Urbanization and streams in Austin, TX

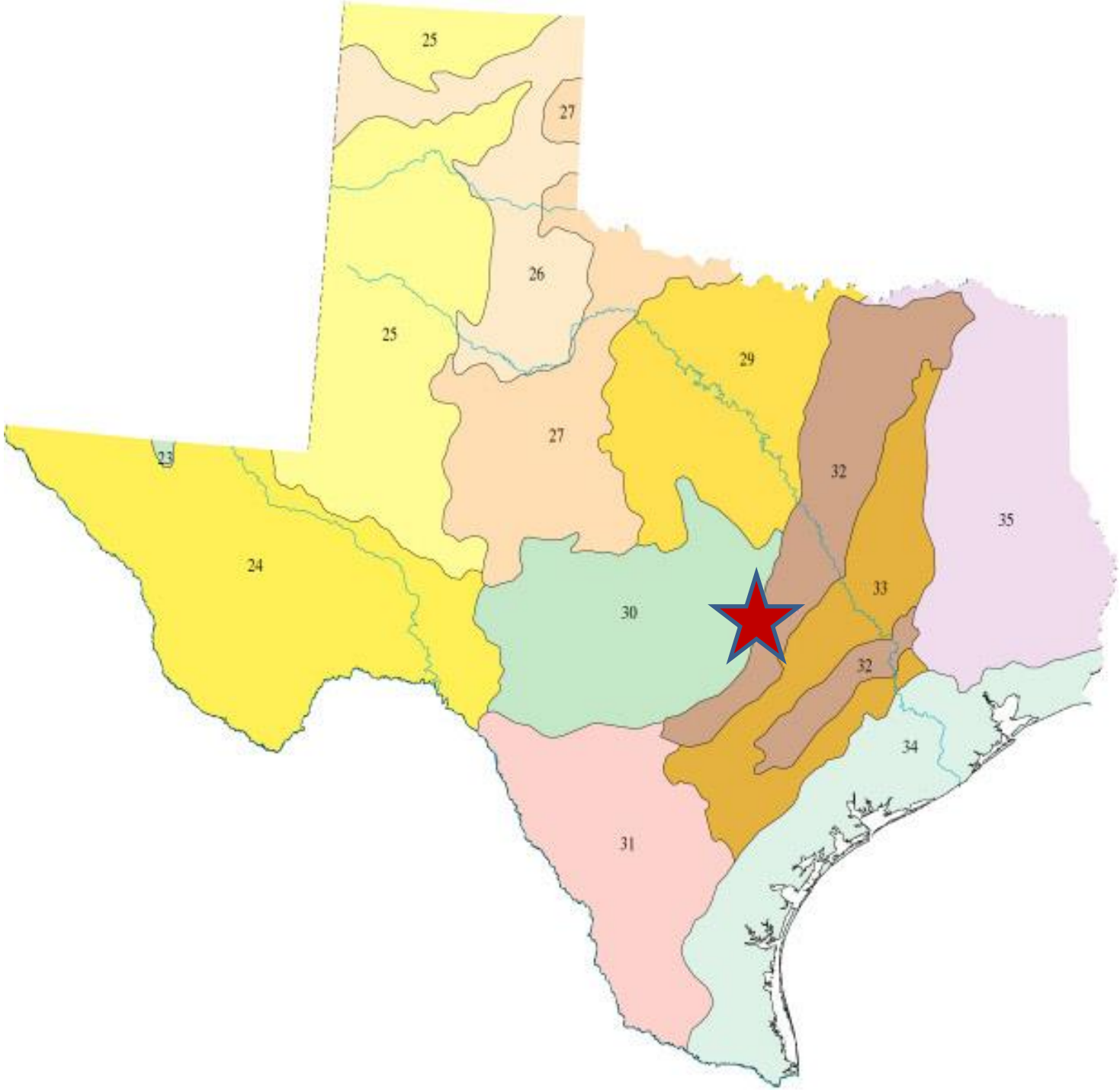
Mateo Scoggins

City of Austin
WATERSHED PROTECTION

CITY OF AUSTIN
FOUNDED 1839

Background

- **Municipality**
- **Bottom up, ecological program**
- **Restoration for the city**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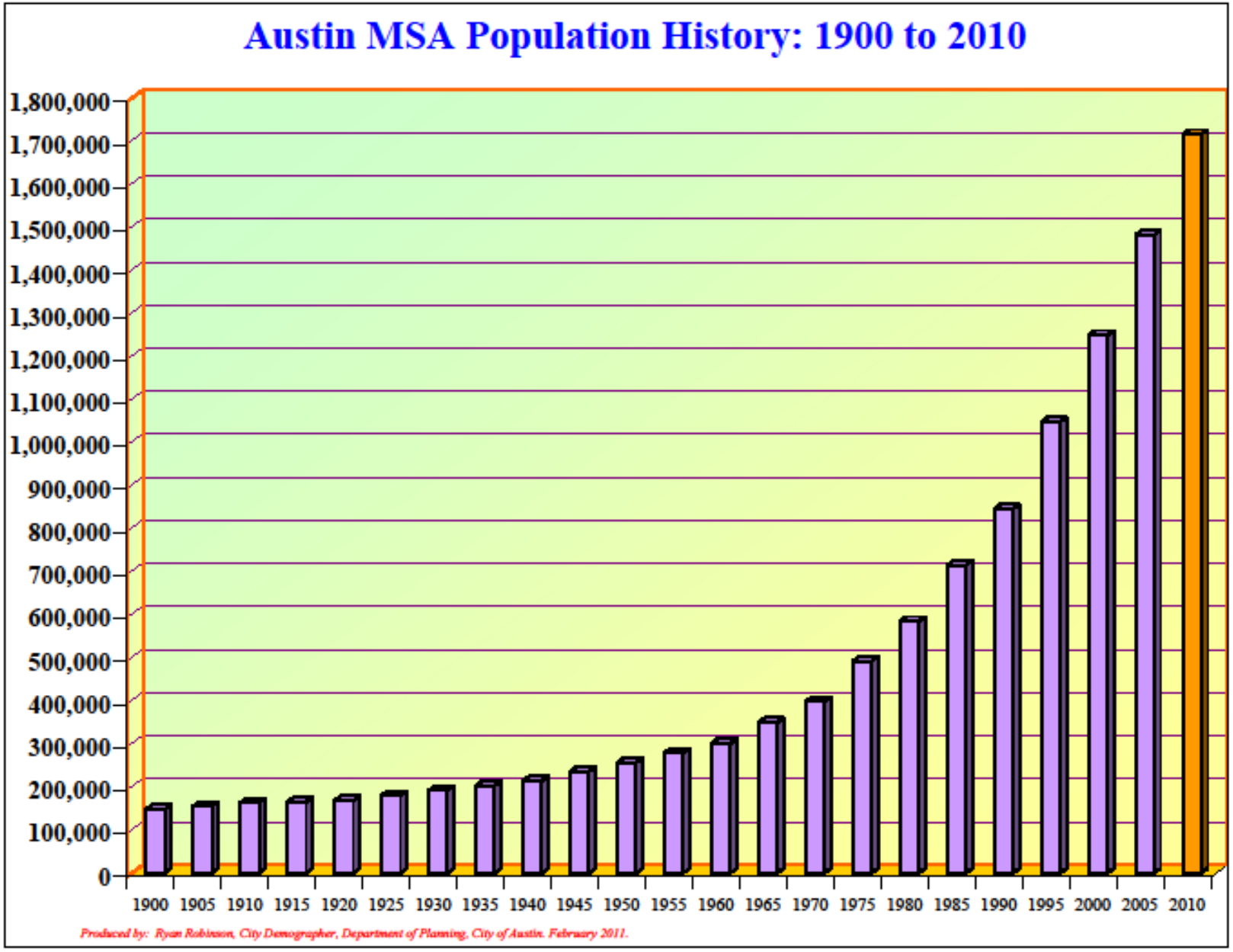
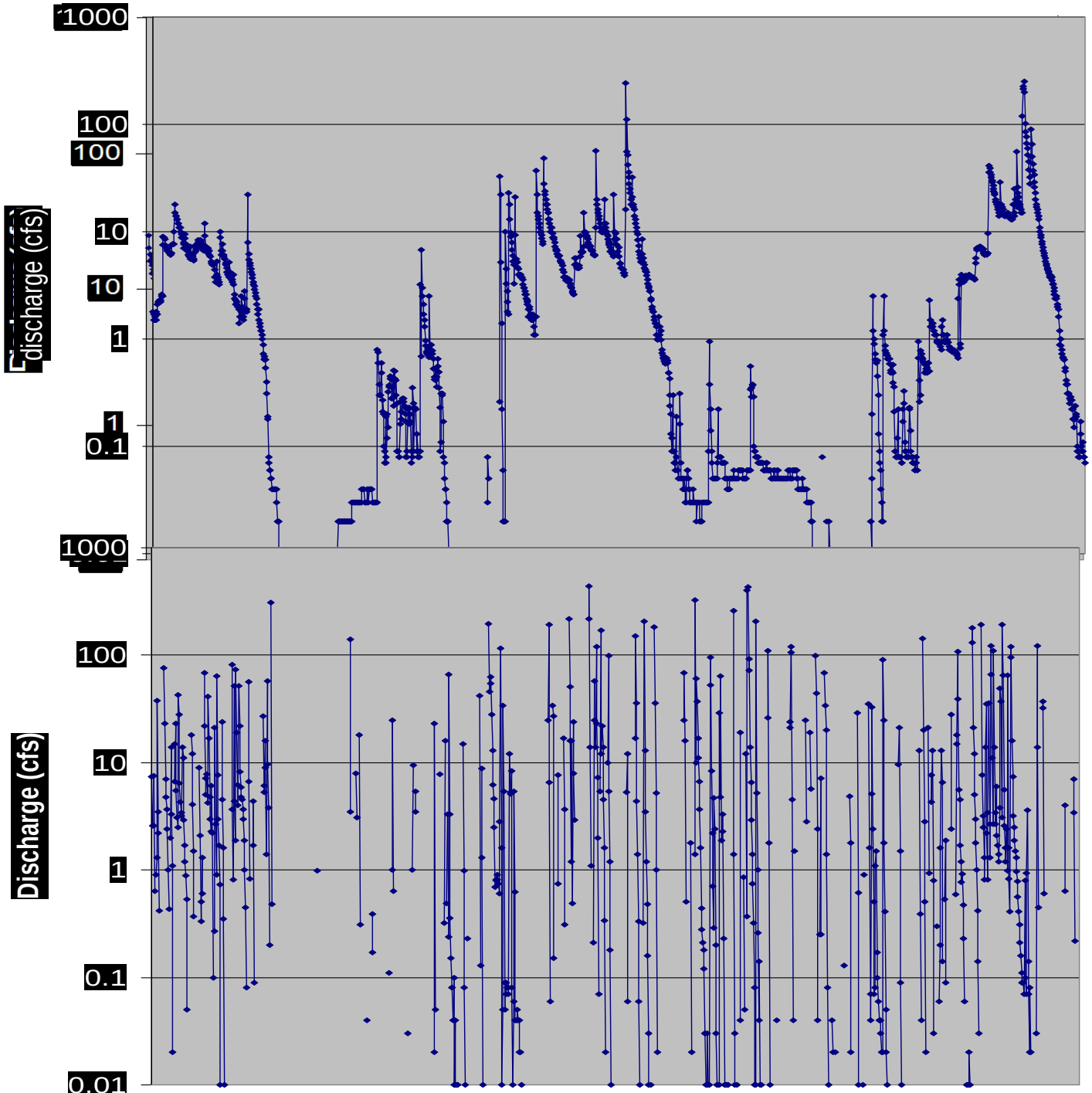

Austin MSA Population History: 1900 to 2010
1,800,000
1,700,000
1,600,000
1,500,000
1,400,000
1,300,000
1,200,000
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
1900 1905 1910 1915 1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010
Produced by: Ryan Robinson, City Demographer, Department of Planning, City of Austin. February 2011.


Dominant Paradigm
• Simple
• Clean
• Move away water


Dominant Paradigm
• Native
• Wild
• Clean
• Healthy


Reality


Reality
OLTORF
1ST
HERNDON
DURWOOD


1000
100
100
10
10
1
1
0.1
Discharge (cfs)
1000
100
10
1
0.1
0.01
Discharge (cfs)

Urban Stream Syndrome

Urban Stream Solutions

Key Tools:

- Small inputs (function over form)
- Scalable
- Diverse partnerships
- Monitoring

Willowbrook, 15 years

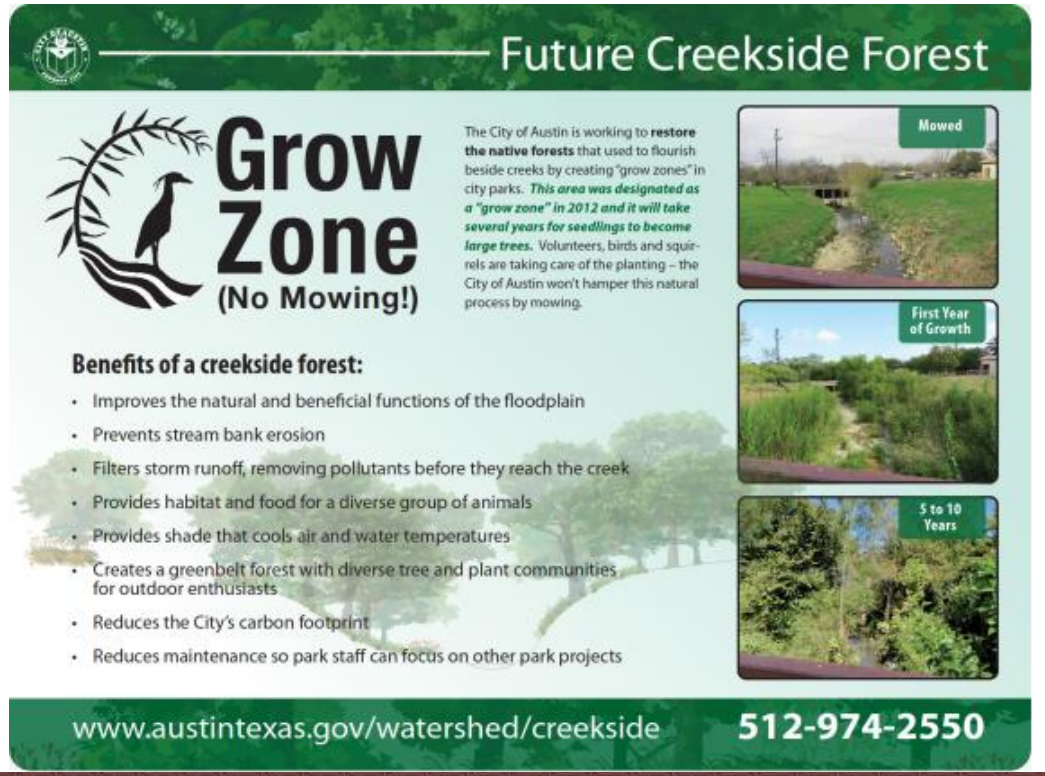
Grow Zone

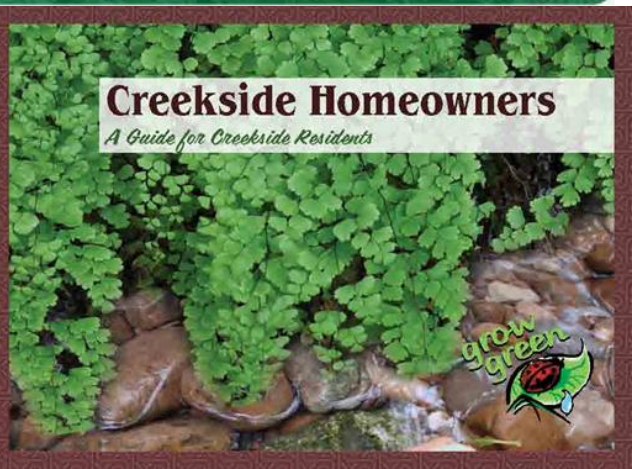
Ecological restoration through managed succession

- **No Mow Zone (eliminate primary disturbance)**
- **Seed bank**
- **Woody recruitment**
- **Soil erosion and compaction**
- **Invasive species control**

Grow Zone Partnerships

- **Highly scalable**
- **Non-profit “groups**
- **Adopt-a-Creek program**
- **Simple mgmt plans**
- **Creek Walks/Talks**
- **Signage, cues to care**






• 46 Grow Zones
• 13 miles
• 210 acres
• ~$3 per linear foot/year
• ~$125K in reduced mowing

5 years:

- Diversity
- Structure
- Shade
- Stability
- H20 Quality
- H20 Quantity


Resilience

Stewardship

Challenges

Flood Risk!

General Notes

Plant all saplings in designated planting areas.
Space saplings approximately 3 ft apart.
Planting zone starts at bank of creek and runs 15-25 ft perpendicular to the stream.
Plant all saplings between the marked flags that corresponds to your assigned planting zone.

Legend

- Parking Area
- Planting Area
- Meeting Area
- Creeks
- COA Parkland

URBAN FORESTRY

AUSTIN PARKS & RECREATION

City of Austin WATERSHED PROTECTION

N

0 40 80 160 Feet

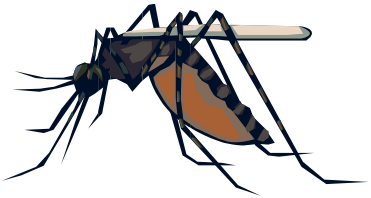
Challenges

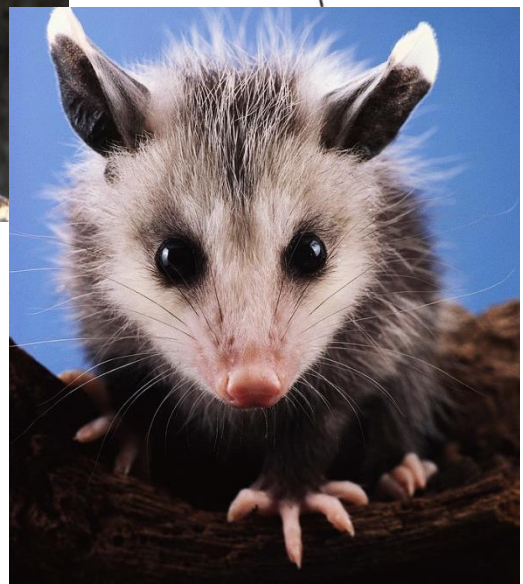
Ugly!

Neglect!

Challenges

Fear!





Challenges

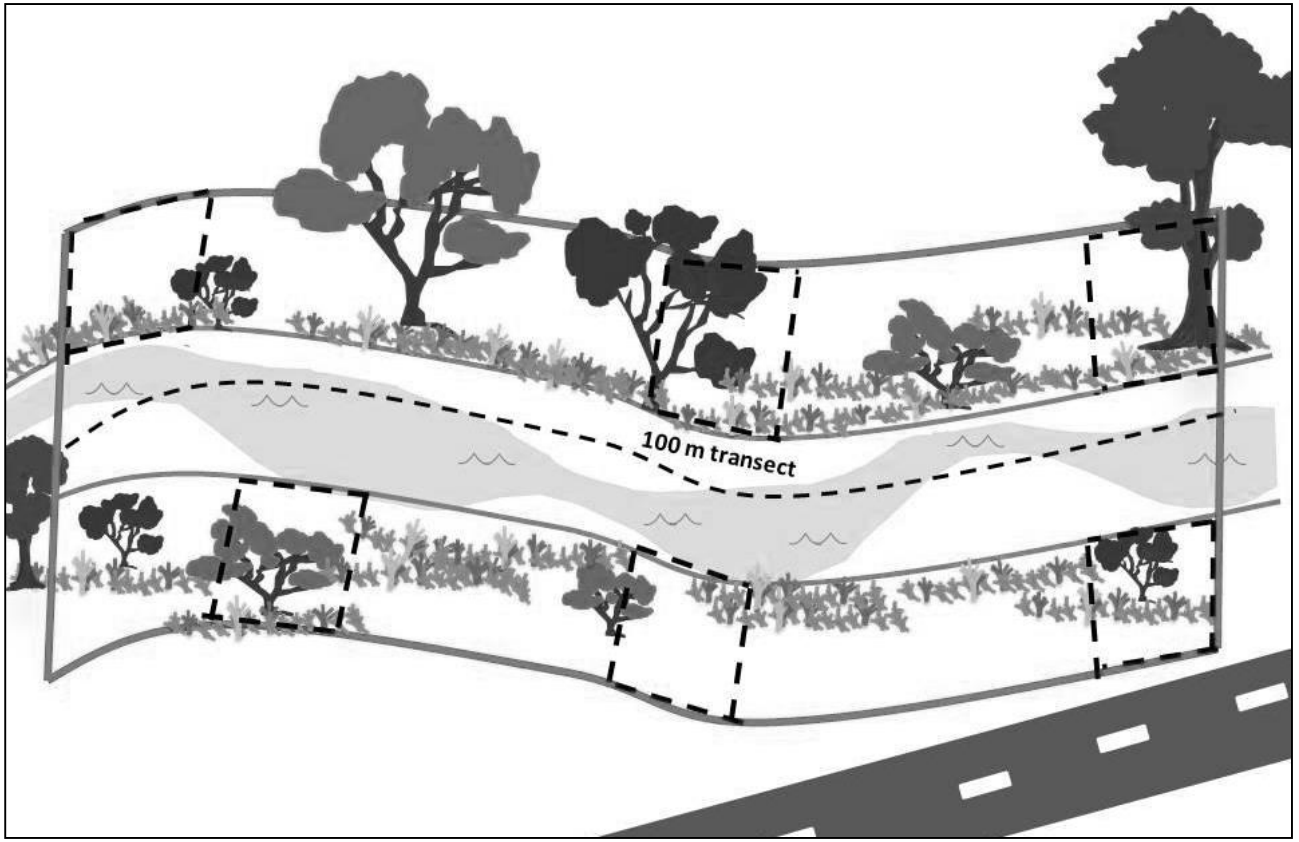
Exotic!
Invasive!

Challenges

Access, Trails!

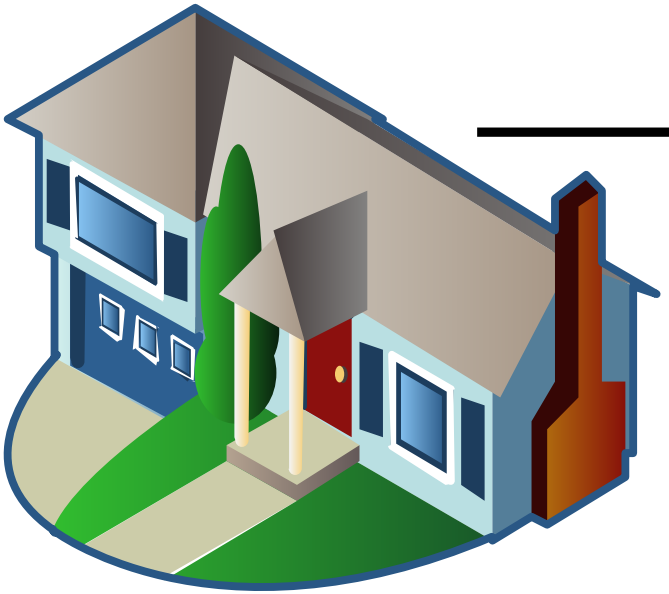
Monitoring:

- **Quantify functional shifts**
- **Reference vs. Degraded reaches:**



Green Stormwater Controls

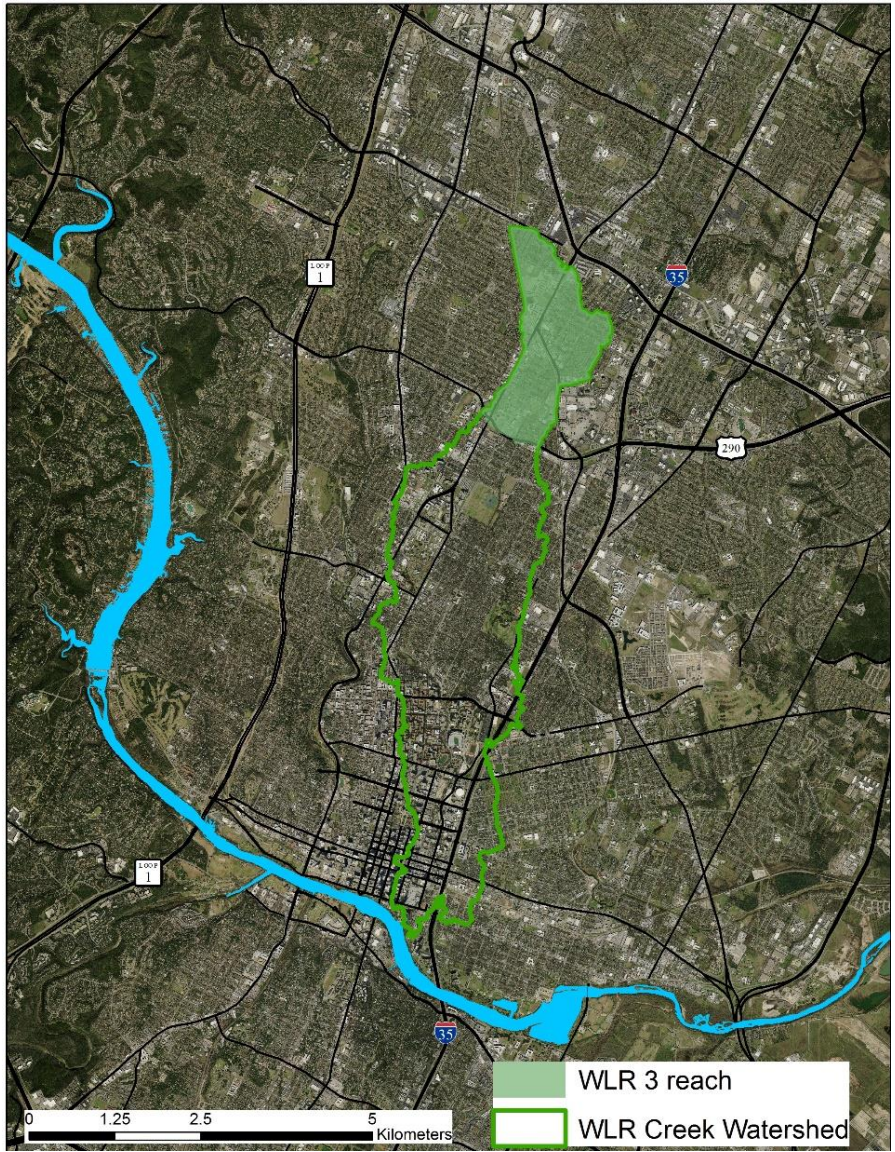
- Rain gardens

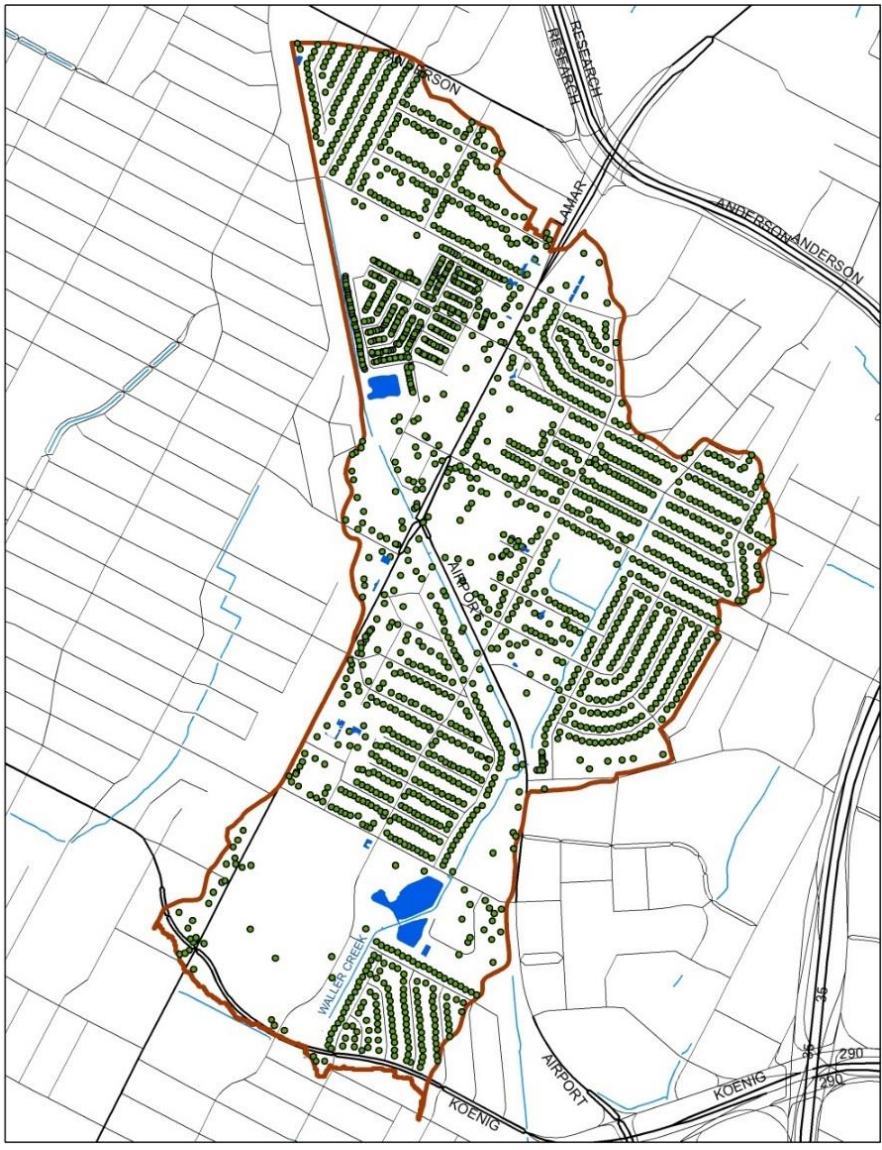


Cistern

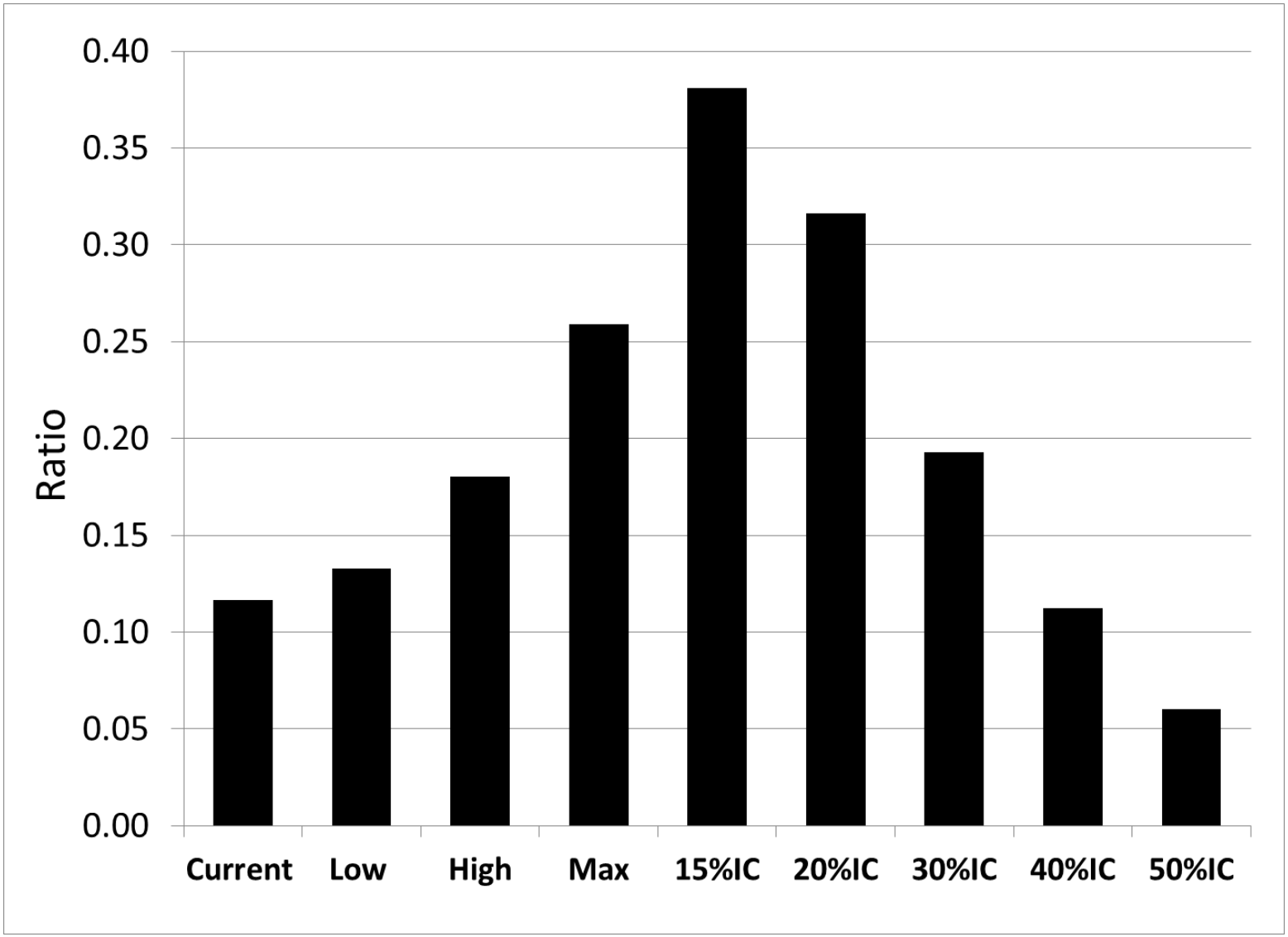
Raingarden,
Rainscape

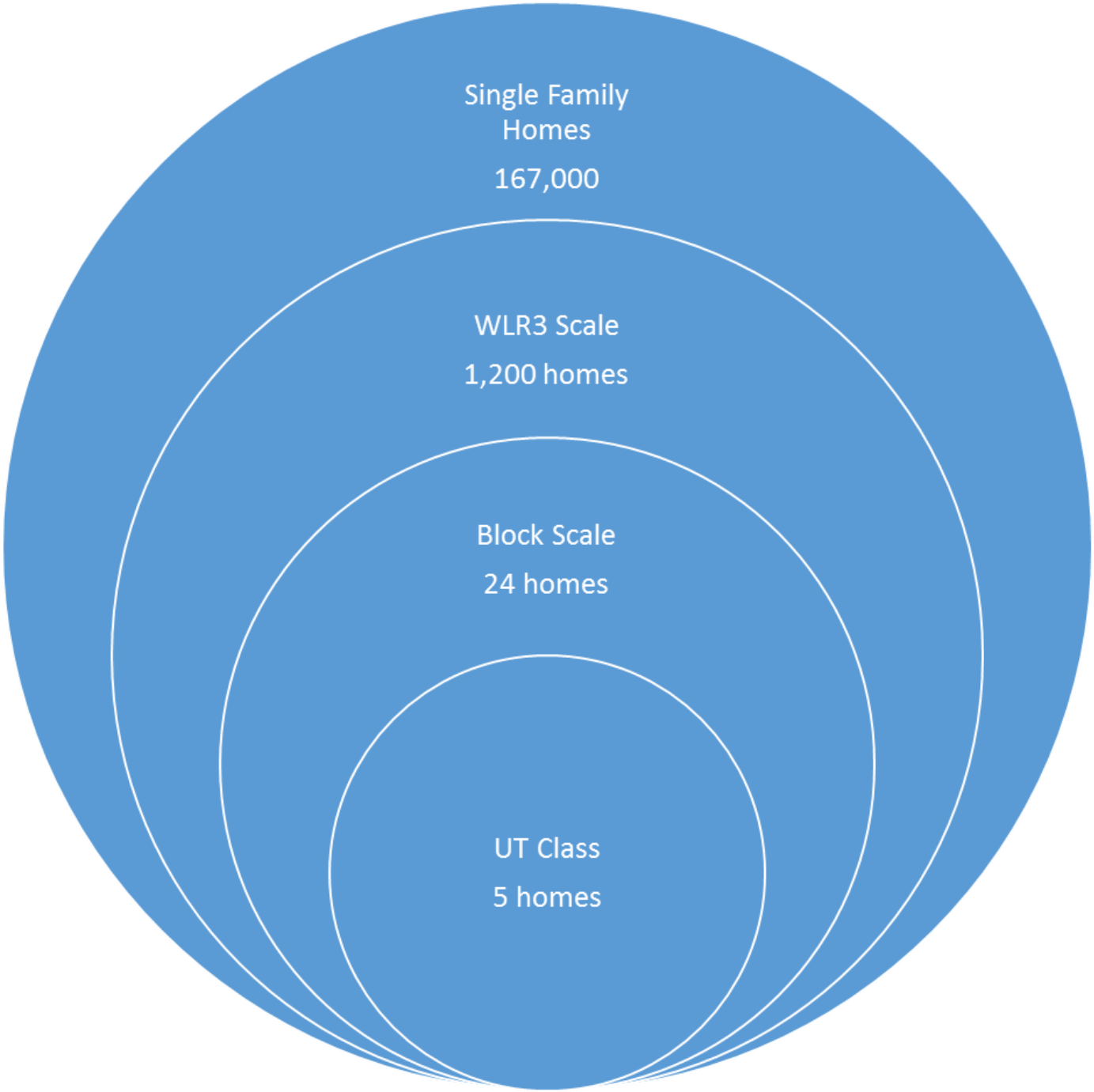
Watershed-scale GSI





Ratio of Baseflow/Total Flow




Single Family Homes
167,000
WLR3 Scale
1,200 homes
Block Scale
24 homes
UT Class
5 homes

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Monitoring: Riparian Functional Assessment