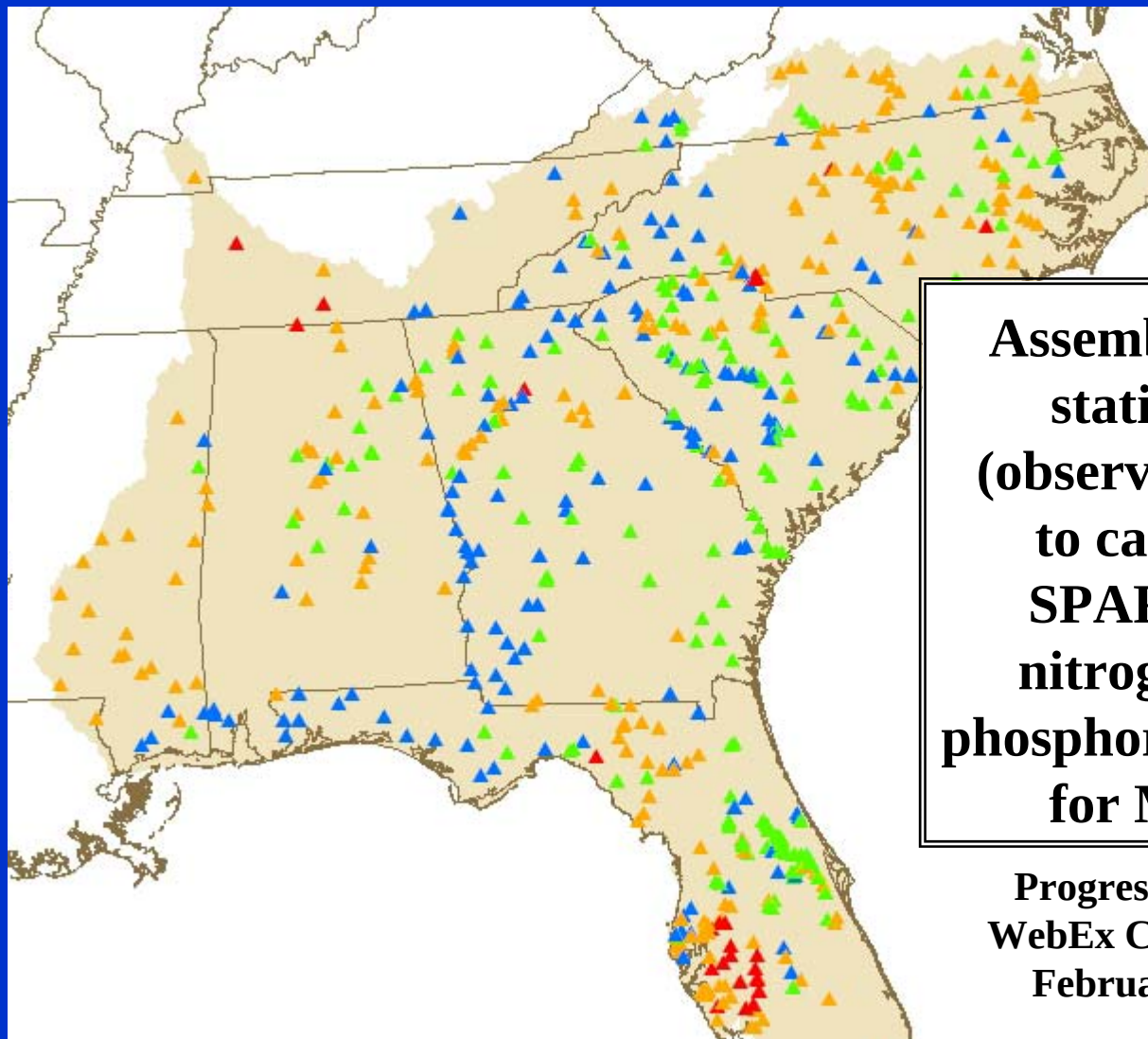




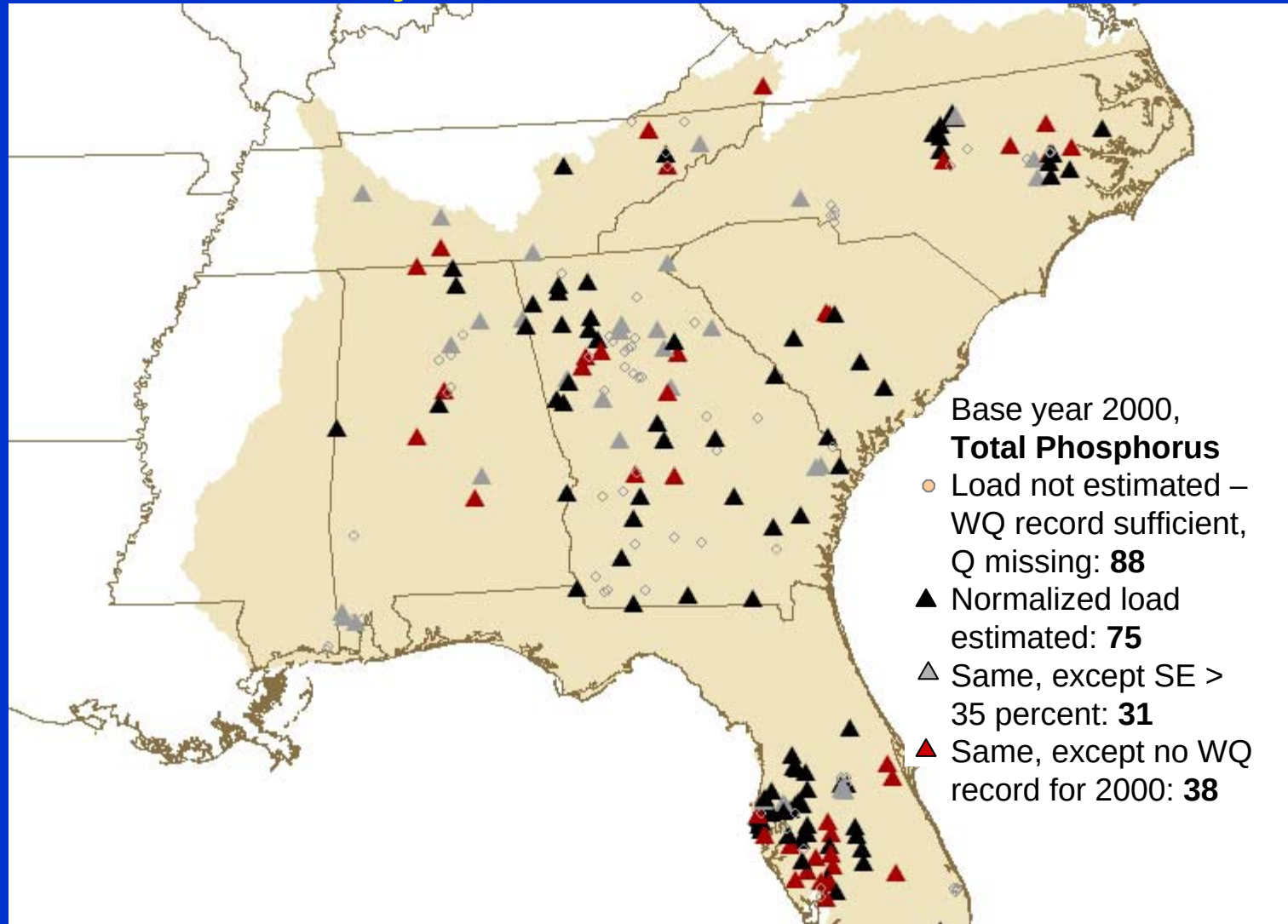
**Assembling the
station set
(observed loads)
to calibrate
SPARROW
nitrogen and
phosphorus models
for MRB2**

**Progress Summary
WebEx Cyberseminar
February 3, 2006**

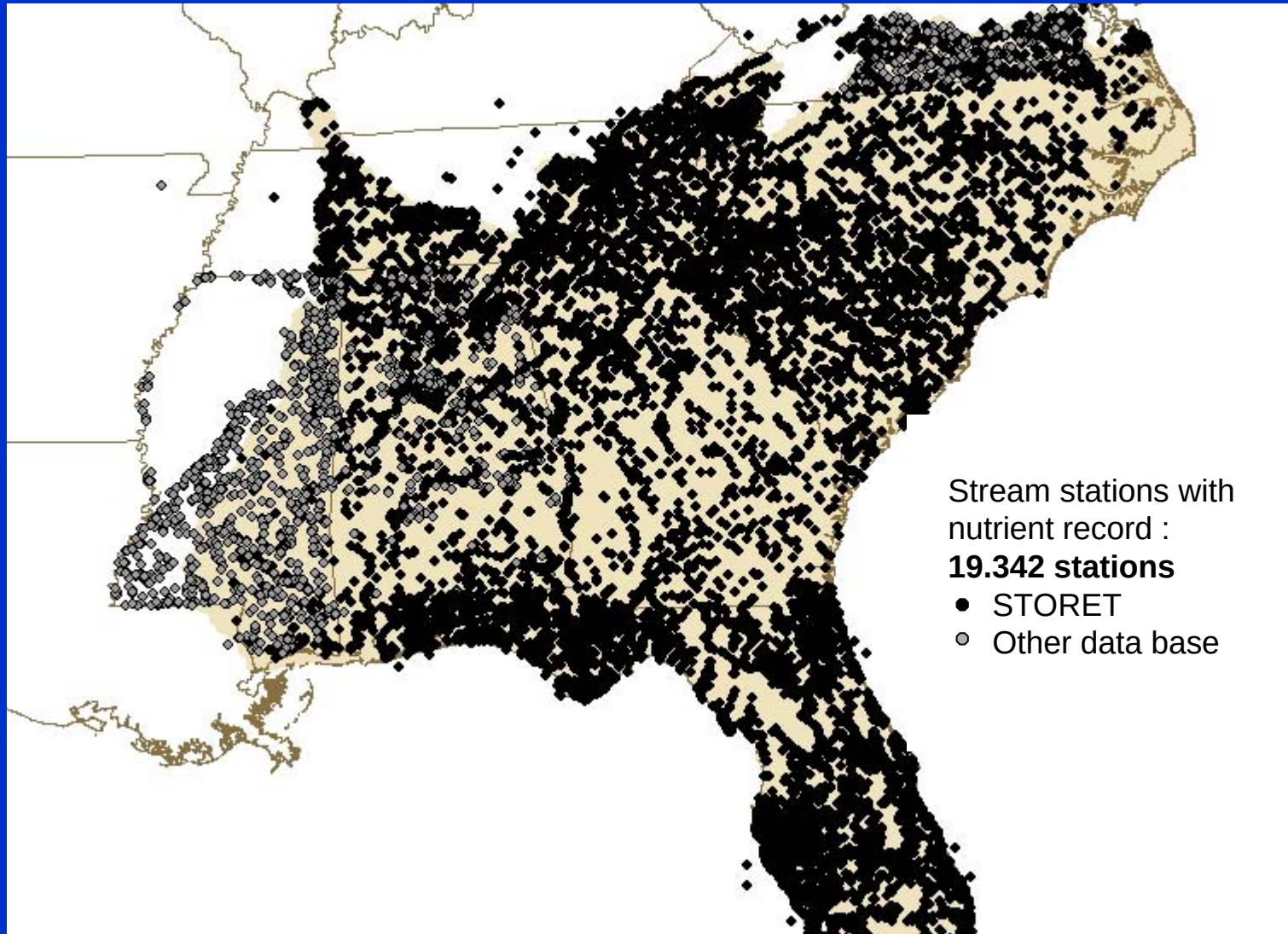
Objective – Develop set of nutrient load estimates for SPARROW model calibration (normalized to a ‘standard’ or base year)

- **Retrieve nutrient data from NWIS and STORET (and other data bases as necessary)**
- **Retrieve streamflow data**
- **Estimate nutrient load (normalized to a base year) for series of base years (1999, 2000, etc.) - series of Fluxmaster runs**
- **Select base year for modeling - based on best spatial distribution of load estimates**

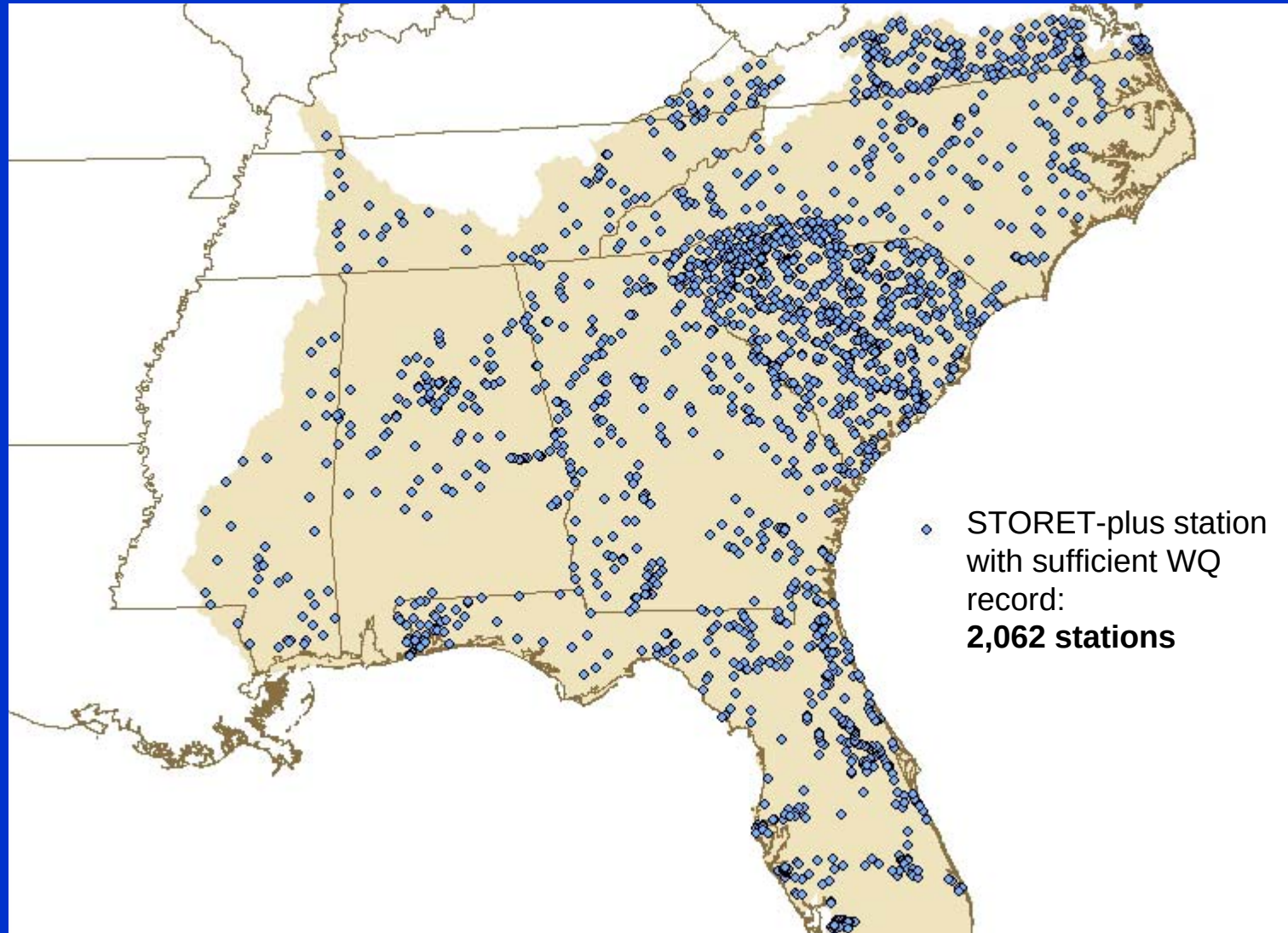
Step 1: Retrieve nutrient data for all USGS stream sites (non-reservoir) from NWIS and estimate normalized load for series of base years.



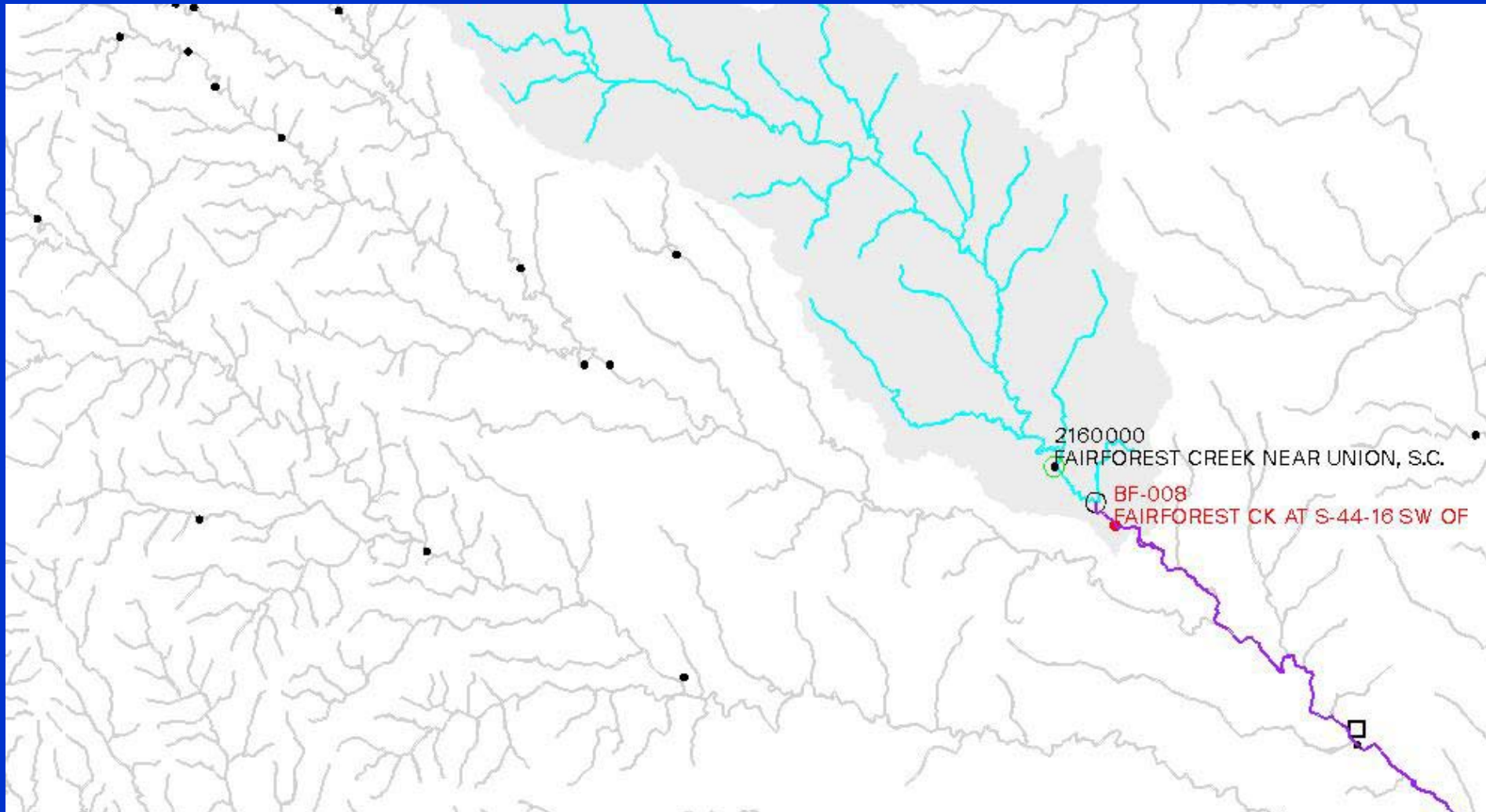
Step 2: Retrieve nutrient data for stream sites (non-reservoir) from STORET and AL, MS, VA data bases: “STORET-plus”



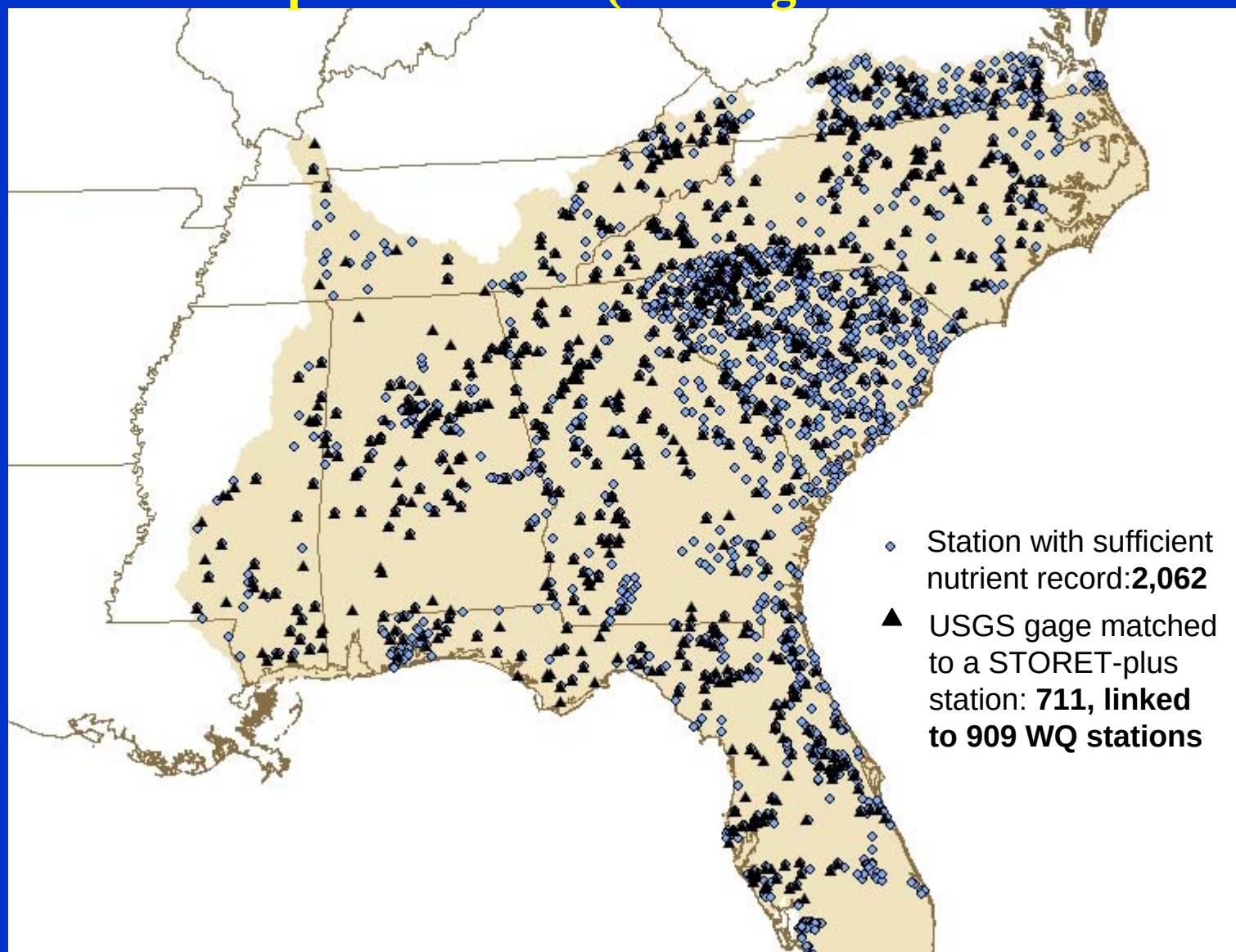
Step 3: Evaluate nutrient record, keep stations with sufficient record to estimate annual load for some part of 1995-2004.**
(*provided a daily streamflow record can be matched)



Automated procedure to find gages within prescribed distance developed by Terziotti, Cassingham, and Alkons-Wolinsky (Raleigh)

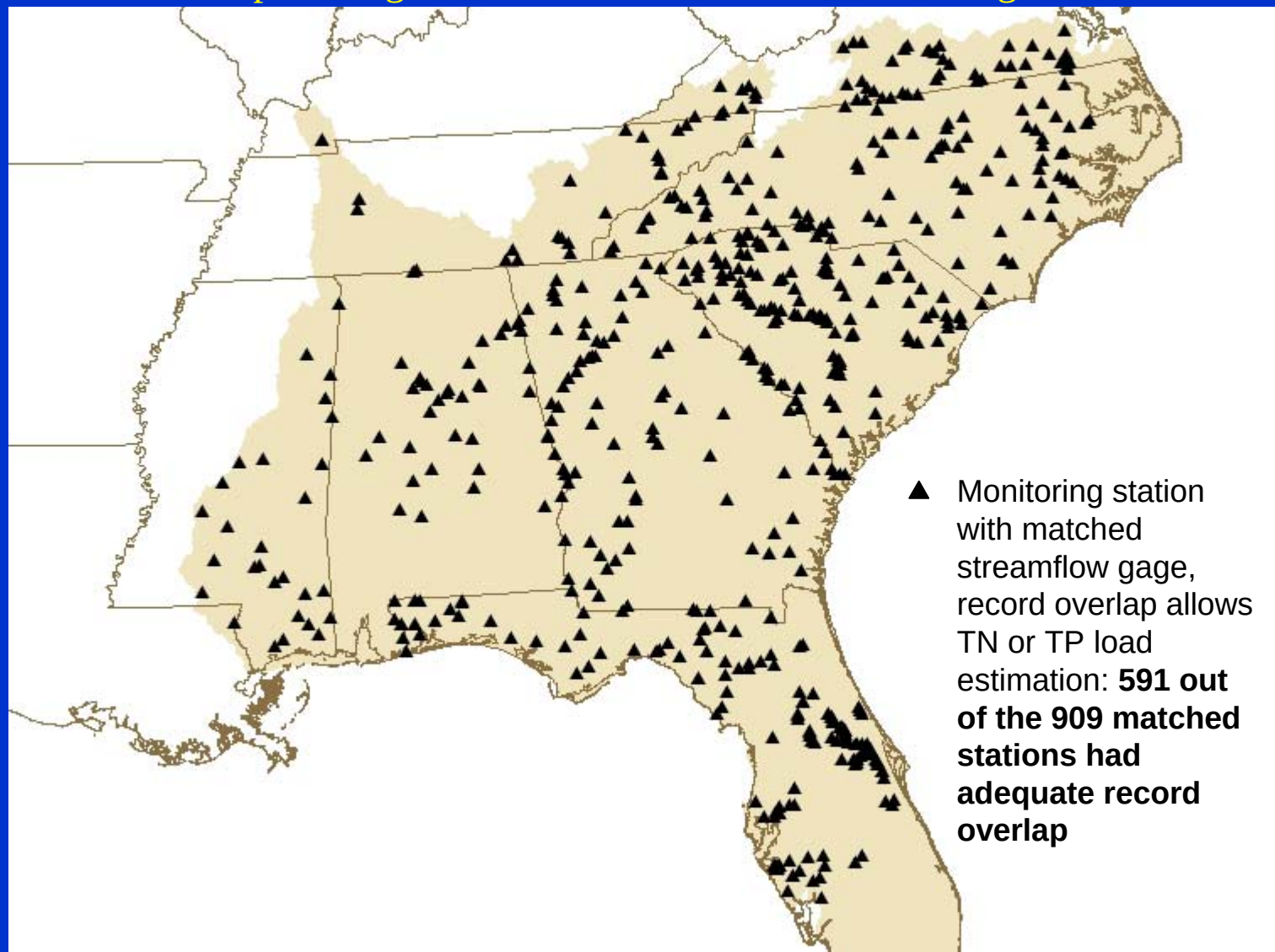


Step 4: Find all USGS gages within prescribed distance of each of the “STORET-plus” stations (drainage-area difference <25%)

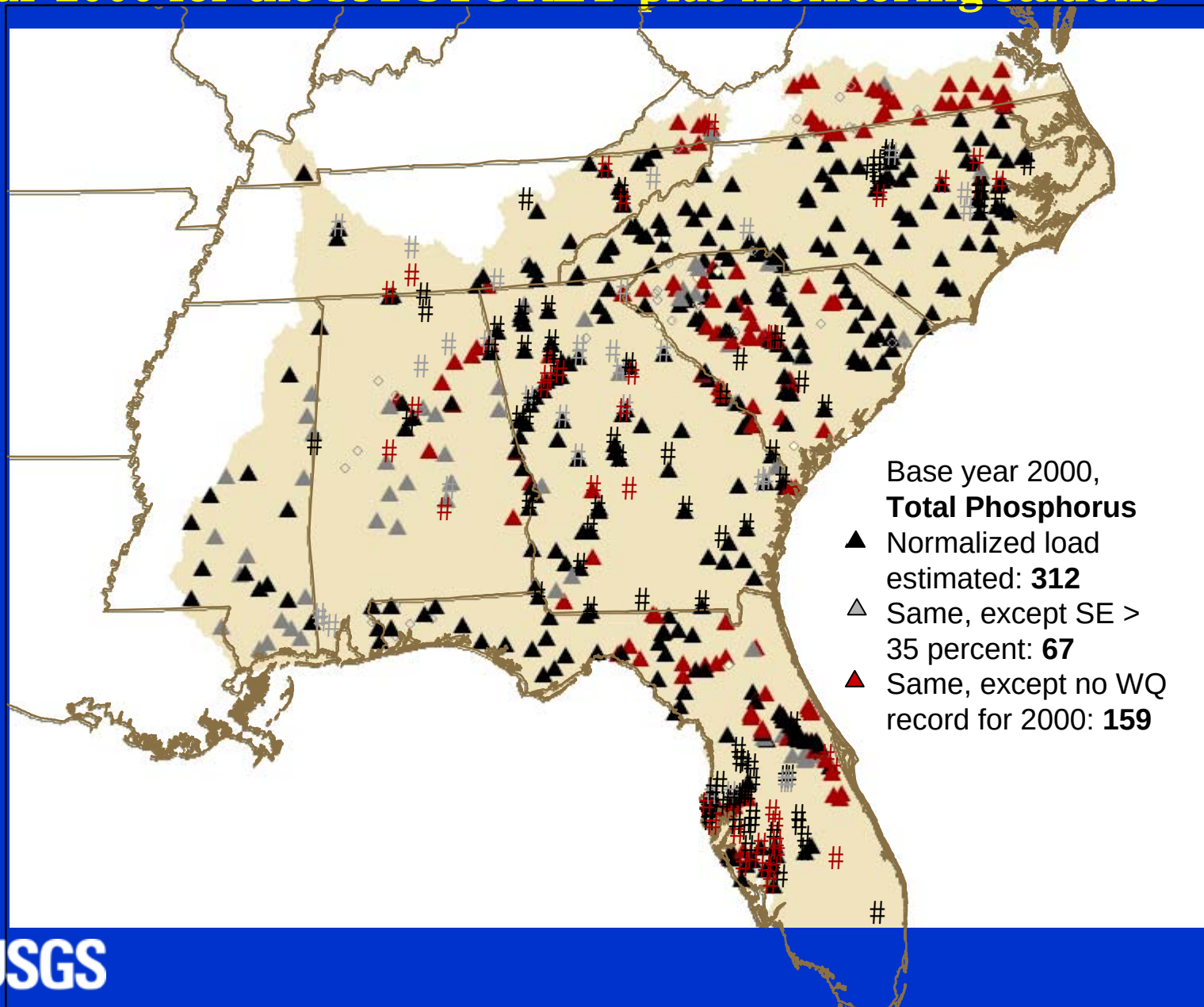


Step 5: Determine the best-matched** gage for each STORET-plus stations, in an iterative process

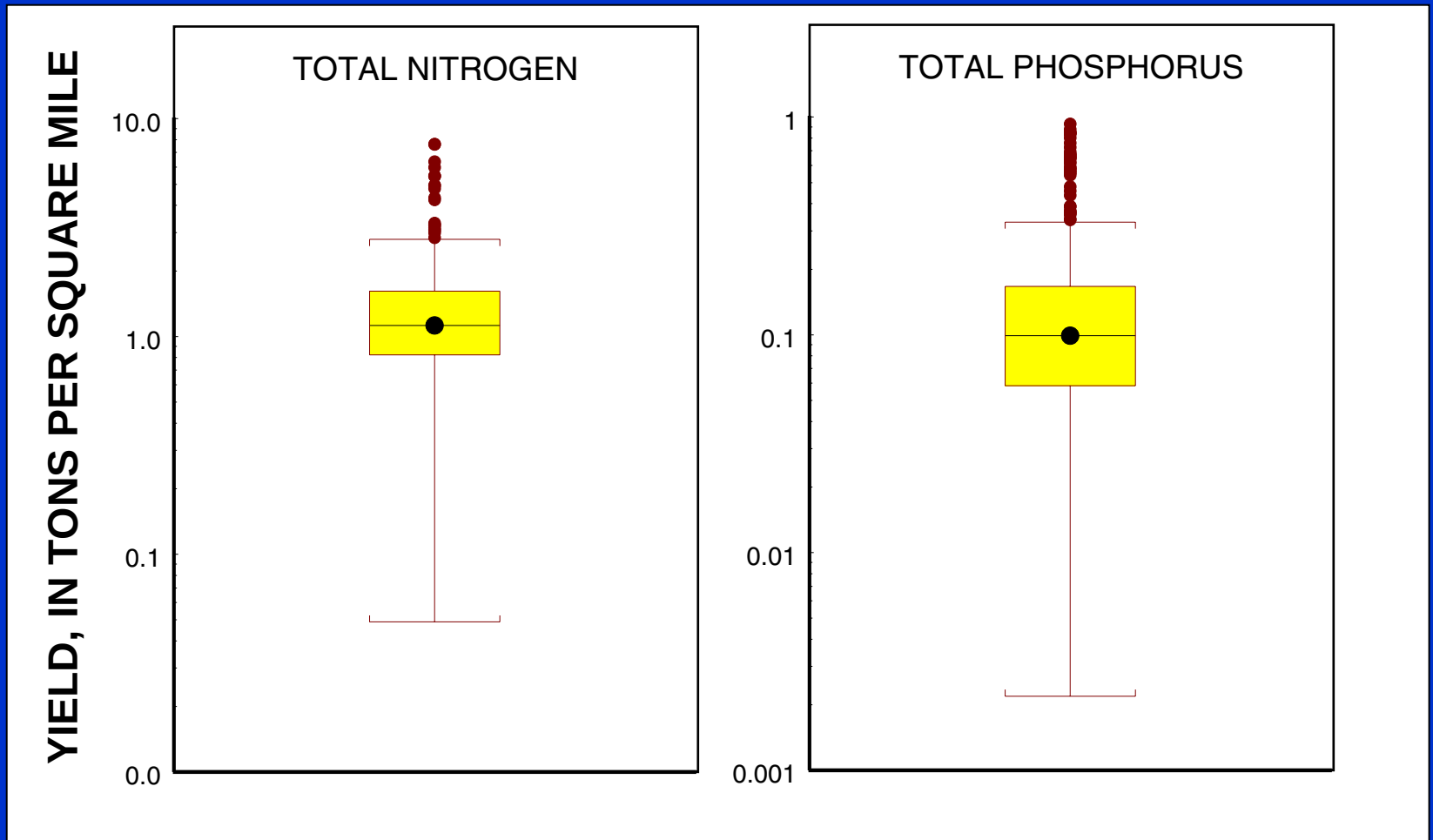
(**record overlaps during 95-04 for TN or TP, smallest drainage area difference)



Step 6: Estimate (using Fluxmaster) normalized load for base year 2000 for the 591 STORET-plus monitoring stations



Does calibration data set represent full range of the response variable for the southeast region?



Step 7: Select base year for SPARROW modeling, based on best spatial distribution of load estimates normalized to that year

- **2000: 604 TN estimates; 682 TP estimates**

(repeat Step 6 for 1998, 1999, 2001, 2002)
- Compare number and spatial distribution of estimates among base years, select base year

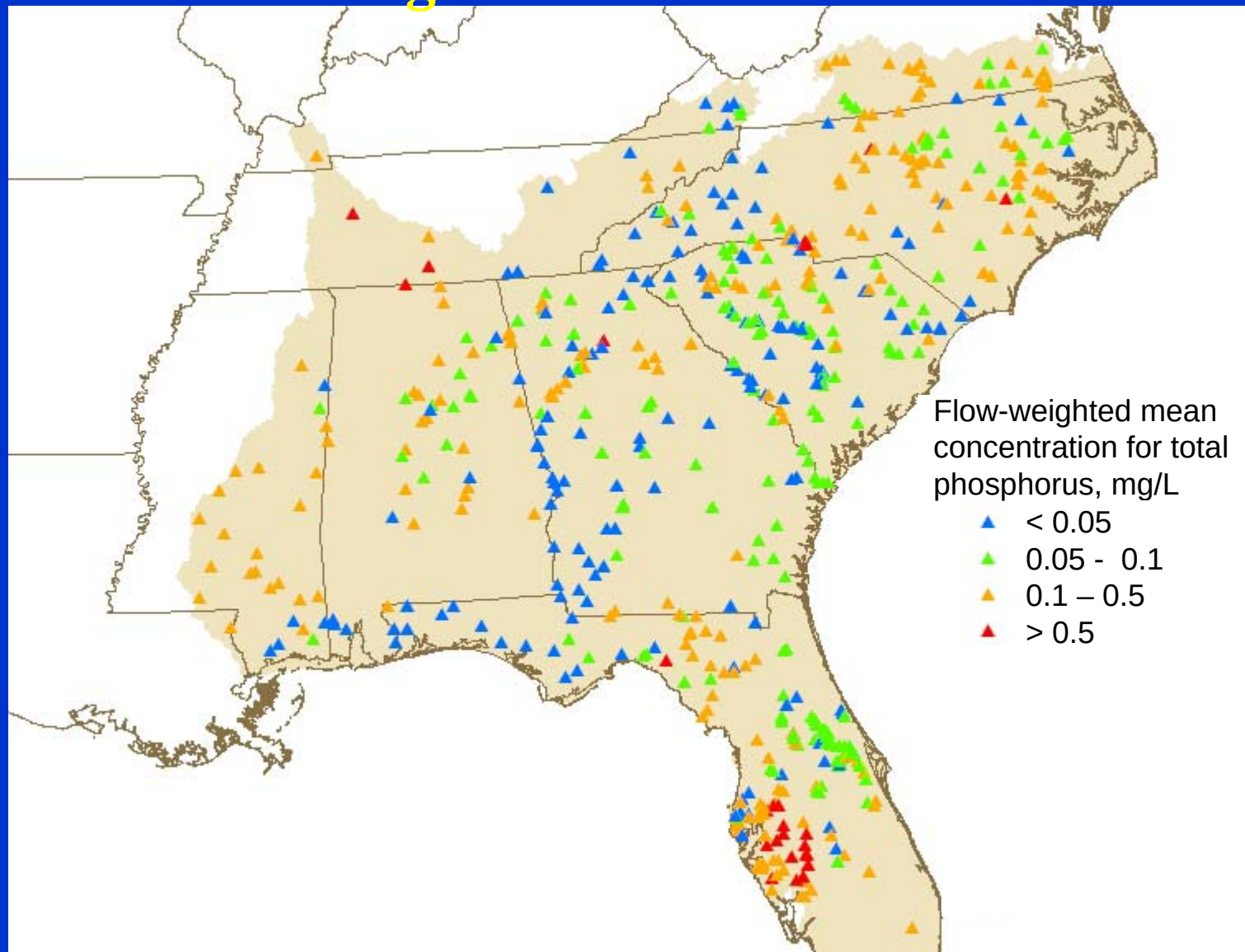
Remaining steps before SPARROW modeling begins (with target completion date)

- **Final selection of base year (Feb. 10)**
- **Review load-model diagnostics
(Feb. 28)**
- **Modify stream network to accommodate
calibration station set (Feb. 28)**

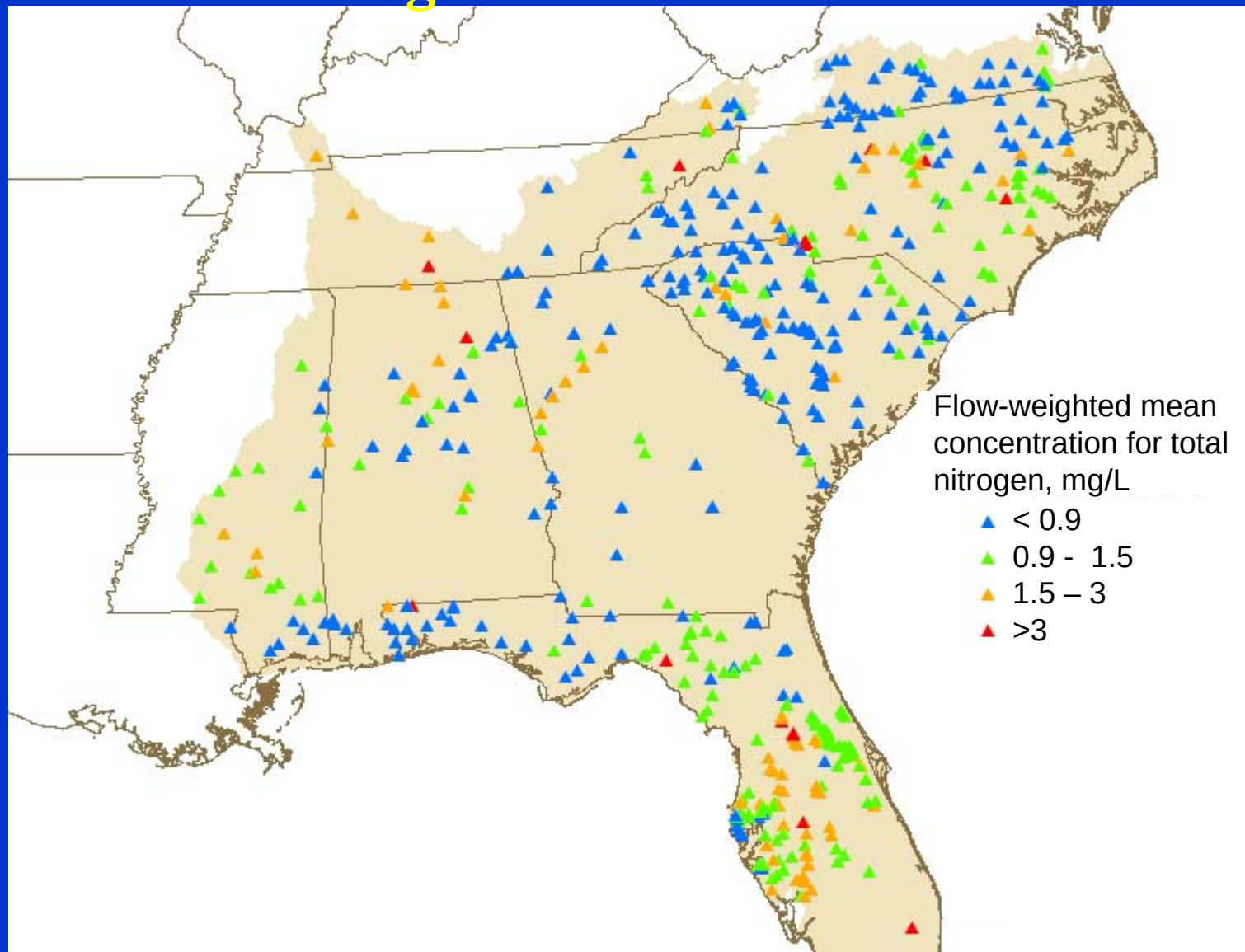
SPARROW modeling tasks/target dates

- **Calibrate SPARROW model for RF1 stream network - April**
- **Calibrate SPARROW model for NHD stream network - August?**
- **First draft SPARROW report - October**
- **Report approved – February 07**

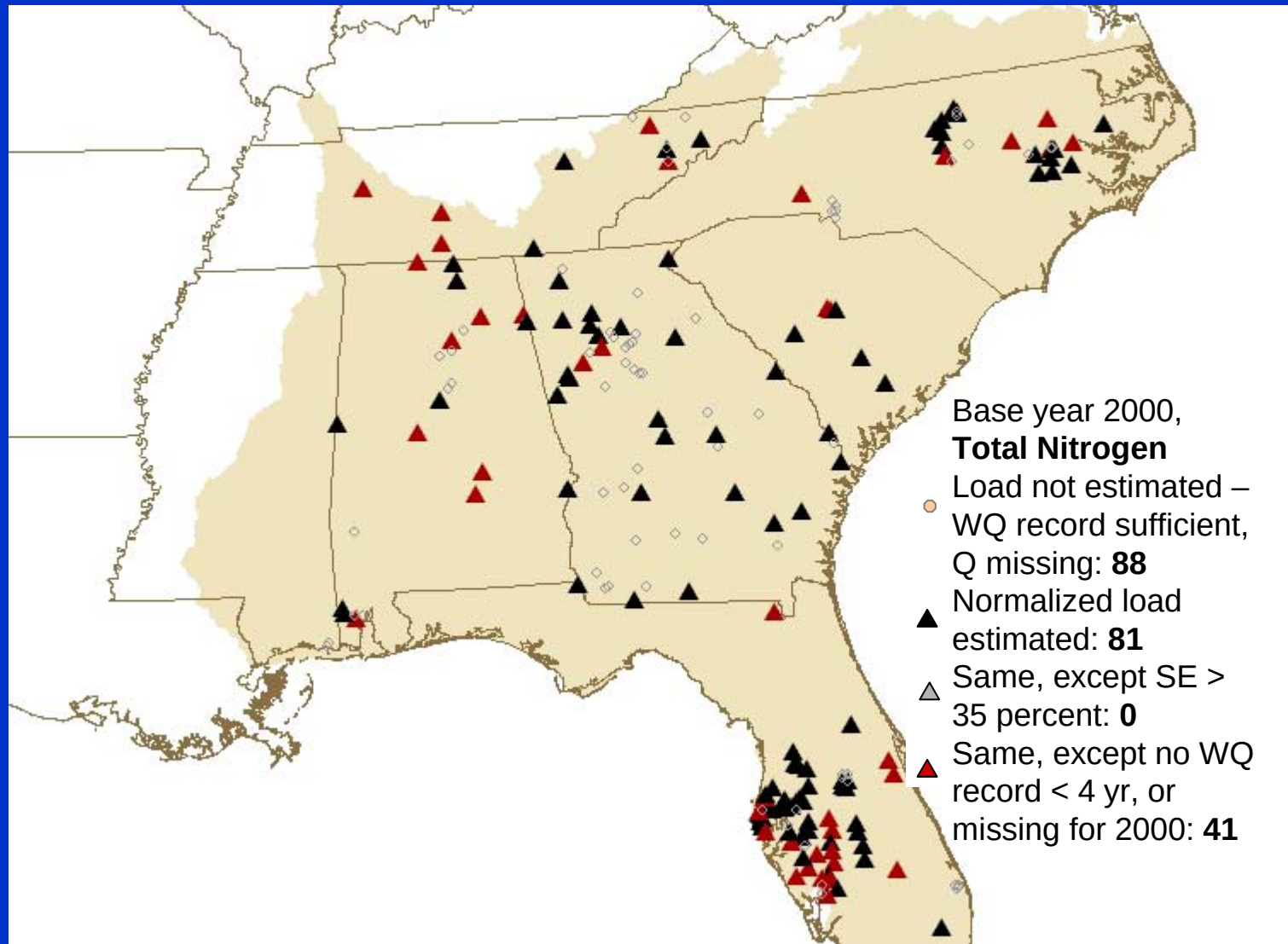
Calibration data set for total phosphorus: flow-weighted mean concentration



Calibration data set for total nitrogen: flow-weighted mean concentration



Total nitrogen: set of normalized load estimates for all USGS stream sites



Total nitrogen: set of normalized load estimates for all USGS and STORET-plus stream sites

