

Invasive Species Data Collection:

An Ecological Approach to a Complex Problem



www.austintexas.gov/invasive

Invasive Species

“[...] nonnative (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.”

– National Invasive Species Council



Past City of Austin Efforts

~\$970,000/year spent on invasive species management.

Projects are on departmental level with no system for coordination in place

Timeline

2010

April, 2010

- ❑ City Council Resolution to develop Invasive Species Management Plan

August, 2012

- ❑ Interdepartmental Working Group develops ISMP and Field Manual
- ❑ Bloomberg Philanthropies Cities of Service Grant Submittal

Spring, 2013

- ❑ City staff and 150 volunteers train

Summer, 2013

- ❑ Data collection effort

Spring, 2014

- ❑ Data Analysis & Report Generatio

2014



COA ISMP Scope

- ❑ Identifies target species.
- ❑ Compiles management strategies (IPM).
- ❑ Sets department-level responsibility.

City of Austin Top 24 Invasive Plant Species

Data collected for those species in red | *Not listed as one of COA's Top 24

- Bastard Cabbage
- Bermudagrass
- **Broad Leaf Privets**
- **Catclaw Vine**
- **Chinaberry**
- **Chinese Parasol Tree**
- Chinese Pistache
- **Chinese Privet***
- **Chinese Tallow**
- Common Water Hyacinth
- Elephant Ear
- **Giant Cane**
- **Golden Bamboo**
- **Heavenly Bamboo**
- Hydrilla
- Japanese Hollyfern
- **Japanese Honeysuckle**
- **Johnsongrass**
- King Ranch Bluestem
- Kudzu
- Malta Star Thistle
- **Paper Mulberry**
- Salt Cedar
- Scarlet Firethorn
- **Tree of Heaven**

COA ISMP 5 Year Goals

- Development of standard procedures.
- Management actions on 25% of total acreage.
- Collection of baseline data.
- Education / Outreach.

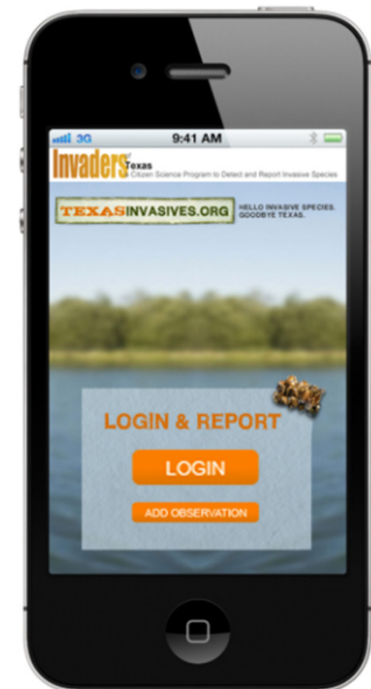


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SERVICE**
CITIESOFSERVICE.ORG



Education / Outreach

- ❑ Cities of Service Grant
- ❑ University of Texas Lady Bird Johnson Wildflower Center
- ❑ Trained Over 150 Citizen Scientists

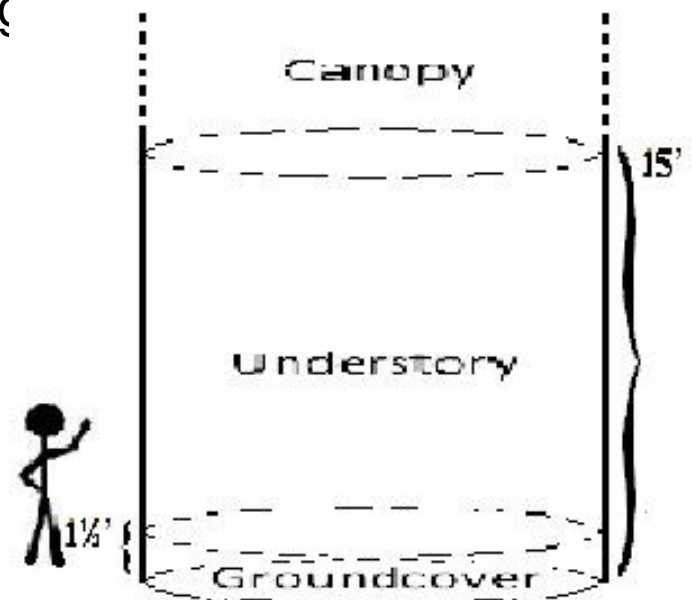


Hypotheses

- Invasive species abundances are not equal.
- Invasive species presence/abundance is associated with site, horizontal or vertical distance to water, or disturbance/development.
- Invasive species age distribution is correlated with site, distance to water, or disturbance/development.
- Native species diversity is different in areas with high invasive species presence/abundance.

Study Design

- ❑ Plots were a cylinder with a 5 meter radius
 - Split into quadrants
 - Data collected at Canopy, Understory and Groundcover
- ❑ Randomly distributed
- ❑ Density of 1.5 plots per unmanaged acre
 - 3% land area sampled per unmanaged



Study Design

□ Plot Level

- Habitat Type (Open/Edge/Wooded)
- Soil Type

□ Strata Level

- Percent Cover of each invasive species
- Percent Open/Bare
- Native species tally

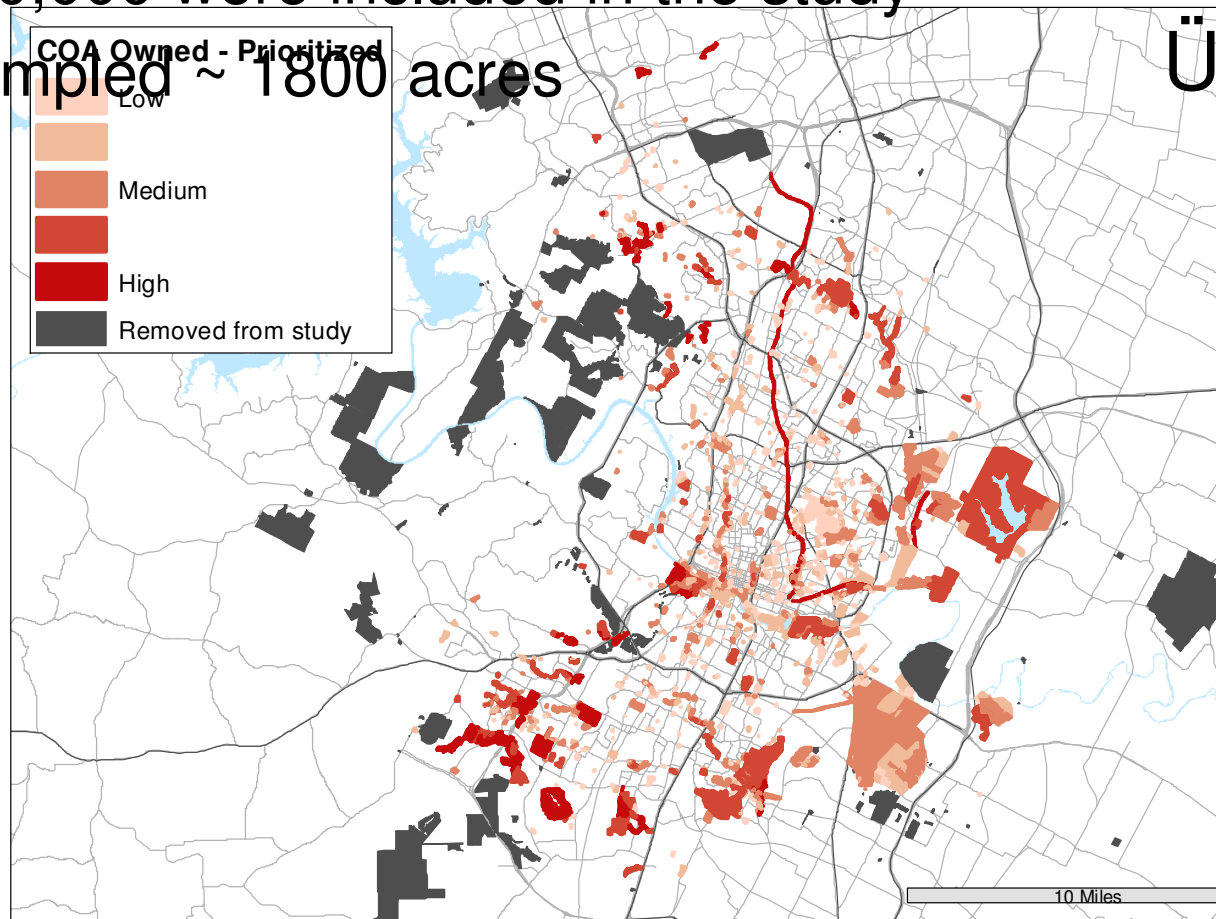
	Groundcover (<1.5 ft.)	Understory (<1.5 ft. - 15 ft.)	Canopy (>15 ft.)
Invasive Species Percent Cover			
Percent Open/Bare			
Native Species Count			

Study Design

□ ~50,000 Acres owned by City of Austin

- ~20,000 were included in the study

- Sampled ~1800 acres



Property Prioritization

- Endangered Species Habitat**

Black-capped Vireo, Golden-cheeked Warbler, Barton Springs Salamander, etc.

- Critical Environmental Features**

Springs, Wetlands, Rock Outcrops

- Creek Density**

Creek Linear Feet/Acre

- Parks Unmanaged Areas**

PARD managed database of un-mown areas

- Wildfire Risk**

TxWRAP data

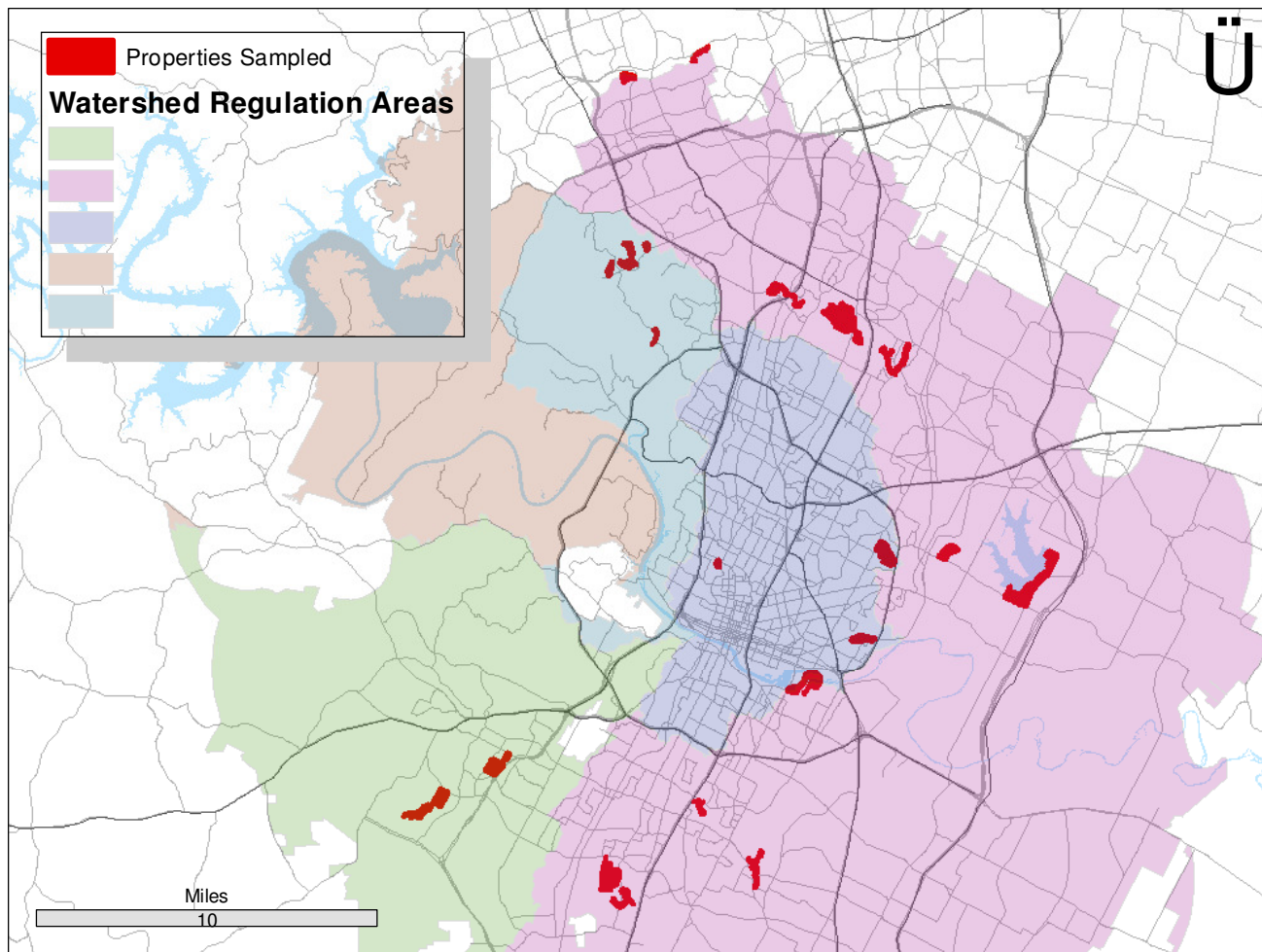
- Aesthetics/Use**

Trails, Scenic Roadways, Capitol View Corridors



Properties Selected

- Post-prioritization
 - Stratified geographically



Water E Long

- Property Boundary
- Group 1
- Group 2
- Group 3
- Group 4
- Group 5
- Group 6
- Trail
- Ten Foot Contour



This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering or surveying purposes. It does not constitute an official survey and represents only the approximate relative location of the property boundaries. This product was produced by the City Artist Program for the sole purpose of geographic reference. No warranty is made by the City of Astin regarding specific accuracy of compliance.

Efforts

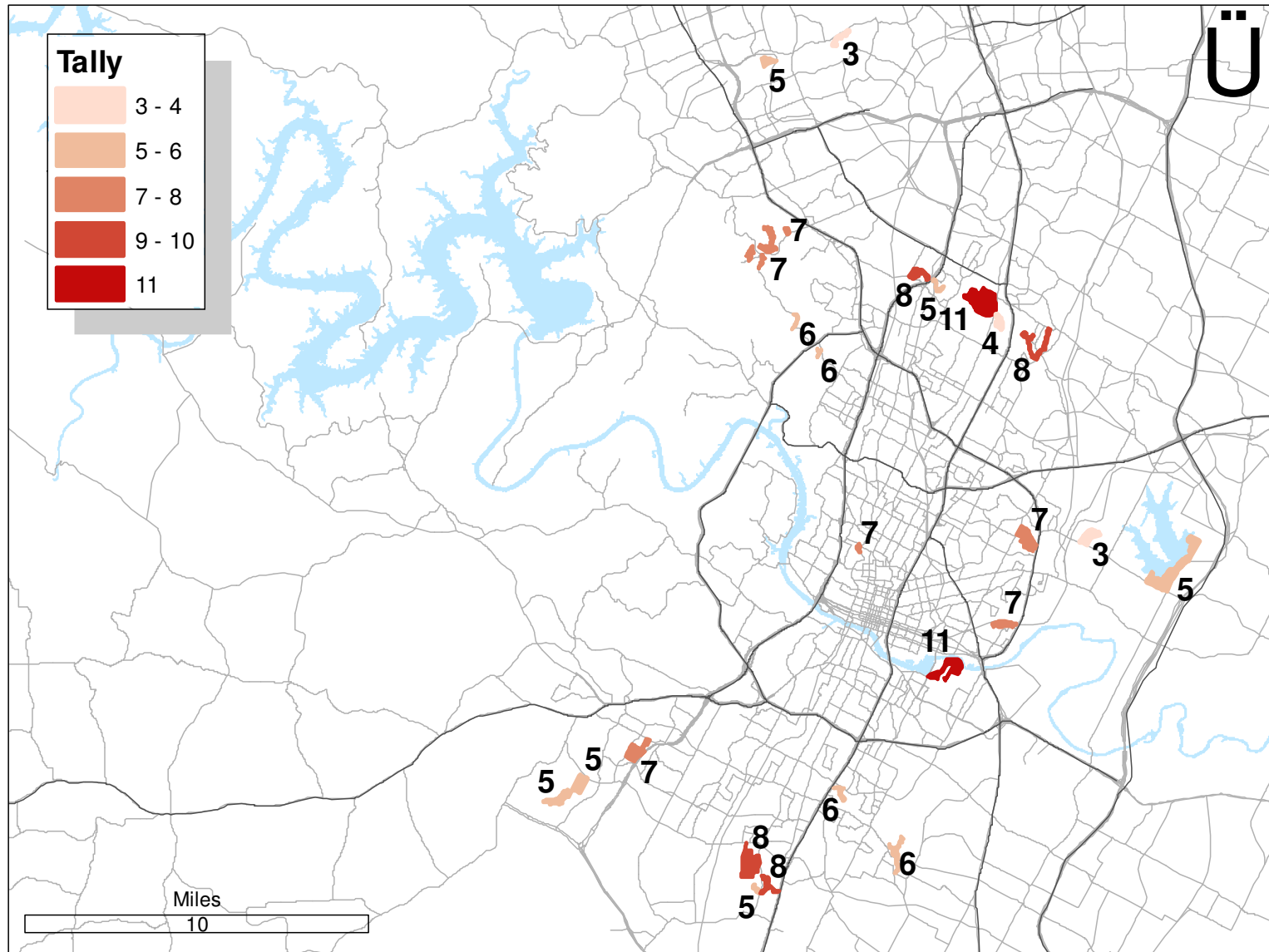
- ❑ 5 days a week
- ❑ 4 hours a day
- ❑ 2.5 months

- ❑ 1124 Volunteer Hours
- ❑ 1000 Staff Hours

- ❑ 39 City of Austin Owned
Parcels
- ❑ > 1800 Acres Sampled
- ❑ ~ 2200 Data Points Collected



Number of Invasive Species per Site



Response

Target Invasives.

- Pervasiveness
- Locality
- Globalality

Snapshot in time.

Management recommendations.



Team

Mateo Scoggins
Ana Gonzalez

Rob Clayton
Daniel Krenzelok

Daniel.Krenzelok@austintexas.gov



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