

North Central Texas Council of Governments

Ecosystem Management Topics at the Urban/Rural Interface

**NCTCOG Webinar
November 29, 2021**

*Prepared in cooperation with the
Texas Commission on Environmental Quality and
U.S. Environmental Protection Agency*

Elena Berg, NCTCOG
eberg@nctcog.org



www.nctcog.org/WaterResources

Procedures for Webinar

- ▶ The webinar will be recorded and posted to NCTCOG's website under the green banner called "Webinars" here: <https://www.nctcog.org/envir/natural-resources/water-resources>
- ▶ If you submitted an RSVP for this webinar, you will receive an email with the presentation, and eventually, a link to the recording. If you did not RSVP and would like these webinar materials, please email eberg@nctcog.org or type your email address in the chat.
- ▶ Please keep your microphone on mute until the Question-and-Answer period at the end of the presentations.
- ▶ Thank you!

Speaker Introduction

Daniel Price

- ▶ Natural Resource Manager
- ▶ Fort Worth Nature Center & Refuge



Fire...Where We've Been & Where We're Going

Daniel Price, Natural Resource Manager
Fort Worth Nature Center and Refuge
City of Fort Worth Park and Recreation Department



3,642 acres

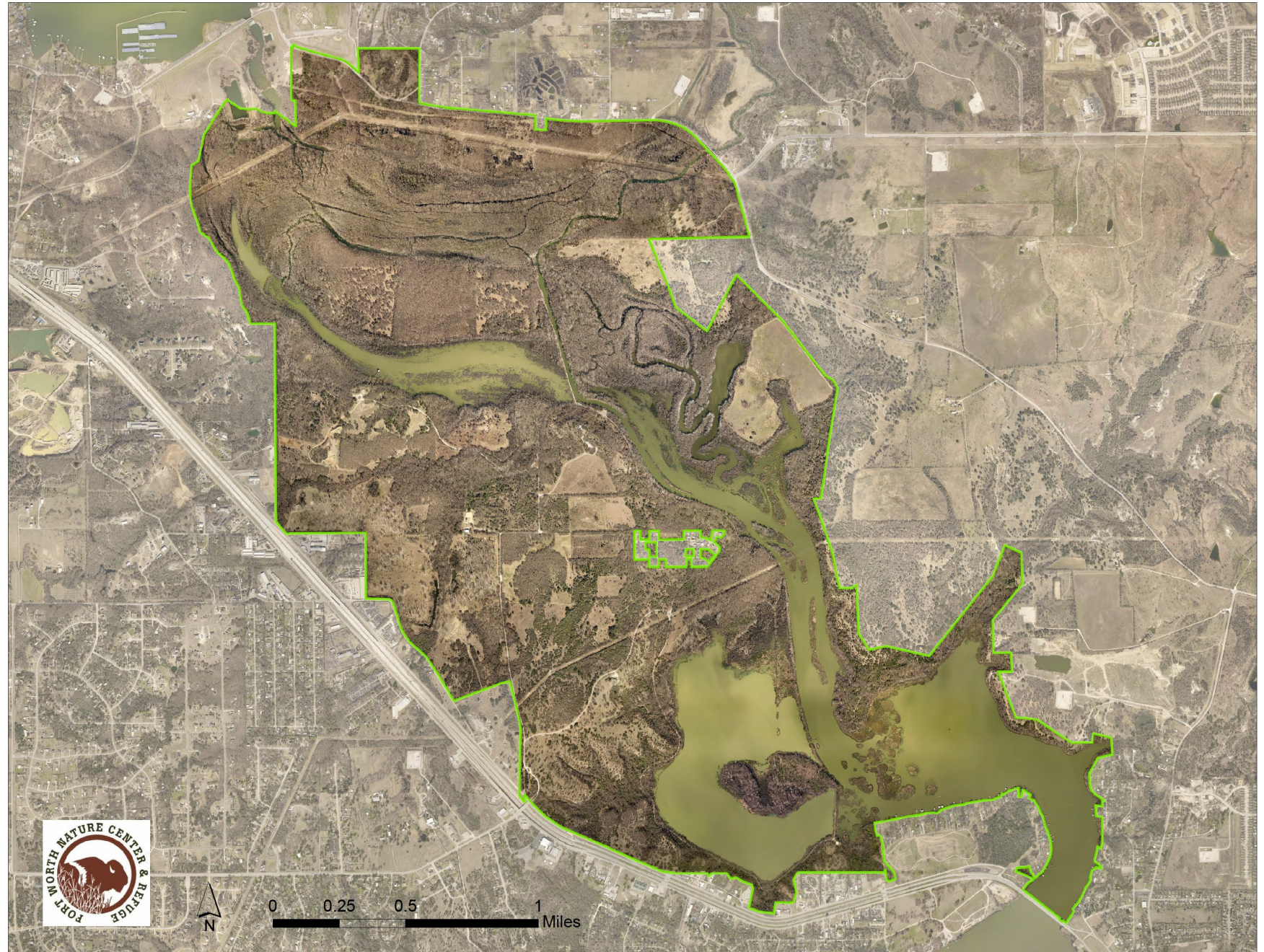
11 Full-time

3 Part-time

3 Interns

19 Bison

21 Miles of Trail





1914 Set
Aside for
Water
Quality



Fort Worth  Nature Center & Refuge

**“To enhance the quality of life by enrolling
and educating our community
in the preservation and protection of natural
areas while standing as an example of these
same principles
and values in North Central Texas.”**



Travel Back in Time Through the Cross Timbers

Gregg (1844), for example, wrote of them as follows:

“Most of the timber appears to be kept small by the continual inroads of the ‘burning prairies;’ for, being killed almost annually, it is constantly replaced by scions of undergrowth; so that it becomes more and more dense every reproduction. In some places, however, the oaks are of considerable size, and able to withstand the conflagrations. The underwood is so matted in many places with grapevines, green-briars, etc., as to form almost impenetrable ‘roughs’”

Marcy (1853, 1866), based on extensive travel in the area, said,

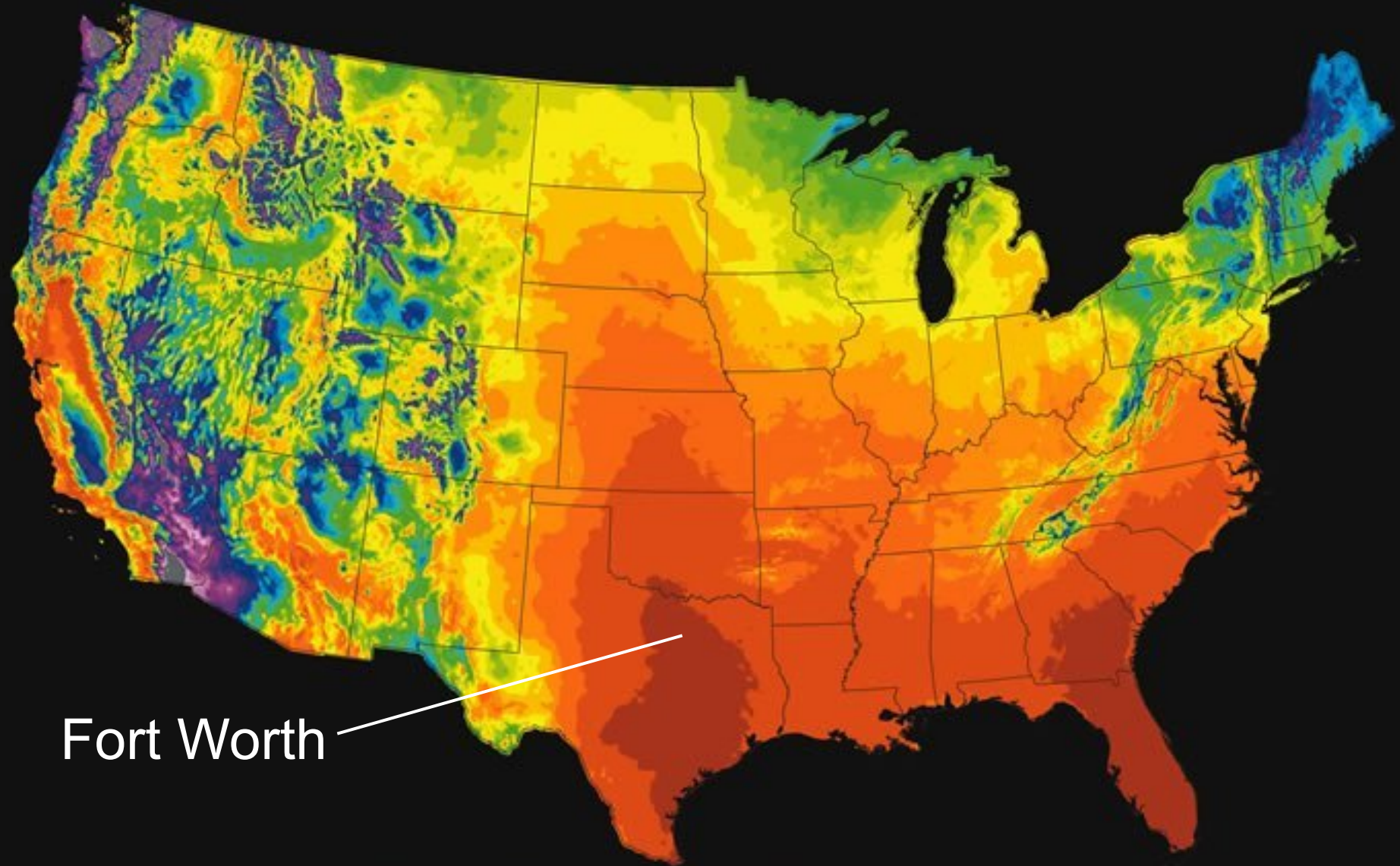
“At six different points where I have passed through it [Cross Timbers], I have found it characterized by the same peculiarities; the trees, consisting principally of post-oak and black-jack, standing at such intervals that wagons can without difficulty pass between them in any direction. The soil is thin, sandy, and poorly watered.”

Native Americans

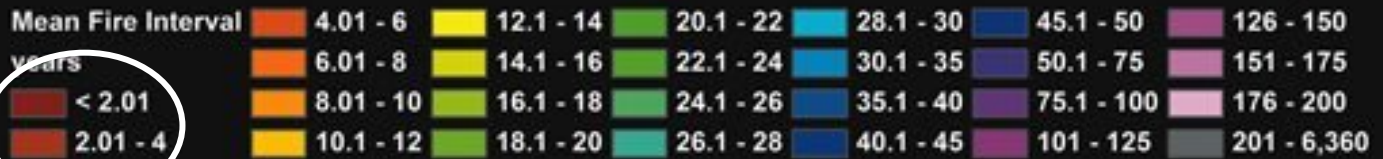


Lightning Strikes

The map represents the estimated wildfire frequency for the period 1650-1850, according to research by Daniel Dey, Richard Guyette, and Michael Stambaugh.



Fort Worth



Fire Suppression Has Led To:



Remember—Only **YOU** can
PREVENT FOREST FIRES!

- Dangerous fuel loads
- The disappearance of some plant communities
- Altered plant and animal composition in some plant communities
- Reduced species diversity

2011 – Bastrop County, Texas



Left Side:
Prescribed
burned one
year earlier

Right Side:
Never been
prescribed
burned



Fort Worth Wildland Fire



Training Opportunities

Prescribed Burning



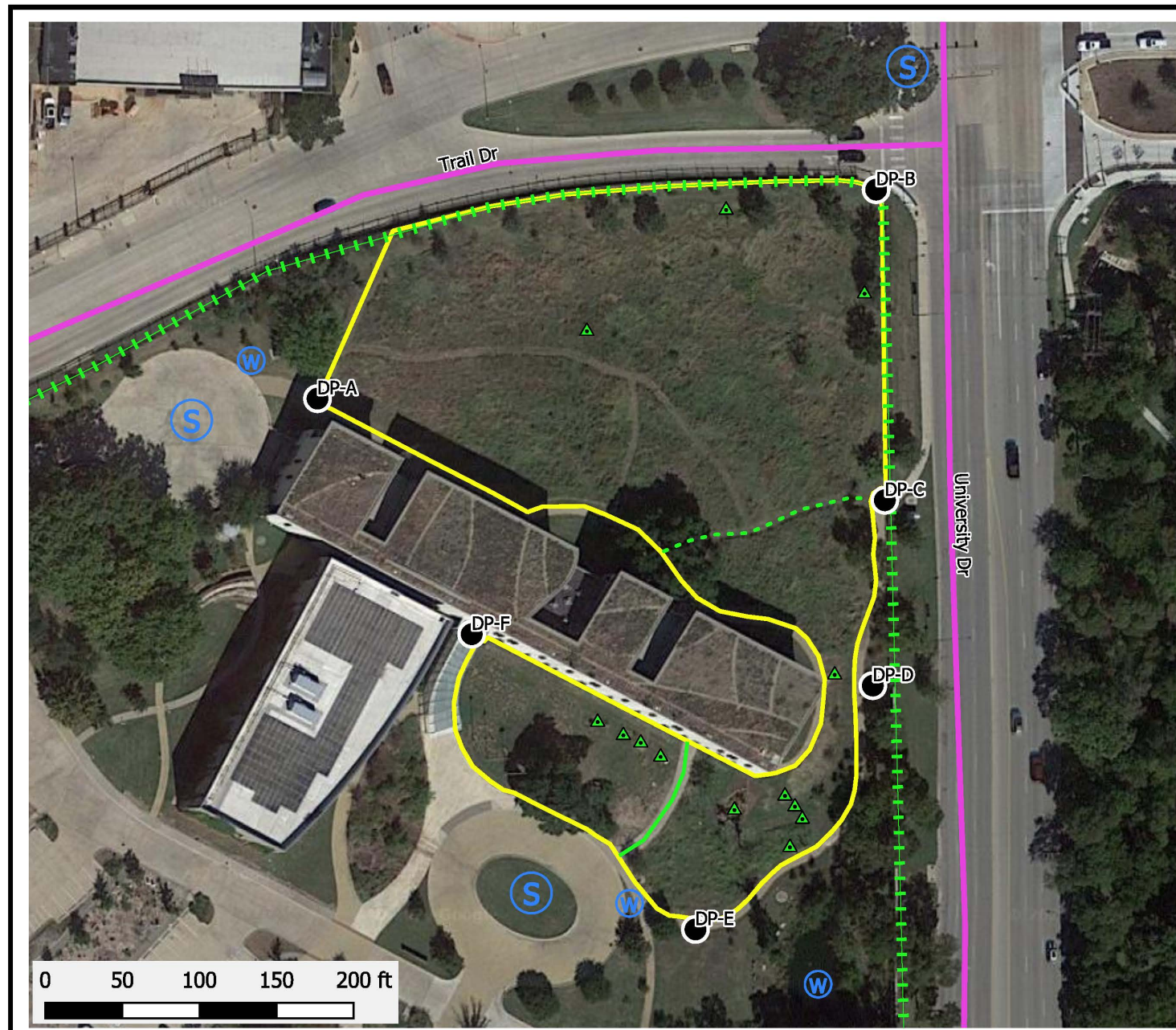
The intentional,
planned use of fire





Choose an area to burn





Create a detailed map



**BRIT
 Demo Prairie**

Botanical Research
 Institute of Texas

Approx 3 ac.
 January 2021

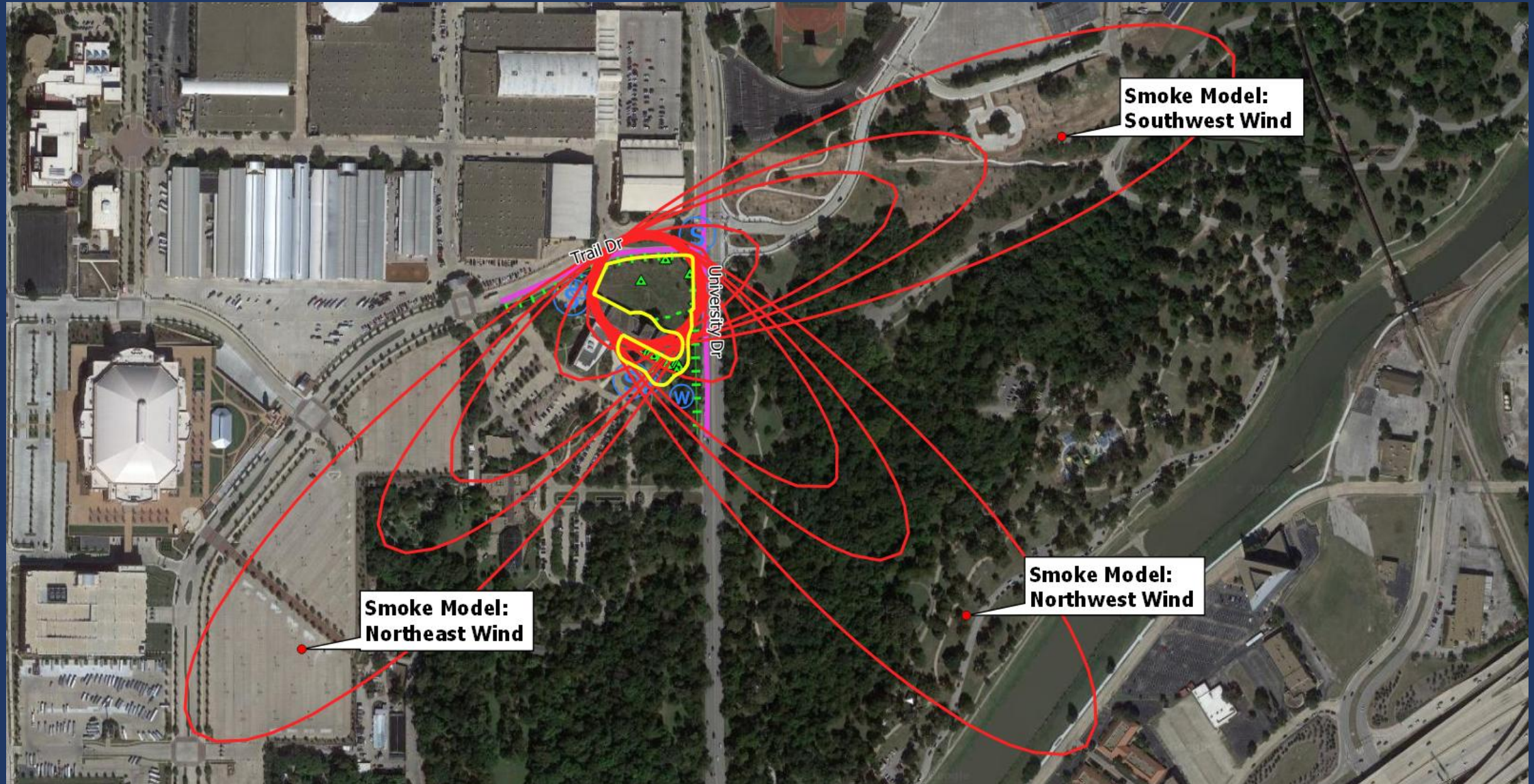
-  Staging Area
-  Road
-  Drop Point
-  Walkway
-  Mow Line
-  Water Resource
-  Structure
-  Barrier
-  Burn Unit



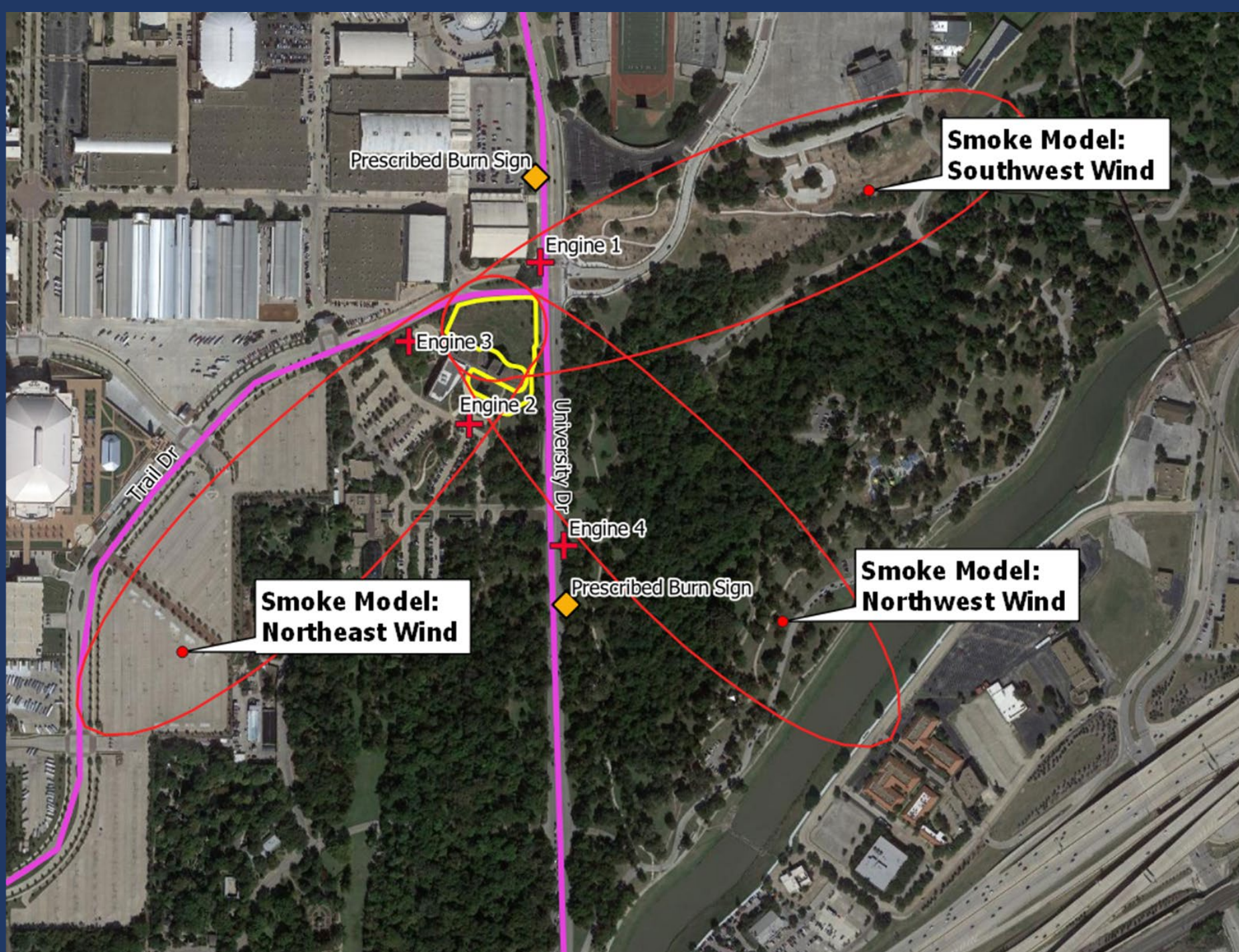
Maps are for planning purposes only. No claims to accuracy are made or implied



Run a Smoke Model



Traffic Control Map








Nature Center & Refuge
Resource Management Plan

**BRIT Prairie
Prescribed Burn Plan**



PLAN REVIEW & APPROVAL

	Name & Contact Information	Date
Planned by:	Daniel Price Natural Resource Manager FWNC&R 9601 Fossil Ridge Road Fort Worth, TX 76135 817-392-7447 (office) 972-533-5512 (cell) daniel.price@fortworthtexas.gov	
Signature:		12/17/2020
Reviewed by:	Rob Denkhaus Nature Center Manager FWNC&R 9601 Fossil Ridge Road Fort Worth, TX 76135 817-392-7410 (office) 817-584-5417 (cell) robert.denkhaus@fortworthtexas.gov	
Signature:		12-17-2020
Approved by:	Fire Marshal CFW Fire Department 200 Texas St Fort Worth, TX 76102 817-392-6808 (office)	
Signature:	 30 day permit approval Renew after 30 days	1/6/2021



Fire Zone Forecast
 Hourly Graph
 Tabular

Point Forecast: 3 Miles NW Lake Worth TX
 32.84N 97.48W (Elev. 650 ft)

Last Update: 5:02 pm CDT Oct 13, 2019

Tabular Forecast

[\[hide menu\]](#)
 Font Size: [A](#) [A](#) [A](#)

Weather Elements	Weather/Precipitation	Fire Weather
<input checked="" type="checkbox"/> Temperature (°F) <input checked="" type="checkbox"/> Dewpoint (°F) <input checked="" type="checkbox"/> Heat Index (°F)	<input checked="" type="checkbox"/> Rain <input checked="" type="checkbox"/> Thunder <input type="checkbox"/> Fog	<input checked="" type="checkbox"/> Mixing Height <input type="text" value="x100ft"/> <input checked="" type="checkbox"/> Haines Index <input checked="" type="checkbox"/> Lightning Activity Level <input type="checkbox"/> Trans. Wind <input type="text" value="mph"/> <input checked="" type="checkbox"/> 20ft Wind <input type="text" value="mph"/> <input type="checkbox"/> Red Flag Threat Index
<input checked="" type="checkbox"/> Surface Wind <input type="text" value="mph"/> <input checked="" type="checkbox"/> Sky Cover (%) <input checked="" type="checkbox"/> Precipitation Potential (%) <input checked="" type="checkbox"/> Relative Humidity (%)		

48-Hour Period Starting:

Date	10/13										10/14													
Hour (CDT)	17	18	19	20	21	22	23	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
Temperature (°F)	79	78	74	71	70	68	66	65	65	64	63	63	62	62	62	63	65	69	73	76	78	79	80	80
Dewpoint (°F)	46	47	48	48	50	51	51	52	52	53	53	53	53	55	55	56	57	58	59	61	62	63	63	64
Heat Index (°F)	79	78																		76	78	79	81	82
Surface Wind (mph)	10	9	9	8	8	7	8	7	6	6	6	6	6	6	6	6	8	9	9	9	9	9	10	
Wind Dir	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SSE	SSE	S	S	S	S	S	SSE	
Gust																								
Sky Cover (%)	4	2	1	4	6	8	9	9	10	9	8	7	16	26	36	44	52	61	66	70	75	77	79	81
Precipitation Potential (%)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	6	6	6	6	6	9	9	9	9
Relative Humidity (%)	31	33	40	44	49	54	58	63	63	67	70	70	72	78	78	78	75	68	62	60	58	58	56	58
Rain	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Thunder	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mixing Height (x100ft)	41	26	5	5	5	5	4	4	4	4	4	4	4	4	4	6	11	16	20	27	30	26	21	
Haines Index	4	4	4	4	5	5	5	5	5	6	6	6	6	5	5	5	4	4	4	4	4	4	4	4
Lightning Activity Level	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20ft Wind (mph)	8	8	8	7	7	6	7	6	5	5	5	5	5	5	5	5	7	8	8	8	8	8	8	8
20ft Wind Dir	S	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SSE	SE	SSE	SSE	S	S	S	S	S	S	SSE

Check weather daily for best burn window



Notifications

Fort Worth Fire Department
(Dispatch)

Neighbors

Utility Companies

TCEQ

Texas Forest Service



FOR IMMEDIATE RELEASE

Media Contact Lead: Michael Drivdahl
Fort Worth Fire Department PIO
Firepio@fortworthtexas.gov | 817-392-6886

Media Contact: Chris Smith
FWBG | BRIT Director of Marketing
csmith@brit.org | 817.332.6657

Prescribed Burn Planned for BRIT Prairie

FORT WORTH, Texas (January 12, 2020) — [The Fort Worth Botanic Garden | Botanical Research Institute of Texas](#) (FWBG|BRIT) working with the [Fort Worth Nature Center & Refuge](#) and [Fort Worth Fire Department](#) (FWFD) will host a prescribed burn of the BRIT Prairie at 2 p.m. Jan. 13. This is located at the corner of Trail Drive and University Drive.

The event represents multiple organizations collaborating for numerous scientific, educational and community benefits.

“This burn serves many purposes, but from our perspective, the most important is changing cultural mindsets toward acceptance of prescribed burning in Fort Worth parks, urban, urban areas, Dallas-Fort Worth and throughout the state,” said Daniel Price, natural resource manager with the Fort Worth Nature Center & Refuge.

The Fort Worth Fire Department will be on scene of the burn to ensure safety of the participants. The FWFD wildland team has traveled nationally to respond to wildfires on the West Coast. The highly trained team will use this prescribed burn as a way to educate the attending organizations on the role they play in wildland management and the importance of regulating and managing wildlife refuge locally.

For FWBG|BRIT, the prescribed burn represents an opportunity for scientists and educators who will use resulting data for research and teaching.

“The science initiatives that drive a prescribed burn will allow our program designers to use collected plant and soil data, along with photos and videos, to create new, exceptional educational programming,” said Tracy Friday, vice president for education with FWBG|BRIT. The acronym STEM stands for science, technology, engineering and mathematics. Friday said that the prescribed burn also gives students and



Weather for the day of the burn

From: National Weather Service
Subject: Spot Forecast
Date: Wednesday, March 6, 2019 7:25:42 AM

FNUS74 KFWD 061325
 FWSFWD

Spot Forecast for FWFD Wildland Fire Training 2019...City of Fort Worth
 National Weather Service Fort Worth TX
 725 AM CST Wed Mar 6 2019

Forecast is based on ignition time of 0800 CST on March 06.
 If conditions become unrepresentative...contact the National Weather Service.

.DISCUSSION...

Sunny and warmer today with highs in the 50s. Calm to light and variable winds will become southeasterly at 5 to 10 MPH around 9 AM, with a slightly more southerly direction and slightly higher wind speeds expected this afternoon through tonight. It will remain dry today, then low level moisture will increase substantially late tonight and Thursday as Gulf moisture surges north. Minimum relative humidity values will drop into the 20 to 30 percent range this afternoon, with humidities quickly climbing above 50 percent after sunset as temperatures fall.

.REST OF TODAY...

Sky/weather.....Sunny (15-25 percent).
 Max temperature.....Around 54.
 Min humidity.....29 percent.
 Wind (20 ft).....Light winds becoming south 5 to 12 mph in the late morning and afternoon.
 Mixing height.....400-1500 ft AGL increasing to 2700-3900 ft AGL in the late morning and afternoon.
 Transport winds.....South 6 to 15 mph increasing to 17 to 22 mph in the afternoon.
 Haines Index.....4 or low potential for large plume dominated fire growth.
 Eye level winds.....Light winds becoming south up to 6 mph in the late morning and afternoon.

TIME (CST)	8AM	9AM	10A	11A	12P	1PM	2PM	3PM	4PM	5PM
Sky (%)	11	15	19	24	28	29	29	30	31	32
Weather cov										
Weather type										
Tstm cov										
Temp	31	37	42	46	49	51	53	53	54	51
RH	61	46	39	34	31	30	29	31	30	34
20 FT wind dir	SE	SE	S	S	S	S	S	S	S	S
20 FT wind spd	2	5	7	8	10	12	12	12	12	10
20 FT wind gust						14	14	14	14	
Eye lvl wnd dir	SE	SE	S	S	S	S	S	S	S	S
Eye lvl wnd spd	1	3	3	4	5	6	6	6	6	5
Eye lvl wnd gust						7	7	7	7	
Mix hgt (kft)	0.4	1.5	2.7	3.0	3.8	3.8	3.9	3.9	3.9	3.8
Transp wind dir	SE	SE	S	S	S	S	S	S	S	S
Transp wind spd	6	10	14	15	17	20	20	18	21	22
Haines index	4	4	4	4	4	4	4	4	4	4

.TONIGHT...

Sky/weather.....Partly cloudy (35-45 percent).
 Min temperature.....Around 40.
 Max humidity.....92 percent.
 Wind (20 ft).....South winds 8 to 12 mph.
 Mixing height.....400-1100 ft AGL.
 Transport winds.....South 14 to 21 mph.
 Haines Index.....4 or low potential for large plume dominated fire growth.
 Eye level winds.....South winds up to 6 mph.

TIME (CST)	6PM	7PM	8PM	9PM	10P	11P	MID	1AM	2AM	3AM	4AM	5AM
Sky (%)	32	35	38	41	43	46	49	48	47	47	46	45
Weather cov												
Weather type												
Tstm cov												
Temp	50	46	43	43	41	41	40	40	40	40	41	40
RH	37	45	55	57	65	70	76	79	82	85	85	92
20 FT wind dir	S	S	S	S	S	S	S	S	S	S	S	S
20 FT wind spd	10	9	8	8	9	10	12	12	10	10	9	9
20 FT wind gust		10			10		14	14			10	10
Eye lvl wnd dir	S	S	S	S	S	S	S	S	S	S	S	S
Eye lvl wnd spd	5	5	4	4	5	5	6	6	5	5	5	5
Eye lvl wnd gust							7	7				
Mix hgt (kft)	1.1	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4
Transp wind dir	S	S	S	S	S	S	S	S	S	S	S	S
Transp wind spd	20	14	16	18	18	20	21	21	18	18	17	16
Haines index	4	4	4	4	4	4	4	4	4	4	4	4

\$\$
 Forecaster...Bishop
 Requested by...Natural Resource Manager - Burn Boss
 Type of request...PRESCRIBED
 .TAG 1902480.0/FWD
 .DELDT 03/06/19
 .EMAIL daniel.price@fortworthtexas.gov





Future Goals for FWNC&R

Collect data within our burn units

- photo points, veg surveys, multiple species surveys

Conduct Urban Prescribed Burning workshops

Conduct prescribed burns within other Fort Worth City Parks

Serve as a resource to others who want to burn

Maintain and Develop Partnerships

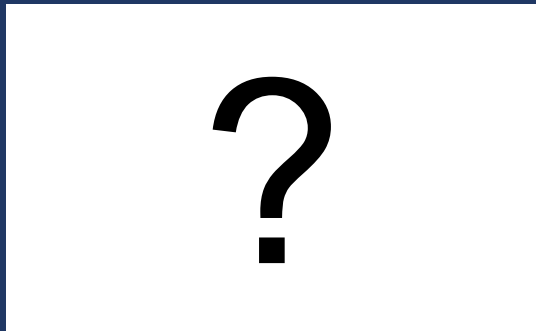




Partnerships



BOTANICAL RESEARCH
INSTITUTE OF TEXAS





Link to BRIT Prescribed Burn

<https://www.facebook.com/FortWorthFireDepartment/videos/228253938887446>



Fire...Where We've Been & Where We're Going

Daniel Price, Natural Resource Manager
Fort Worth Nature Center and Refuge
City of Fort Worth Park and Recreation Department



Questions?



Speaker Introduction

Rachel Richter

- ▶ Urban Wildlife Biologist
- ▶ Texas Parks and Wildlife Department

Nuisance Rookery Management

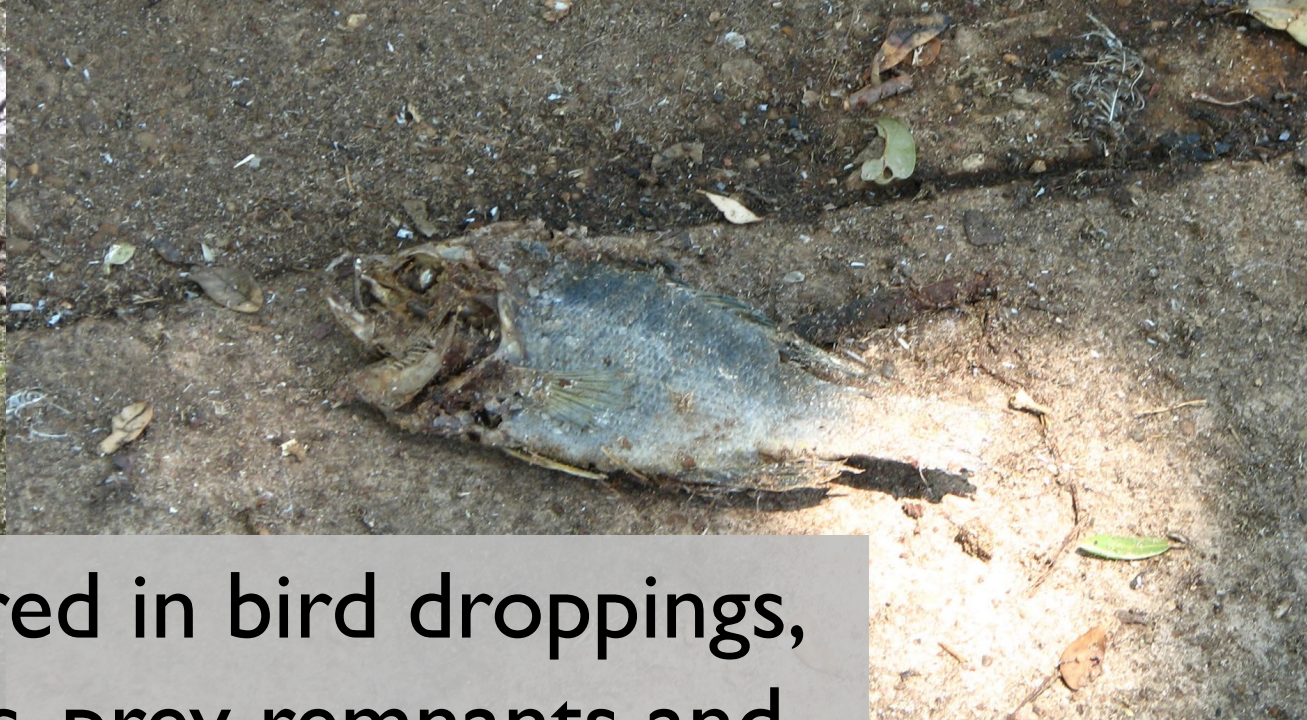


Rachel Richter
Urban Wildlife Biologist
Texas Parks and Wildlife

What is a Rookery?

- Nesting or roosting birds in trees
- Vary in size
- Prefer large, mature trees with dense canopy cover
- Birds may return to same location every year
- February through October





Loud, ground covered in bird droppings, feathers, dead birds, prey remnants and many live birds on the ground





Black-crowned Night Heron



Great Egret



Little Blue Heron



Yellow-crowned Night Heron



Snowy Egret



Cattle Egret

What can and cannot legally be done?

- Birds are protected by federal and state law
- It is prohibited to kill or injure birds or harass them in a way that causes the abandonment or death of eggs or hatchlings
- It is legal to use scare tactics as long as there are no active nests



Once the **FIRST** bird lays an egg,
ALL harassment and scare tactics
MUST STOP.

Federal Depredation Permit

- Authorizes the lethal removal of a limited number of birds and eggs
- Can allow greater flexibility to prevent rookery establishment



Prevention

- Early Detection
 - Deterrents should focus on **sentry** birds
 - Birds are nervous when they first arrive
 - Need to act **before eggs are laid**
- Public Awareness
 - Public education improves early detection
- Develop a Plan



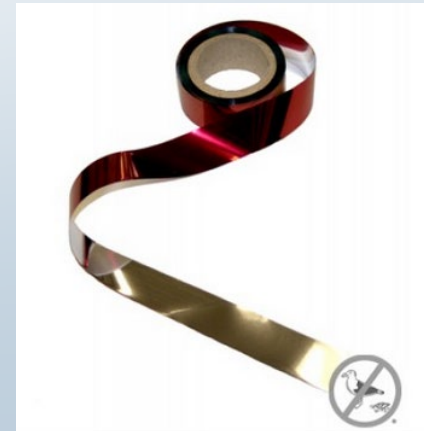
Scare Tactics

- **Noise Deterrents**

- Predator calls
- Pyrotechnics (screamers, bangers)
- Cracker shells (shot from a 12-gauge shotgun)
- Rope-firecrackers
- Propane cannons

- **Visual Deterrents**

- Mylar tape
- Scare Eye balloons





Habitat Modification

Thin tree canopies
Birds prefer $>75\%$ canopy closure



Modification of potential nesting areas produces more effective and longer lasting prevention.



Combination of techniques February through June is most effective

Summary

- Prevention and early detection are critical
- Harassment must stop once the 1st egg is laid
- Not a one-time fix
- Hard work now may result in years of reduced conflict



Living With Urban Coyotes and Bobcats



Rachel Richter

Urban Wildlife Biologist

Texas Parks and Wildlife

Trends in Urban Carnivore Behavior

- Higher population densities
- Smaller home ranges
- Increased nocturnal activity
- Avoid areas with high human activity
- Increased sightings during winter

Do You Have A Problem?

Coyote behavior / activity		Responses
Rarely or occasionally seen at night, more rarely during dusk and dawn	LOW	Limit food sources (garbage, pets feeding, wildlife feeding) Supervise pets and don't let them run free
Occasionally seen during the day Frequently seen at night Free-ranging pets occasionally disappear	CONCERN	Use hazing, negative stimuli (shouting, chasing, throwing objects)
Frequently seen during the day Stalking or attacking pets Fleeing from people		Consider removal program in conjunction with education; prohibit/limit feeding of wildlife; supervise pets; use negative stimuli
Approaching people aggressively Growling, barking when hazed (rather than running) Following children Preying on pets in yards	HIGH	Initiate removal program in conjunction with education; prohibit/limit feeding of wildlife; supervise pets; use negative stimuli

Preventing Conflict

- Do **NOT** feed wildlife
- Use wildlife feeding ordinances
- Implement common sense precautions
- It is a **neighborhood-wide** issue
- Lethal removal is a last resort




Remove Unintentional Food Sources

- Keep pet food and water indoors
- Secure garbage
- Sweep up under bird feeders
- Remove firewood/brush piles
- Keep landscaping maintained
- Pick up fallen fruit
- Keep compost piles contained
- Prevent feeding of other wildlife species



Tips for Hazing

A photograph of a coyote standing in a natural, brushy environment. The coyote is the central focus, looking directly at the camera. The background consists of various types of vegetation, including tall grasses and leafless shrubs, suggesting a dry or semi-arid habitat. The lighting is soft, possibly from the low sun, creating a warm, golden glow on the coyote's fur and the surrounding plants.

- Hazing should target habituated animals
- Avoid cornering animals
- The response may not be immediate
- Rotate hazing techniques regularly
- Continue until behavior is changed

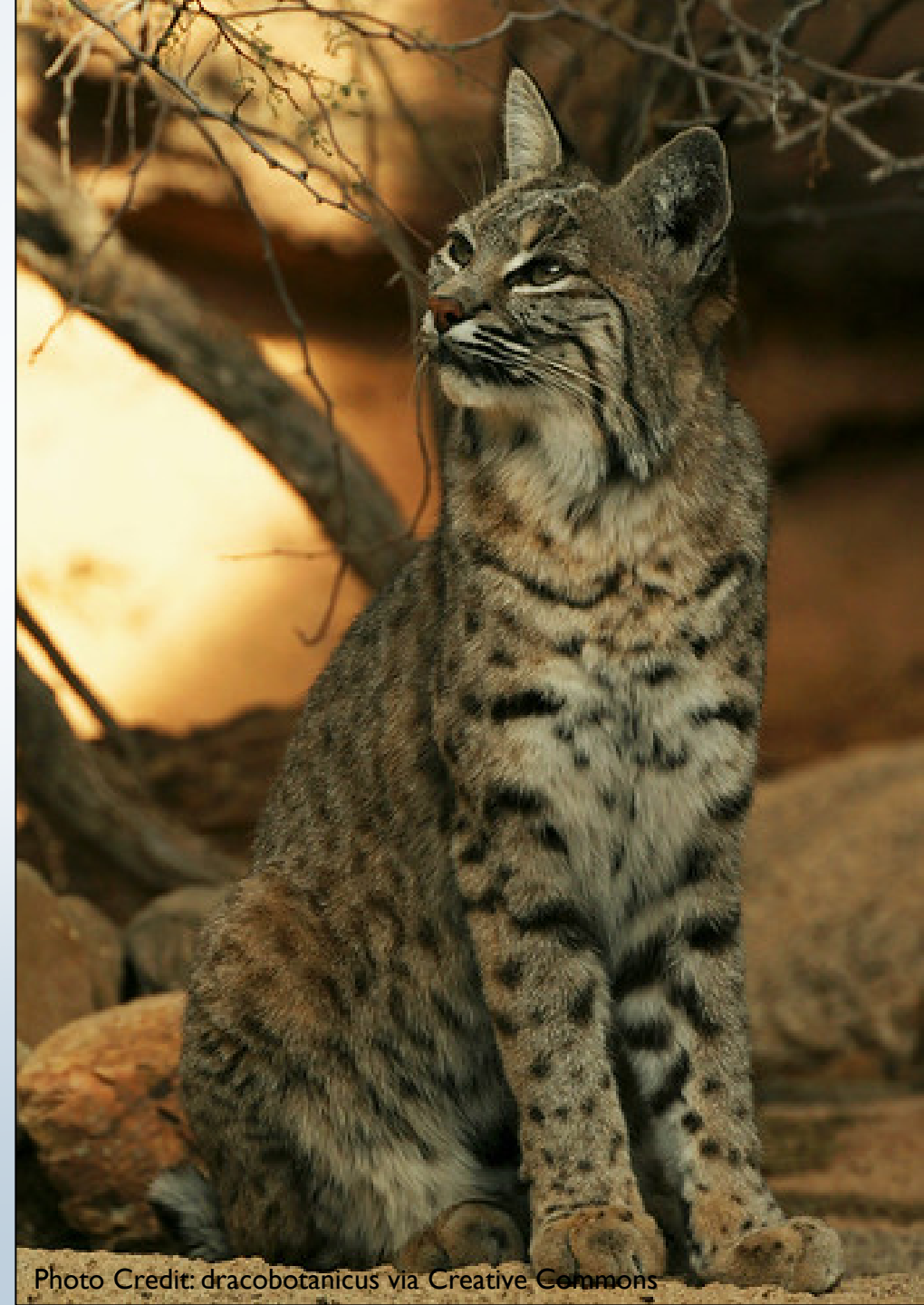
Monitoring Programs

- Report habituation or aggressive behavior
- Identify problem areas
- Reports Should Include:
 - Date and Time
 - Location
 - Animal Behavior
 - Human actions
 - Animal response
 - Were pets or other wildlife nearby?



Ongoing Management

- Urban carnivores will always be a part of our landscape
- Being mindful of our actions results in years of reduced conflict



Speaker Introduction

Adam Henry

- ▶ Wildlife Damage Management Biologist
- ▶ Texas Wildlife Services Program

Texas Wildlife Services

“Beaver Mitigation”

Adam Henry

Wildlife Damage Management Biologist

Adam.c.henry@usda.gov

817-978-2630

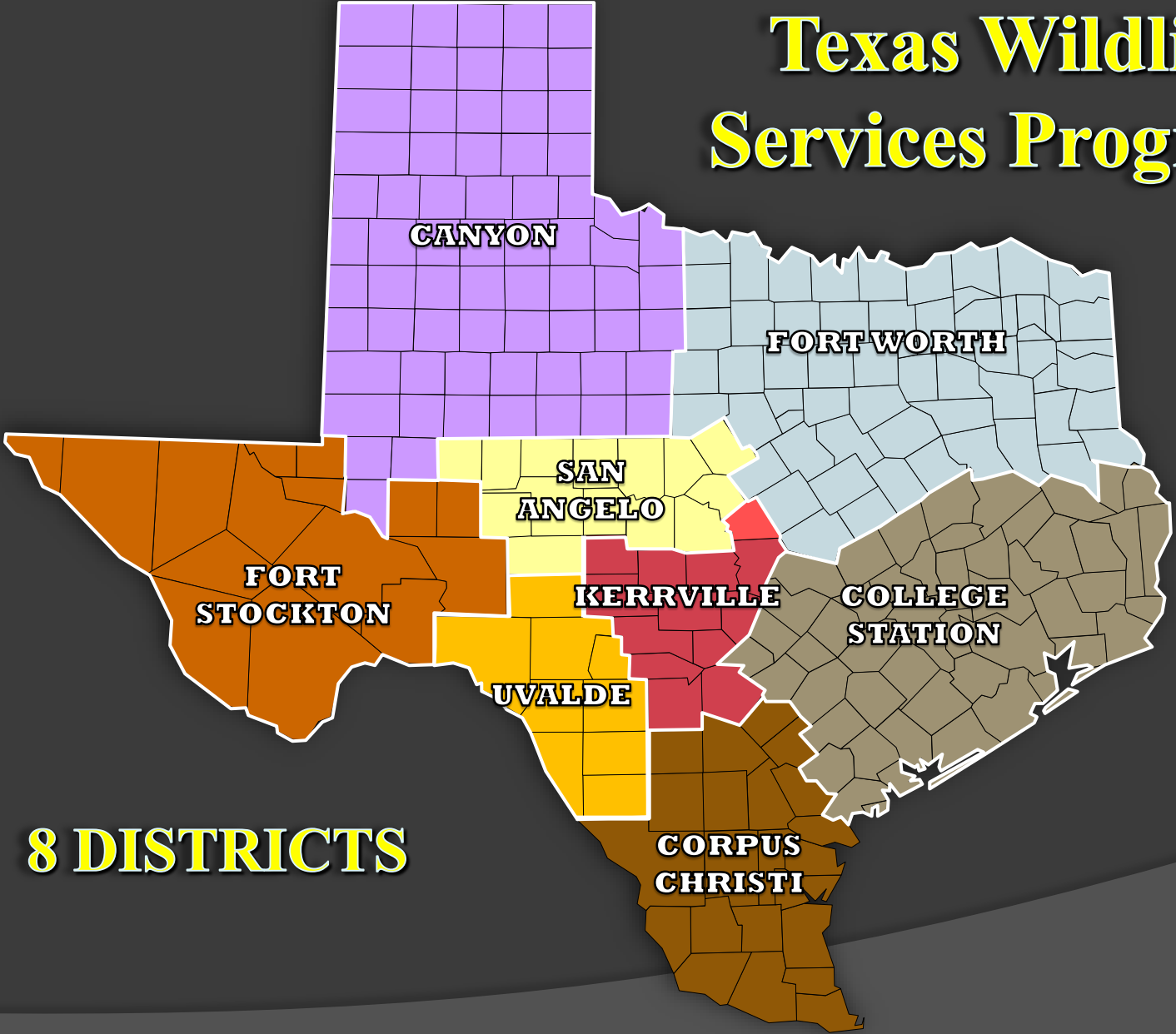
Texas Wildlife Services Program

USDA-APHIS-WILDLIFE SERVICES

**The TEXAS A&M AGRILIFE
EXTENSION SERVICE**

**TEXAS WILDLIFE DAMAGE
MANAGEMENT ASSOCIATION**

Texas Wildlife Services Program



8 DISTRICTS

WS Works to Protect

- Human Health and Safety from wildlife-related diseases such as rabies and plague and wildlife-related hazards such as bird-aircraft strikes.
- Facilities, Structures, and Other Property from damage caused by rats, mice, raccoons, skunks, opossums, squirrels, beaver, birds and other wildlife.
- Crops, Timber, and Rangeland from damage caused by gophers, prairie dogs, feral hogs, raccoons, rabbits, coyotes, grackles, beaver and other wildlife.
- Livestock from depredation caused by coyotes, bobcats, feral hogs, mountain lions, raccoons, birds and other wildlife.
- Wildlife and Other Natural Resources such as endangered species and game animals as well as soil, water and flora from damage and predation by wildlife.

Beavers



- ⦿ Aquatic Vegetation, roots and grasses in summer
- ⦿ Tree cambium and bark in winter
- ⦿ Dam building creates diverse habitat, increasing frogs, turtles, dragon flies, snails and mussels.
- ⦿ Bank erosion
- ⦿ Flooding of roads, bridges, and crops
- ⦿ Tree damage
- ⦿ Damming of culverts and drainpipes in urban areas.

Trapping Laws

- ◉ Fur Bearing Animals
- ◉ October 1st – May 31st for commercial harvest
- ◉ Recreational harvest all year
- ◉ Hunting License
- ◉ Trappers License

Nuisance Fur-Bearing Animal

- ⦿ Landowner or their agent.
- ⦿ Any number, Any time by Any Means.
- ⦿ No License needed
- ⦿ Animals or their pelts MAY NOT be retained or possessed!





6 Foot Diameter Culvert!



Beaver Deceiver





Tree Protection

- ⦿ Wrap tree with Hardware cloth or chicken wire extending up 4ft.
- ⦿ Built protective cage around tree
- ⦿ Mix Sand with Color matched paint and paint from ground level 4 ft up trunk
- ⦿ Use Electric fencing to exclude access to trees.



















The End

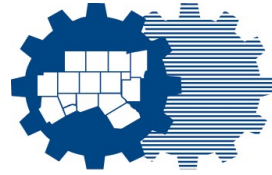


Questions?



Wrap-Up

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North Central Texas Council of Governments

Thank you for attending!

**NCTCOG Webinar
November 29, 2021**

*Prepared in cooperation with the
Texas Commission on Environmental Quality and
U.S. Environmental Protection Agency*

Elena Berg, NCTCOG
eberg@nctcog.org



www.nctcog.org/WaterResources