City of Austin Invasives Control

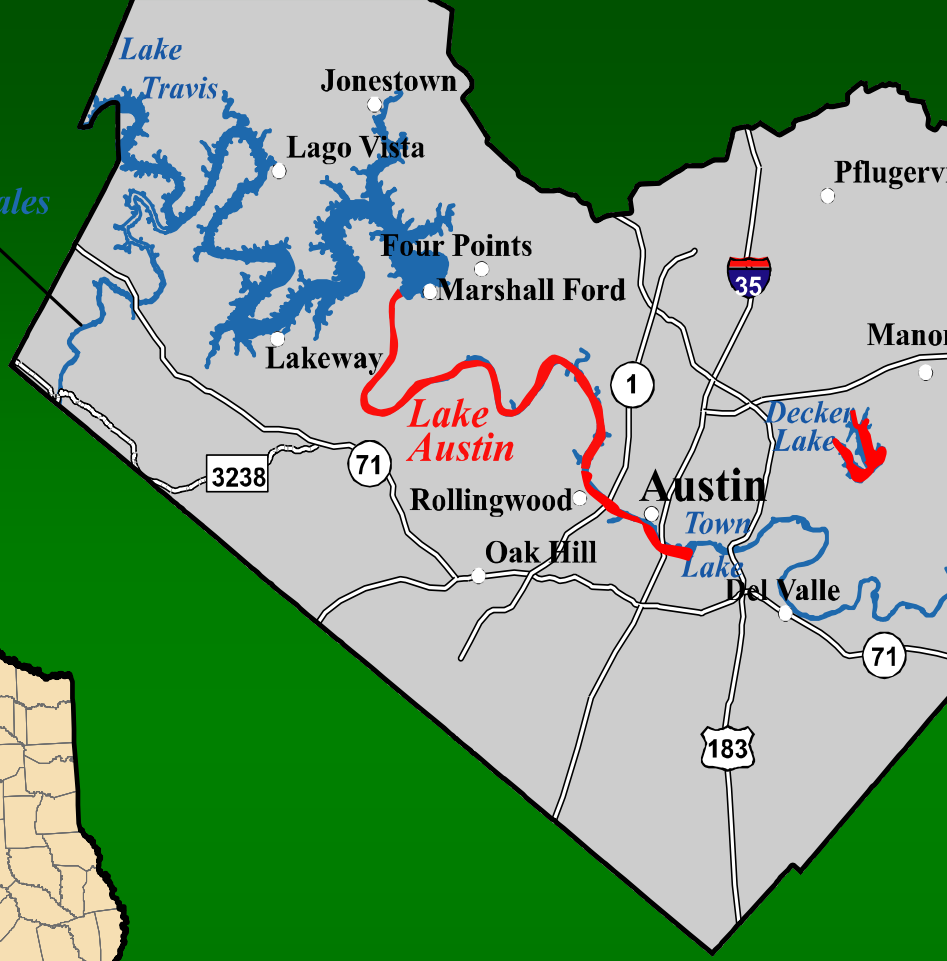
Texas Invasive Species Coordinating Committee

Austin Texas

March 12, 2013

Lake Austin and Lady Bird:

‘Run of the River’ reservoirs
Last two in chain of 7 ‘Highland Lakes’
1600 acres, 490 acres respectively
Flood and irrigation water conveyance
High-use recreational areas



Lake Walter E. Long

1270 acres
Cooling water for Decker Creek PP
Water pumped from Colorado River
City of Austin owns shoreline
Bank and boat fishing

Lake Austin Aquatic Vegetation

- Eurasian watermilfoil (*Myriophyllum spicatum*) dominant
  - Controlled by biennial winter drawdowns
  - In less than 12 ft
- July 1999
  - 23 acres Hydrilla (*Hydrilla verticillata*), 10 % of total veg
  - First found at boat ramps
- July 2002
  - 320 acres, bank to bank
- Impacts to recreation and property owners

Control Challenges

Drawdowns

- Fairly low cost
- Winter only, 12’ depth limit
- Tubers, deep growth not impacted
- Limited re-fill water

Harvesting

- Short term, targeted control
- Cost & disposal issues

Herbicides

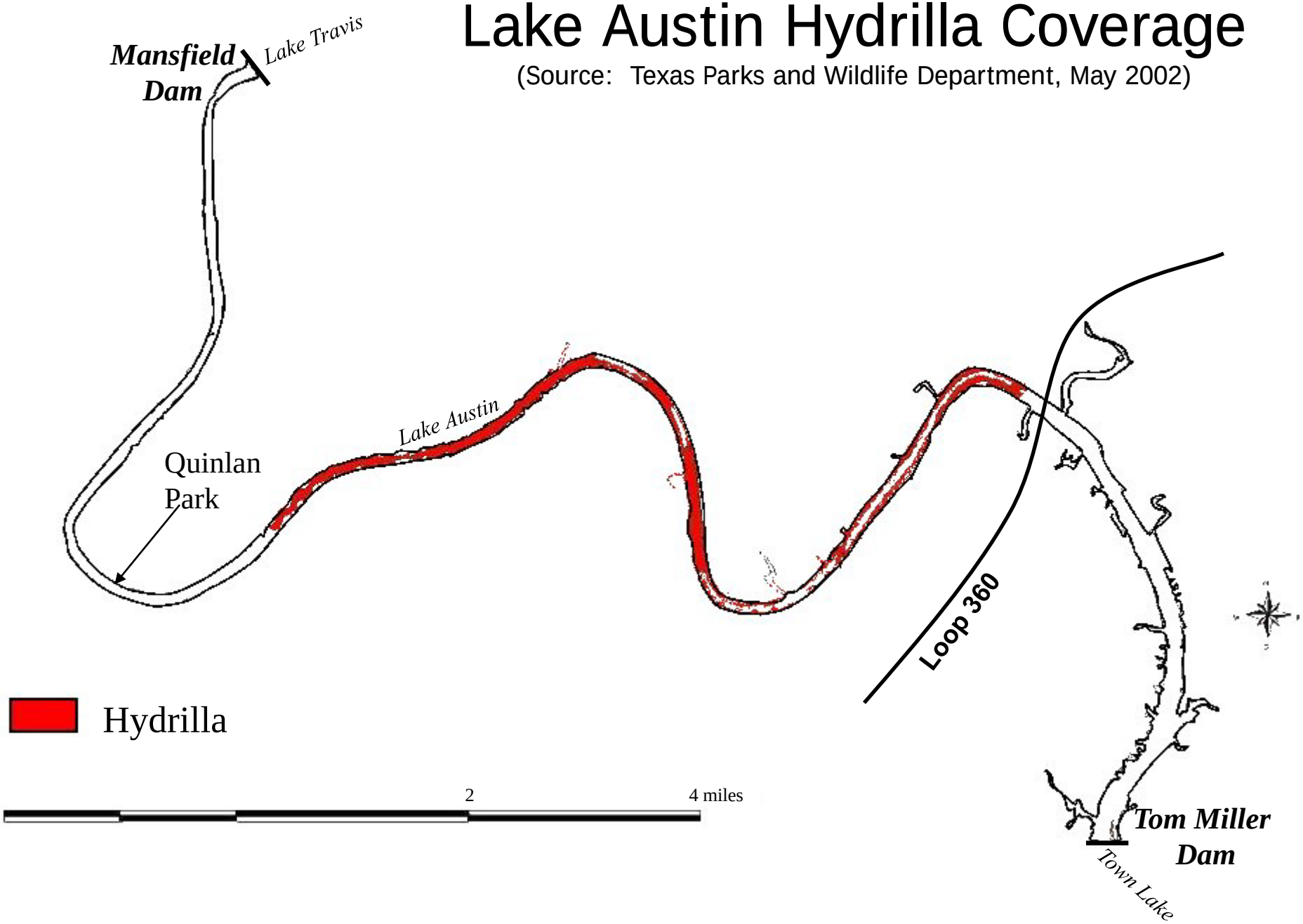
- Relatively rapid control
- High flows, potable water intakes
- Contact type only = re-growth
- High cost in deep water
- Negative public perception

Grass Carp

- Long term, deep water control
- Downstream escapement
- “All or nothing” stocking rate
- Opposed by some fishermen

Lake Austin Hydrilla Coverage

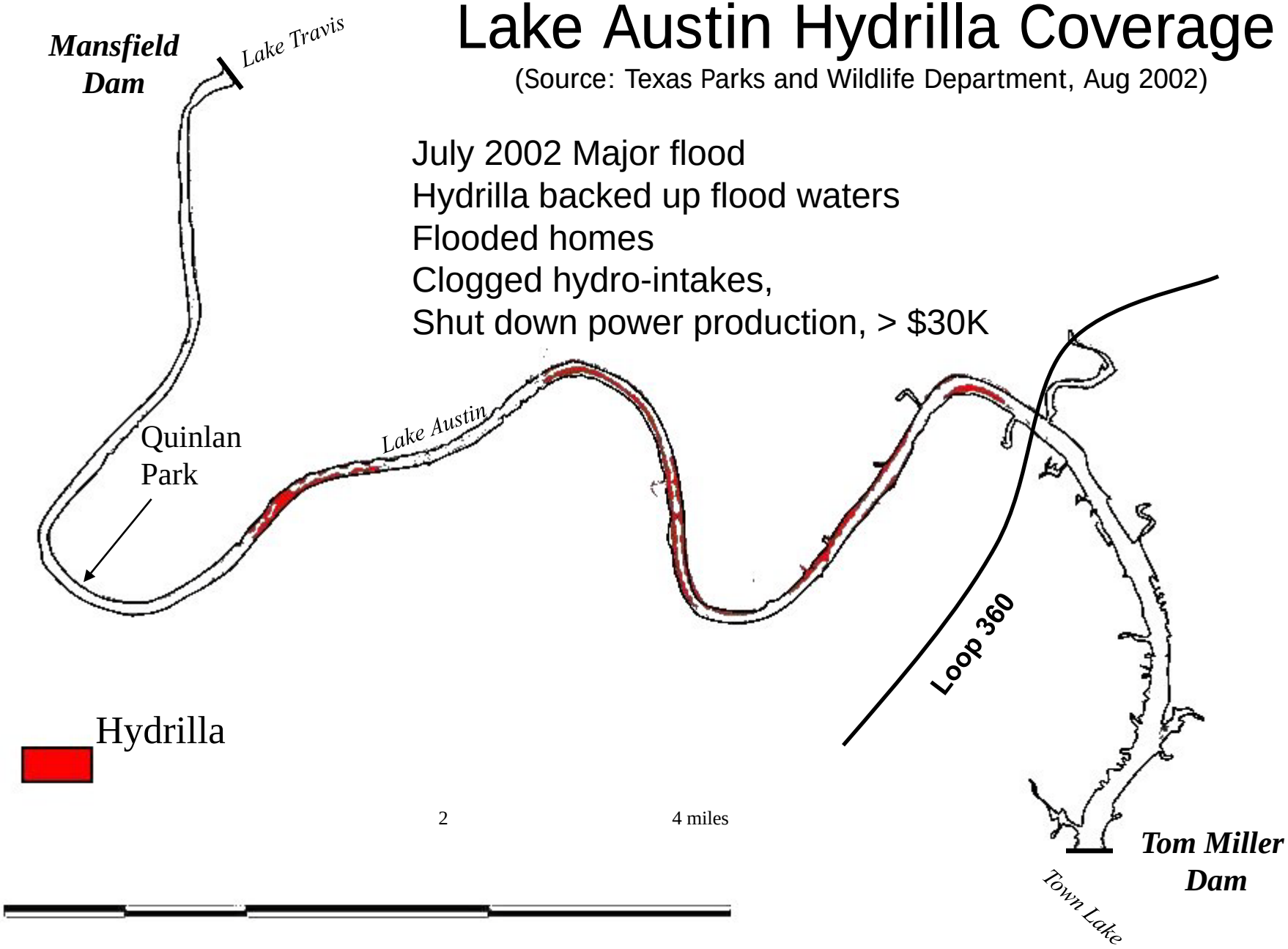
(Source: Texas Parks and Wildlife Department, May 2002)



Lake Austin Hydrilla Coverage

(Source: Texas Parks and Wildlife Department, Aug 2002)

July 2002 Major flood
Hydrilla backed up flood waters
Flooded homes
Clogged hydro-intakes,
Shut down power production, > $30K



Lake Austin
Hydrilla Management Plan

Partners:

- COA, TPWD, LCRA, FOLA

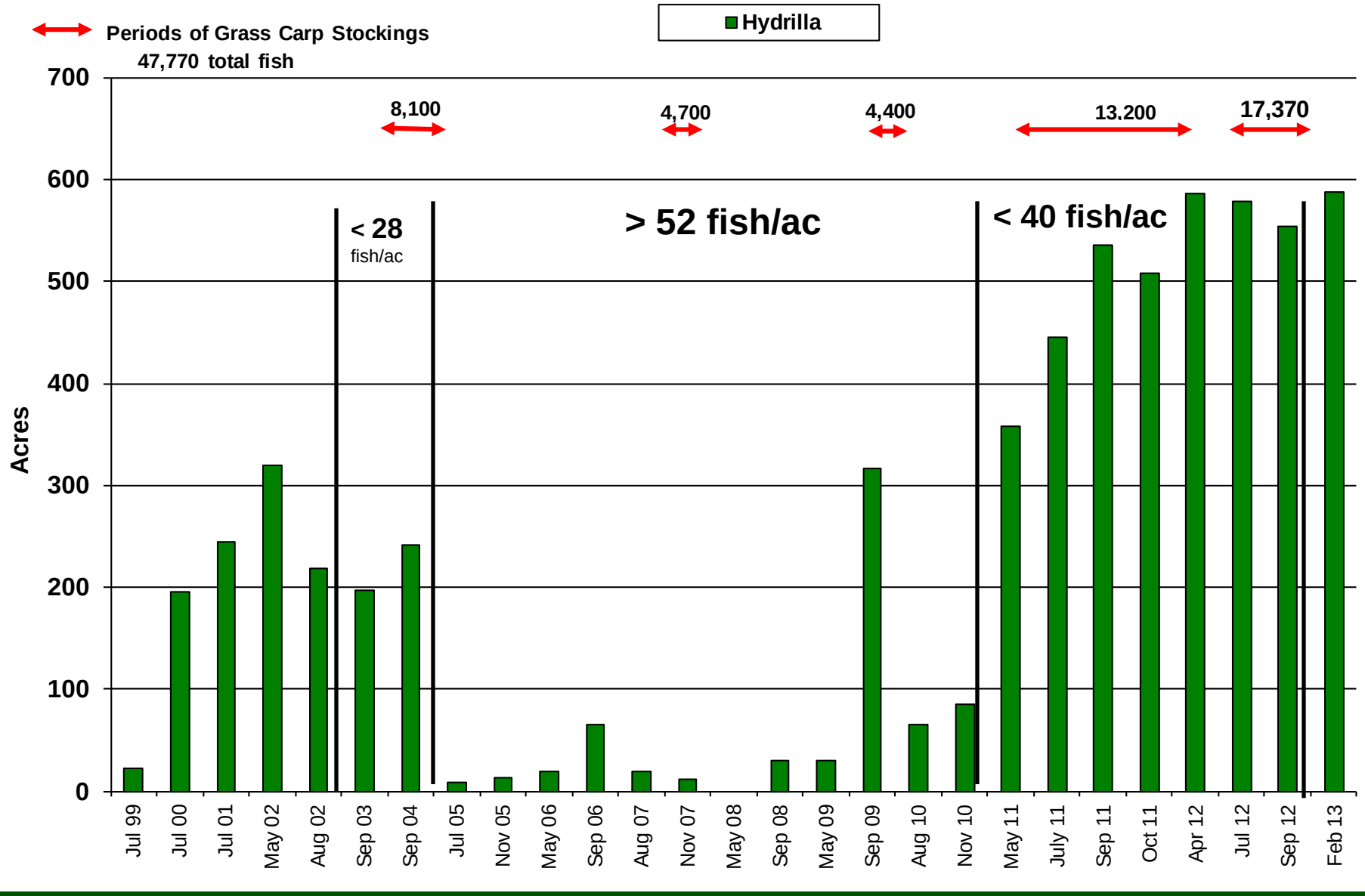
Objectives:

- Pre-hydrilla condition
- Maintain lake ecosystem

Integrated Efforts:

- Winter drawdown
- Harvesting/herbicides on mats
- Incremental grass carp stocking
- Stocking based on veg surveys

Lake Austin Hydrilla Overview



Lake Austion Vegetation Survey February 2013

Why the recent increase?

- Drought
  - Lower water levels on Travis
  - LCRA limiting releases
  - Lake Austin warmer, slower
  - Last scouring flood- 2007

- Fish migration & mortality
  - 47,700 stocked
  - est 25,000 alive
  - 43 fish/ hydrilla acre

Taking Stock

- Grass carp play critical role in hydrilla control
- Other factors:
  - Non-palatable vegetation
  - Floods and drawdowns

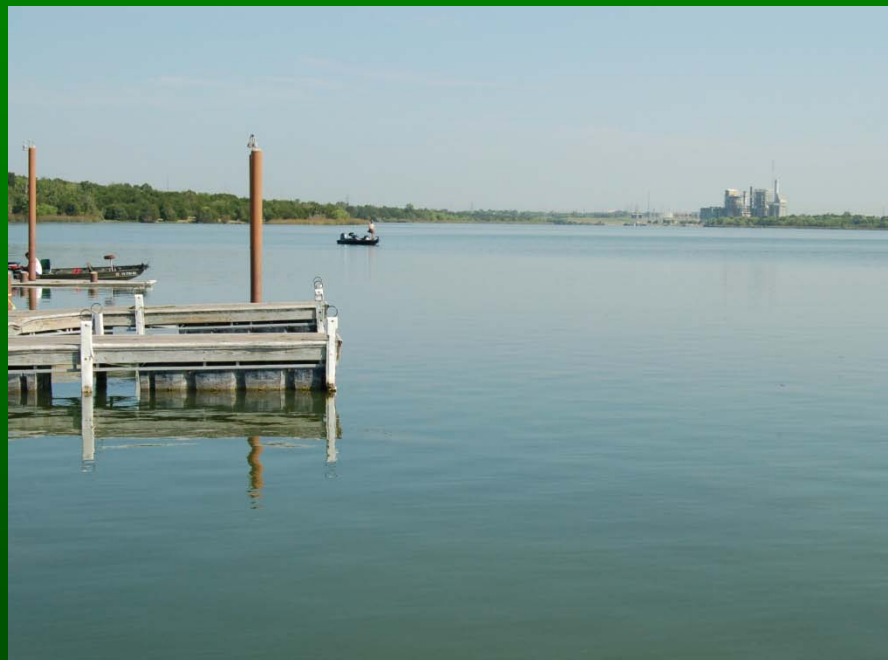
- Current conditions require higher stocking rate
- Stock 9,000 fish this spring
- 55 fish/acre

Lake Long Aquatic Vegetation

- Stable diverse native plant community
- Good fish habitat and fishing (bank and boat)

- Hydrilla impacts
  - Cooling water intake screens for power plant
  - Shoreline & dock access

- 2000- treated w/ Sonar
- 2013- spot treat 5 ac w/Aquathol K

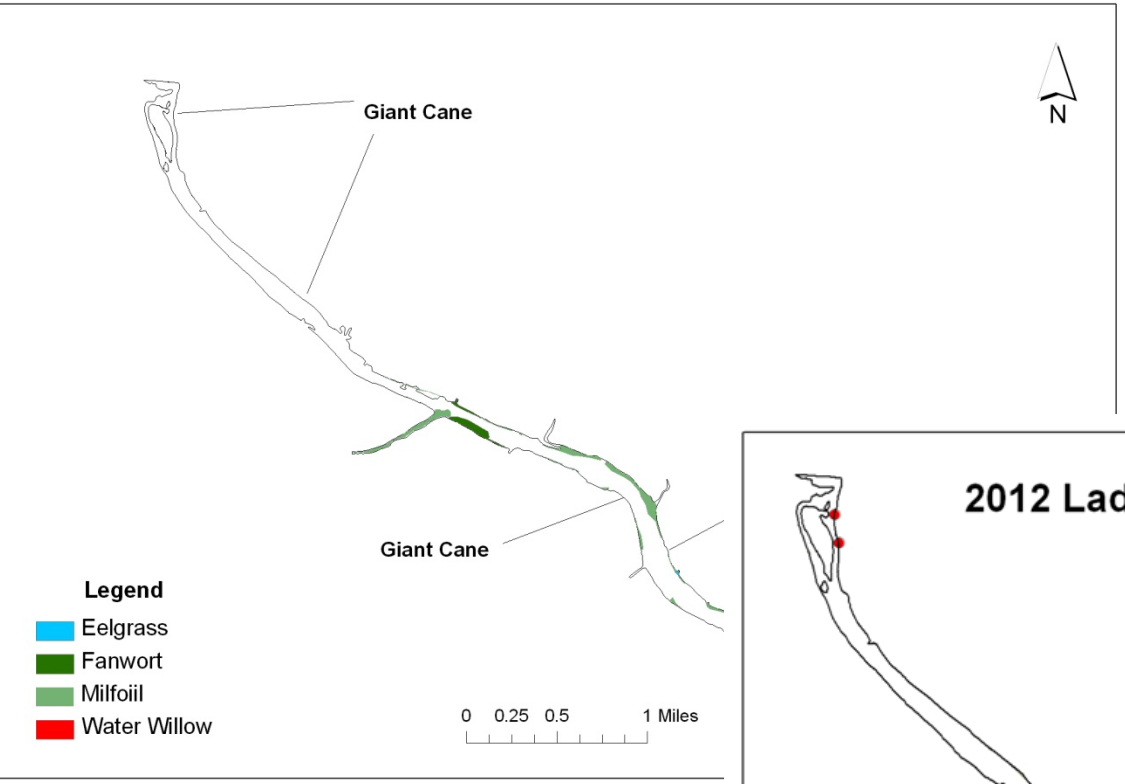


Lady Bird Lake
Aquatic Vegetation

- Historically very limited < 3 % cover
- Eurasian watermilfoil dominant (5-10 acres)
- 2011- Drought= less run-off, increased clarity

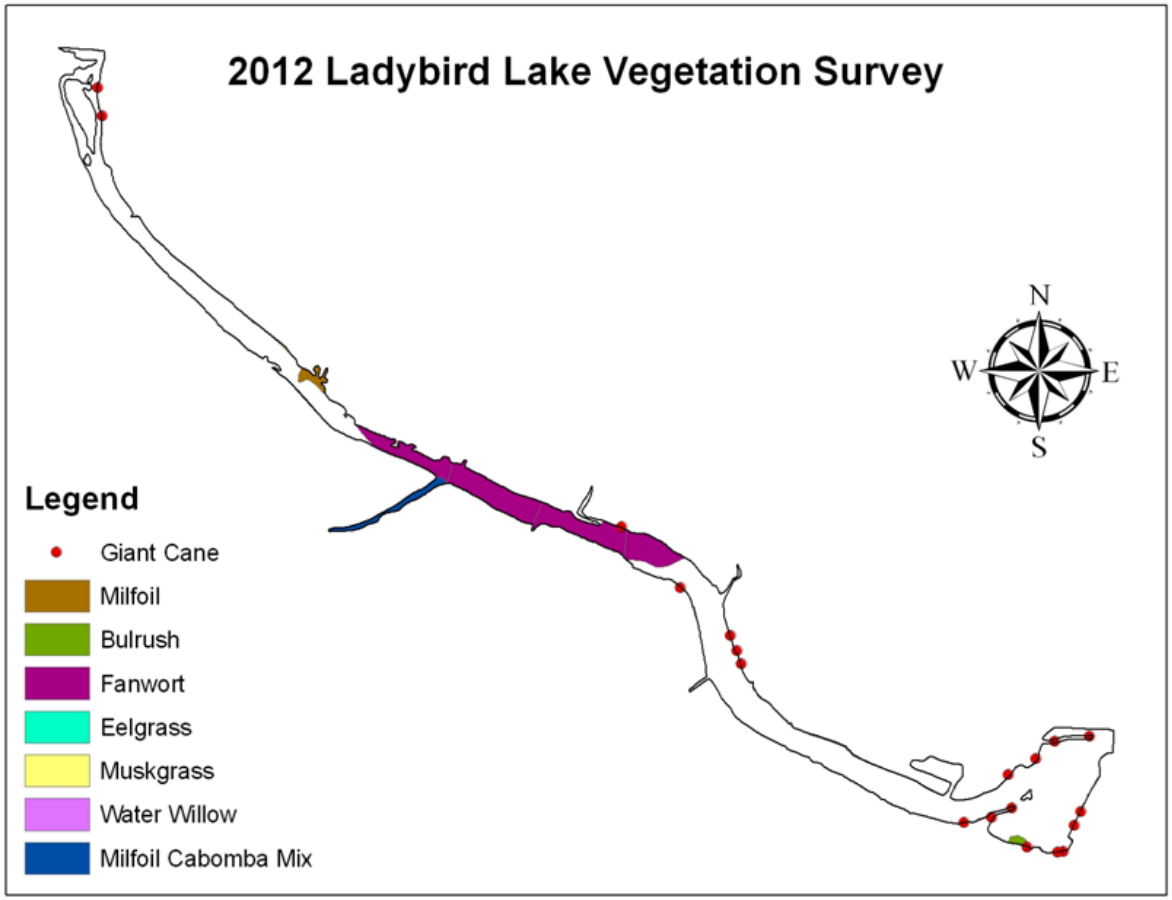
- Milfoil increased to 25 ac
- Fanwort *Cabomba carolinia*
  Spread from Barton Creek to lake
- 2012 no flow, cover increased

Ladybird Vegetation Survey August 2011



2011

- 32 acres 7 % cover
- 7 acres Cabomba

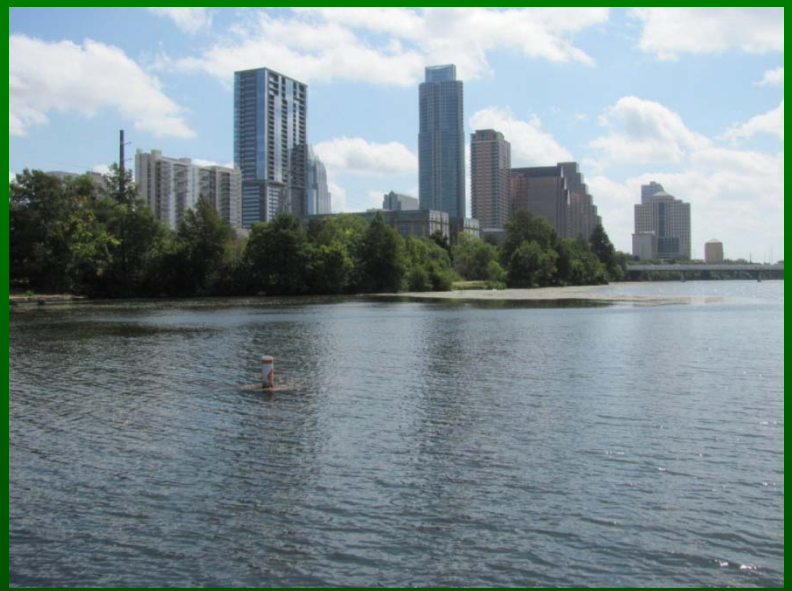


2012

- 94 total acres 19 % cover
- 78 acres Cabomba

Problem or Positive Addition?

- Aquatic vegetation provides ecosytem benefits
- Dense growth only impacts some lake users
- Public education (not hydrilla, not lake-wide)
- City PARD and WPD Plan
  - Control options and funding sources
  - Criteria for specific action (special events, etc)



Lady Bird Riparian Restoration

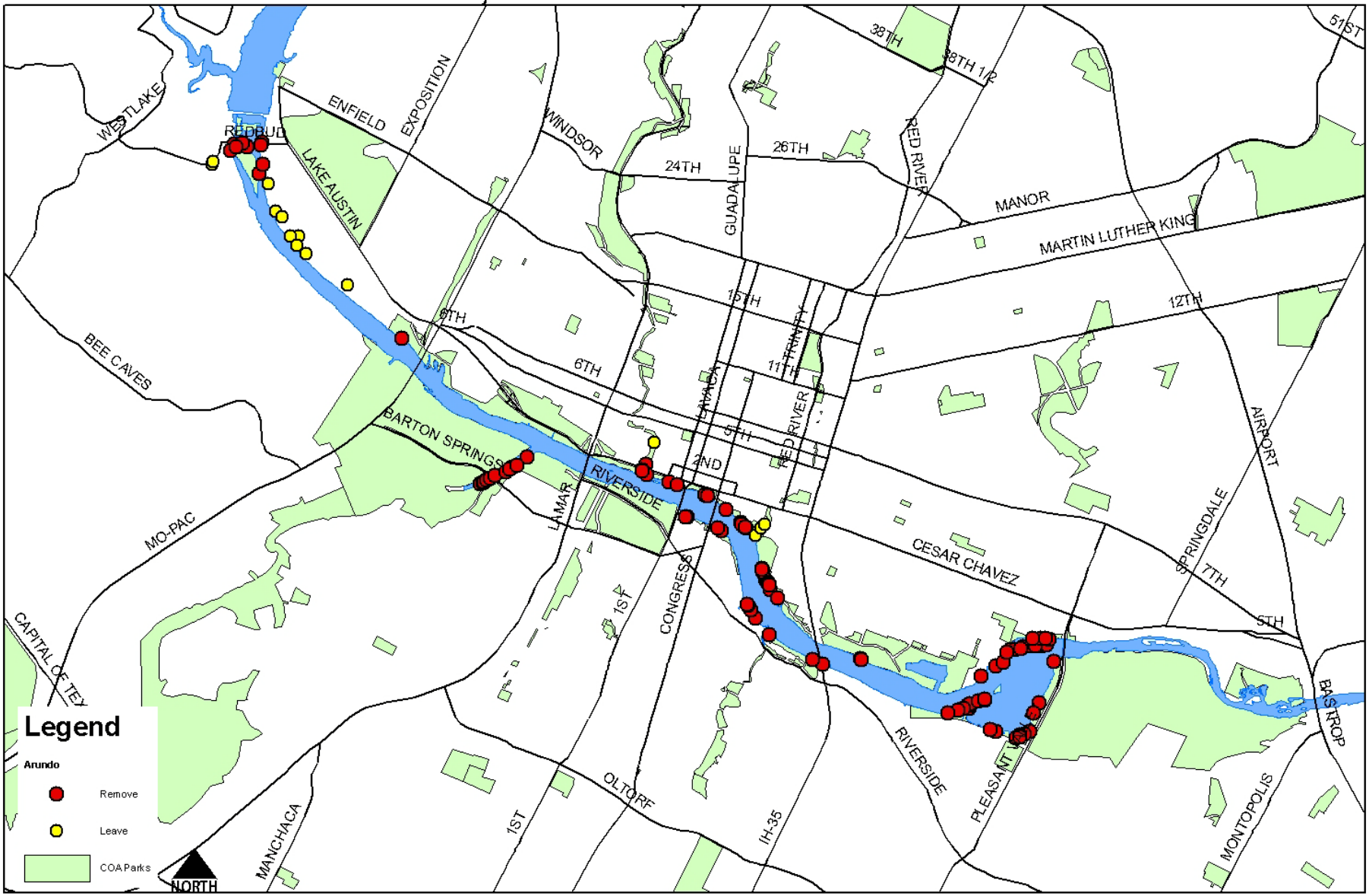
- Improve habitat, wq
  - Remove invasives
  - Plant natives if needed

- Model for city-wide effort
- Grow Zones
  - Limit mowing
  - Passive re-growth
  - Plant seedlings

Arundo donax

- Limits lake's riparian diversity and public use
- 3.4 acres, spread along entire 5 mile shoreline
- Typically on steep slopes
- Ranges from single plant to 150 ft long patch
- Monoculture or in mixed stands of hardwoods

Lady Bird Arundo Removal Areas



2011 Control Efforts

- Cut plants first to limit biomass in areas with
  - Woody vegetation
  - Public access
- Composted material at City facility

- Treated min 4 ft re-growth:
  - Mixed woody stands
    - 5 % Imazamox
  - Monoculture
    - 2 % Imazamox
      + 1 % Glyphosate
  - Both used 1% MSO

2012 Control Efforts

- Poor results from 2011
  - Drought limited re-growth
  - October application
  - Winter dormancy
  - Less herbicide uptake

- 2012 No prior cutting
- August application
- Increased use of glyphosate mix w/ targeted spraying
- Results pending

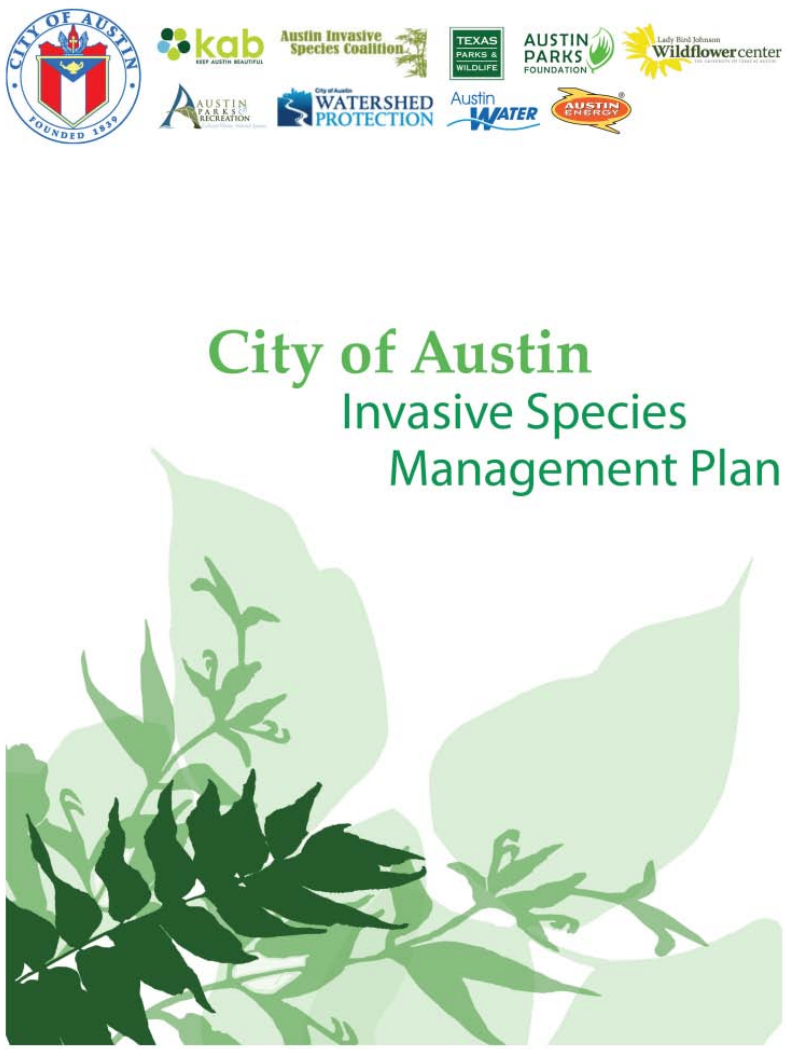
Elephant ear, wild taro
Colocasia esculenta

- Covers at least 50 % of shoreline
- Shades out native grasses
- Little to no wildlife or public benefit
- Traps trash and debris
- Provides some erosion control

Pilot Project

- Two herbicides
  - Imazamox (Clearcast), with MSO
  - Glyphosate (Refuge) with NIS
- Three application techniques
  - Cut and paint
  - Wick or glove-in-glove
  - Foliar spray
- Best results w/ foliar spray
- Little diff b/w herbicides
- Small buffer zone (.5 m) b/w plots
- Possible herbicide translocation
- Imazamox – more targeted

Invasive Species Management Plan
April 2010 – City Council Resolution



- Wildflower Center working group
  - City,TPWD, stakeholders
- Five year goals:
  - Prevention
  - Early Detection
  - Rapid Response
- Recommendations for staffing, monitoring, education
  - 24 priority species
  - Fact sheets and BMPs
- Cities of Service $25K Grant
  - Spring 2013 volunteer trainings
  - Summer 2013 mapping invasives

Questions?