

Effects of Urban Stormwater Infrastructure on Dissolved Nitrogen Export from Semi-Arid Urban Watersheds

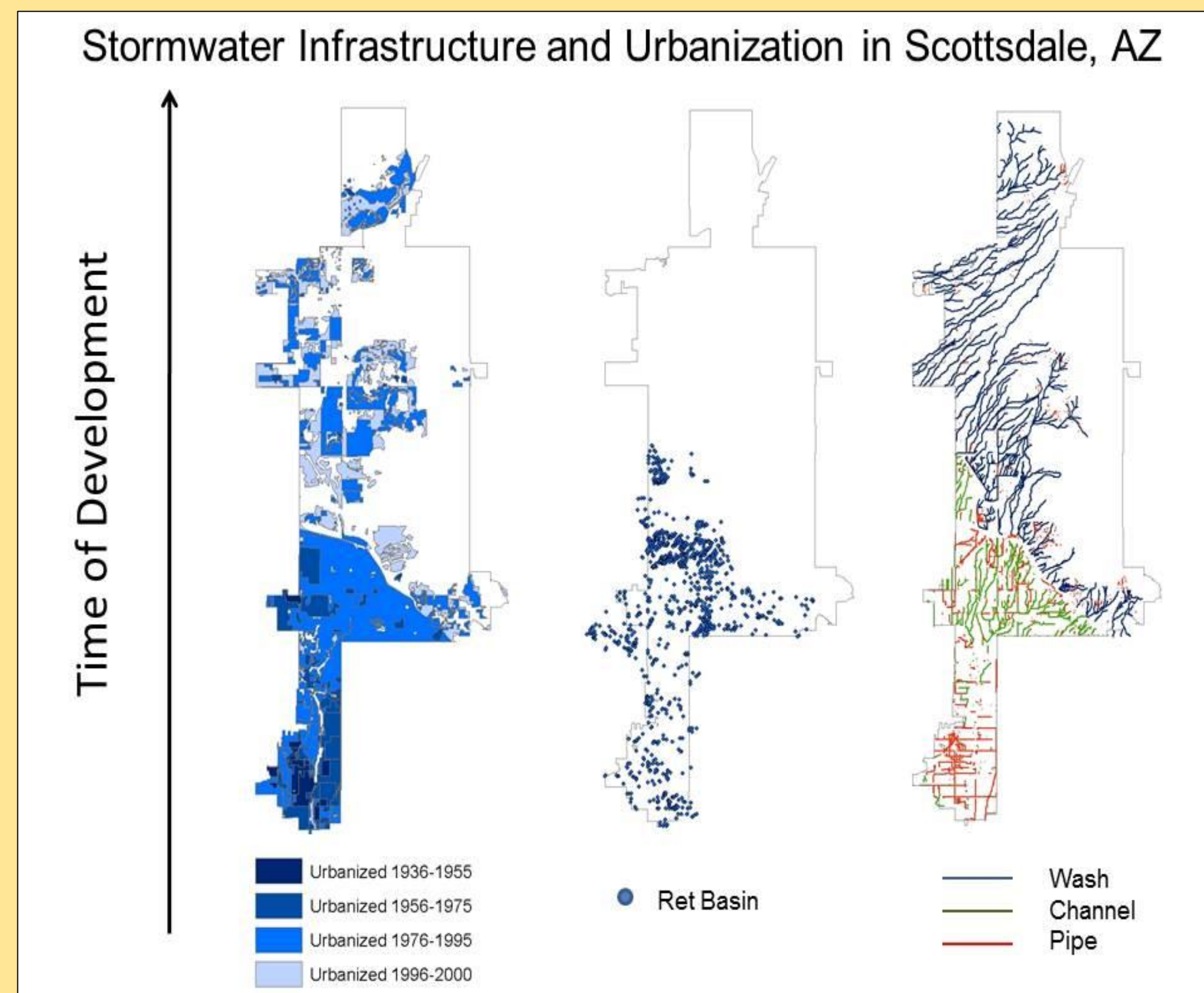
from Semi-Arid Urban Watersheds

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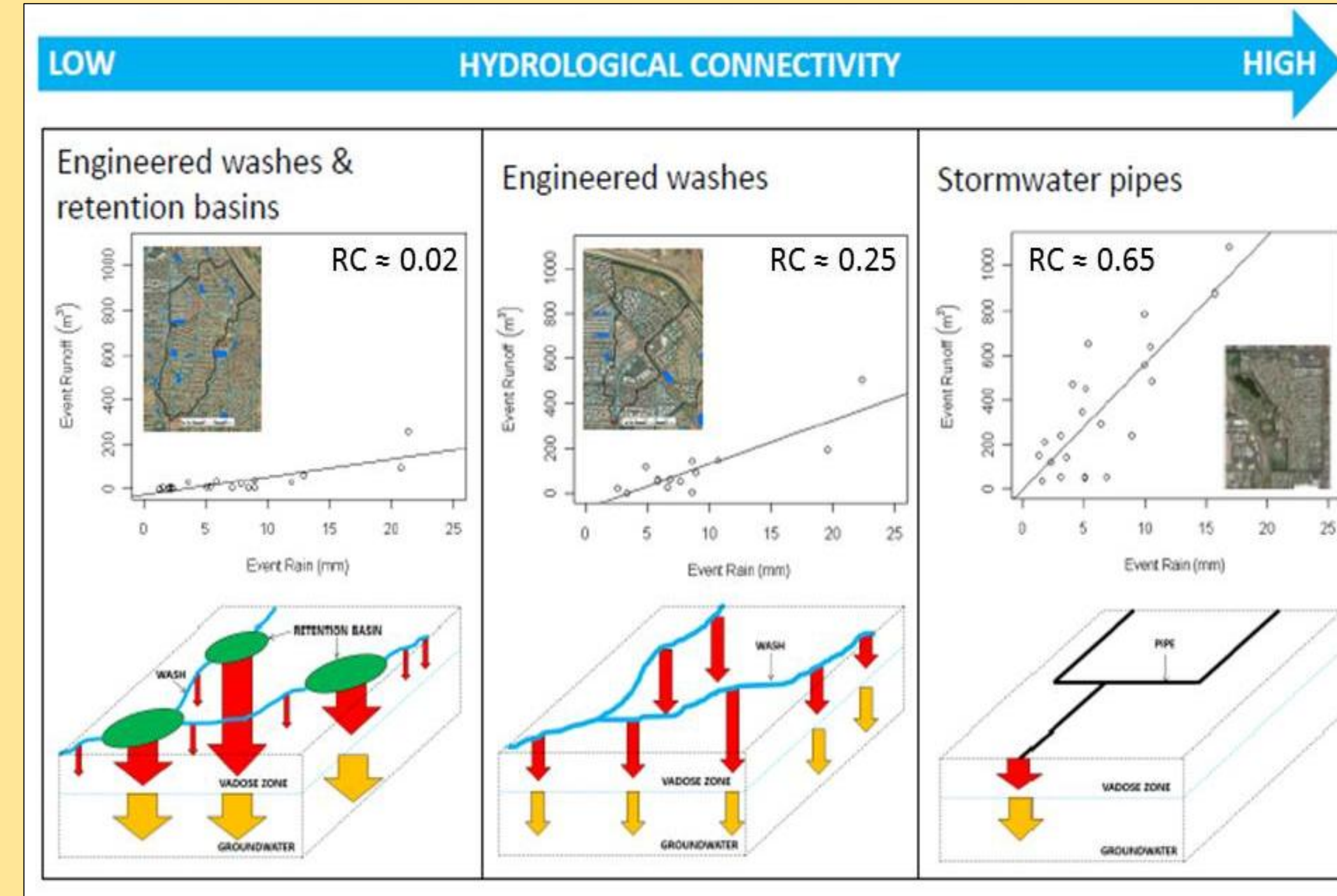
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Research Question

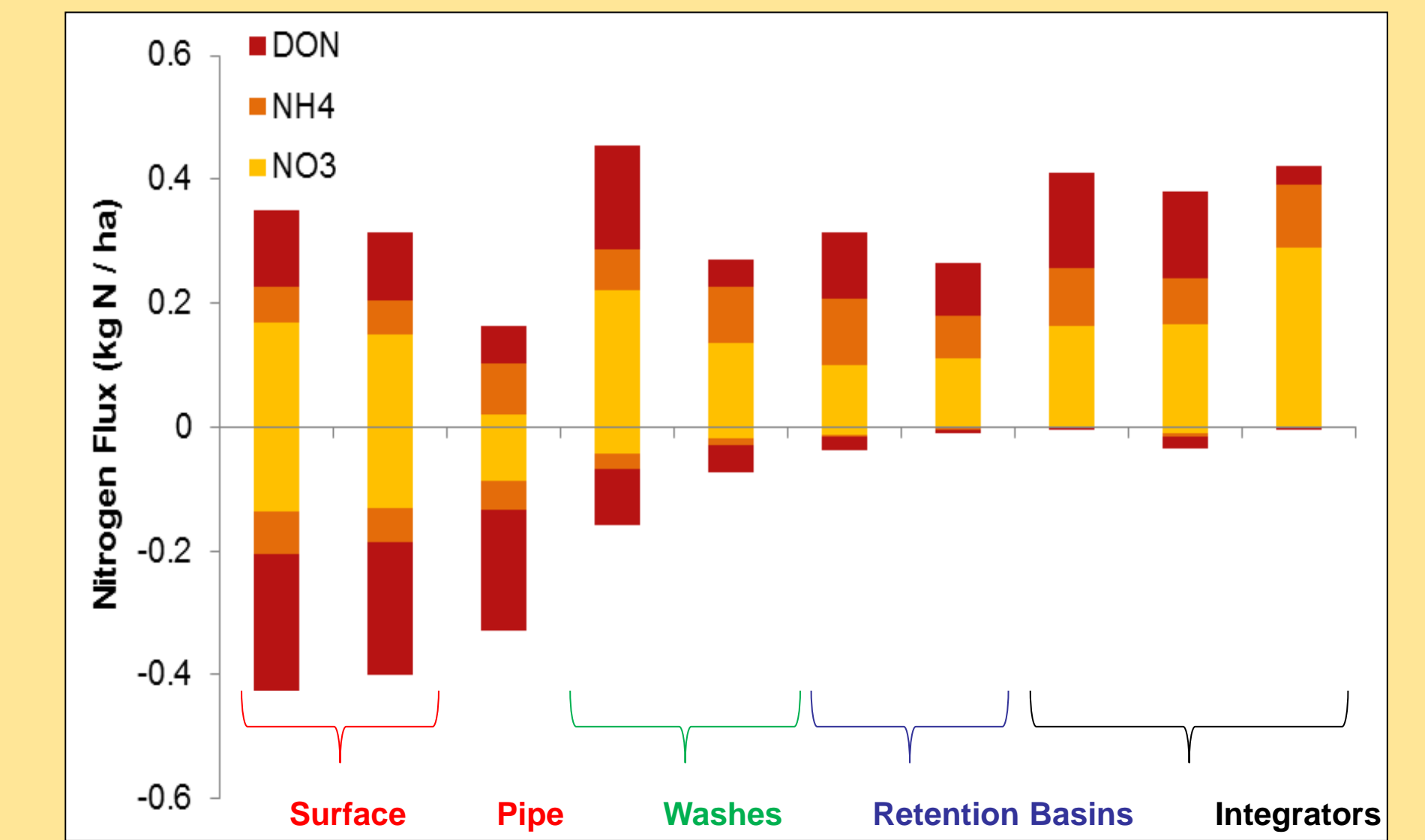
How does variation in stormwater infrastructure affect fluxes of water and dissolved nitrogen from urban watersheds?



Hydrological Connectivity



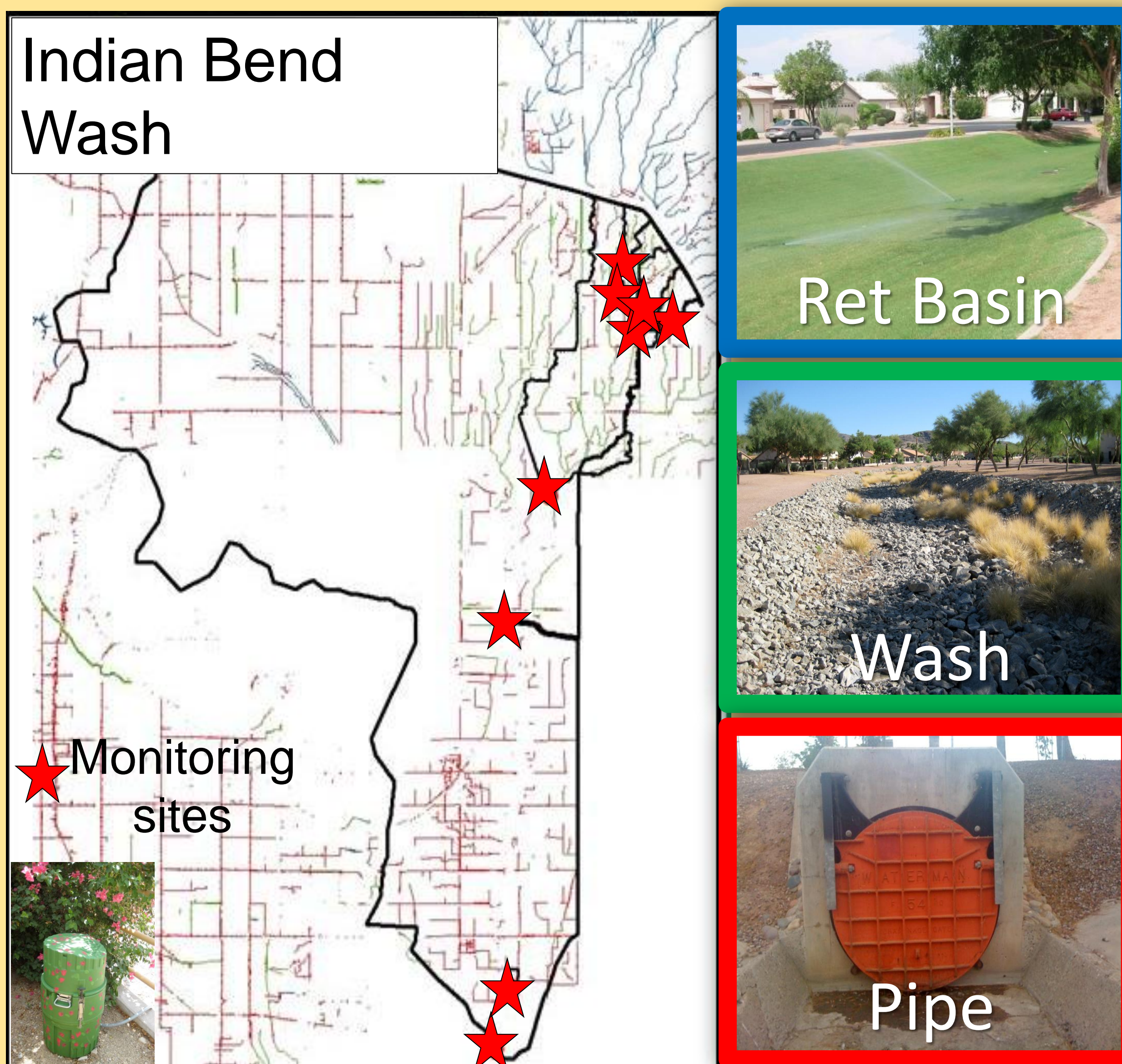
Nitrogen Retention



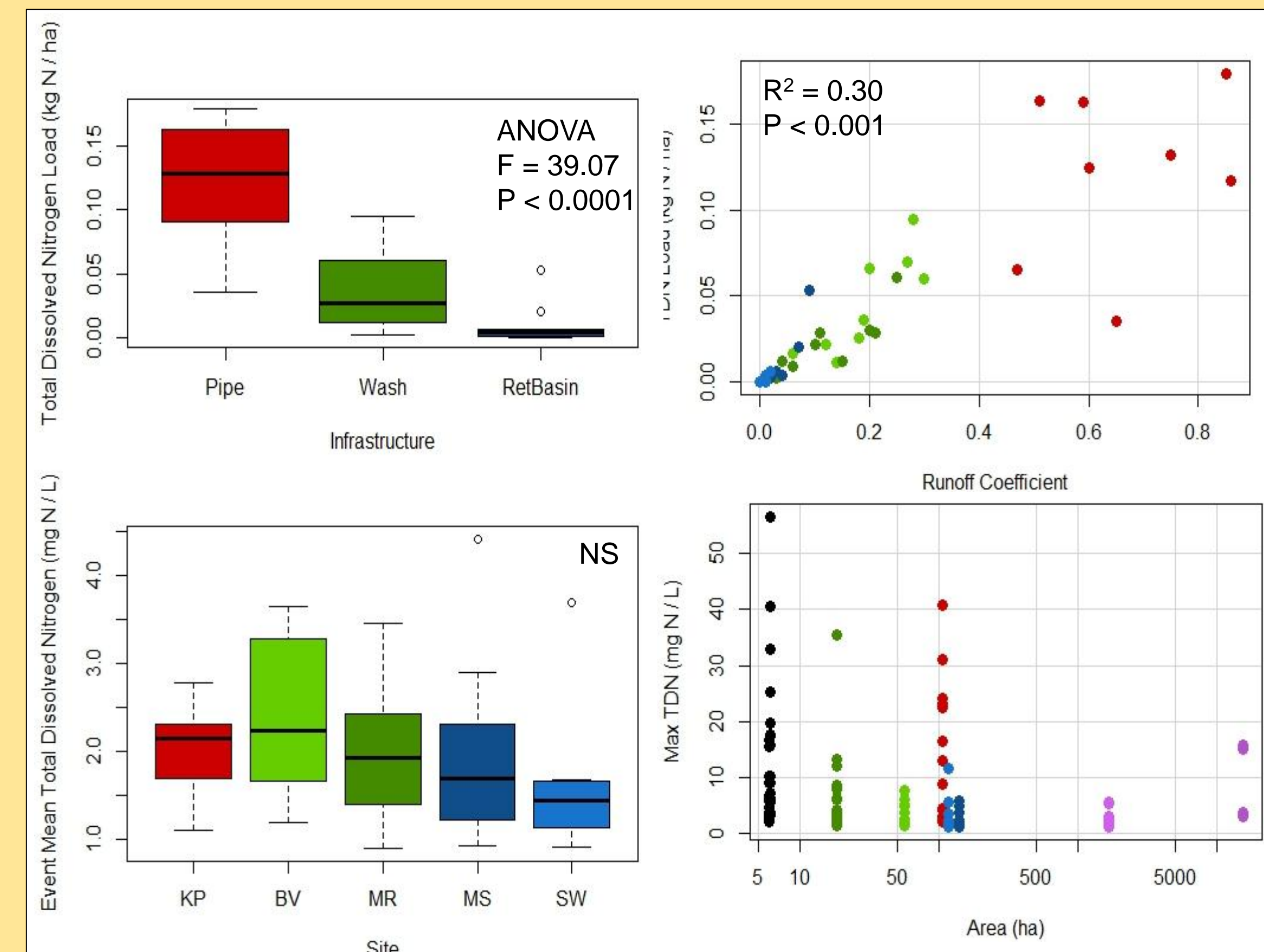
- Inputs of N in rainfall variable over space
- Urban watersheds highly retentive of N inputs
- Event-scale TDN retention is strongly related to hydrologic connectivity.

Study Design

- 10 nested urban stormwater catchments
- Vary stormwater infrastructure and scale
- Control land use: med density residential



N Loads and Concentrations



- Retentive infrastructure decreases average TDN loads
- RC drives TDN loads within/across sites
- Infrastructure affects max [TDN] but not EMC

Conclusions and Future Directions

- Stormwater infrastructure systems have the capacity to mitigate or even reverse some of the effects of land cover change
- Stormwater infrastructure strongly affects hydrologic connectivity
- Connectivity explains variability in TDN fluxes and retention across and within sites at event to seasonal scale
- Fate of retained N?
- Transportation vs transformation

Acknowledgments

- Kate Elrod, Cathy Kochert, Nich Weller, Sarah Moratto, Danielle Shorts, Emma Holland, Quincy Stewart, Roy Erickson, Olga Epshtein for lab and field help.
- City of Tempe and City of Scottsdale
- This material is based upon work supported by the National Science Foundation under Grant No. 0504248, IGERT in Urban Ecology, Grant No. 1026865, Central Arizona-Phoenix LTER, and Grant No. 1063362, Impacts of urbanization on nitrogen biogeochemistry in xeric ecosystems (SNAZ).