

National River and Stream Assessment 2013-14

Survey Design for Selection of Sites



Anthony (Tony) R. Olsen
USEPA Western Ecology
Division
NWQMC May 2012

What flowing waters are included in the NRSA ?

- All streams and rivers within the 48 contiguous states that have flowing water during the study index period
- Run-of-the-river ponds and pools
- Great Rivers



What flowing waters are not included in the NRSA

- Portions of tidal rivers up to head of salt
- Reservoirs except run-of-the-river reservoirs



Data Quality Objectives

- National estimates
 - Estimate the proportion of rivers and streams ($\pm 5\%$) in the conterminous U.S. that fall below the designated threshold for good conditions for selected measures with 95% confidence.
- Ecoregions
 - Estimate the proportion of rivers and streams ($\pm 15\%$) in a specific ecoregion that fall below the designated threshold for good conditions for selected measures with 95% confidence.

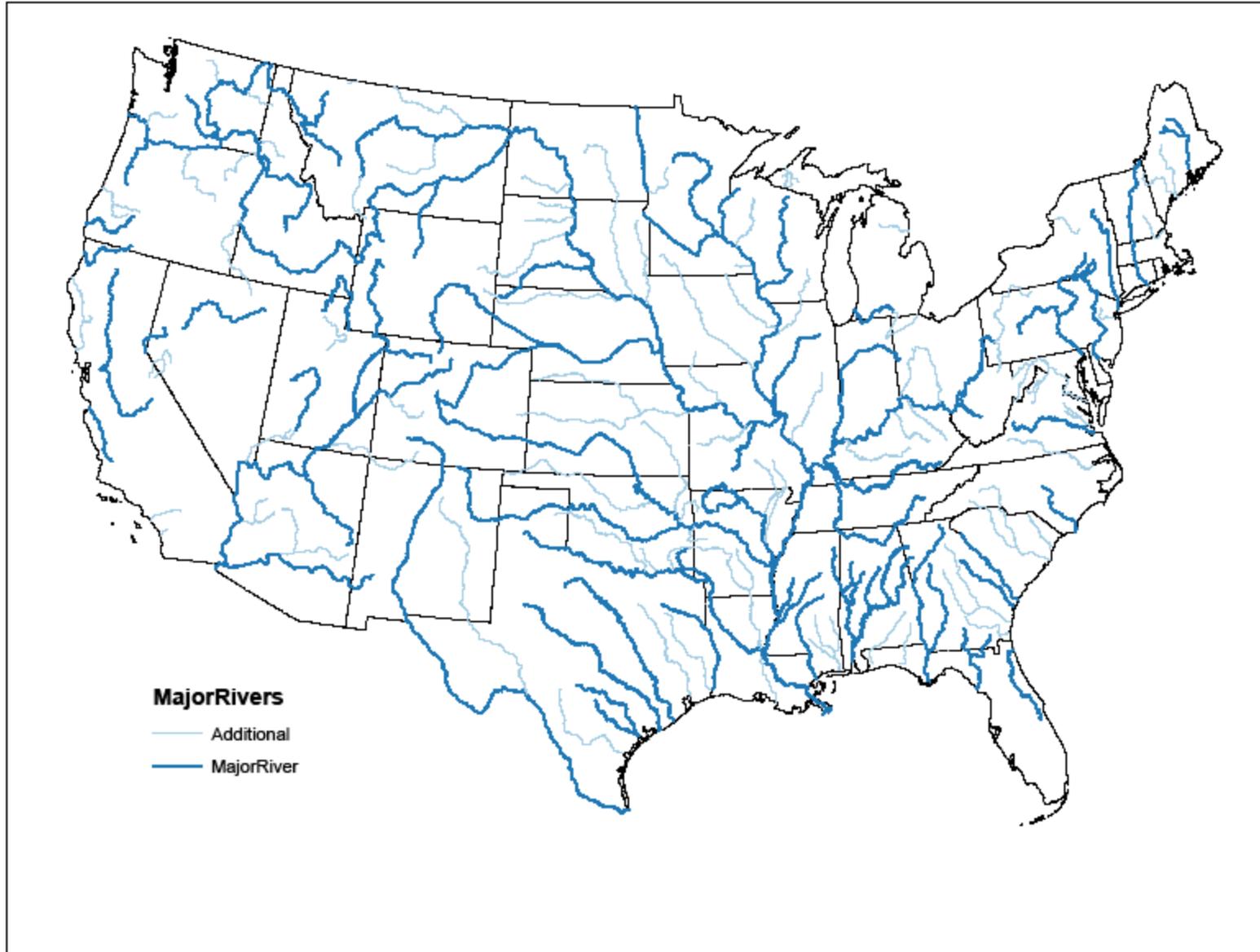
Survey design requirements

- National design: 1800 sites
 - Rivers: Strahler order 5th and higher: 900 sites
 - Streams: Strahler order 1st to 4th: 900 sites
- Nine Ecological Reporting Regions: 200 sites/region
 - Rivers: 100 sites/region
 - Streams: 100 sites/region
- Revisit sites in 2013-14: 192 sites, 4/state
- Repeat sites from NRSA 2008-9: 810 sites
 - Rivers: 405 sites, 45/region
 - Streams: 405 sites, 45/region

Survey Design Site Allocation

- NRSA 2008-9 Repeat Design: 806 sites
 - Rivers:416 sites – 319 visited once; 97 visited twice
 - Streams: 390 sites - 295 visited once; 95 visited twice
 - Total Revisits: 192 sites
- New Sites Design: 1012 sites
 - Major rivers: 216
 - Other rivers: 220
 - Large streams (3rd & 4th order): 230
 - Small streams (1st & 2nd order): 346
- Proportionally allocated to states by Ecological Reporting Region and design categories above

Major Rivers

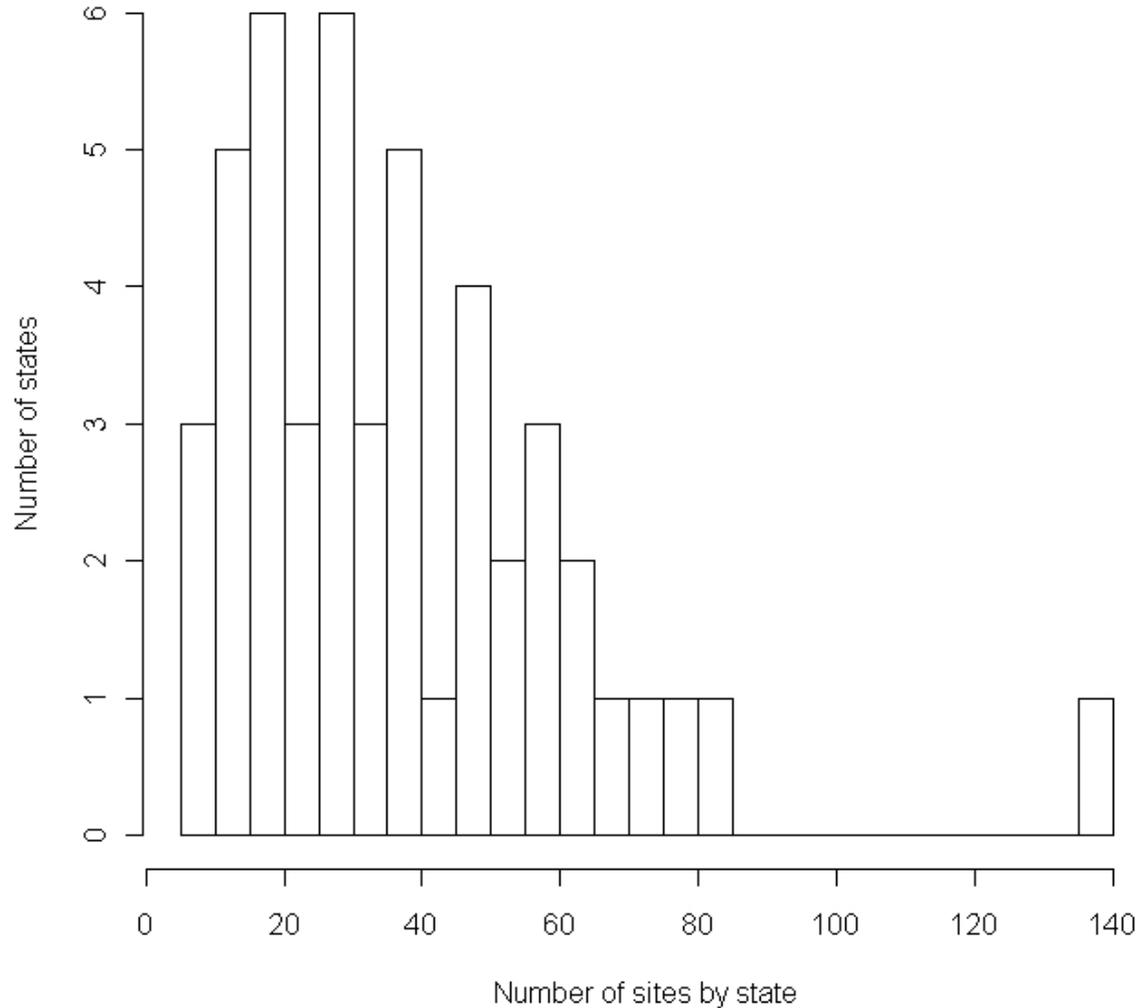


Border Rivers and Streams

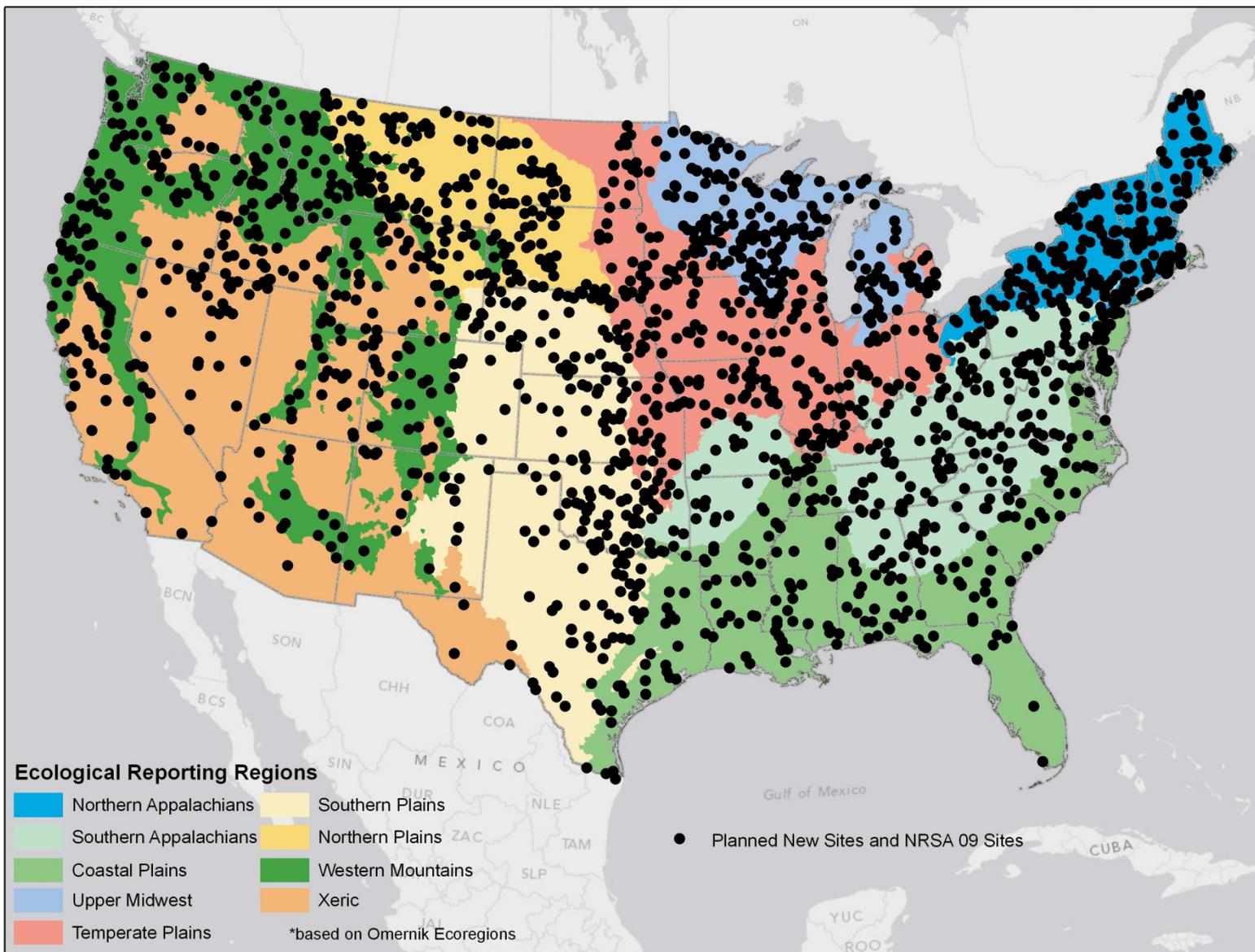


NRSA14 Planned River and Stream Sites

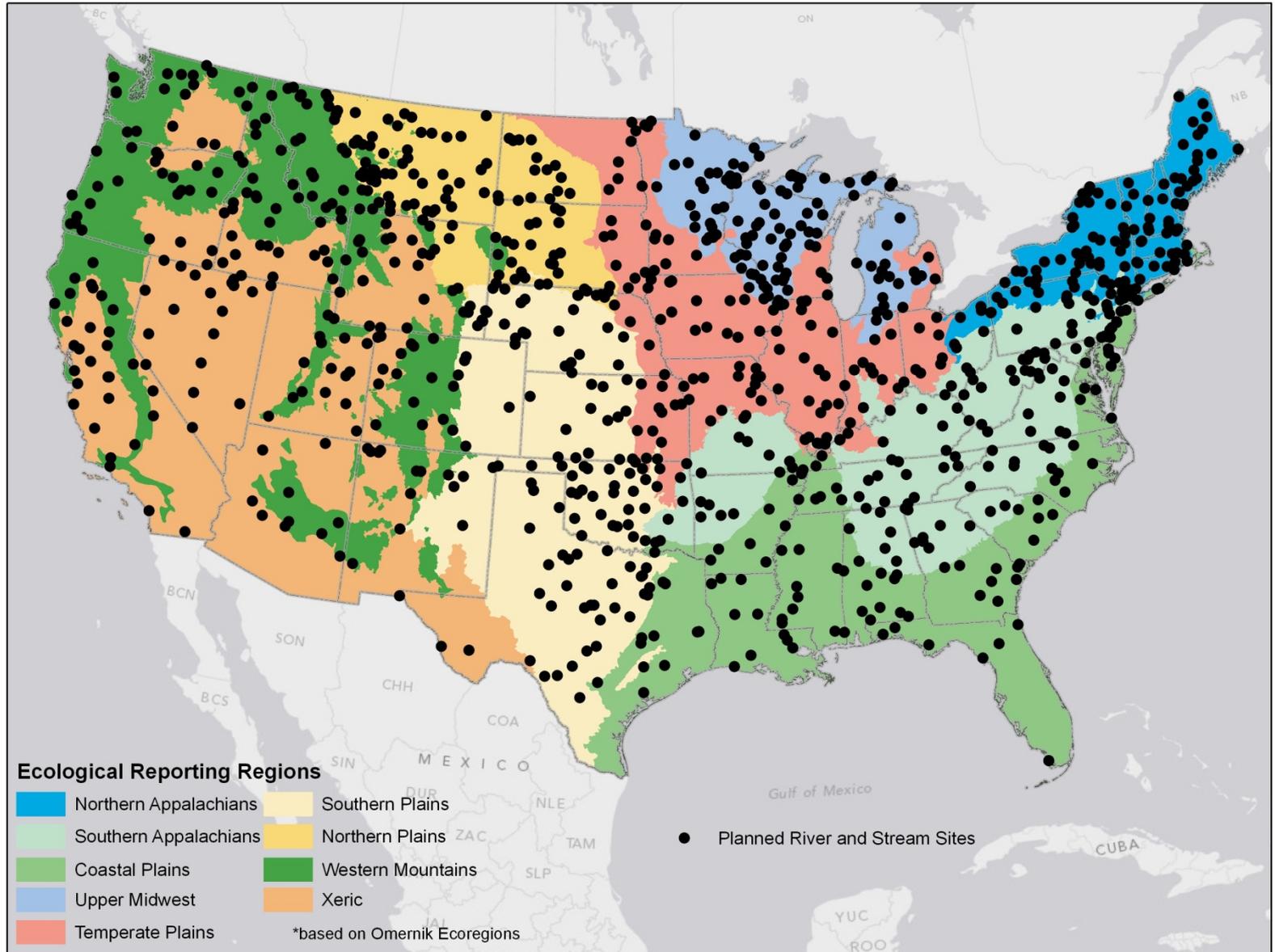
NRSA 2013-14 Sites by State



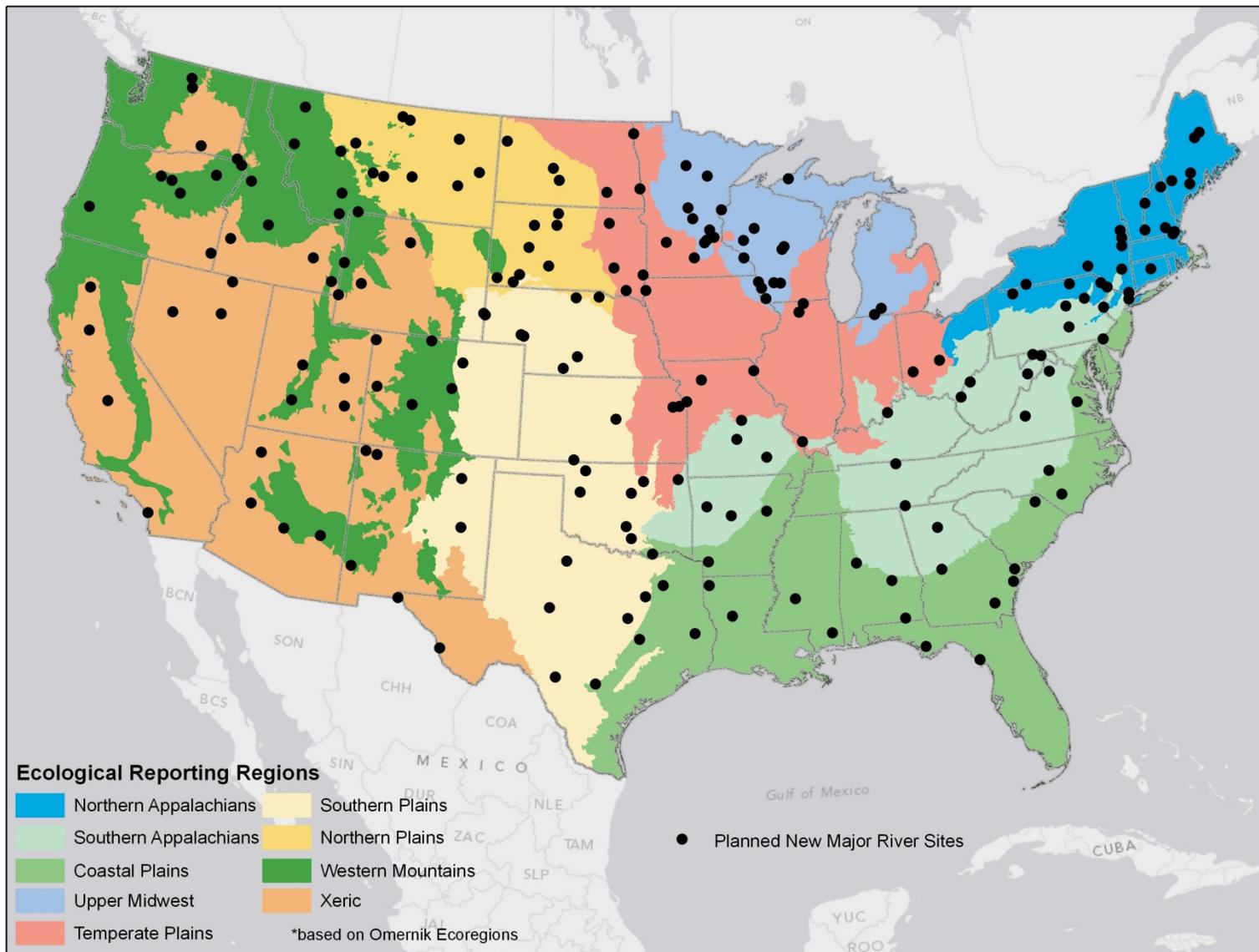
NRSA14 Planned River and Stream Sites



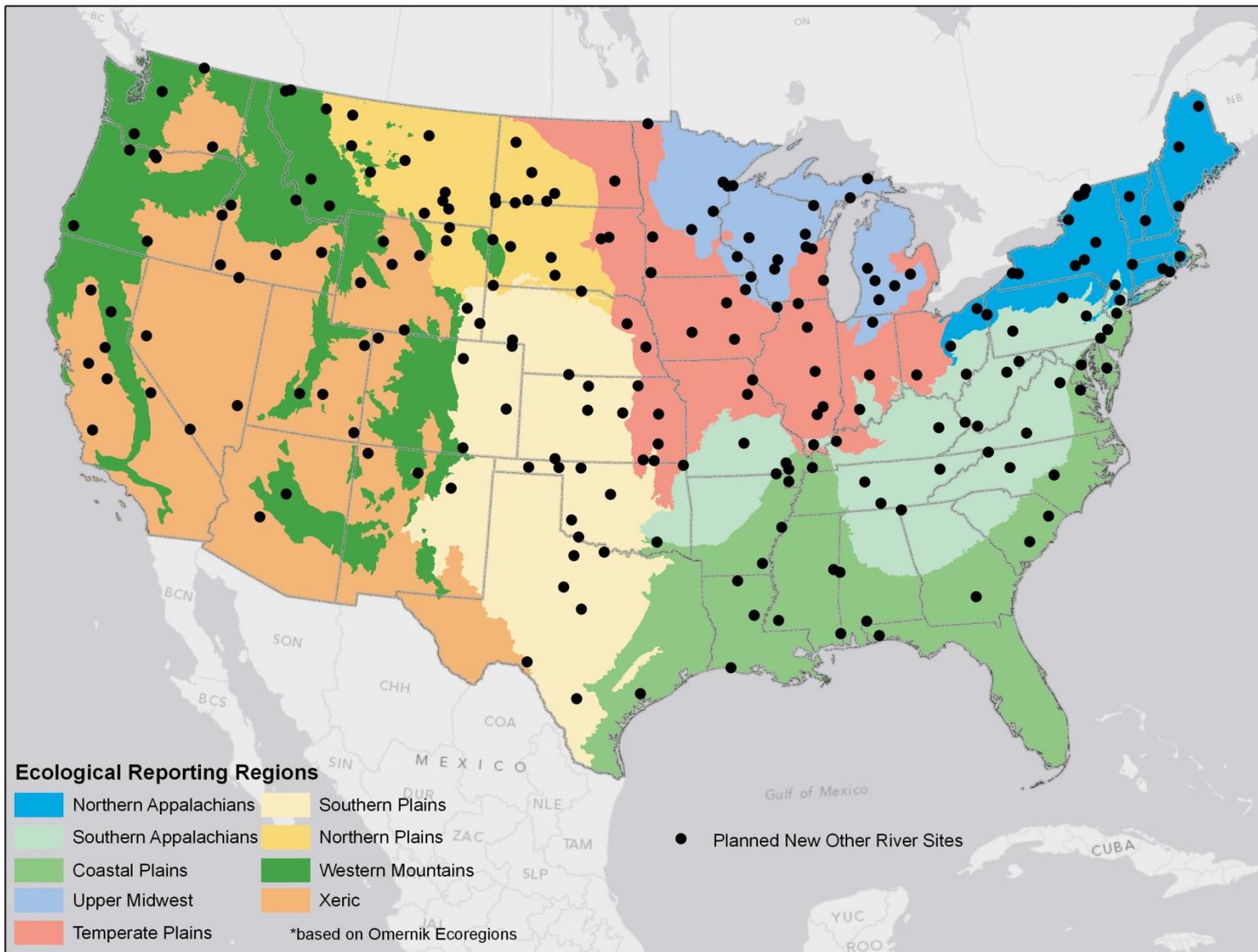
NRSA14 Planned New River and Stream Sites



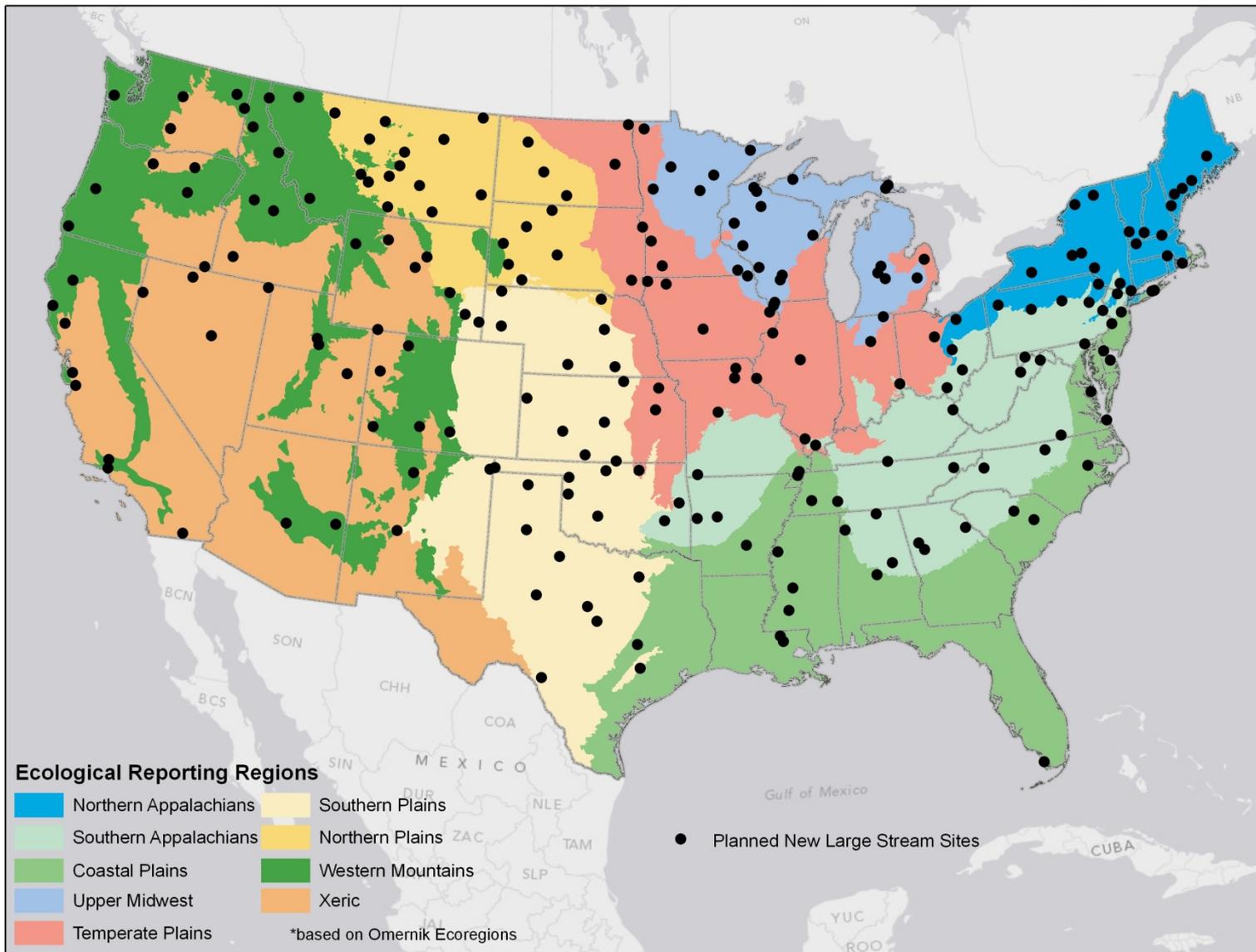
NRSA14 Planned New Major River Sites



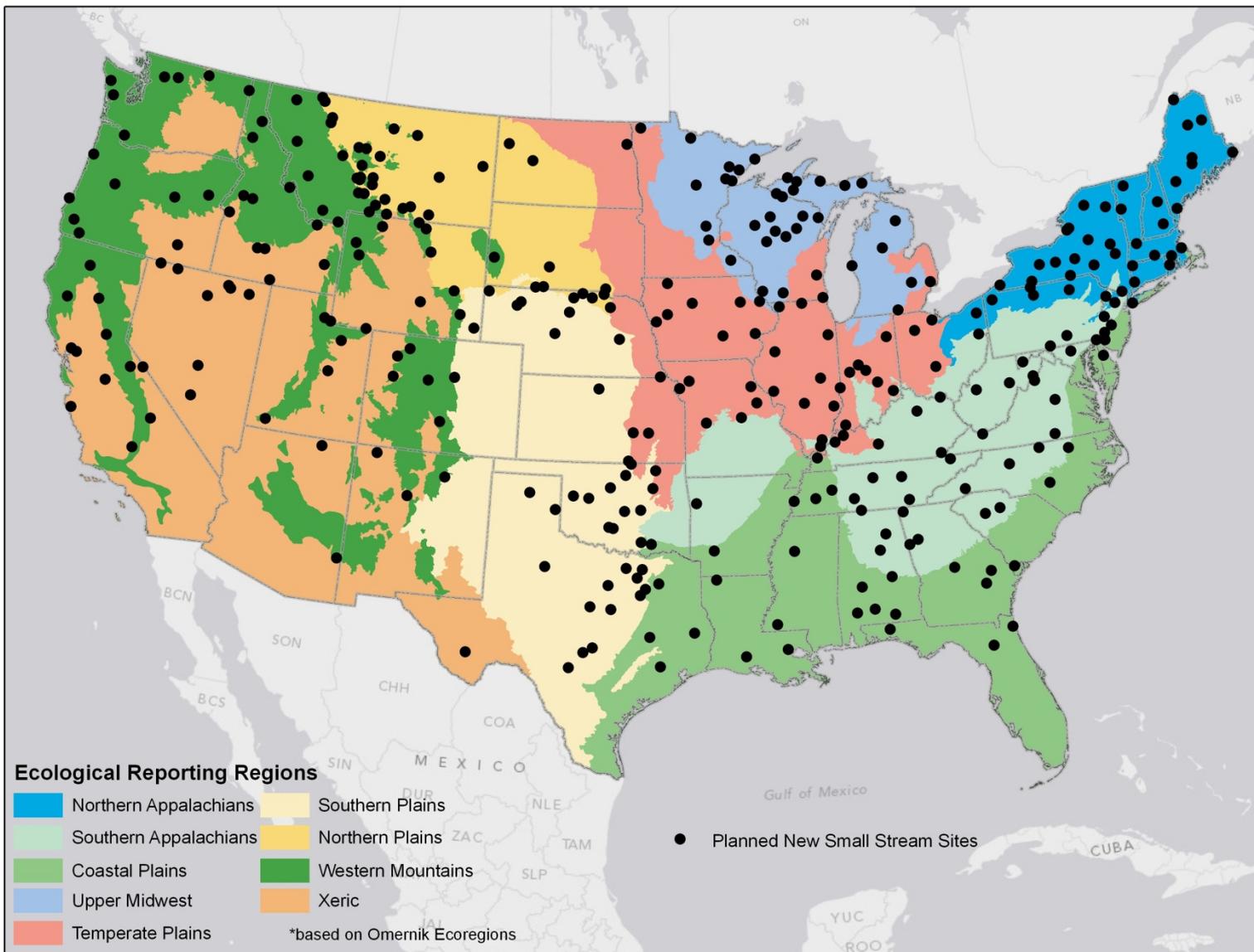
NRSA14 Planned New Other River Sites



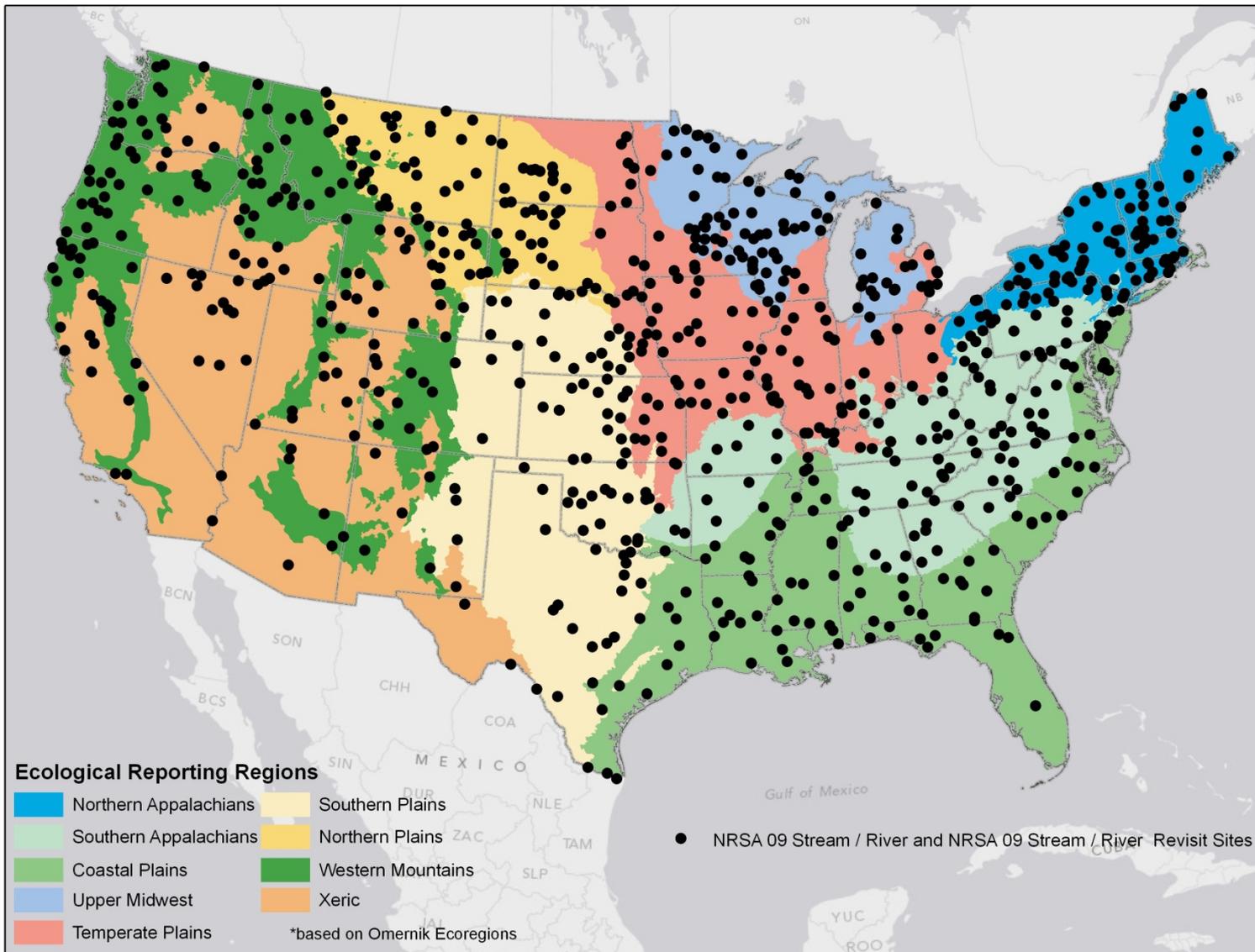
NRSA14 Planned New Large Stream Sites



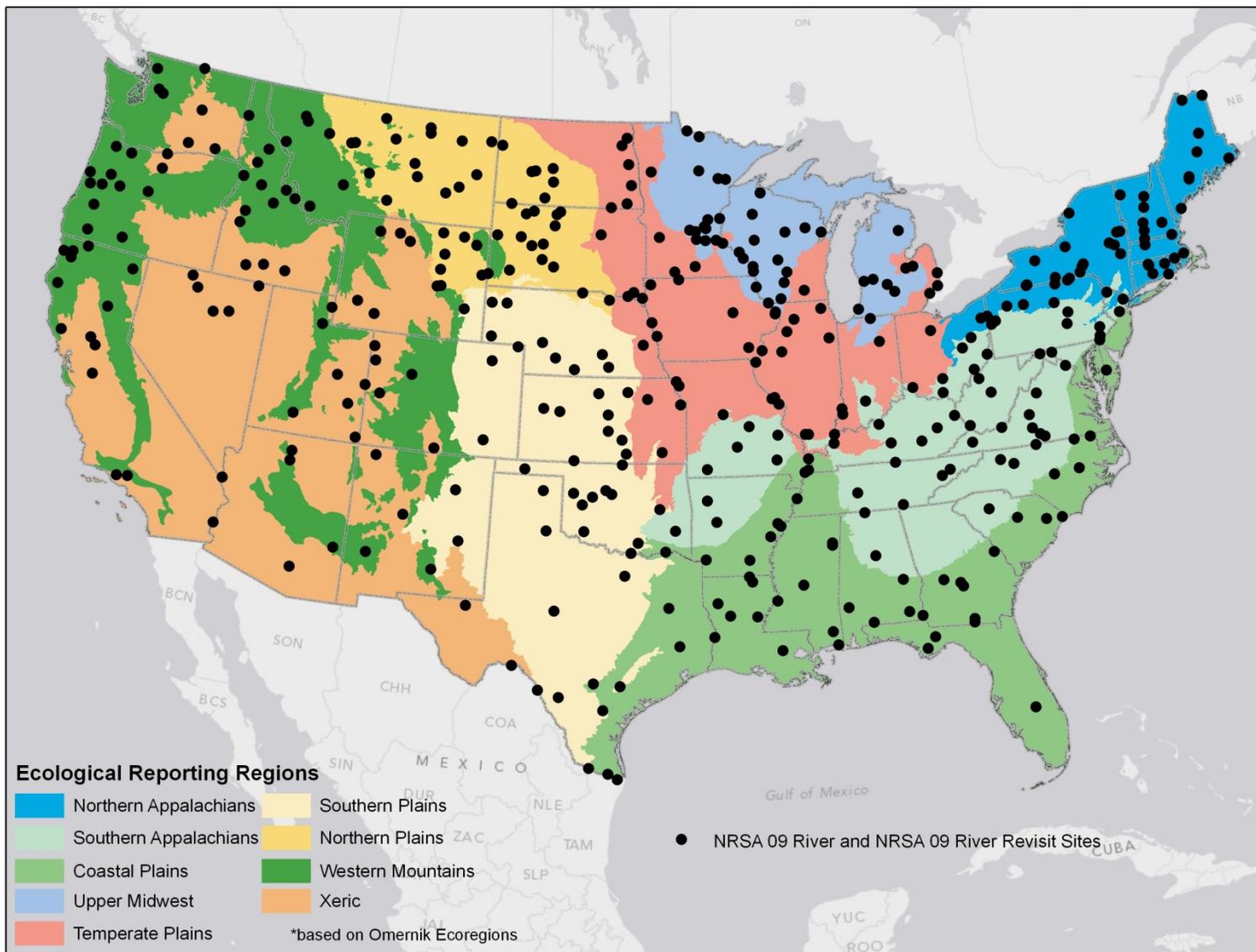
NRSA14 Planned New Small Stream Sites



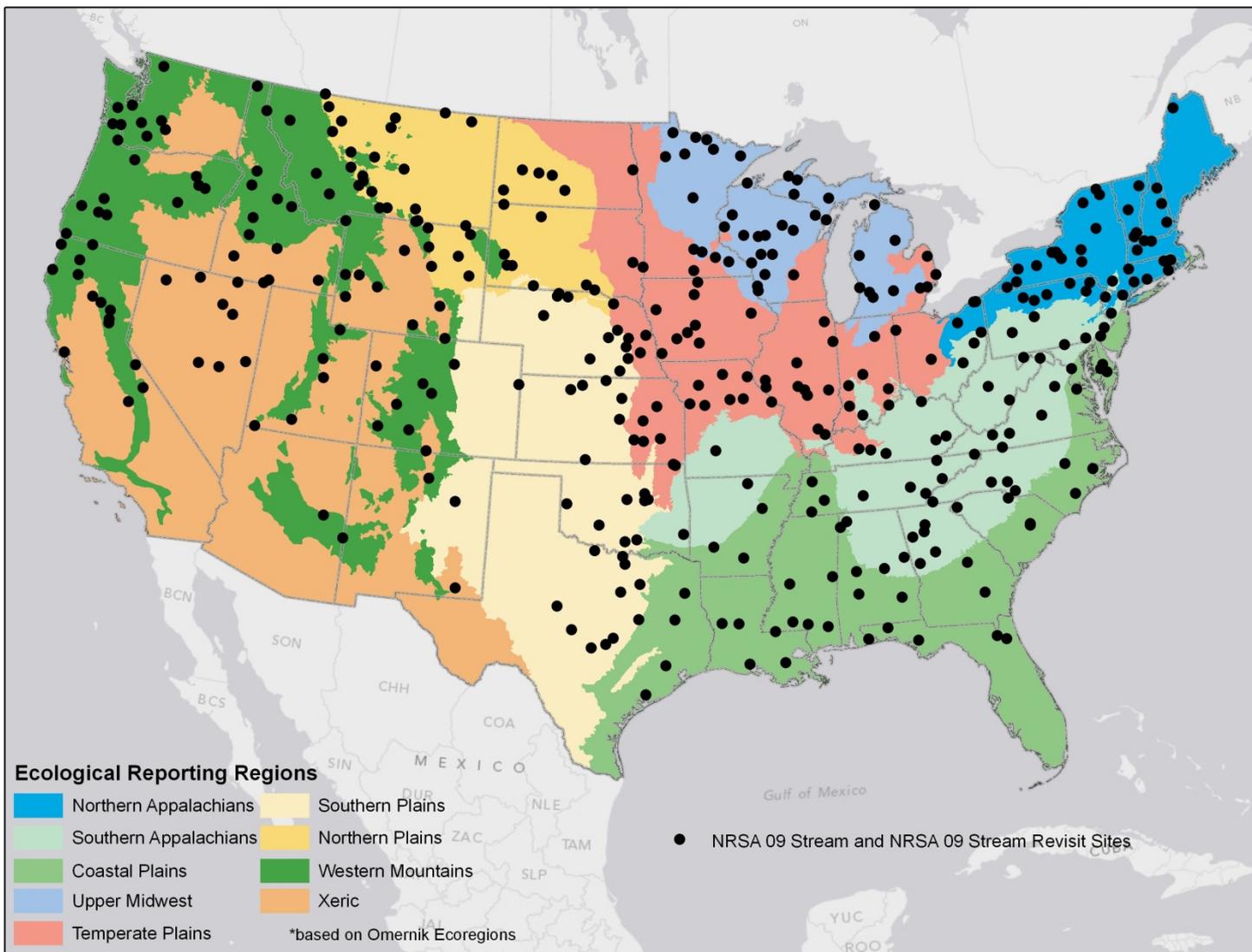
NRSA14 River and Stream Sites Repeated from NRSA 2008-9



NRSA14 River Sites Repeated from NRSA 2008-9



NRSA14 Stream Sites Repeated from NRSA 2008-9



State Specific Designs

- National design is stratified by state to enable state-specific designs to be implemented
- State-specific designs
 - Will include sites necessary to meet national design requirements
 - Will incorporate state requirements
 - Integrated design will replace national design for state
- States requesting state-specific designs
 - Arizona, Indiana, Kansas, Oklahoma, Oregon, Vermont, Virginia
 - Have not been completed yet

