Grow Zone

Function over form in urban riparian restoration

City of Austin
WATERSHED PROTECTION

Ana V. González

Urban Stream Syndrome (Walsh et al. 2005)

- Flashier hydrograph
- Elevated concentrations of nutrients and contaminants
- Altered channel morphology
- Compromised bank stability
- Nonpoint source pollution
- Disconnected floodplains

Focusing on riparian buffers

- Water quantity
- Water quality
- Soil erosion
- Nutrient cycling
- Ecosystem services

Willowbrook Reach (1997)

Willowbrook Reach (2010)

Willowbrook Reach (2013)

Grow Zone

Ecological restoration through facilitated succession

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

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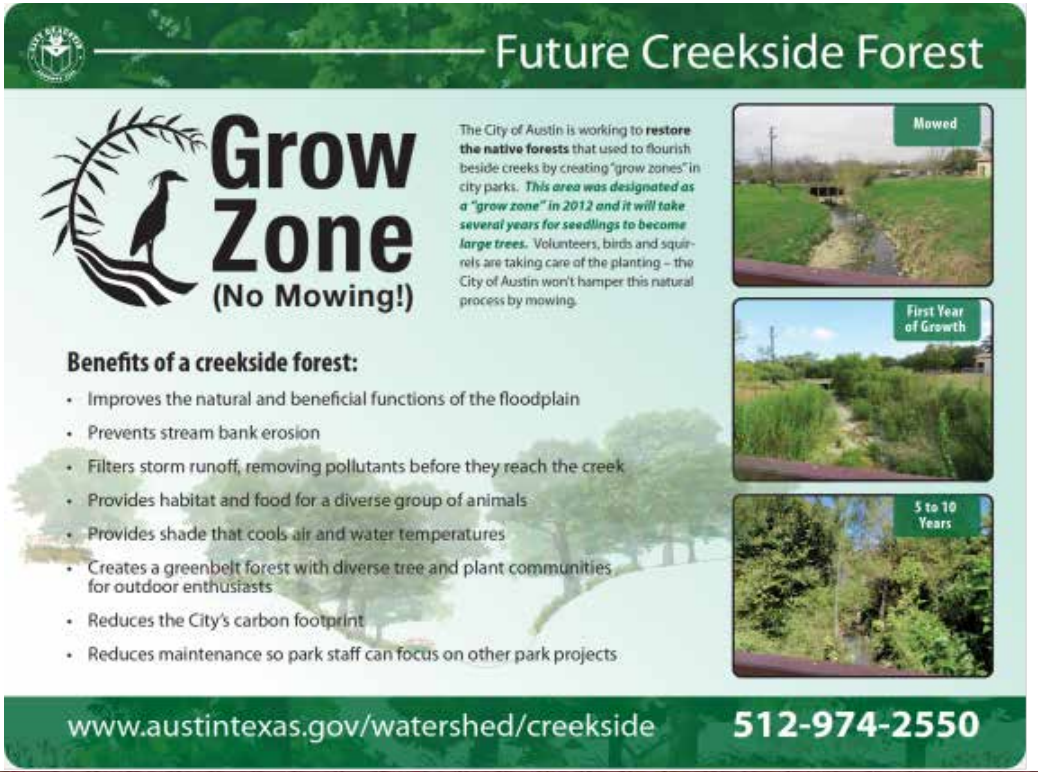
AUSTIN PARKS & RECREATION

Outreach

- Educating staff
- Local stakeholders
- Workdays
- Educational materials
- Creek Walks/Talks
- Signs
- Guides



Grow Zone

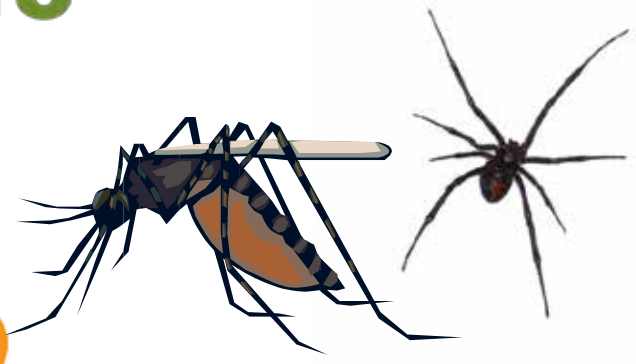
Outreach

Outreach

Grow Zone

WILDFIRE READY AUSTIN

www.firewise.org
www.austinhsem.com
www.austintexas.gov/watershed/creekside



Management Template

- Guiding principles
- Environmental criteria
  - Canopy
  - Moisture
  - Slope
- Four management axis
  - Seeding
  - Seedling planting
  - Soil amendments
  - Invasive species control

Grow Zone Schedule

Site Na	H_2O	Canopy	Invasiv	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15
Bartholomew	upland/dry	open	Yes	Stake mulch socks along contour l												Stake new mulch socks ones				
				Seeding upland, distu grass, forbs on mul herbaceous seed diver + soil amendmer												Seeding upland, distu grass, forbs on mul herbaceous seed diver + soil amendmer				
					Ready, Set, Plar tolerant tree a															
				Montlh workdays Johnson Arundo, withou removi rhizom				Montlhy workdays to cut Johnson grass, Ar												

Financial Benefits

- Cost ~$25 ft^{-1} (~$850 ft^{-1} engineered bank restoration, $6800 per acre (max.)
  - Small scale
  - Reduce future degradation requiring engineered solutions
- ~80 acres (2012, 21 Grow Zones) removed from mowing ($48K yr^{-1})
- Key bacteria TMDL solution (avoid ~$25K day^{-1} in fines).

Other Benefits

- Healthy and calming natural spaces
- Shade for recreation
- Education
- Promote diversity and stewardship
- Contribute to carbon neutrality

Restoration Challenges

- Severe soil erosion/compaction
- Low plant establishment in harsh soils
- Compliance with No Mow zone
- Citizen concerns

Future directions

- More Grow Zones!
- Restoration management templates and schedule (volunteers, stakeholders).
- Establish local functional trait monitoring component to insure resilience.
- Ongoing research…

We are getting there…


Givens

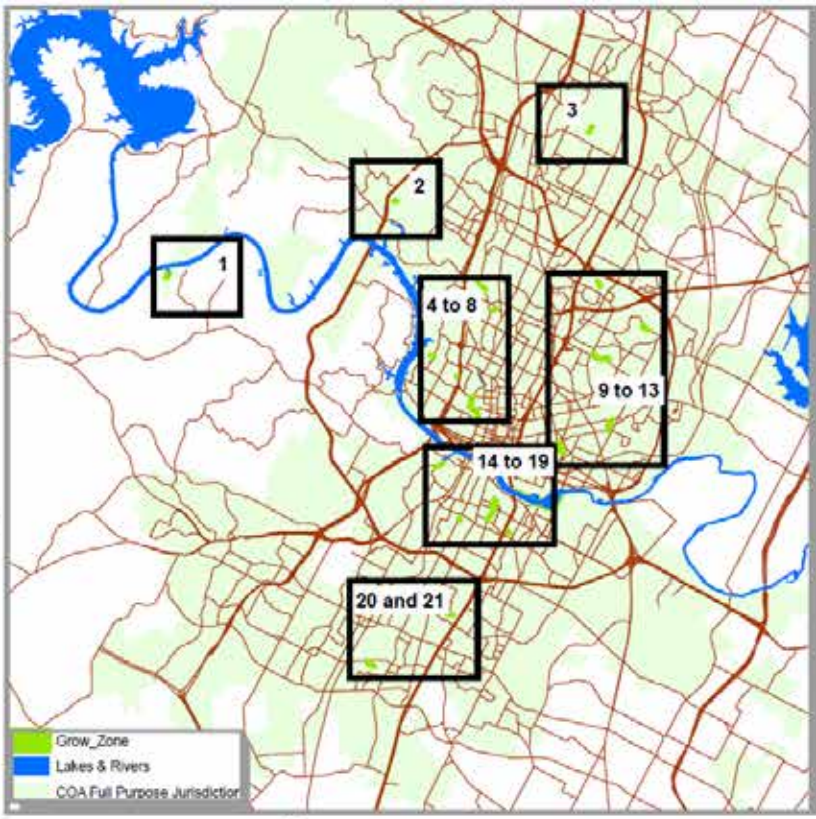

Robert E. Lee

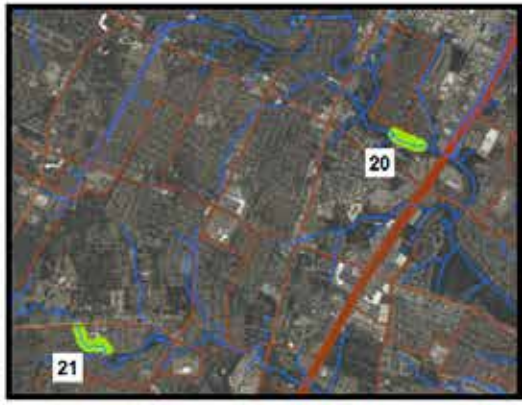

Bartholomew

Questions?

Grow Zones 2012

1. Commons Ford Ranch
2. Bull Creek
3. North Star Greenbelt
4. Shoal Creek at Allandale
5. Crestmont Park
6. Reed Park
7. Tarrytown Park
8. Shoal Creek at Pease Park
9. Buttermilk Creek
10. Dottie Jordan Park
11. Bartholomew Park
12. Givens Park
13. Boggy Creek
14. Shoal Peninsula
15. Robert E. Lee
16. Blunn Creek
17. Lady Bird Lake
18. Gillis Park
19. Heritage Oaks Park
20. Battle Bend Greenbelt
21. Dittmar Park





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