

Macroinvertebrate structural and functional responses to abiotic alterations from best management practices in regional urban and agricultural streams: a review.

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How Are Macroinvertebrates Responding to BMPs in published literature?

Goals:

- Feedback
 - Study design
 - Search terms
- Connect to Stream Health

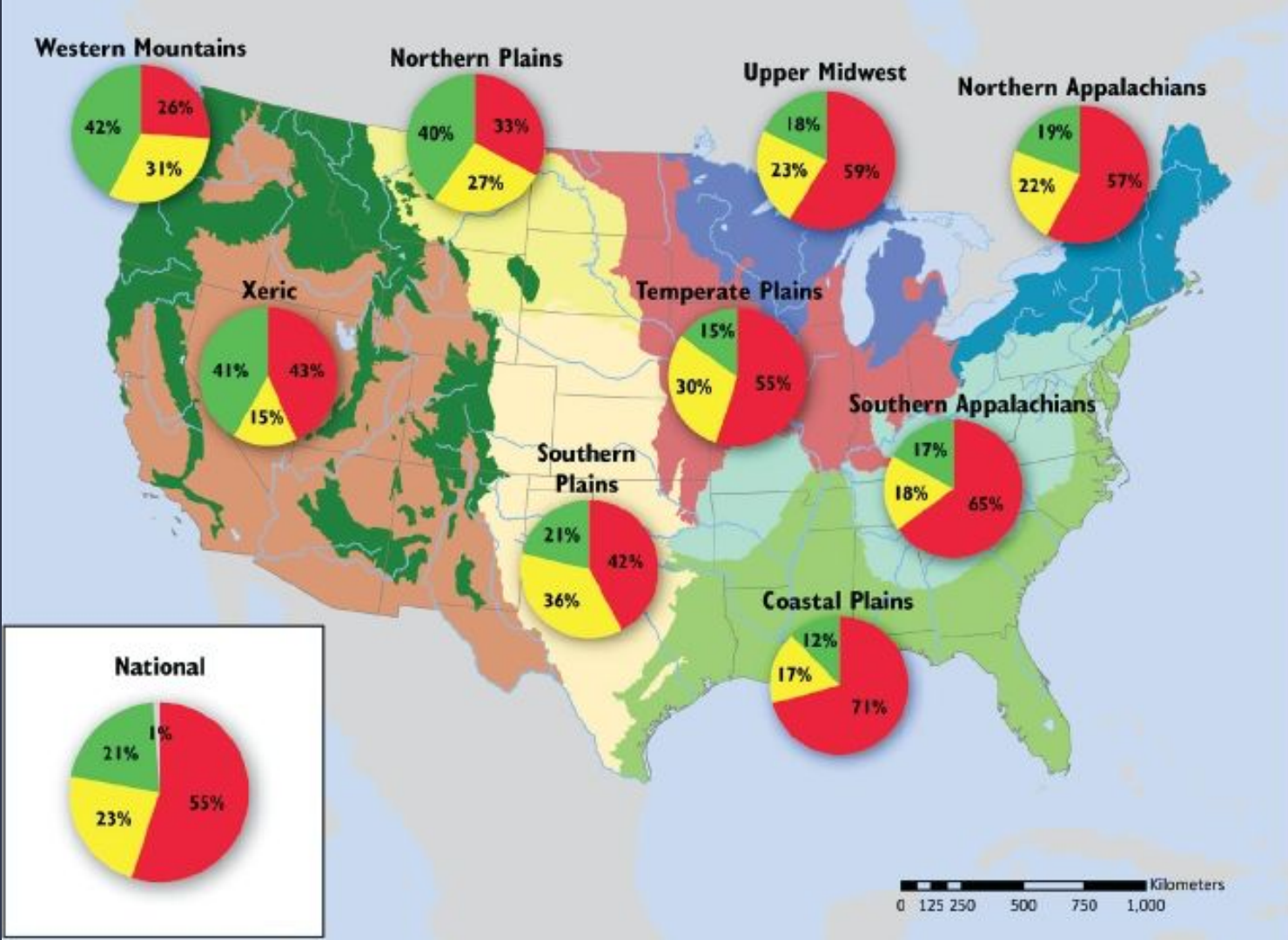
Structure

- Why do we need a review of BMPs?
- Threat → Alteration → Effect framework
- Regionality
- Land use
- Predictions
- Methods
- Project Connections

Why do we need to review macroinvertebrate responses to BMPs?

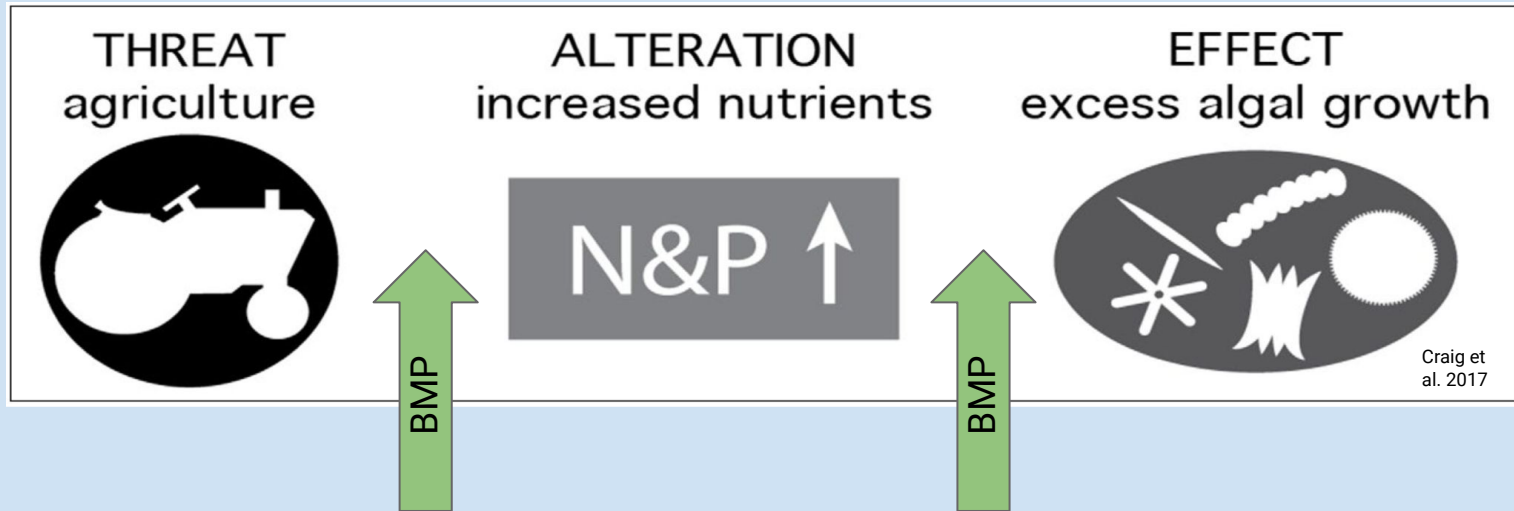


NRSA 2009



Threats → Alterations → Effects

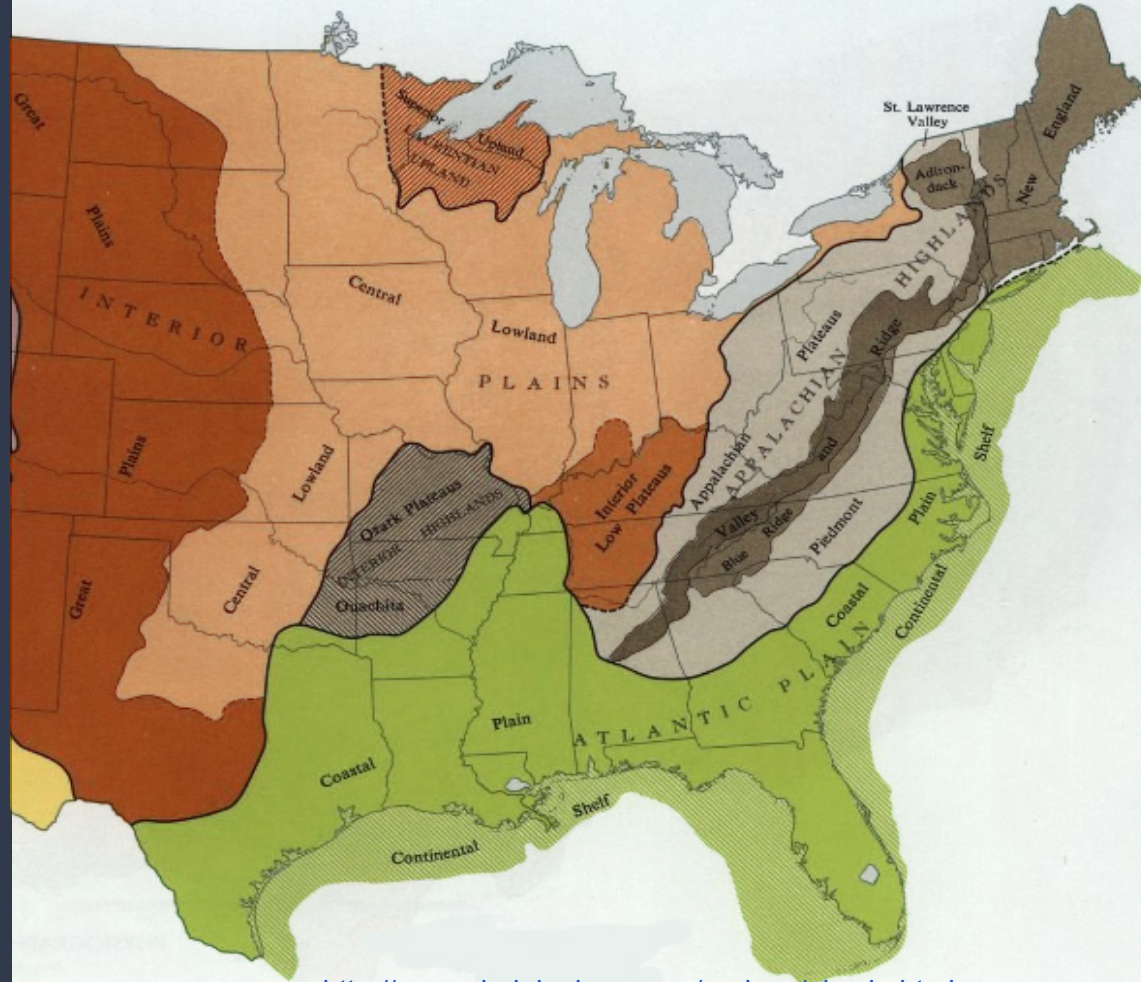
Regionality: Coastal Plain, Piedmont, Valley & Ridge, Appalachian Plateau



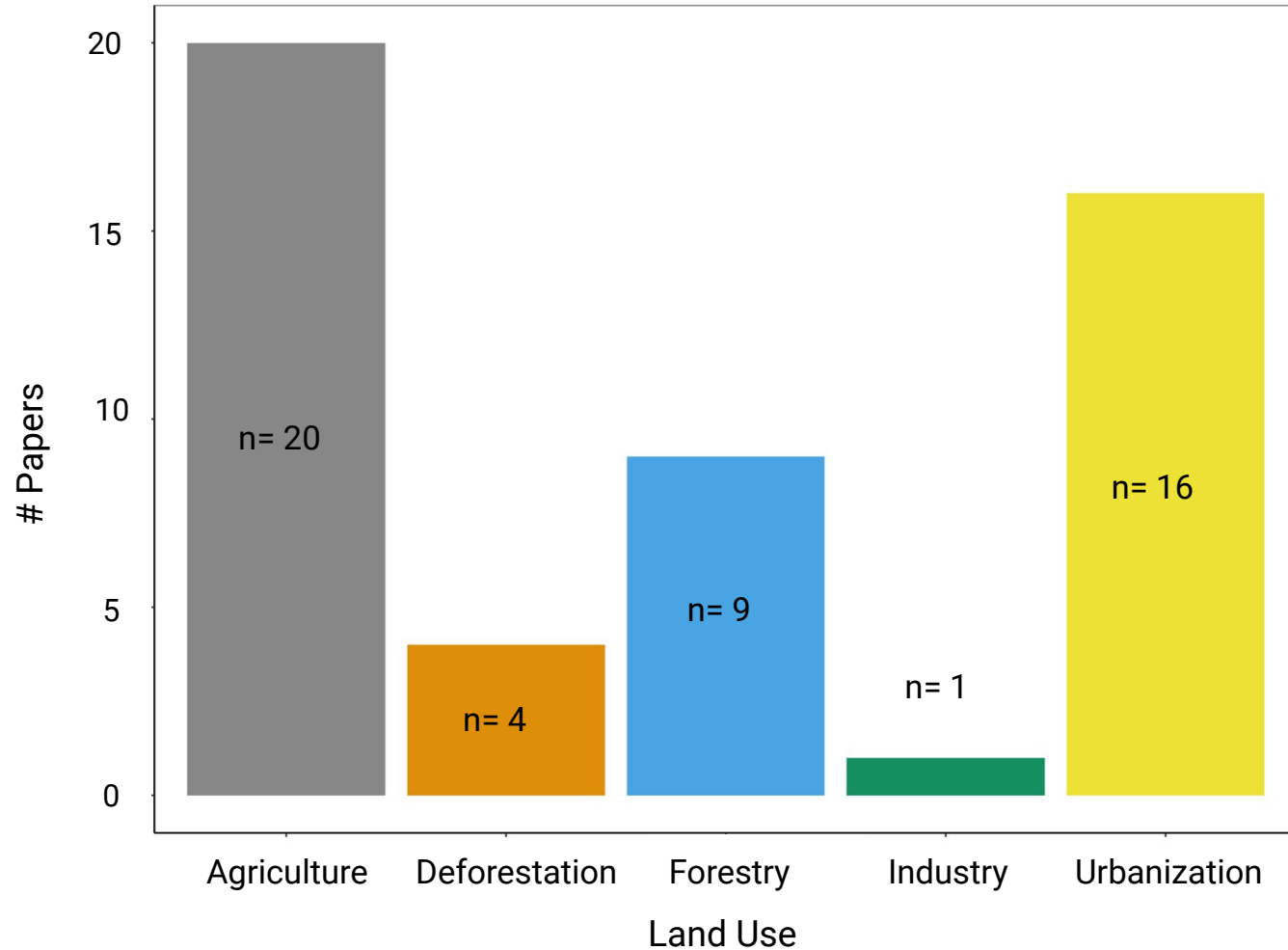
How do the components of this framework differ across regions?

Regions:

- Coastal Plain
- Piedmont
- Valley & Ridge
- Appalachian Plateau



What about
different
land uses?



Predictions

1. The most common macroinvertebrate metrics used to measure BMPs will differ among regions.
2. Richness and abundance measures will most commonly be used to assess BMP effectiveness. Functional trait groupings will be used less commonly.
3. Functional metrics will be used less commonly than compositional metrics.
4. Magnitudes of taxa loss will differ between land use (urban and agriculture) regardless of region.

((Best Management Practice OR Conservation Practice OR Rehabilitation Practice) AND (Macroinvertebrate OR *invertebrate OR insect) AND (Agriculture OR Farm OR Cattle OR Pasture OR Equine OR row-crop) and (stream OR Headwater streams OR Headwater OR Freshwater NOT marine NOT wetland*) AND "Coastal Plain")

Coastal Plain

Urban

Agricultural

Flow Regime
Changes

Increased
Sediment

Increased
Nutrients

Decreased
Shade

Decreased
EPT
Abundance

Decreased
Taxa Richness

Decreased
shredders

Decreased
soft-bodied
organisms

Decreased
shredder
abundance

Decreased
EPT (gills)

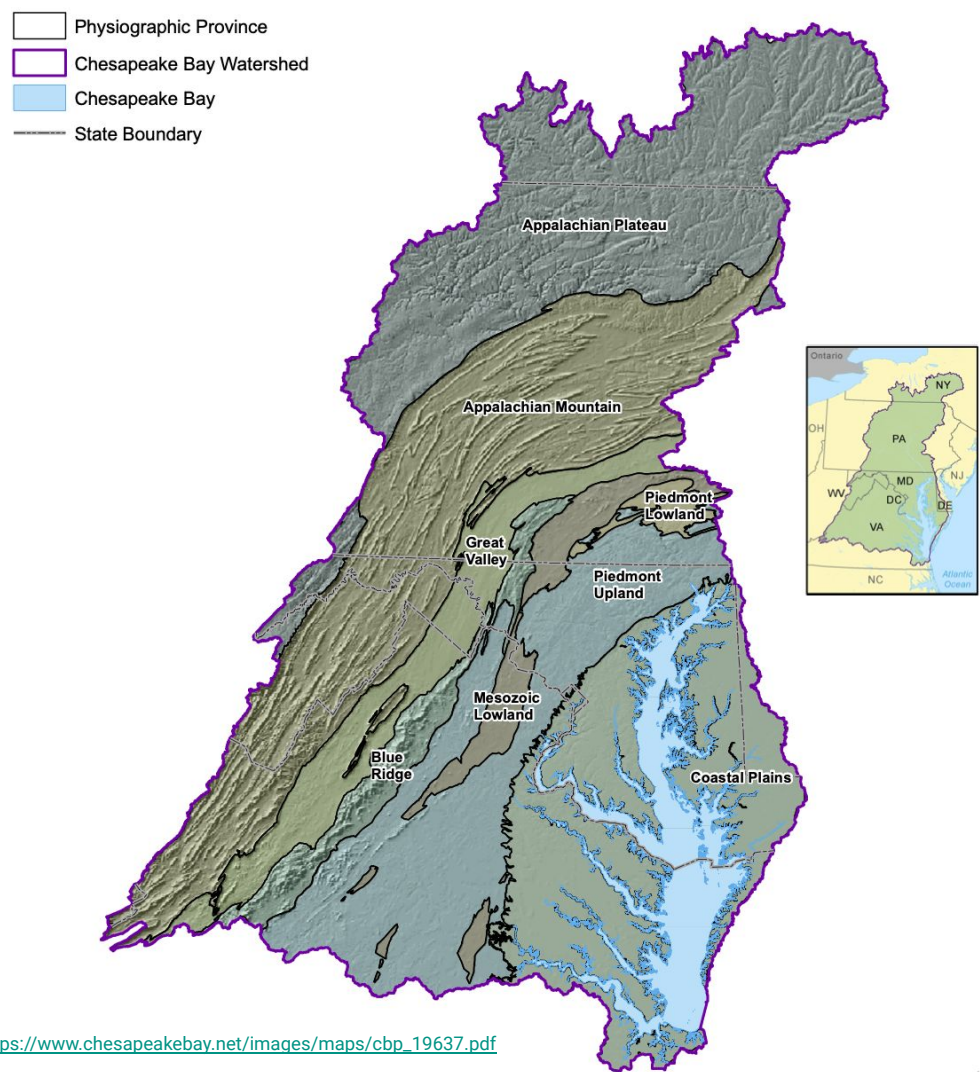
Decreased
sensitive taxa

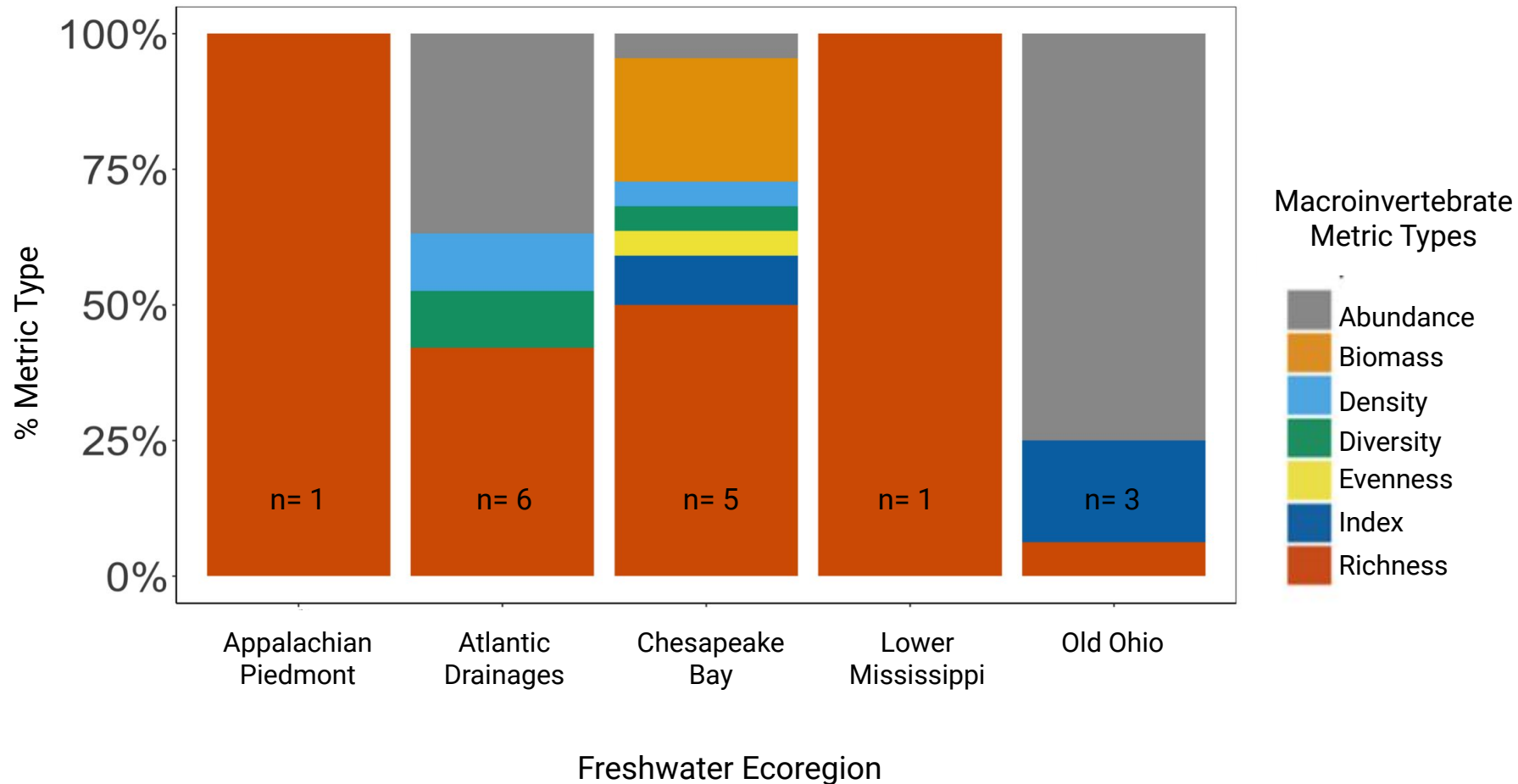
Decreased
taxa density

BMP

BMP

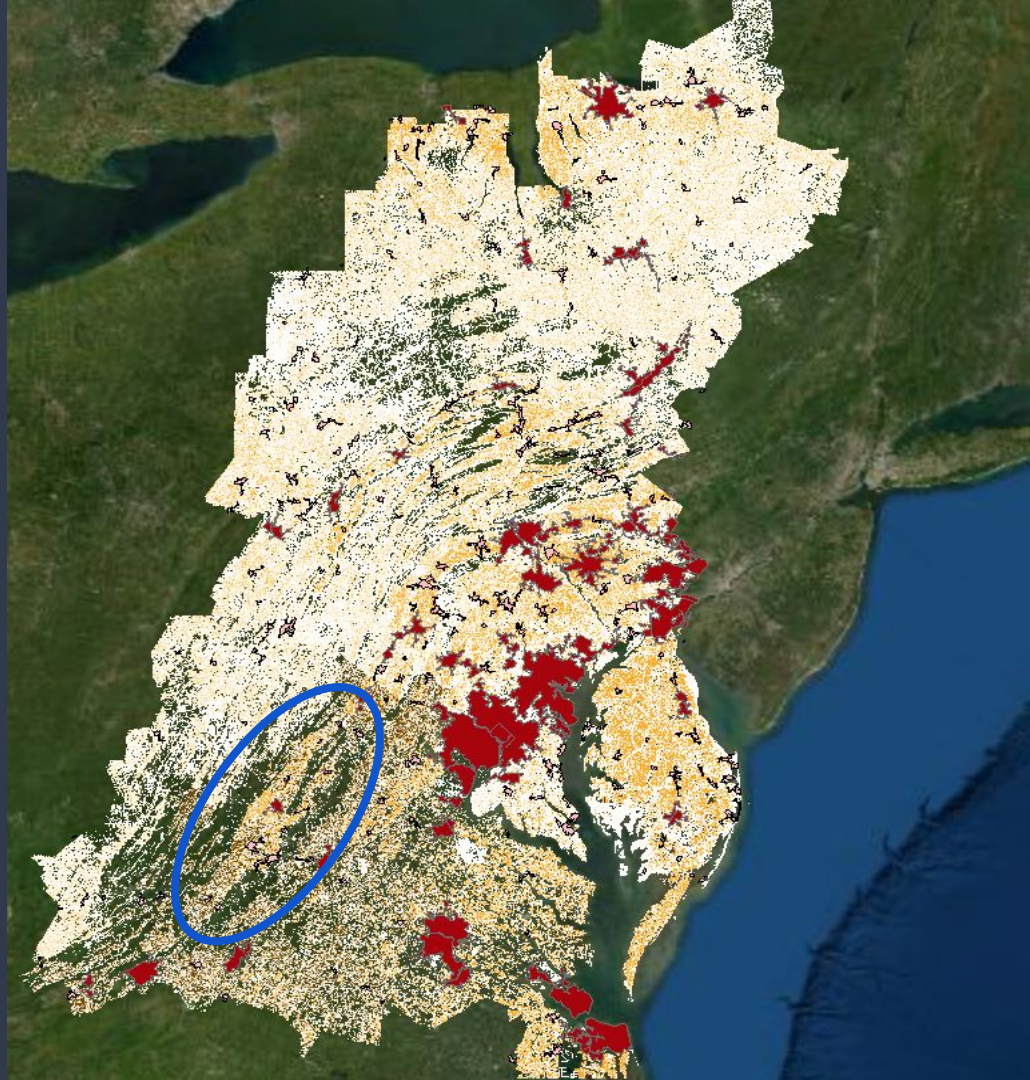
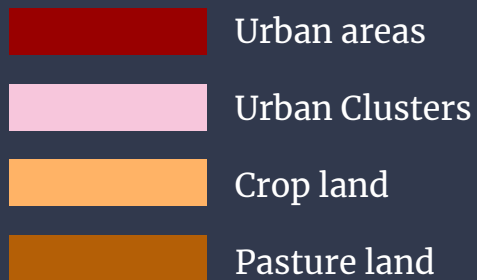
Project Connections: Regionality





Project Connections: Regionality

Project Connections: Land use



Questions/
Thoughts?

