APPENDIX C – WILDLIFE DOCUMENTS

IPAC Report – USFWS

SGCN List – TPWD

Rare Species Listing – TPWD

WHAP Report – USACE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
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In Reply Refer To: July 12, 2022
Project Code: 2022-0035484
Project Name: Lake Ray Roberts Master Plan Revision

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, which may occur within the boundary of your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For Federal actions other than major construction activities, the Service suggests that a biological evaluation (similar to a Biological Assessment) be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

After evaluating the potential effects of a proposed action on federally listed species, one of the following determinations should be made by the Federal agency:

1. *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. *May affect, but is not likely to adversely affect* - the appropriate determination when a proposed action's anticipated effects to listed species or critical habitat are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. *May affect, is likely to adversely affect* - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a consequence of the proposed action, and the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service has performed up-front analysis for certain project types and species in your project area. These analyses have been compiled into *determination keys*, which allows an action agency, or its designated non-federal representative, to initiate a streamlined process for determining a proposed project's potential effects on federally listed species. The determination keys can be accessed through IPaC.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found at: https://www.fws.gov/service/section-7-consultations

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (https://www.fws.gov/library/collections/bald-and-golden-eagle-management). Additionally, wind energy projects should follow the wind energy guidelines (https://www.fws.gov/media/land-based-wind-energy-guidelines) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation. For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arlington Ecological Services Field Office
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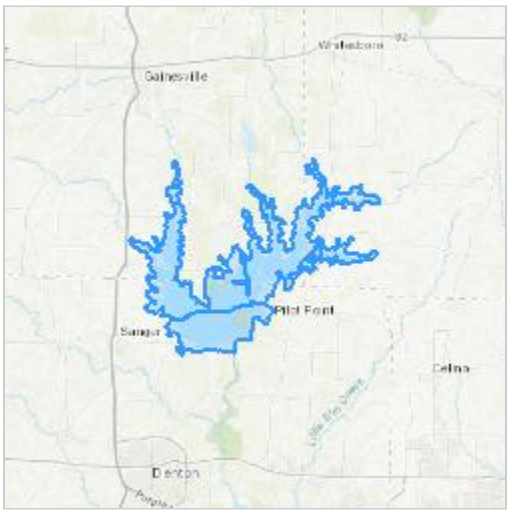
Project Summary

Project Code: 2022-0035484
Event Code: None
Project Name: Lake Ray Roberts Master Plan Revision
Project Type: Land Management Plans - NWR
Project Description: The Ray Roberts Master Plan (Cooke, Denton, and Grayson Counties, Texas) is the long-term strategic land use management document that guides the comprehensive management and development of all the project's recreational, natural, and cultural resources within the federal fee boundary. Under the guidance of ER-1130-2-550 Change 7, the Plan guides the efficient and cost-effective development, management, and use of project lands. It is a dynamic tool that provides for the responsible stewardship and sustainability of the project's resources for the benefit of present and future generations. The Plan works in tandem with the Operational Management Plan (OMP), which is the implementation tool for the resource objectives and development needs identified in the Master Plan. The Master Plan guides and articulates the USACE responsibilities pursuant to federal laws. Efforts are under way to revise the current Lake Master Plan. The Master Plan revision will update land classifications, plan for the modernization of existing parks, and inform the management of wildlife and other resource lands within USACE managed property at Lake Ray Roberts for the next 25 years.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@33.371487000879114,-97.05866842852151,14z



Counties: Cooke, Denton and Grayson counties, Texas

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

NAME	BREEDING SEASON
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Sprague's Pipit *Anthus spragueii* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8964	Breeds elsewhere

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

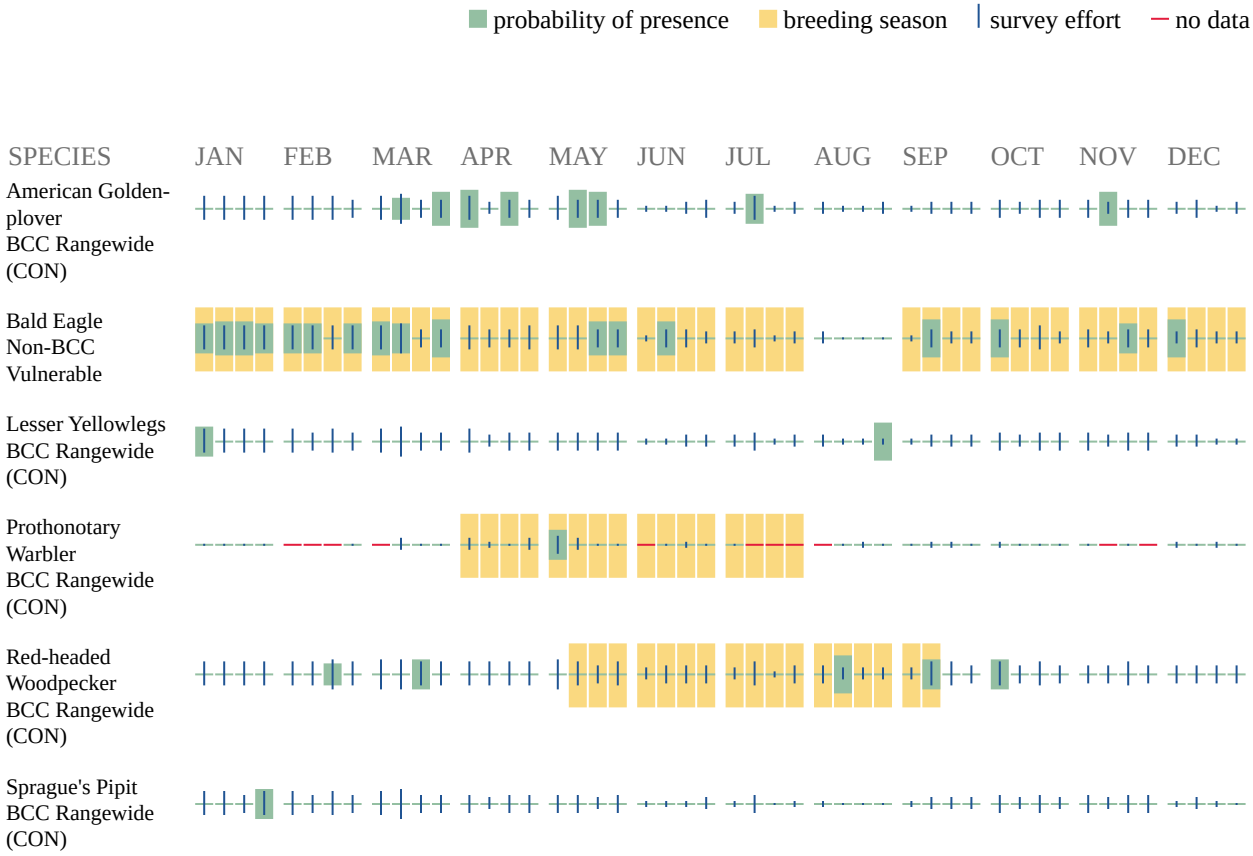
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and

how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

IPaC User Contact Information

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CROSS TIMBERS SPECIES OF GREATEST CONSERVATION NEED

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
MAMMALS						W.B. Davis and D.J. Schmidly. 1997 and 1994. Mammals of Texas (online and in print). Texas Tech University (1997) and Texas Parks and Wildlife Department (1994). http://www.nsrl.ttu.edu/tmot1/Default.htm (accessed 2011)		
Conepatus leuconotus	Hog-nosed skunk			G5	S4	Shrubland, Savanna/Open Woodland, Barren/Sparse Vegetation,		N
Dipodomys elator	Texas kangaroo rat		T	G1G2	S2	Shrubland, Agricultural	status in review	Y
Lutra canadensis	River otter			G5	S4	Riparian	Appendix II, CITES	N
Mustela frenata	Long-tailed weasel			G5	S5	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland	Statewide	N
Myotis velifer	Cave myotis			G5	S4	Caves/Karst,		N
Neovison vison	Mink			G5	S4	Riparian, Riverine, Lacustrine, Freshwater Wetland		N
Puma concolor	Mountain lion			G5	S2	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian	Statewide	N
Spilogale putorius	Eastern spotted skunk			G4T	S4	Savanna/Open Woodland, Grassland		N
Sylvilagus aquaticus	Swamp rabbit			G5	S5	Riparian, Freshwater Wetland		N
Tadarida brasiliensis	Brazilian free-tailed bat			G5	S5	Cave/Karst, Artificial Refugia	Statewide	N
Taxidea taxus	American badger			G5	S5	Grassland, Desert scrub, Woodland, Savanna/Open Woodland, Forest		N
BIRDS						The Birds of North America Online (A. Poole, Ed.). 2005 (with current updates by species). Retrieved from The Birds of North America Online database: http://bna.birds.cornell.edu/BNA/ (accessed 2011). Supported by information from the Cornell Lab of Ornithology and the American Ornithologists' Union (http://www.aou.org/).		BIRDS ONLY: instead of endemism these numbers are for taxonomic sorting
Anas acuta	Northern Pintail			G5	S3B,S5N	Lacustrine, freshwater wetland, saltwater wetland, coastal, marine	Winter	2
Colinus virginianus	Northern Bobwhite			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland	deleted for CHIH	4
Tympanuchus cupido	Greater Prairie-Chicken (Interior)			G4	S1B	Grassland	Year-round	6
Meleagris gallopavo	Wild Turkey			G5	S5B	Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural	Year-round, added *merriami* for CHIH	8
Egretta thula	Snowy Egret			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	12
Egretta caerulea	Little Blue Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	13
Butorides virescens	Green Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic	Breeding	16
Ictinia mississippiensis	Mississippi Kite			G5	S4B	Woodland, Forest, Riparian, Developed:Urban/Suburban/Rural	Breeding	20
Haliaeetus leucocephalus	Bald Eagle			G5	S3B,S3N	Riparian, Lacustrine, Freshwater Wetland, Saltwater Wetland	Year-round, added CRTB	22
Circus cyaneus	Northern Harrier			G5	S2B,S3N	Grassland, Shrubland	Year-round	23
Buteo lineatus	Red-shouldered Hawk			G5	S4B	Woodland, Forest, Riparian, Freshwater Wetland	Year-round	26
Buteo swainsoni	Swainson's Hawk			G5	S4B	Desert Scrub, Grassland, Shrubland	Breeding	28
Pluvialis dominica	American Golden-Plover			G5	S3	Grassland, Freshwater Wetland, Agricultural	Migrant	39
Sternula antillarum	Least Tern	LE*	E*	G4	S3B	Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Marine, Developed: Industrial	Year-round; subspecies *athalassos*	54
Athene cunicularia	Burrowing Owl			G4	S3B	Desert Scrub, Grassland, Shrubland, Agricultural, Developed	Year-round	63
Asio flammeus	Short-eared Owl			G5	S4N	Grassland, Shrubland, Agricultural	Winter	65
Caprimulgus carolinensis	Chuck-will's-widow			G5	S3S4B	Woodland, Forest, Riparian	Breeding	66
Melanerpes erythrocephalus	Red-headed Woodpecker			G5	S3B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	67
Tyrannus forficatus	Scissor-tailed Flycatcher			G5	S3B	Desert Scrub, Grassland, Shrubland, Agricultural, Developed	Breeding	71
Lanius ludovicianus	Loggerhead Shrike			G4	S4B	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed	Year-round	73
Vireo bellii	Bell's Vireo			G5	S3B	Desert scrub, Shrubland, Riparian	Breeding	74
Vireo atricapilla	Black-capped Vireo	LE	E	G3	S2B	Shrubland	Breeding	75
Poecile carolinensis	Carolina Chickadee			G5	S5B	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	76
Anthus spragueii	Sprague's Pipit	C		G4	S3N	Barren/Sparse Vegetation, Grassland, Shrubland, Agricultural	Winter	80
*Dendroica chrysoparia**	Golden-cheeked Warbler	LE	E	G2	S2B	Woodland	Breeding; *taxonomic change likely to *Setophaga chrysoparia*	83
Aimophila cassinii	Cassin's Sparrow			G5	S4B	Grassland, Shrubland	Breeding	92
Aimophila ruficeps	Rufous-crowned Sparrow			G5	S4B	Grassland	Year-round	95
Spizella pusilla	Field Sparrow			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland	Year-round	96
Ammodramus savannarum	Grasshopper Sparrow			G5	S3B	Grassland, Agricultural	Year-round	97
Chondestes grammacus	Lark Sparrow			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland	Year-round	98
Ammodramus leconteii	Le Conte's Sparrow					Grassland	Winter	101
Zonotrichia querula	Harris's Sparrow			G5	S4	Shrubland, Agricultural	Winter	103
Calcarius mccownii	McCown's Longspur			G4	S4	Grassland, Agricultural	Winter, TBPR (northern), ECPL (northern)	104
Piranga rubra	Summer Tanager			G5	S5B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Breeding	106
Passerina ciris	Painted Bunting			G5	S4B	Shrubland, Agricultural	Breeding	107
Spiza americana	Dickcissel			G5	S4B	Grassland, Agricultural	Breeding	108
Sturnella magna	Eastern Meadowlark			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland	Year-round; subspecies *lilliana* added for CHIH	109
Icterus spurius	Orchard Oriole			G5	S4B	Shrubland, Savanna/Open Woodland, Woodland, Riparian	Breeding	111
REPTILES AND AMPHIBIANS						J.E. Werler and J.R. Dixon. 2000. Texas Snakes: Identification, Distribution, and Natural History. University of Texas Press, Austin. 519 pgs. J.R. Dixon. 1987. Amphibians and Reptiles of Texas. Texas A&M University Press, College Station. 434 pp.		
Anaxyrus (Bufo) woodhousii	Woodhouse's toad			G5	SU	woodland, forest, freshwater wetland		N
Apalone mutica	smooth softshell turtle					riparian, riverine, lacustrine, freshwater wetland	added	N
Cheylydra serpentina	Common snapping turtle					riparina, riverine	added	N

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
Crotalus atrox	Western diamondback rattlesnake				S4	barren/sparse vegetation, desert scrub, grassland, shrubland, savanna, woodland, caves/karst		N
Crotalus horridus	Timber (Canebrake) Rattlesnake		T	G4	S4	woodland, forest, riparian		N
Eurycea chisolmensis	Salado Springs salamander	C		G1	S1	freshwater wetland (springs)		Y
Eurycea naufragia	Georgetown Salamander	C		G1	S1	caves and karst, freshwater wetland (springs)		Y
Graptemys versa	Texas map turtle			G4	SU	riparian, riverine		Y
Heterodon nasicus	Western hognosed snake					desert scrub, grassland, shrubland	added	N
Macrochelys temminckii	alligator snapping turtle		T	G3G4	S3	riparian, riverine, cultural aquatic	added	N
Nerodia harteri	Brazos Water Snake		T		S1	riparian, riverine, cultural aquatic		Y
Phrynosoma cornutum	Texas horned lizard		T	G4G5	S4	desert scrub, grassland, savanna		N
Pseudacris streckeri	Strecker's Chorus Frog			G5	S3	grassland, savanna, woodland, riparian, cultural aquatic, freshwater wetland		N
Sistrurus catenatus	massasauga					grassland, barren/sparse vegetation, shrubland, coastal,	added	N
Terrapene ornata	Ornate box turtle			G5	S3	grassland, barren/sparse vegetation, deset scrub, savanna, woodland		N
Thamnophis sirtalis annectans	Texas Garter Snake (Eastern/Texas/ New Mexico)			G5	S2	riparian, around lacustrine and cultural aquatic sites		Y
Trachemys scripta	Red-eared slider					riparian, riverine, lacustrine, freshwater wetland, cultural aquatic	added	N
FRESHWATER FISHES						C. Thomas, T.H. Bonner and B.G. Whiteside. 2007. Freshwater Fishes of Texas: A Field Guide. Sponsored by The River Systems Institute at Texas State University, published by Texas A&M University Press. *Editor's Note: All freshwater fishes life history information in this table was sourced directly from the online version; citations are embedded in the online version at http://www.bio.txstate.edu/~tbonner/txfishes/*	Range in Texas, as known	
Anguilla rostrata	American eel			G4	S5	streams and reservoirs in drainages connected to marine environments	mouth upstream to and including the Kiamichi River), Sabine Lake (including minor	N
Cycleptus elongatus	Blue sucker		T	G3G4	S3	large, deep rivers, and deeper zones of lakes	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Hiodon alosoides	Goldeye					large lakes; backwaters	Red River	N
Ictalurus lupus	Headwater catfish			G3	S2	clear streams and rivers with moderate gradients, deep spring runs	Guadalupe, and Colorado basins, but appears to be extirpated from these systems	N
Macryhbopsis storeriana	Silver chub					common over silt or mud, turbid water with very soft sand/silt substrate	other populations of this species, which range through the Mississippi River Basin to	N
Micropterus treculii	Guadalupe bass			G3	S3	small lentic environments; commonly taken in flowing water	of the Brazos, Colorado, Guadalupe, and San Antonio basins; species also found outside	Y
Notropis bairdi	Red River shiner					streambeds with widely fluctuating flows subject to high summer temperatures, high rates of evaporation,	Red River, from the mouth upstream to and including the Kiamichi River	N
Notropis oxyrhynchus	Sharpnose shiner	C		G3	S3	Moderate current velocities and depths, sand bottom	captured into the Red River drainage; introduced in Colorado River drainage	Y
Notropis potteri	Chub shiner		T	G4	S3	turbid, flowing water with silt or sand substrate; tolerant of high salinities	Brazos River, Colorado River, San Jacinto River, Trinity Rivers, and Galveston Bay	N
Polyodon spathula	Paddlefish		T	G4	S3	sized rivers, sluggish pools, backwaters, bayous, and oxbows with abundant zooplankton; large reservoirs if	eastward; currently only Red River, from the mouth upstream to and including the	N
INVERTEBRATES						www.bugguide.net – good tool for identification and taxonomic information. www.texasento.net – compilation of information on insects in Texas www.odonatacentral.org – resource for identification and distribution of damselflies and dragonflies www.butterfliesandmoths.org – resource for identification and distribution of Lepidoptera www.texasmussels.wordpress.com – resource for information on freshwater mussels in Texas Howells, R. G., R. W. Neck and H. D. Murray. 1996. Freshwater Mussels of Texas. Texas Parks and Wildlife Press, Austin.		*Editor's Note: Most karst invertebrates are likely endemic*
Amblycorypha uhleri	A katydid			G2G3*	S2?*	Savanna/Open Woodland	Terrestrial - Insects - Grasshoppers	
Arethaea ambulator	A katydid			G2G3*	S2?*	Savanna/Open Woodland	Terrestrial - Insects - Grasshoppers	
Bombus pensylvanicus	American bumblebee			GU	SU*	Grassland, Savanna/Open Woodland	Terrestrial - Insect - Bee/Wasp/Ant	
Pleurobema riddellii	Louisiana pigtoe		T	G1G2	S1	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	
Pogonomyrmex comanche	Comanche harvester ant			G2G3*	S2*	Barren/Sparse Vegetation	Terrestrial - Insect - Bee/Wasp/Ant; ecoregions added	
Potamilus amphichaenus	Texas heelsplitter		T	G1G2	S1	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	
Quadrula aurea	Golden orb		T	G1	S2*	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	Y
Quadrula houstonensis	Smooth pimpleback		T	G2	S1S2*	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	Y
Quadrula mitchelli	False Spike		T	GH	SH	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	
Taeniopteryx starki	Texas willowfly			G1	S1	Riparian, Riverine	Aquatic - Insects - Stoneflies	
Truncilla macrodon	Texas fawnsfoot		T	G2Q	S1*	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	Y
PLANTS						J.M. Poole, W.R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station. D.S. Correll and M.C Johnston. 1979. Manual of the Vascular Plants of Texas. The University of Texas at Dallas, Richardson. M.C. Johnston. 1990. The Vascular Plants of Texas: A List Up-dating the Manual of the Vascular Plants of Texas, 2nd Edition. Marshall C. Johnston, Austin. F.W. Gould. 1975. The Grasses of Texas. Texas A & M University Press, College Station. S.D. Jones, J.K. Wipff, and P.M. Montgomery. 1997. Vascular Plants of Texas: A Comprehensive Checklist including Synonymy; Bibliography, and Index. University of Texas Press, Austin. R.A. Vines. 2004. Trees, Shrubs and Woody Vines of the Southwest. Blackburn Press.		
Agalinis auriculata	earleaf false foxglove			G3	SH	Savanna/Open Woodland; Grrassland	Terrestrial	N
Agalinis densiflora	Osage Plains false foxglove			G3	S2	Savanna/Open Woodland - Outcrops	Terrestrial	N
Argythamnia aphoroides	Hill Country wild-mercury			G2G3	S2S3	Savanna/Open Woodland	Terrestrial	Y
Carex edwardsiana	canyon sedge			G3G4S3S4	S3S4	Woodland (slopes above Riparian)	Wetland	Y
Carex shinnersii	Shinner's sedge			G3?	S2	Grassland	Wetland	N
Clematis texensis	scarlet leather-flower			G3G4	S3S4	Woodland	Terrestrial	Y
Croton alabamensis var. texensis	Texabama croton			G3T2	S2	Woodland	Terrestrial	Y
Cuscuta exaltata	tree dodder			G3	S3	Woodland	Terrestrial	N
Dalea reverchonii	Comanche Peak prairie-clover			G2	S2	Savanna/Open Woodland; Grassland	Terrestrial	Y

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
Echinacea atrorubens	Topeka purple-coneflower			G3	S3	Savanna/Open Woodland	Terrestrial	N
Festuca versuta	Texas fescue			G3	S3	Woodland	Terrestrial	N
Gaura triangulata	prairie butterfly-weed			G3G4	S3	Grassland	Terrestrial	N
Hexalectris nitida	Glass Mountains coral-root			G3	S3	Woodland	Terrestrial	N
Ipomoea shumardiana	Shumard's morning glory			G2G3	S1	Savanna/Open Woodland	Terrestrial	N
Liatris glandulosa	glandular gay-feather			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Oenothera coryi	Cory's Evening-primrose			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Pediomelum cyphocalyx	turnip-root scurfpea			G3G4	S3S4	Grassland	Terrestrial	Y
Pediomelum reverchonii	Reverchon's curfpea			G3	S3	Grassland	Terrestrial	N
Physaria engelmannii	Engelmann's bladderpod			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Prunus minutiflora	Texas almond			G3G4	S3S4	Savanna/Open Woodland	Terrestrial	N
Schoenoplectus hallii	Hall's baby bulrush			G2G3	S1	Freshwater Wetland (ponds)	Wetland	N
Senecio quaylei	Quayle's butterweed			G1Q	S1	Savanna/Open Woodland	Terrestrial	Y
Styrax platanifolius subsp. platanifolius	sycamore-leaf snowbell			G3T3	S3	Woodland	Terrestrial	Y
Valerianella stenocarpa	bigflower cornsalad			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Yucca necopina	Glen Rose yucca			G1G2	S1S2	Savanna/Open Woodland	Terrestrial	Y

TEXAS BLACKLAND PRAIRIES SPECIES OF GREATEST CONSERVATION NEED

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
MAMMALS						W.B. Davis and D.J. Schmidly. 1997 and 1994. Mammals of Texas (online and in print). Texas Tech University (1997) and Texas Parks and Wildlife Department (1994). http://www.nsrl.ttu.edu/tmot1/Default.htm (accessed 2011)		
Blarina hylophaga plumblea	Elliot's short-tailed shrew			G5T1Q	S1	Savanna/Open Woodland		N
Geomys attwateri	Attwater's pocket gopher			G4	S4	Shrubland		Y
Lutra canadensis	River otter			G5	S4	Riparian	Appendix II, CITES	N
Mustela frenata	Long-tailed weasel			G5	S5	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland	Statewide	N
Myotis austroriparius	Southeastern myotis			G3G4	S3	Caves/Karst, Forest, Riparian		N
Myotis velifer	Cave myotis			G5	S4	Caves/Karst,		N
Puma concolor	Mountain lion			G5	S2	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian	Statewide	N
Spilogale putorius	Eastern spotted skunk			G4T	S4	Savanna/Open Woodland, Grassland		N
Sylvilagus aquaticus	Swamp rabbit			G5	S5	Riparian, Freshwater Wetland		N
Tadarida brasiliensis	Brazilian free-tailed bat			G5	S5	Cave/Karst, Artificial Refugia	Statewide	N
Taxidea taxus	American badger			G5	S5	Grassland, Desert scrub, Woodland, Savanna/Open Woodland, Forest		N
Ursus americanus	Black bear	SAT	T	G5	S3	Forest, Woodland, Savanna/Open Woodland, Desert Scrub, Shrubland	see also Louisiana black bear; may overlap with Louisiana black bear in TBPR, ECPL	N
BIRDS						The Birds of North America Online (A. Poole, Ed.). 2005 (with current updates by species). Retrieved from The Birds of North America Online database: http://bna.birds.cornell.edu/BNA/ (accessed 2011). Supported by information from the Cornell Lab of Ornithology and the American Ornithologists' Union (http://www.aou.org/).		BIRDS ONLY: instead of endemism these numbers are for taxonomic sorting
Anas acuta	Northern Pintail			G5	S3B,S5N	Lacustrine, freshwater wetland, saltwater wetland, coastal, marine	Winter	2
Colinus virginianus	Northern Bobwhite			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland	deleted for CHIH	4
Tympanuchus cupido	Greater Prairie-Chicken (Interior)			G4	S1B	Grassland	Year-round	6
Meleagris gallopavo	Wild Turkey			G5	S5B	Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural	Year-round, added *merriami* for CHIH	8
Ixobrychus exilis	Least Bittern			G5	S4B	Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary	Breeding	11
Egretta thula	Snowy Egret			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	12
Egretta caerulea	Little Blue Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	13
Butorides virescens	Green Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic	Breeding	16
Mycteria americana	Wood Stork		T	G4	SHB,S2N	Riverine, Freshwater wetland	Migrant	18
Ictinia mississippiensis	Mississippi Kite			G5	S4B	Woodland, Forest, Riparian, Developed:Urban/Suburban/Rural	Breeding	20
Haliaeetus leucocephalus	Bald Eagle			G5	S3B,S3N	Riparian, Lacustrine, Freshwater Wetland, Saltwater Wetland	Year-round, added CRTB	22
Circus cyaneus	Northern Harrier			G5	S2B,S3N	Grassland, Shrubland	Year-round	23
Buteo lineatus	Red-shouldered Hawk			G5	S4B	Woodland, Forest, Riparian, Freshwater Wetland	Year-round	26
Pluvialis dominica	American Golden-Plover			G5	S3	Grassland, Freshwater Wetland, Agricultural	Migrant	39
Charadrius montanus	Mountain Plover	PT		G3	S2	Agricultural, Grassland	Winter	43
Scolopax minor	American Woodcock			G5	S2B,S3N	Woodland, Forest, Riparian	Winter (some breeding during that time)	51
Sternula antillarum	Least Tern	LE*	E*	G4	S3B	Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Marine, Developed: Industrial	Year-round; subspecies *athalassos*	54
Asio flammeus	Short-eared Owl			G5	S4N	Grassland, Shrubland, Agricultural	Winter	65
Caprimulgus carolinensis	Chuck-will's-widow			G5	S3S4B	Woodland, Forest, Riparian	Breeding	66
Melanerpes erythrocephalus	Red-headed Woodpecker			G5	S3B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	67
Dryocopus pileatus	Pileated Woodpecker			G5	S4B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	69
Tyrannus forficatus	Scissor-tailed Flycatcher			G5	S3B	Desert Scrub, Grassland, Shrubland, Agricultural, Developed	Breeding	71
Lanius ludovicianus	Loggerhead Shrike			G4	S4B	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed	Year-round	73
Vireo bellii	Bell's Vireo			G5	S3B	Desert scrub, Shrubland, Riparian	Breeding	74
Poecile carolinensis	Carolina Chickadee			G5	S5B	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	76
Thryomanes bewickii (bewickii)	Bewick's Wren			G5	S5B	Shrubland, Savanna/Open Woodland, Woodland, Developed: Urban/Suburban/Rural	Year-round, red-backed form only	77
Cistothorus platensis	Sedge Wren			G5	S4	Grassland, Freshwater Wetland	Winter	78
Hylocichla mustelina	Wood Thrush			G5	S4B	Woodland, Forest, Riparian	Breeding	79
Anthus spragueii	Sprague's Pipit	C		G4	S3N	Barren/Sparse Vegetation, Grassland, Shrubland, Agricultural	Winter	80
Dendroica dominica	Yellow-throated Warbler			G5	S4B	Woodland, Forest, Riparian	Breeding	84
Protonotaria citrea	Prothonotary Warbler			G5	S3B	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland	Breeding	86
Limnothlypis swainsonii	Swainson's Warbler			G4	S3B	Woodland, Forest, Riparian	Breeding	88
Seiurus motacilla	Louisiana Waterthrush			G5	S3B	Woodland, Forest, Riparian	Breeding	89
Oporornis formosus	Kentucky Warbler			G5	S3B	Woodland, Forest	Breeding	90
Spizella pusilla	Field Sparrow			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland	Year-round	96
Ammodramus savannarum	Grasshopper Sparrow			G5	S3B	Grassland, Agricultural	Year-round	97
Chondestes grammacus	Lark Sparrow			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland	Year-round	98
Ammodramus henslowii	Henslow's Sparrow			G4	S2S3N,SXB	Grassland, Savanna/Open Woodland	Winter	100
Ammodramus leconteii	Le Conte's Sparrow					Grassland	Winter	101
Zonotrichia querula	Harris's Sparrow			G5	S4	Shrubland, Agricultural	Winter	103
Calcarius mccownii	McCown's Longspur			G4	S4	Grassland, Agricultural	Winter, TBPR (northern), ECPL (northern)	104

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
Calcarius pictus	Smith's Longspur					Grassland, Agricultural	Winter	105
Piranga rubra	Summer Tanager			G5	S5B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Breeding	106
Passerina ciris	Painted Bunting			G5	S4B	Shrubland, Agricultural	Breeding	107
Spiza americana	Dickcissel			G5	S4B	Grassland, Agricultural	Breeding	108
Sturnella magna	Eastern Meadowlark			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland	Year-round; subspecies *lilliana* added for CHIH	109
Euphagus carolinus	Rusty Blackbird			G4	S3	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland	Winter	110
Icterus spurius	Orchard Oriole			G5	S4B	Shrubland, Savanna/Open Woodland, Woodland, Riparian	Breeding	111
REPTILES AND AMPHIBIANS						J.E. Werler and J.R. Dixon. 2000. Texas Snakes: Identification, Distribution, and Natural History. University of Texas Press, Austin. 519 pgs. J.R. Dixon. 1987. Amphibians and Reptiles of Texas. Texas A&M University Press, College Station. 434 pp.		
Anaxyrus (Bufo) woodhousii	Woodhouse's toad			G5	SU	woodland, forest, freshwater wetland		N
Apalone mutica	smooth softshell turtle					riparian, riverine, lacustrine, freshwater wetland	added	N
Apalone spinifera	spiny softshell turtle					riparian, riverine, lacustrine, freshwater wetland	added, not AZNM	N
Cheylydra serpentina	Common snapping turtle					riparina, riverine	added	N
Crotalus atrox	Western diamondback rattlesnake				S4	barren/sparse vegetation, desert scrub, grassland, shrubland, savanna, woodland, caves/karst		N
Crotalus horridus	Timber (Canebrake) Rattlesnake		T	G4	S4	woodland, forest, riparian		N
Graptemys caglei	Cagle's map turtle		T	G3	S1	riparian, riverine		Y
Graptemys versa	Texas map turtle			G4	SU	riparian, riverine		Y
Heterodon nasicus	Western hognosed snake					desert scrub, grassland, shrubland	added	N
Macrochelys temminckii	alligator snapping turtle		T	G3G4	S3	riparian, riverine, cultural aquatic	added	N
Ophisaurus attenuatus	western slender glass lizard					grassland, savanna	added	N
Phrynosoma cornutum	Texas horned lizard		T	G4G5	S4	desert scrub, grassland, savanna		N
Pseudacris streckeri	Strecker's Chorus Frog			G5	S3	grassland, savanna, woodland, riparian, cultural aquatic, freshwater wetland		N
Sistrurus catenatus	massasauga					grassland, barren/sparse vegetation, shrubland, coastal,	added	N
Terrapene carolina	Eastern box turtle			G5	S3	grasslands, savanna, woodland		N
Terrapene ornata	Ornate box turtle			G5	S3	grassland, barren/sparse vegetation, deset scrub, savanna, woodland		N
Thamnophis sirtalis annectans	Texas Garter Snake (Eastern/Texas/ New Mexico)			G5	S2	riparian, around lacustrine and cultural aquatic sites		Y
Trachemys scripta	Red-eared slider					riparian, riverine, lacustrine, freshwater wetland, cultural aquatic	added	N
FRESHWATER FISHES						C. Thomas, T.H. Bonner and B.G. Whiteside. 2007. Freshwater Fishes of Texas: A Field Guide. Sponsored by The River Systems Institute at Texas State University, published by Texas A&M University Press. *Editor's Note: All freshwater fishes life history information in this table was sourced directly from the online version; citations are embedded in the online version at http://www.bio.txstate.edu/~tbonner/txfishes/*	Range in Texas, as known	
Anguilla rostrata	American eel			G4	S5	streams and reservoirs in drainages connected to marine environments	mouth upstream to and including the Kiamichi River), Sabine Lake (including minor	N
Atractosteus spatula	alligator gar					channel snag, pool-snag complex, pool-edge, and pool-vegetation habitat	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Cycleptus elongatus	Blue sucker		T	G3G4	S3	large, deep rivers, and deeper zones of lakes	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Etheostoma fonticola	Fountain darter	LE	E	G1	S1	usually in dense beds of *Vallisneria, Elodia, Ludwigia* and other aquatic plants; substrate normally mucky	Note: original population in the Comal River extirpated in mid-1950's when Comal Springs	Y
Macryhbopsis storeriana	Silver chub					common over silt or mud, turbid water with very soft sand/silt substrate	other populations of this species, which range through the Mississippi River Basin to	N
Micropterus treculii	Guadalupe bass			G3	S3	small lentic environments; commonly taken in flowing water	of the Brazos, Colorado, Guadalupe, and San Antonio basins; species also found outside of	Y
Notropis atrocaudalis	Blackspot shiner					backwater and swiftest currents	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Notropis bairdi	Red River shiner					streambeds with widely fluctuating flows subject to high summer temperatures, high rates of evaporation,	Red River, from the mouth upstream to and including the Kiamichi River	N
Notropis buccula	Small eye shiner	C		G2Q	S2	broad condition tolerances (turbidity, salinity, oxygen).	Brazos River; historically as far south as Hempstead (Waller County)	Y
Notropis chalybaeus	Ironcolor shiner					Plain streams and rivers of low to moderate gradient; often at the upstream ends of pools, with a moderate to	(including minor coastal drainages west to Galveston Bay), San Antonio Bay (including	N
Notropis oxyrhynchus	Sharpnose shiner	C		G3	S3	Moderate current velocities and depths, sand bottom	captured into the Red River drainage; introduced in Colorado River drainage	Y
Notropis potteri	Chub shiner		T	G4	S3	turbid, flowing water with silt or sand substrate; tolerant of high salinities	Brazos River, Colorado River, San Jacinto River, Trinity Rivers, and Galveston Bay	N
Notropis shumardi	Silverband shiner					channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water	(including minor coastal drainages west to Galveston Bay), Galveston Bay (including	N
Percina apristis	Guadalupe darter					collections from the clearest waters tributary to the Guadalupe, namely spring heads and the main river west	from the headwaters of the Blanco and the entirety of the San Antonio River	Y
Polyodon spathula	Paddlefish		T	G4	S3	sized rivers, sluggish pools, backwaters, bayous, and oxbows with abundant zooplankton; large reservoirs if	eastward; currently only Red River, from the mouth upstream to and including the	N
Satan eurystomus	Widemouth blindcat		T	G1	S1	Karst: Subterranean waters	(Edwards Limestone, Lower Cretaceous) in the vicinity of San Antonio (Bexar County)	Y
Trogloglanis pattersoni	Toothless blindcat		T	G1	S1	Karst: Subterranean waters	(Edwards Limestone, Lower Cretaceous) in the vicinity of San Antonio (Bexar County)	Y
INVERTEBRATES						www.bugguide.net – good tool for identification and taxonomic information. www.texasento.net – compilation of information on insects in Texas www.odonatacentral.org – resource for identification and distribution of damselflies and dragonflies www.butterfliesandmoths.org – resource for identification and distribution of Lepidoptera www.texasmussels.wordpress.com – resource for information on freshwater mussels in Texas Howells, R. G., R. W. Neck and H. D. Murray. 1996. Freshwater Mussels of Texas. Texas Parks and Wildlife Press, Austin		
Bombus pensylvanicus	American bumblebee			GU	SU*	Grassland, Savanna/Open Woodland	Terrestrial - Insect - Bee/Wasp/Ant	
Chimarra holzenthali	Holzenthal's Philopotamid caddisfly			G1G2	S1	Riparian, Riverine	Aquatic - Insects - Caddisflies; added TBPR, ECPL	
Cotinis boylei	A scarab beetle			G2*	S2*	Grassland, Shrubland, Woodland	Terrestrial - Insect - Beetles	
Nicrophorus americanus	American Burying Beetle	LE		G1	S1	Grassland, Savanna/Open Woodland	Terrestrial - Insect - Beetles	
Potamilus amphichaenus	Texas heelsplitter		T	G1G2	S1	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	
Procambarus regalis	Regal burrowing crayfish			G2G3	S2?*	Freshwater Wetland, Grassland	Aquatic - Crustaceans - Crayfish	

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
Procambarus steigmani	Parkhill prairie crayfish			G1G2	S1S2*	Freshwater Wetland, Grassland	Aquatic - Crustaceans - Crayfish	
Pseudocentroptiloides morihari	A mayfly			G2G3	S2?*	Riverine, Riparian	Aquatic - Insects - Mayflies	
Sphinx eremitoides	Sage sphinx			G1G2	S1?*	Grassland	Terrestrial - Insect - Butterflies/Moths	
Susperatus tonkawa	A mayfly			G1	S1*	Riparian, Riverine	Aquatic - Insects - Mayflies	
PLANTS						J.M. Poole, W.R. Carr, D.M. Price and J.R. Singhurst. 2007. Rare Plants of Texas. Texas A&M University Press, College Station. D.S. Correll and M.C Johnston. 1979. Manual of the Vascular Plants of Texas. The University of Texas at Dallas, Richardson. M.C. Johnston. 1990. The Vascular Plants of Texas: A List Up-dating the Manual of the Vascular Plants of Texas, 2nd Edition. Marshall C. Johnston, Austin. F.W. Gould. 1975. The Grasses of Texas. Texas A & M University Press, College Station. S.D. Jones, J.K. Wipff, and P.M. Montgomery. 1997. Vascular Plants of Texas: A Comprehensive Checklist including Synonymy; Bibliography, and Index. University of Texas Press, Austin. R.A. Vines. 2004. Trees, Shrubs and Woody Vines of the Southwest. Blackburn Press.		
Agalinis densiflora	Osage Plains false foxglove			G3	S2	Savanna/Open Woodland - Outcrops	Terrestrial	N
Astragalus reflexus	Texas milk vetch			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Calopogon oklahomensis	Oklahoma grass pink			G3	S1S2	Savanna/Open Woodland; Grassland; Freshwater Wetland	Terrestrial	N
Carex edwardsiana	canyon sedge			G3G4S3S4	S3S4	Woodland (slopes above Riparian)	Wetland	Y
Carex shinnersii	Shinner's sedge			G3?	S2	Grassland	Wetland	N
Crataegus dallasiana	Dallas hawthorn			G3Q	S3	Riparian (creeks in the Blackland Prairie)	Terrestrial	Y
Cuscuta exaltata	tree dodder			G3	S3	Woodland	Terrestrial	N
Dalea hallii	Hall's prairie-clover			G3	S3	Savanna/Open Woodland; Grassland	Terrestrial	Y
Echinacea atrorubens	Topeka purple-coneflower			G3	S3	Savanna/Open Woodland	Terrestrial	N
Hexalectris nitida	Glass Mountains coral-root			G3	S3	Woodland	Terrestrial	N
Hexalectris warnockii	Warnock's coral-root			G2G3	S2	Woodland	Terrestrial	N
Hymenoxys pygmea	Pygmy prairie dawn			G1	S1	Barren/Sparse Vegetation with Grassland matrix (saline prairie)	currently being described	Y
Liatris glandulosa	glandular gay-feather			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Paronychia setacea	bristle nailwort			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Phlox oklahomensis	Oklahoma phlox			G3	SH	Savanna/Open Woodland	Terrestrial	N
Physaria engelmannii	Engelmann's bladderpod			G3	S3	Savanna/Open Woodland	Terrestrial	Y
Polygonella parksii	Parks' jointweed			G2	S2	Savanna/Open Woodland (sandhills); Grassland	Terrestrial	Y
Prunus texana	Texas peachbush			G3G4	S3S4	Savanna/Open Woodland; Grassland	Terrestrial	Y
Thalictrum texanum	Texas meadow-rue			G2	S2	Savanna/Open Woodland; Riparian (bottomland forest)	Terrestrial	Y
Zizania texana	Texas wild rice	LE	E	G1	S1	Riverine (spring-fed, clear, thermally constant, moderate current, sand to gravel substrate)	Aquatic	Y

Last Update: 10/1/2021

GRAYSON COUNTY

AMPHIBIANS

Eastern Tiger Salamander *Ambystoma tigrinum*

Terrestrial adults generally occur under cover objects or in burrows surrounding a variety of lentic freshwater habitats, such as ponds, lakes, bottomland wetlands, or upland ephemeral pools. The specific terrestrial habitats are also varied and the occurrence of this species seems to be more closely associated with sandy, loamy or other soils which have easy burrowing properties, rather than any particular ecological system type. Requires fishless breeding pools for successful reproduction.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

southern crawfish frog *Lithobates areolatus areolatus*

Terrestrial and aquatic: The terrestial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S3

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Black Rail *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

GRAYSON COUNTY

BIRDS

Chestnut-collared Longspur *Calcarius ornatus*

Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

Rufa Red Knot *Calidris canutus rufa*

Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

GRAYSON COUNTY

BIRDS

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1S2N

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

FISH

american eel *Anguilla rostrata*

Originally found in all river systems from the Red River to the Rio Grande. Aquatic habtiats include large rivers, streams, tributaries, coastal watersheds, estuaries, bays, and oceans. Spawns in Sargasso Sea, larva move to coastal waters, metamorphose, and begin upstream movements. Females tend to move further upstream than males (who are often found in brackish estuaries). American Eel are habitat generalists and may be found in a broad range of habitat conditions including slow- and fast-flowing waters over many substrate types. Extirpation in upstream drainages attributed to reservoirs that impede upstream migration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

GRAYSON COUNTY

FISH

blue sucker *Cycleptus elongatus*

Blue Sucker usually inhabit rapids, riffles, runs and pools with moderate to fast current, with bottoms of exposed bedrock sometimes in combination with hard clay, sand, gravel, and boulders; generally intolerant of highly turbid conditions. Adults winter in deep pools and move upstream in spring to spawn on riffles. Current distribution in Texas includes the Red River downstream of Lake Texoma, Sabine and Neches rivers, and Colorado River downstream of Austin, Texas. May occur in other river systems (Warren et al. 2000).

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3

chub shiner *Notropis potteri*

Brazos, Colorado, San Jacinto, and Trinity river basins. Flowing water with silt or sand substrate

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2

goldeye *Hiodon alosoides*

Restricted to the Red River basin; adults in quiet turbid water of medium to large lowland rivers, small lakes, marshes and muddy shallows connected to them.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

orangebelly darter *Etheostoma radiosum*

Streams, creeks, and small to moderate-sized rivers in the Red River basin. Riffle areas of gravel-bottoms streams with moderate to high currents.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

paddlefish *Polyodon spathula*

Species occurred in every major river drainage from the Trinity Basin eastward, but its numbers and range had been substantially reduced by the 1950's; recently reintroduced into Big Cypress drainage upstream of Caddo Lake. Prefers large, free-flowing rivers but will frequent impoundments with access to spawning sites.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

Red River shiner *Notropis bairdi*

Red River basin; typically found in turbid waters of broad, shallow channels of main stream, over bottom mostly of silt and shifting sand.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

shovelnose sturgeon *Scaphirhynchus platorynchus*

Found only in the Red River below Denison Dam (Lake Texoma). Evidence of the presence of this species in the lower Pecos River, during prehistoric times, strongly suggests that it likely occurred in many Texas rivers. Inhabits flowing water over sandy bottoms or near rocky points or bars.

GRAYSON COUNTY

FISH

Federal Status: SAT | State Status: T | SGCN: Y
Endemic: N | Global Rank: G4 | State Rank: S2

silver chub *Macrhybopsis storeriana*

Red River and Brazos River basins. Mainly restricted to large, often silty rivers. Ranges over gravel to silt substrates but found more commonly over silt or mud bottom.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S3

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status: | State Status: | SGCN: Y
Endemic: | Global Rank: G3G4 | State Rank: SNR

No accepted common name *Bombus variabilis*

Habitat description is not available at this time.

Federal Status: | State Status: | SGCN: Y
Endemic: | Global Rank: G1G2 | State Rank: SNR

MAMMALS

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S5

black bear *Ursus americanus*

Generalist. Historically found throughout Texas. In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status: | State Status: T | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S3

GRAYSON COUNTY

MAMMALS

eastern red bat *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

Muskrat *Ondatra zibethicus*

Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

GRAYSON COUNTY

MAMMALS

swamp rabbit *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

MOLLUSKS

Texas Heelsplitter *Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G3	State Rank: S1

REPTILES

common garter snake *Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S2

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Prairie Skink *Plestiodon septentrionalis*

The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

GRAYSON COUNTY

REPTILES

slender glass lizard *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

smooth softshell *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

timber (canebrake) rattlesnake *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

western chicken turtle *Deirochelys reticularia miaria*

Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T5	State Rank: S2S3

GRAYSON COUNTY

PLANTS

bigflower cornsalad *Valerianella stenocarpa*

Usually along creekbeds or in vernally moist grassy open areas (Carr 2015).

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Hall's prairie clover *Dalea hallii*

In grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides; Perennial; Flowering May-Sept; Fruiting June-Sept

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S2

Sutherland hawthorn *Crataegus viridis var. glabriuscula*

In mesic soils of woods or on edge of woods, treeline/fenceline, or thicket. Above\near creeks and draws, in river bottoms. Flowering Mar-Apr; fruiting May-Oct.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T3T4	State Rank: S3

Last Update: 10/1/2021

DENTON COUNTY

AMPHIBIANS

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Black Rail *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

Chestnut-collared Longspur *Calcarius ornatus*

Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

DENTON COUNTY

BIRDS

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

mountain plover *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

Rufa Red Knot *Calidris canutus rufa*

Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

DENTON COUNTY

BIRDS

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1S2N

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

No accepted common name *Arethaea ambulator*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

MAMMALS

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

DENTON COUNTY

MAMMALS

black-tailed prairie dog *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

eastern red bat *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

DENTON COUNTY

MAMMALS

Muskrat *Ondatra zibethicus*

Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

swamp rabbit *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

western hog-nosed skunk *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. telmalestes

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

MOLLUSKS

Louisiana Pigtoe *Pleurobema riddellii*

Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

Sandbank Pocketbook *Lampsilis satura*

Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic:	Global Rank: G2?	State Rank: S1

DENTON COUNTY

MOLLUSKS

Texas Heelsplitter *Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G3	State Rank: S1

REPTILES

common garter snake *Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S2

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Prairie Skink *Plestiodon septentrionalis*

The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

slender glass lizard *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

smooth softshell *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

DENTON COUNTY

REPTILES

Texas garter snake *Thamnophis sirtalis annectens*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G5T4	State Rank: S1

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

timber (canebrake) rattlesnake *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

western chicken turtle *Deirochelys reticularia miaria*

Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T5	State Rank: S2S3

western rattlesnake *Crotalus viridis*

Terrestrial: Dry desert and prairie grasslands, shrub desert rocky hillsides; edges of arid and semi-arid river breaks.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

DENTON COUNTY

PLANTS

Glen Rose yucca *Yucca necopina*

Grasslands on sandy soils and limestone outcrops; flowering April-June

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S3

Sutherland hawthorn *Crataegus viridis var. glabriuscula*

In mesic soils of woods or on edge of woods, treeline/fenceline, or thicket. Above\near creeks and draws, in river bottoms. Flowering Mar-Apr; fruiting May-Oct.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5T3T4	State Rank: S3

Topeka purple-coneflower *Echinacea atrorubens*

Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides; Perennial; Flowering Jan-June; Fruiting Jan-May

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Last Update: 10/1/2021

COOKE COUNTY

AMPHIBIANS

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

bald eagle *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Black Rail *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

Chestnut-collared Longspur *Calcarius ornatus*

Occurs in open shortgrass settings especially in patches with some bare ground. Also occurs in grain sorghum fields and Conservation Reserve Program lands

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

COOKE COUNTY

BIRDS

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

Lark Bunting *Calamospiza melanocorys*

Overall, it's a generalist in most short grassland settings including ones with some brushy component plus certain agricultural lands that include grain sorghum. Short grasses include sideoats and blue gramas, sand dropseed, prairie junegrass (Koeleria), buffalograss also with patches of bluestem and other mid-grass species. This bunting will frequent smaller patches of grasses or disturbed patches of grasses including rural yards. It also uses weedy fields surrounding playas. This species avoids urban areas and cotton fields.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

mountain plover *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

Rufa Red Knot *Calidris canutus rufa*

Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

COOKE COUNTY

BIRDS

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1S2N

FISH

chub shiner *Notropis potteri*

Brazos, Colorado, San Jacinto, and Trinity river basins. Flowing water with silt or sand substrate

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2

goldeye *Hiodon alosoides*

Restricted to the Red River basin; adults in quiet turbid water of medium to large lowland rivers, small lakes, marshes and muddy shallows connected to them.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

paddlefish *Polyodon spathula*

Species occurred in every major river drainage from the Trinity Basin eastward, but its numbers and range had been substantially reduced by the 1950's; recently reintroduced into Big Cypress drainage upstream of Caddo Lake. Prefers large, free-flowing rivers but will frequent impoundments with access to spawning sites.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

COOKE COUNTY

FISH

Red River pupfish *Cyprinodon rubrofluviatilis*

Native to the upper Red River and Brazos River basins where it is typically found in saline waters of main channels and in saline springs. Introduced populations also exist in the Canadian River and Colorado River basins. River edges, channels, backwaters, over sand bottoms. Males establish spawning territories typically in shallowest waters up to 50 cm over sandy shoals and in small coves with little or no current.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2

Red River shiner *Notropis bairdi*

Red River basin; typically found in turbid waters of broad, shallow channels of main stream, over bottom mostly of silt and shifting sand.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

shovelnose sturgeon *Scaphirhynchus platorynchus*

Found only in the Red River below Denison Dam (Lake Texoma). Evidence of the presence of this species in the lower Pecos River, during prehistoric times, strongly suggests that it likely occurred in many Texas rivers. Inhabits flowing water over sandy bottoms or near rocky points or bars.

Federal Status: SAT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2

silver chub *Macrhybopsis storeriana*

Red River and Brazos River basins. Mainly restricted to large, often silty rivers. Ranges over gravel to silt substrates but found more commonly over silt or mud bottom.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

MAMMALS

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

COOKE COUNTY

MAMMALS

black-tailed prairie dog *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

eastern red bat *Lasiurus borealis*

Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of "wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East, Central, and North Texas but can occur statewide.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat *Lasiurus cinereus*

Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

Muskrat *Ondatra zibethicus*

Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.

COOKE COUNTY

MAMMALS

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S5

swamp rabbit *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G2G3 | State Rank: S2

MOLLUSKS

Texas Heelsplitter *Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status: | State Status: T | SGCN: Y
Endemic: N | Global Rank: G1G3 | State Rank: S1

REPTILES

common garter snake *Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status: | State Status: | SGCN: N
Endemic: | Global Rank: G5 | State Rank: S2

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S3

Pigmy Rattlesnake *Sistrurus miliarius*

The pygmy rattlesnake occurs in a variety of wooded habitats from bottomland coastal hardwood forests to upland savannas. The species is frequently found in association with standing water.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S2S3

COOKE COUNTY

REPTILES

Prairie Skink *Plestiodon septentrionalis*

The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

slender glass lizard *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

smooth softshell *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

timber (canebrake) rattlesnake *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

COOKE COUNTY

REPTILES

western massasauga *Sistrurus tergeminus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3

western rattlesnake *Crotalus viridis*

Terrestrial: Dry desert and prairie grasslands, shrub desert rocky hillsides; edges of arid and semi-arid river breaks.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

PLANTS

Engelmann's bladderpod *Physaria engelmannii*

Grasslands and calcareous rock outcrops in a band along the eastern edge of the Edwards Plateau, ranging as far north as the Red River (Carr 2015).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

Hall's prairie clover *Dalea hallii*

In grasslands on eroded limestone or chalk and in oak scrub on rocky hillsides; Perennial; Flowering May-Sept; Fruiting June-Sept

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S2

Osage Plains false foxglove *Agalinis densiflora*

Most records are from grasslands on shallow, gravelly, well drained, calcareous soils; Prairies, dry limestone soils; Annual; Flowering Aug-Oct

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

Reverchon's scurfpea *Pediomelum reverchonii*

Mostly in prairies on shallow rocky calcareous substrates and limestone outcrops; Perennial; Flowering Jun-Sept; Fruiting June-July

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Shinner's sedge *Carex shinnersii*

Occurs in ditches and swales in prairie landscapes (Carr 2015).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

COOKE COUNTY

PLANTS

Shumard's morning glory *Ipomoea shumardiana*

Known only from two specimens, both collected in 1941 from one site along the Red River, gravelly roadside prairie; Perennial; Flowering June-Aug; Fruiting July

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S1

Topeka purple-coneflower *Echinacea atrorubens*

Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides; Perennial; Flowering Jan-June; Fruiting Jan-May

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

TBPR RARE COMMUNITIES

Common Name	Scientific Name	G RANK	S RANK (Provisional)	ECOLOGICAL SYSTEM *added where relationship can be made at this scale*	ECOREGIONS (Note: other ecoregions are included for cross reference and conservation action coordination if needed)												Known COUNTIES	Endemic	Known PROTECTED AREAS	TERR	WETL	AQU	Comments
					TBPR	*ECPL*	*CRTB*	*EDPT*	*WGCP*	*CGPL*	*GCPM*	*STPL*	*AZNM*	*CHIH*	*HIPL*	*SWTB*							
Bur Oak - Shumard Oak Mixed Bottomland Forest	Quercus macrocarpa - Quercus shumardii - Chasmanthium latifolium Forest	G3?	S3?	South-Central Interior Large Floodplain CES202.705	TBPR	ECPL	CRTB										Anderson, Navarro, Red River and Tarrant	N		X			Newly described association (not in NatureServe). Probably in other North Texas counties.
Eastern Gammagrass - (Switchgrass) Floodplain Herbaceous Vegetation	Tripsacum dactyloides - (Panicum virgatum) Herbaceous Vegetation	G1	S1	Texas Blackland Tallgrass Prairie CES205.684	TBPR	ECPL			WGCP								Austin, Delta, Franklin, Hopkins, Hunt, Smith, Titus and Tyler	Y?	Cowleech Prairie (TNC)		X		Newly defined association including prairies dominated by lowland gammagrass in frequently flooded bottomlands of E Tx. In examples in the upper Sabine watershed, P. virgatum is unimportant or absent. Though widely distributed, examples are rare and small in spatial extent. This community is unrelated to the Tripsacum dactyloides - Panicum virgatum - Sorghastrum nutans - Helianthus maximiliani Herbaceous Assn. and the gammagrass may be genetically distinct.
Eastern Gammagrass - Switchgrass - Yellow Indiangrass - Michaelmas-daisy Herbaceous Vegetation	Tripsacum dactyloides - Panicum virgatum - Sorghastrum nutans - Helianthus maximiliani Herbaceous Vegetation	G1	S1	Texas Blackland Tallgrass Prairie CES205.684	TBPR												Collin, Dallas, Delta, Fannin, Hunt, and Lamar	N	Clymer Meadow Preserve and Mathews Prairie (TNC), Parkhill Prairie (Collin County)	X			Needs better definition. Both T. dactyloides and P. virgatum have upland and lowland variants; this community includes sites which occur in an upland context. NatureServe description lists forbs such as H. maximiliani, Aster ericoides, Acacia angustissima var. hirta etc. which are broadly indicative of Tx blackland prairies; but high quality examples are better characterized by occurrence of "conservative" spps. such as Eryngium yuccifolium, Silphium spp. and other Helianthus spps. Existing remnants are diverse and variable.
Silveus' Dropseed - Longspike Tridens Herbaceous Vegetation	Sporobolus silveanus - Tridens strictus Herbaceous Vegetation	G1G2	S1S2	Texas Blackland Tallgrass Prairie CES205.684	TBPR												Bowie, Fannin, Franklin, Hopkins, Lamar, Rains and Titus	Y?	Tridens Prairie (TNC), Gambill Goose Refuge (City of Paris)	X			May not be distinct from the Sporobolus silveanus - Carex meadii Herbaceous Vegetation. G1G2 is probably appropriate combined rank.
Silveus' Dropseed - Mead's Sedge Herbaceous Vegetation	Sporobolus silveanus - Carex meadii Herbaceous Vegetation	G1	S1	Texas Blackland Tallgrass Prairie CES205.684	TBPR												Bowie, Fannin, Franklin, Hopkins, Lamar, Rains and Titus	Y?	Tridens Prairie (TNC), Gambill Goose Refuge (City of Paris)	X			
Southern Elm - Chinquapin Oak Forest	Ulmus (americana, rubra) - Quercus muehlenbergii Forest	GNR	S1S2?	Western Great Plains Floodplain CES303.678	TBPR		CRTB										Collin, Cooke, Dallas, Denton, Fannin, Grayson and Lamar	N	Caddo National Grasslands (USFS), Spring Creek Forest (City of Garland)	X			Needs better definition. Shumard oak may be a codominant sp. Probably another mesic woodland/"rich woods" association is needed in North Texas with elms, Shumard oak, redcedar in which chinquapin oak may not be present (e.g. Hunt County)
Upper West Gulf Coastal Plain Dry Calcareous (Blackland) Prairie	Schizachyrium scoparium - Sporobolus compositus - Fimbristylis puberula var. puberula Wooded Herbaceous Vegetation	G1G2	S1S2	West Gulf Coastal Plain Northern Calcareous Prairie CES203.377	TBPR												Fannin and Hunt	N	Caddo National Grasslands (USFS)	X			
Vertisol Blackland Prairie	Schizachyrium scoparium - Sorghastrum nutans - Andropogon gerardii - Bifora americana Vertisol Herbaceous Vegetation	G1G2	S1S2	Texas Blackland Tallgrass Prairie CES205.684	TBPR												Austin, Bastrop, Bell, Brazos, Burleson, Collin, Colorado, Dallas, Delta, Ellis, Fannin, Falls, Fayette, Franklin, Freestone, Grayson, Grimes, Hill, Hunt, Kaufman, Lavaca, Lee, Limestone, McLennan, Milam, Navarro, Robertson, Rockwall, Titus, Travis, Washington and Williamson	Y	Leonhardt Prairie (TNC), Kachina Prairie (Tx Land Conservancy easement), Peters Prairie and Riesel Prairie (NPAT)	X			Broadly defined; further definition might be warranted. Remnants are typically small and isolated. Examples in the Fayette Prairie subregion may include Paspalum plicatulum as a codominant and have other affinities with coastal prairies.

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WILDLIFE HABITAT APPRAISAL PROCEDURE (WHAP)
SUMMARY REPORT RAY ROBERTS LAKE MASTER PLAN
TARRANT COUNTY, TEXAS

October 2020

US Army Corps
of Engineers®
Fort Worth District

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Introduction

Habitat assessments were conducted at Ray Roberts Lake on October 5-8, 2020 using Texas Parks and Wildlife Department's (TPWD) Wildlife Habitat Appraisal Procedure ([WHAP] TPWD 1995). WHAP survey point locations were based on points believed or known to have various habitat types and features based on aerial imagery from existing Geographical Information Systems (GIS) data as well as from local knowledge of the area. A total of 87 WHAP points were surveyed, all within U.S. Army Corps of Engineers (USACE) fee boundary (Figures 1A, 1B, and 1C).

The purpose of this report is to describe wildlife habitat quality within the USACE Ray Roberts Lake fee-owned property in Cooke, Denton, and Grayson Counties, Texas. This report is being prepared by the USACE Regional Planning and Environmental Center to provide habitat quality information and inform land classifications as part of the Ray Roberts Lake Master Plan revision process.

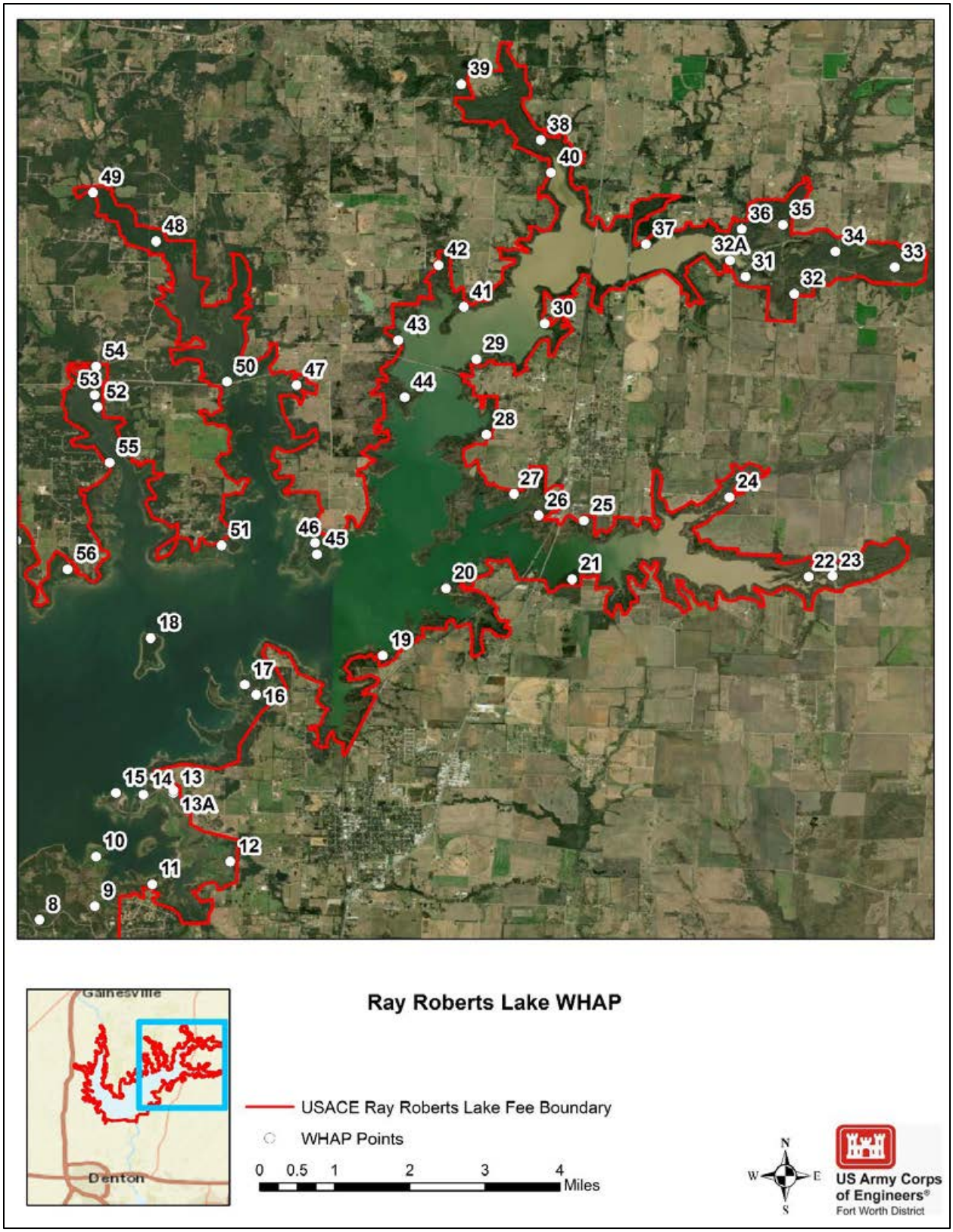

Figure 1. Distribution of WHAP Points within the Eastern Boundary of Ray Roberts Lake

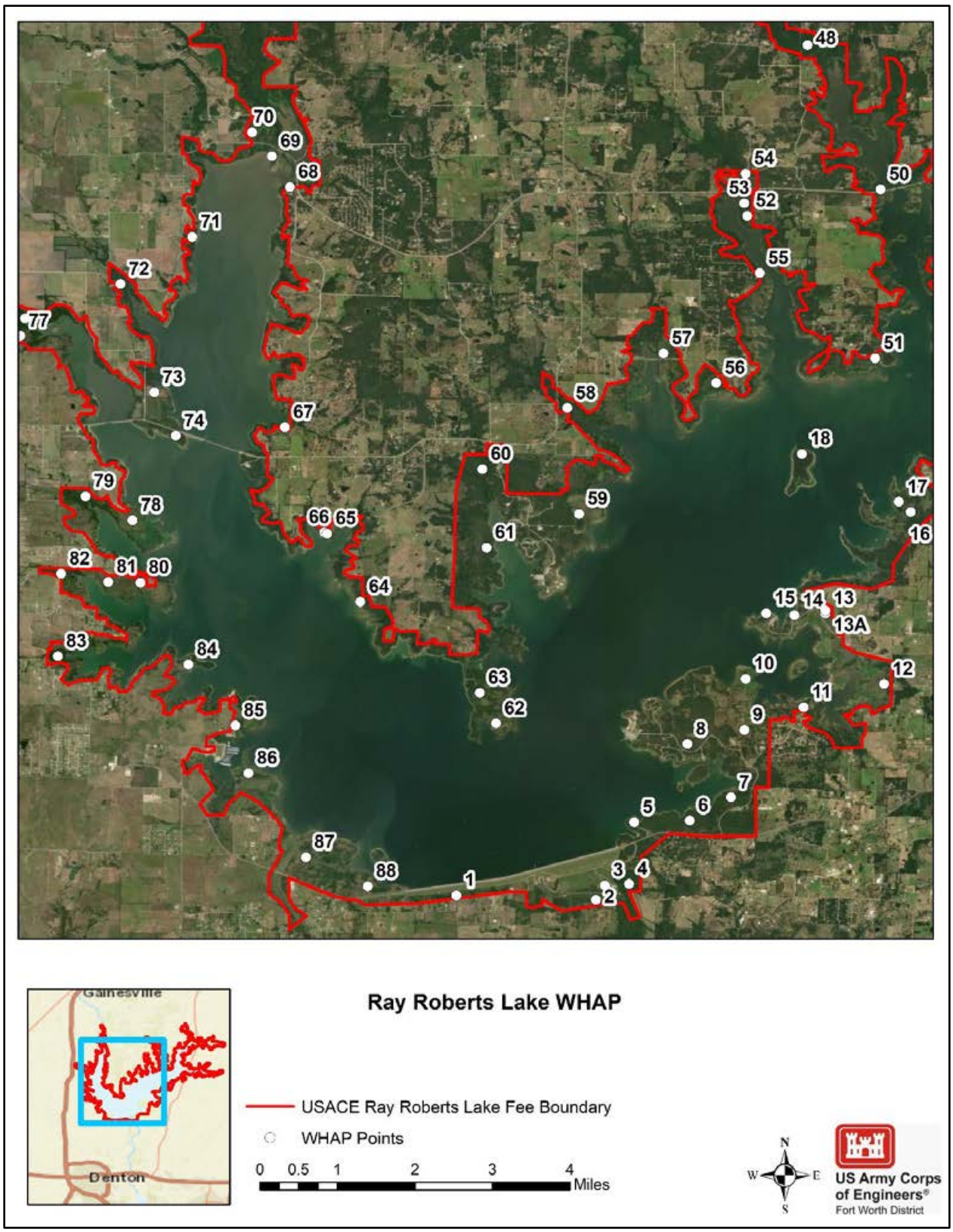

Figure 2. Distribution of WHAP Points within the Center of Ray Roberts Lake

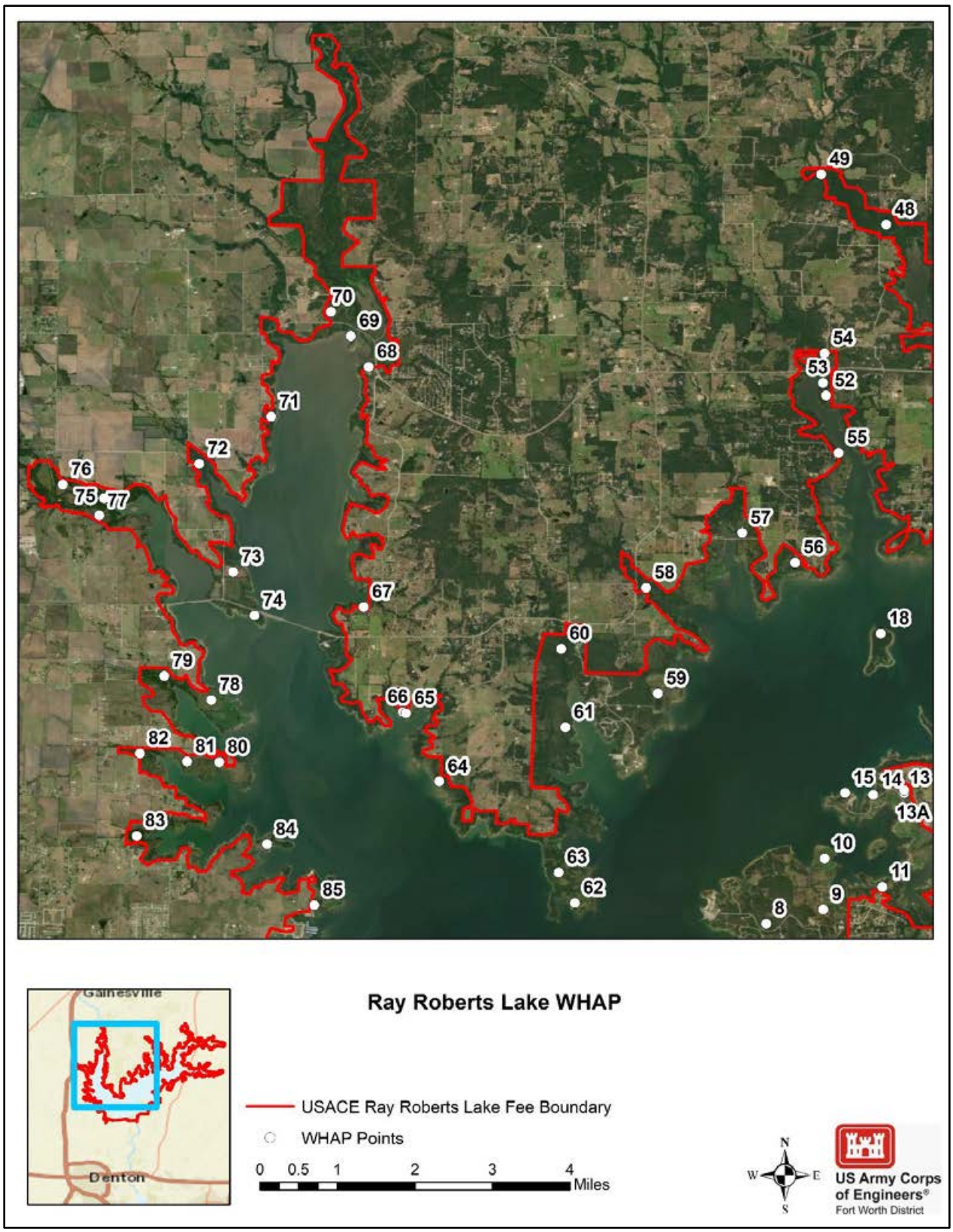

Figure 3. Distribution of WHAP Points within the Western Boundary at Ray Roberts Lake

Study Area

USACE fee owned property at Ray Roberts Lake, approximately 8,745 acres, is located just north of Dallas-Fort Worth Metroplex in north central Texas as displayed in Figure 4 below. More specifically, the lake sits primarily between the cities of Denton and Gainesville, Texas within the Cross Timbers and Texas Blackland Ecoregion. Ray Roberts Lake lies on the Elm Fork of the Trinity River. The major tributaries to the Clear Fork are Denton Creek, Hickory Creek, Clear Creek, Isle Du Bois Creek and Little Elm Creek. Downstream of the Ray Roberts Lake dam, the Elm Fork meanders until its confluence with Lewisville Lake.

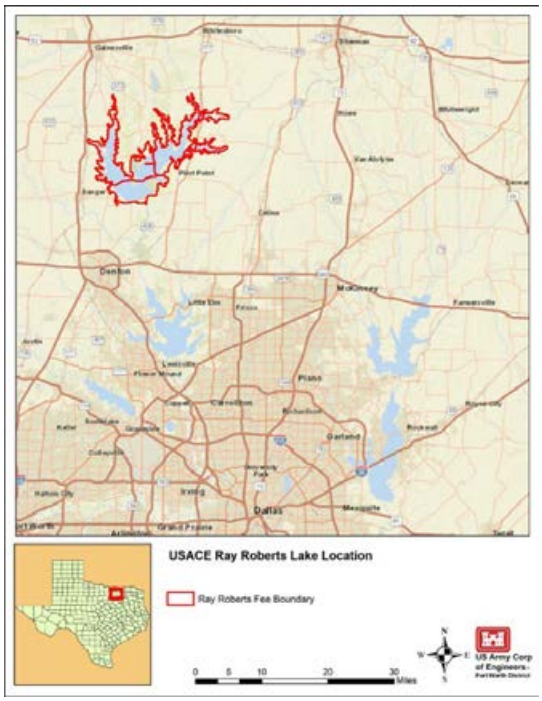

Figure 4 Ray Roberts Lake Vicinity Map

The WHAP requires evaluating representative sites of each cover type present within an area of interest. For this project, a search area of 0.1 acre (circle with radius of 37.2 feet) was used at each WHAP site to compile a list of plant species occurring at each site and to complete the Biological Components Field Evaluation Form (TPWD 1995). Field data collected on the form at each WHAP site included the following components:

1. Site Potential
2. Temporal Development of Existing Successional Stage
3. Uniqueness and Relative Abundance
4. Vegetation Species Diversity
5. Vertical Vegetation Stratification
6. Additional Structural Diversity
7. Condition of Existing Vegetation

The TPWD developed the WHAP to allow a qualitative, holistic evaluation of wildlife habitat for particular tracts of land statewide without imposing significant time requirements in regard to field work and compilation of data (TPWD 1995). The WHAP was not designed to evaluate habitat quality in relation to specific wildlife species.

The WHAP is based on the following assumptions:

1. Vegetation structure including species composition and physiognomy is itself sufficient to define the habitat suitability for wildlife;
2. A positive relationship exists between vegetation diversity and wildlife species diversity;
3. Vegetation composition and primary productivity directly influence population densities of wildlife species.

As designed, the WHAP is intended to be used for the following applications:

1. Evaluating impacts upon wildlife populations from specific development project alternatives.
2. Establishing baseline data prior to anticipated or proposed changes in habitat conditions for specific areas.
3. Comparing tracts of land that are candidates for land acquisition or mitigation.
4. Evaluating general habitat quality and wildlife management potential for tracts of land over large geographical areas, including wildlife planning units.

At each site, a $1/10^{th}$ acre plot was evaluated and points were assigned to all applicable components based on field conditions. A habitat quality score, where values range from 0.0 (low quality) to 1.0 (high quality), was then calculated for each site by adding together all points and multiplying by 0.01. Habitat quality was then determined for all sites within the same habitat type. The scores for each site can be found in Attachment A. Photographs were taken at each site and are included as Attachment B.

The WHAP protocol can be used to assess a wide range of habitats; however, it was originally developed to assess and develop mitigation requirements for loss of bottomland hardwoods and other aquatic habitats. Scores can yield higher results for these habitats based on how the scoring is allotted to each WHAP habitat component. Upland forest and grassland habitat types cannot reach a score indicative of high quality habitat, although they may exhibit high quality features. Subsequently, high quality upland habitat may not be identified or can be overlooked.

Grasslands, in particular, fall into this category. The Site Potential component has a maximum score of 0.25 points and allocates more points based on higher hydrologic connectivity. In order to receive the highest score for this component, the area must exhibit at least one of the following: periodically support predominately hydrophytic vegetation, have predominately undrained hydric soil and supports or is capable of supporting hydrophytic vegetation, and/or is saturated with water or covered by shallow water during 1-2 months of the growing season each year. In a grassland setting, when conditions become conducive to hydrophytic plant growth, a successional shift from a grassland to herbaceous wetlands, swamps, or riparian forest is likely to occur.

Therefore, grasslands would almost always be limited to a maximum score of 0.12 points (uplands with thick surface layers).

Similarly, grasslands would be limited to a maximum of 0.12 points for the Temporal Development of Existing Successional Stage component, whereas other forested habitats could receive the full 0.25 points.

High value grasslands may not have any woody vegetation, nor vegetation that is more than 12 feet tall, and very little additional structural components. To account for this, total scores for areas categorized as grasslands do not reflect the Vegetation Species Diversity component and makes the maximum score for Vertical Vegetation Stratification component as a value of 4 and Additional Structural Diversity component as 1.

These components regularly exclude grassland habitat from receiving the maximum score of 1.00 on the WHAP point scale. In order to identify the maximum score each habitat type can receive, USACE environmental staff scored each criteria given ideal conditions for riparian/bottomland hardwood forest (BHF), upland forest (includes all non-riparian/BHF forests), grassland, and marsh habitats. The maximum value scores, shown in Table 1, were then used to normalize scores for habitats that are prevented from reaching the maximum WHAP score. This is primarily due to arbitrary low scores in the two WHAP components described above. Normalizing habitat scores will identify high quality habitat that would otherwise not be detected.

Table 1. Cover Types and Maximum Total Scores

Cover Type	Component Number								Maximum Total Score
	1	2	3	4	5	6	7	7B	
Marsh	25	20	20	20	NA	5	10	NA	1.00
Riparian/BHF	25	20	20	15	5	5	5	5	1.00
Upland Forest	12	20	20	15	5	5	5	5	0.87
Grassland	12	12	20	0	4	1	5	5	0.59

Riparian/BHF habitats can achieve the maximum score, therefore, no normalization of scores were made for that habitat type. Upland forests and grasslands, however, can only reach within 0.13 and 0.41 points of the maximum WHAP score, even in ideal conditions.

To evaluate all habitat types on an even scoring basis, upland forest and grassland scores were normalized by dividing their original scores by the maximum possible score for their respective habitat types. For example, if a grassland site received an initial score of 0.42, it would be divided by the maximum total points a grassland site can

receive, 0.59. The normalized total score used for further analysis for the grassland site would be 0.75.

This adjustment allows habitat type scores to be analyzed and compared to their corresponding habitat type maximum total score. Rather than, for instance, a grassland being evaluated on a bottomland hardwood scoring scale.

All WHAP scores analyzed and discussed from here forward reflect the normalized total scores. As mentioned above riparian/BHF habitat was not normalized because it already can achieve the maximum score. Grassland scores were normalized by dividing initial scores by 0.59, while all upland forest scores were normalized by dividing the initial score by 0.87.

Habitat

Using TPWD's Texas Ecological Mapping Systems (TPWD 2020), Ray Roberts Lake lies within the Cross Timbers and Blackland Prairie ecoregions. The most common habitat types include marsh, riparian/BHF, upland forest, and grassland (Elliot, 2014). Table 2 displays all habitats surveyed and the number of points surveyed within each respective habitat type.

Table 2. Survey Points per Habitat Type

Habitat Type	Points Surveyed
Riparian/BHF	20
Upland Forest	41
Grassland	23
Marsh	3
Total Points Surveyed	87

Elliot (2014) provided general habitat type descriptions and associated vegetation communities for the Ecological Systems Classification and Mapping Project in support of the Comprehensive Wildlife Conservation Strategy for the Texas Parks and Wildlife Department. These descriptions were meant to be broad and depict typical vegetative assemblages across vast areas as the observable vegetation communities can vary based on local conditions.

Historically, tallgrass prairies consisting of little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardi*), yellow Indiangrass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), eastern gamagrass (*Tripsacum dactyloides*) and many forbs, such as asters (*Aster spp*.), clovers (*Trifolium spp*.), and black-eyed susan (*Rudbeckia hirta*) dominated the region. Before nearly all of the prairie was developed, bison (Bison bison) and pronghorn (*Antilocapra americana*), greater prairie chickens (*Tympanuchus cupido*), and even ocelot (*Leopardus pardalis*) utilized this area. Only an estimated 5,000 widely scattered acres in small tracts remain of the original 12 million

acres of the region, or less than one-tenth of one percent of remaining prairie. Riparian hardwoods, primarily bur oak (*Quercus macrocarpa*), Shumard oak (*Quercus shumardii*), sugar hackberry (*Celtis laevigata*), elm (*Ulmus spec*.), ash (*Fraxinus* spec.), eastern cottonwood (*Populus deltoides*), and pecan (*Carya illinoinensis*), meander this prairie. The headwaters of several east Texas rivers begin in the Blackland Prairie region. In addition, the Trinity, Brazos and Colorado Rivers, and many tributaries of nearly every major system feeding the Gulf of Mexico, originate in or cross the Blackland Prairies (TPWD, 2012B).

Early settlers found the Cross Timbers' woodlands thick and impenetrable. Dominated by post (*Quercus stellate*) and blackjack oak (*Quercus marilandica*), these woodlands were often cleared for farming. Those few remaining woodland tracts can contain trees reaching 200-500 years old. Today juniper (*Juniperus spp*.) and yaupon (*Ilex vomitoria*) are a more abundant component of the Cross Timbers, pockets of prairie are spread throughout agriculture, oil and gas, and urban use areas (TPWD, 2012A). The ecoregion is characterized by moderate but sporadic rainfall. Typical vegetation that can be found in the Cross Timbers include: post oa*k,* blackjack oak*,* black hickory *(Carya texana),* bitternut hickory *(Carya cordiformis),* dwarf chinkapin oak *(Quercus prinoides),* cedar elm *(Ulmus crassifolia)*, oak (*Quercus spp),* little bluestem, sumac *(Rhus spp),* eastern red cedar (*Juniperus virginiana* and honey mesquite (*Prosopis glandulosa).*

Figure 5 displays the distribution of habitat types within the USACE boundary at Ray Roberts Lake. For analysis purposes, habitat types were pooled into one of four categories: marsh, riparian/BHF, upland forest, and grasslands.

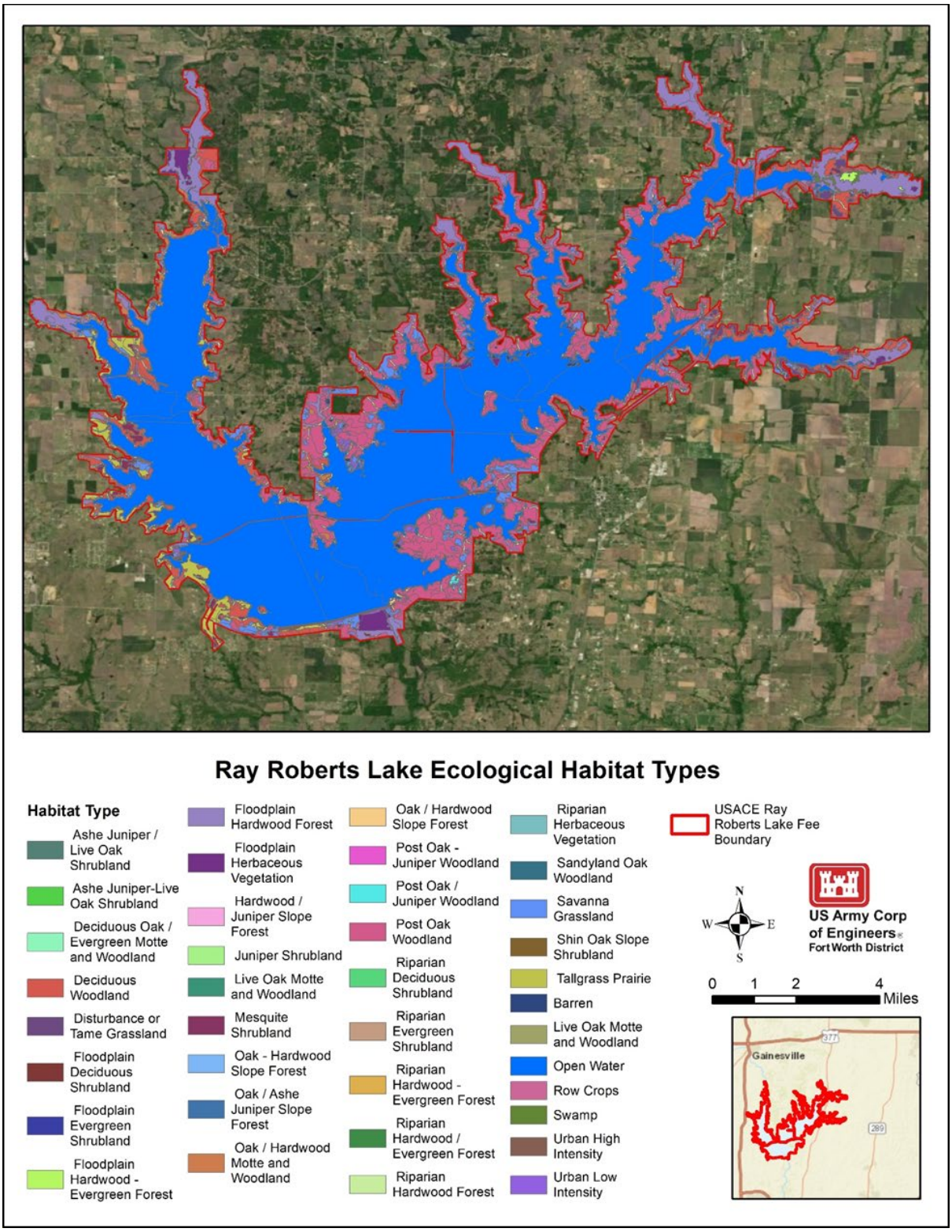

Figure 5. Distribution of Habitat Types within the Fee Owned Boundary at Ray Roberts Lake.

Results and Discussion

The total habitat score for each point surveyed is a representation of multiple habitat attributes including vegetative diversity and structure, site soil potential, successional stage, and uniqueness of that habitat across the landscape. Data analysis highlights are discussed below, while detailed data for each point surveyed can be found in Attachment A: Ray Roberts Lake WHAP Summary Results of this report.

Upland forest (41 sampled) and grassland (23 sampled) were the most abundant habitat types surveyed. Upland forest scores ranged from 0.65 to 0.90 while grassland scores ranged from 0.84 to 1.00. The lower minimum scores, especially for these normally drier upland habitats, may be partly due to long-term flooding that occurred at Ray Roberts Lake in recent years, thus leading to reduced plant diversity. Flooding at lower elevations in the flood pool of Ray Roberts Lake almost certainly led to mortality of the typically upland species of herbaceous plant growth. This certainly affected survey metrics within the inundated areas. Long-term flooding of federal lands is a routine occurrence at typical USACE lakes having a primary mission of flood risk reduction.

The average, maximum, and minimum total scores observed for each habitat type surveyed are shown in Table 3.

Table 3. Average, Minimum, and Maximum Scores per Habitat Type

Habitat Type	Average Total Score	Maximum Total Score	Minimum Total Score
Marsh	0.57	0.61	0.52
Riparian/BHF	0.64	0.81	0.41
Upland Forest	0.65	0.90	0.46
Grassland	0.84	1.00	0.51

Figure 6, Figure 7, and Figure 8 show the range of total scores for all points surveyed (87 sampled) as well as the 3 additional points that were skipped due to inaccessibility or multiple points occurring in the same area. Skipped points show a total score of 0 in Figure 6, Figure 7, and Figure 8. Overall, grassland and riparian/BHF habitats exhibited the highest average total score (0.84 and 0.65). The difference between upland forest and Riparian/BHF is that the Average Total Score is 0.01. With such a close margin, these two habitats are equal in value, which is proof of how the normalizing of scores helps the sites to be evaluated on an equal basis.

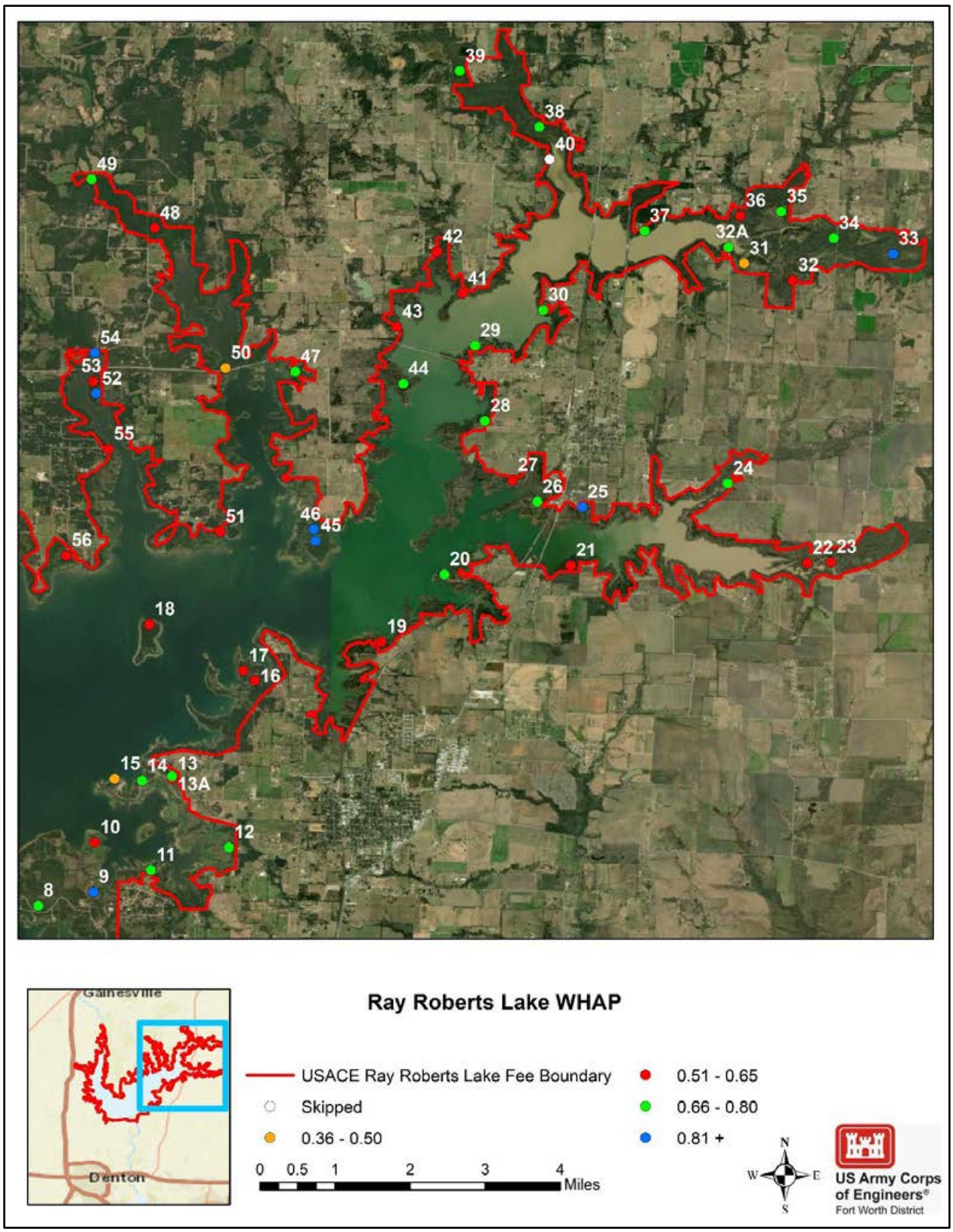

Figure 6. Total Score Range for All Points Surveyed on the Eastern Boundary of Ray Roberts Lake

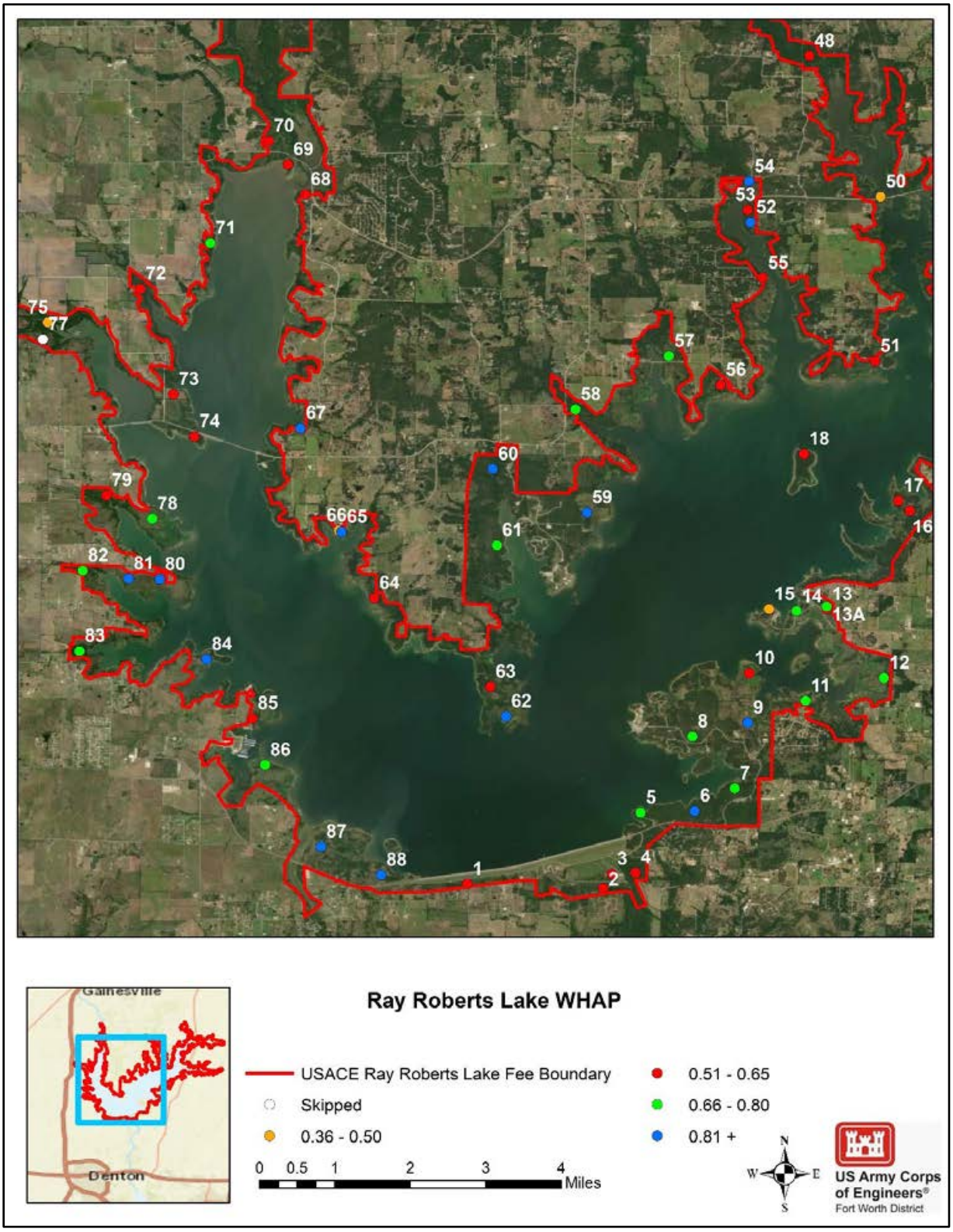

Figure 7. Total Score Range for All Points Surveyed within the Center of Ray Roberts Lake

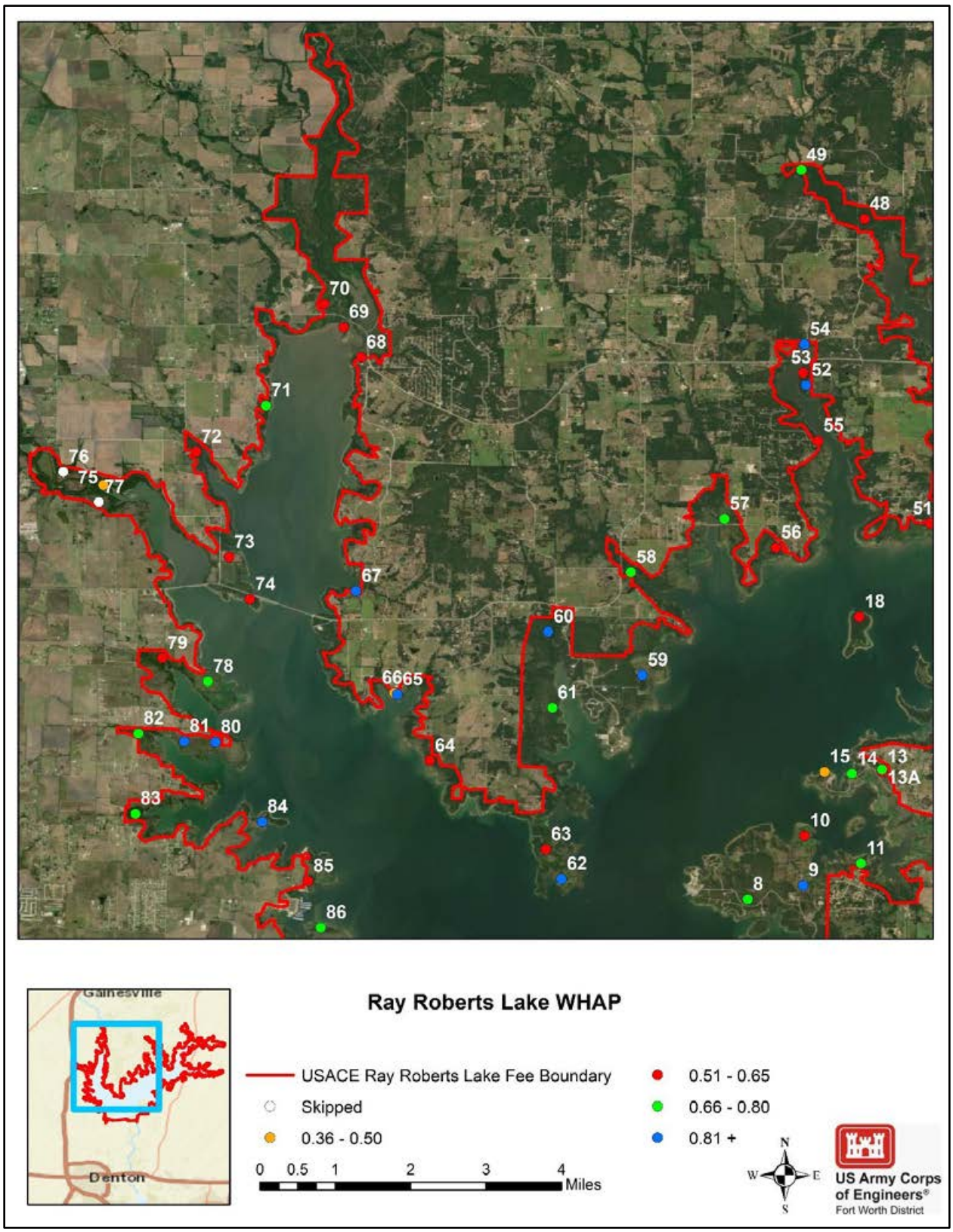

Figure 8. Total Score Range for All Points Surveyed on the Western Boundary of Ray Roberts Lake

Beyond vegetative diversity, the three major metrics within the WHAP scoring criteria that allocate points are for site potential, successional stage, and uniqueness and relative abundance. Table 4 shows these metrics' average score per habitat type.

Table 4. Average Site Potential, Successional Stage, and Uniqueness and Relative Abundance Scores per Habitat Type

Habitat Type	Average Site Potential	Average Successional Stage	Average Uniqueness and Relative Abundance
Marsh	23.33	5.00	11.67
Riparian/BHF	20.20	9.30	10.65
Upland Forest	12.37	9.71	10.24
Grassland	13.04	6.09	10.74

Site potential allocates more points based on soil substrates characteristics and hydrologic connectivity that can support hydrophytic habitats, such as marshes, swamps, and bottomland hardwood forests that are often considered to be higher quality, more diverse habitat. This allows areas to score higher even though a recent disturbance, such as fire or flood, may have removed most of the vegetation. Areas scoring high in site potential but low in other metrics can be targeted for management efforts as these areas' vegetation community response should be favorable, thus increasing habitat value.

Successional stage refers to the age of the vegetative community. Older, mature forests and climax prairies, score higher than younger pole stands or disturbed grasslands because they provide more diverse forage, cover, and niche habitats. These scores are expected to increase across the habitats, except in areas that may not have the soil types to support hydrophytic vegetation or are flooded frequently enough to limit upland forest or grassland growth and development.

Uniqueness and Relative Abundance takes into consideration the rarity of a habitat or vegetative community and its abundance in the region. Ongoing urban expansion has significantly influenced the region's remaining habitat composition. Few large, contiguous patches of habitat remain within the DFW metroplex.

Ray Roberts Lake and the surrounding terrestrial habitat represents one of the remaining patches that have become less abundant across the region. As urban development continues, the remaining habitat at Ray Roberts Lake will likely increase in overall wildlife value and uniqueness.

In total, 11 points (9, 33, 45, 46, 52, 59, 60, 67, 80, 84, and 87) surveyed received a score over 0.90 indicating high quality habitat (Figure 9) in comparison to all the other points. All but one were found in a grassland habitat, but they all had maxed scores for site potential. However; if Figures 6, 7, and 8 WHAP Total Scores are compared to Figure 10 WHAP Maxed Out Site Potential, three areas were identified as to having the greatest potential for improvement. These areas can be found around below Ray Roberts Dam west of Greenbelt Corridor Rd(both sides of the river), north of FM 3002 and east of Co Rd 231,and the area immediately north of Ray Roberts Marina.

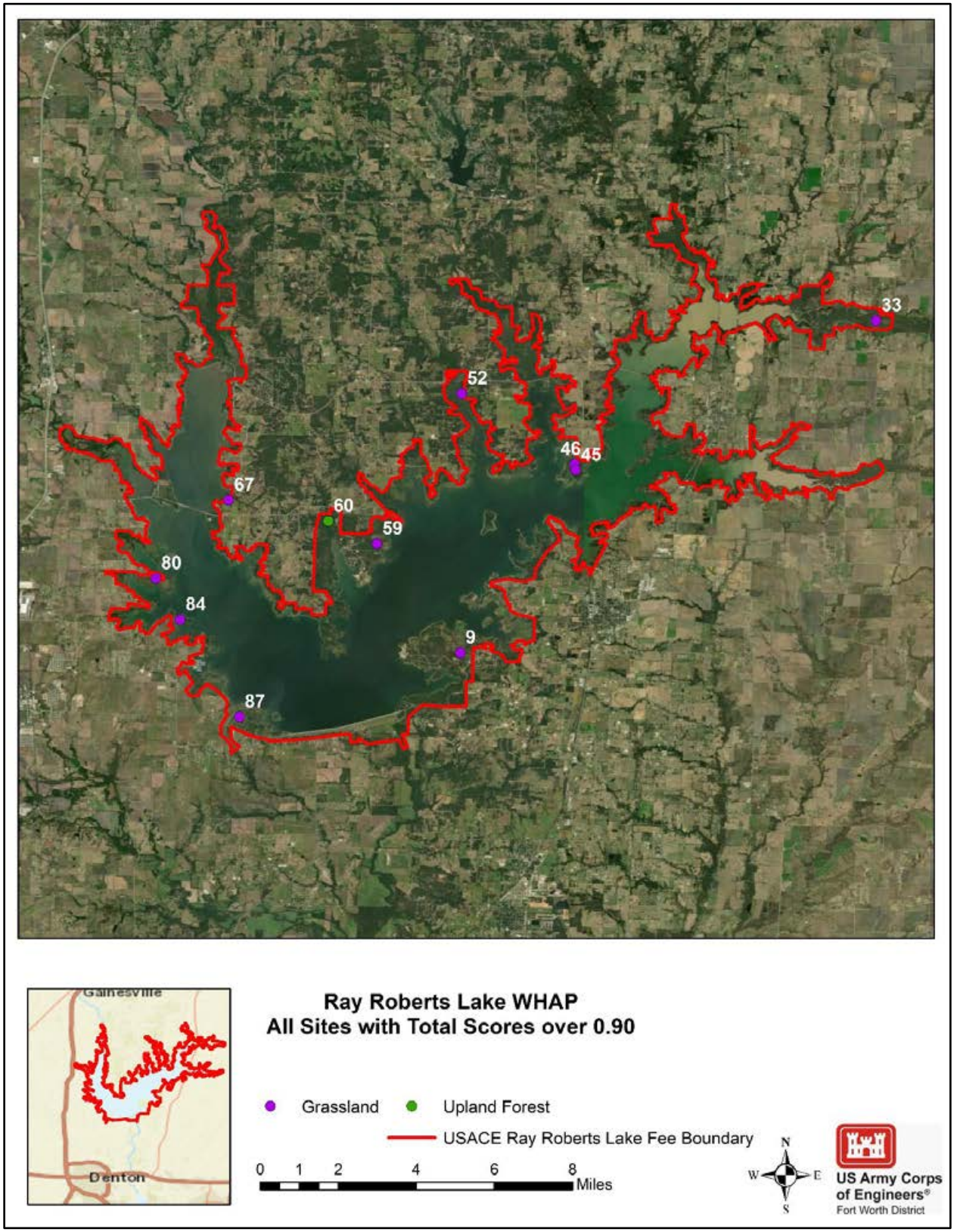

Figure 9. All Sites with Total Scores over 0.90

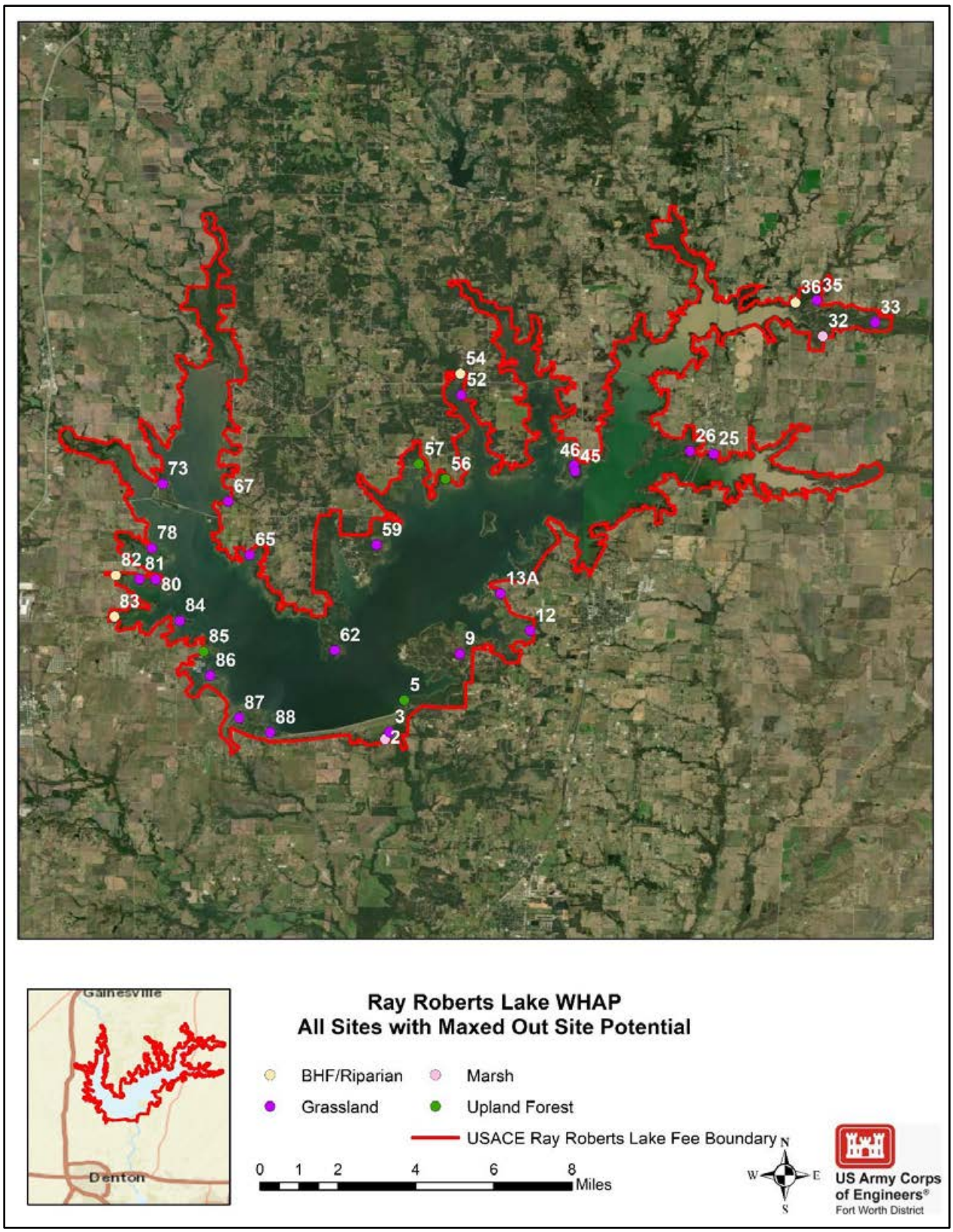

Figure 10. All Sites with Maxed Out Site Potential

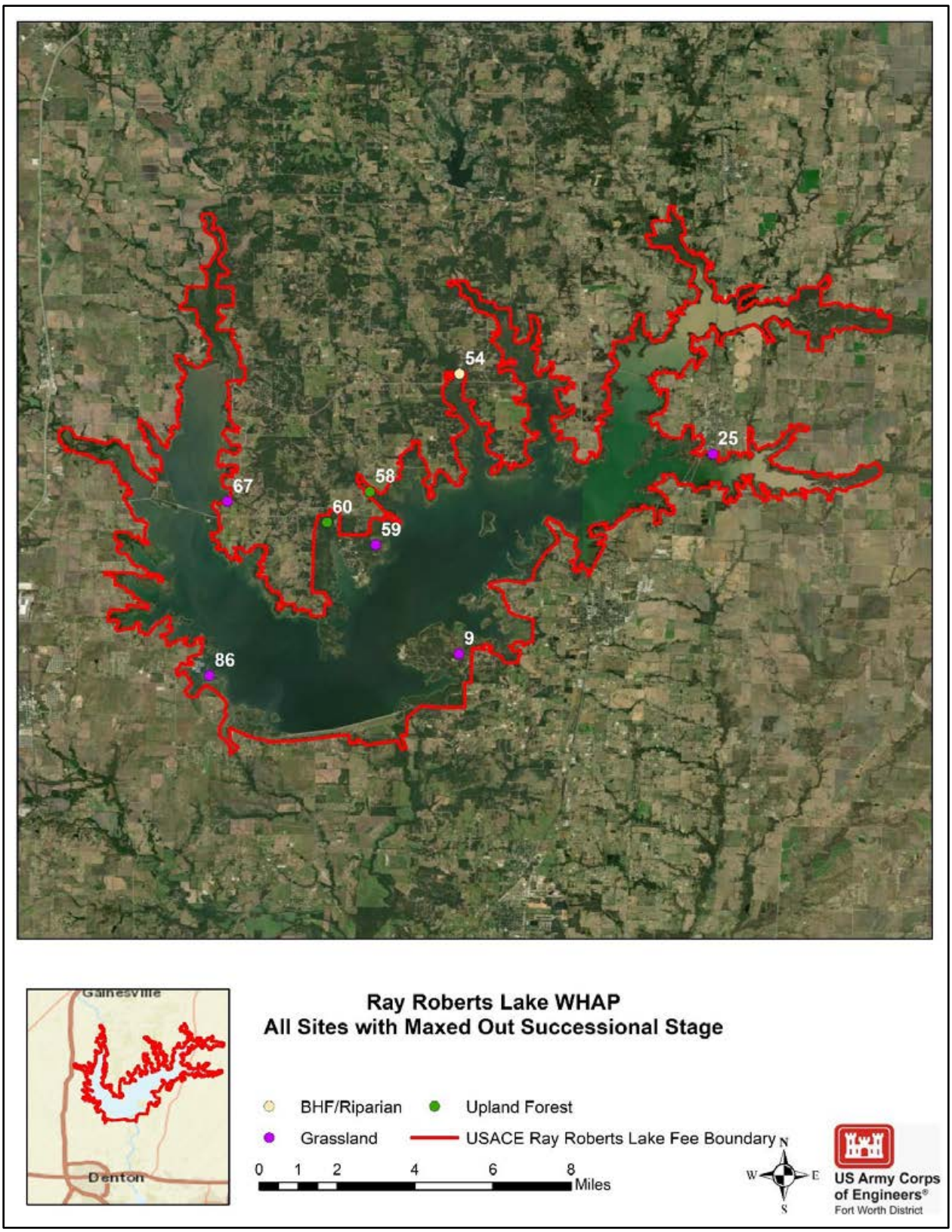

Figure 11. All Sites with Maxed Out Successional Stage

Recommendations

Even with planned and unplanned disturbances, there are numerous areas of valuable wildlife habitat remaining on USACE fee owned property at Ray Roberts Lake.

Overall, habitat management has proven effective in maintaining medium- to high-quality wildlife habitat on USACE lands at Ray Roberts Lake.

Based on the results of the WHAP survey efforts, areas to consider for Wildlife Management or Environmentally Sensitive Areas land classifications include those areas with highest maximum scores. The planning team for the Ray Roberts Lake Master Plan revision will take into account the WHAP scores when making land classification decision.

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Attachment A: Ray Roberts Lake WHAP Results Summary

Point Number	Habitat Type	Final Score	Berry Drupe	Legume/Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
1	Upland Forest	0.56	Hackberry, Privet, Poison Ivy, Sumac, Balloon Vine,	Honey Locust	NA	NA	Cedar Elm,	Juniper spec.	NA	NA	Johnson Grass, Giant Ragweed, Canadian Wildrye, Goldenrod, Western Ragweed, Sedge, Texas Croton, unknown grass, Aster spec., Rain Lily	NA
2	Marsh	0.61	Balloon Vine,	NA	NA	NA	Cedar Elm	NA	NA	Buttonbush, Duckweed	White Aster, Goldenrod, Sumpweed, Giant Ragweed, Cattail, Woolly Croton, Cocklebur, Foxtail Grass, Oxalis, Bushy Bluestem, Purpletop Tridens, Boneset, Hibiscus, Rosette Grass, Sedge, Lovegrass	Wildlife dam, beaver or muskrat
3	Grassland	0.51	NA	NA	NA	NA	NA	NA	NA	NA	White Tridens, Johnson Grass, King Ranch Bluestem, Aster spec., Milkweed, Dropseed, Windmill Grass, Powderpuff Mimosa	Hayfield
4	BHF/Riparian	0.52	Hackberry, Privet, Smilax Spec., Poison Ivy, Coralberry, Dewberry, Mulberry, Persimmon	Lespedeza	NA	Hickory, Post Oak	Cedar Elm, American Elm, Ash	Juniper spec.	NA	NA	Virginia Wildrye, White Heath Aster, Inland Sea Oats, Ruellia, Noseburn, Giant Ragweed, Sedge, Purpletop Tridens, Avens spec., Silverleaf Nightshade, Panicum spec., Pony's Foot	NA
5	Upland Forest	0.76	Hackberry, Coralberry, Hackberry, Smilax Spec., American Beautyberry, Poison Ivy, Virginia Creeper, Yellow Passionvine	Legume vine, Lespedeza	Post Oak, Blackjack Oak,	Hickory	Cedar Elm	Juniper spec.	NA	NA	Rosette Grass. Sedge, Bedstraw, St. Andrew Cross, Parlin's Pussytoe, Stiff Sunflower	NA
6	Upland Forest	0.83	Poison Ivy, American Beautyberry, Smilax Spec., Coralberry, Privet, Dewberry, Hackberry, Mulberry,	Sweet Pea,Lespedeza,	Blackjack Oak	Hickory	Cedar Elm, Prickly Ash	Juniper spec.	NA	NA	St. John Wort, Rosette Grass, Doveweed, Tall Boneset, Purpletop, Lonestar Gumweed, Ironweed, Lovegrass	Sandy with sandstone outcrop, typical crosstimbers
7	Upland Forest	0.69	Dewberry, Persimmon, Virginia Creeper, Smilax Spec., Hackberry, Privet, Coralberry, Mulberry	Sweet Pea,	Blackjack Oak, Unknown Oak	Hickory	Cedar Elm	Juniper spec., Loblolly Pine	NA	Prickly Pear Cactus	Lovegrass, Rosette Grass, Canadian Wildrye, Panic Grass, Saint John's Wort, Bullnettle, Purpletop	Sandy soil, majority pine in entire are
8	Upland Forest	0.74	Poison Ivy, Smilax Spec.	Butterfly Pea, Lespedezia	Post Oak, Blackjack Oak,	Hickory	Cedar Elm, Prickly Ash	NA	NA	Prickly Pear Cactus	Purpletop, Little Bluestem, Goldenrod, Lovegrass, Bullnettle, Rosette Grass, Boneset, Horseweed, Sedge	NA
9	Grassland	1.00	Persimmon, Dewberry	Partridge Pea, Lespedeza	Blackjack Oak,	NA	Winged Elm	NA	NA	NA	Little Bluestem, Indian Grass, White Heath Aster, Purple Aster, Goldenrod, Tall Boneset, Dandelion, Western Ragweed, Aster, Snow on the Praire, Three Awn, Foxtail, Paspalum spec.,	Very good grassland, great habitat
10	BHF/Riparian	0.58	Persimmon	NA	NA	NA	NA	NA	NA	Buttonbush, Black Willow	Cyperus x2, Smartweed, Buttonweed, Snow on the Prairie, Boneset, Marsh Fleabane, Johnson Grass, Foxtail, Rush	NA
11	Upland Forest	0.72	NA	Honey Mesquite	Blackjack Oak	NA	Cedar Elm	Juniper spec.	NA	Prickly Pear Cactus	Foxtail, Big Bluestem, Splitbeard Bluestem, Gay Feather, Goldenrod, Soft Leave Aster, Sand Dropseed, Heath Aster, Indian Grass, Carex, Texas Grama	NA
12	Grassland	0.68	NA	Honey Mesquite, Partridge Pea	NA	NA	NA	NA	NA	NA	Snow on the Prairie, Splitbeard Bluestem, Western Ragweed, Johnson Grass, Japanese Brome, Queen Ann's Lace, Scribner Panicum, Bermuda Grasss, Gumweed, Dropseed, Boneset, Cypress, Canary Grass	NA
13	BHF/Riparian	0.62	Persimmon, Possumhaw, Sumac, Poison Ivy, Dewberry, Ground Cherry,	Honey Locust, Partridge Pea, Dewberry, Poison Ivy	NA	NA	Cedar Elm,	NA	NA	Baccharis	Sedge, Sumpweed, Tridens, Bristlegrass, Boneset, Goldenrod, Passion Flower, Avens spec.., Rosette Grass	NA
13A	Grassland	0.68	Plum,Gum Bumelia	Partridge Pea, Lespedeza	NA	NA	NA	NA	NA	NA	Panicum spec., Tridens, White Tridens, Canadian Wildrye, Old World Bluestem, Ragweed, Milkweed, Goldenrod, Croton spec. x2, Prairie Tea, Three Awn, Yarrow, Thistle, American Germander, American Basketflower	Monarch Caterpillars on Milkweed

Point Number	Habitat Type	Final Score	Berry Drupe	Legume/Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
14	Upland Forest	0.69	Plum, Smilax Spec., Coral Berry, Gum Bumelia	Honey Locust, Lespedeza	Blackjack Oak, Post Oak	NA	American Elm,Cedar Elm	Juniper spec.	NA	Osage Orange, Prickly Pear Cactus	Canadian Wildrye, Oxalis, Panicum spec., Noseburn, Sedge, Rosette Grass, Tridens, Boneset,	NA
15	Upland Forest	0.46	Gum Bumelia, Coral Berry, Smilax Spec.	NA	Post Oak	NA	Cedar Elm	Juniper spec.,	NA	NA	Rosette Grass, Canadian Wildrye	NA
16	Upland Forest	0.54	Gum Bumelia,Smilax Spec.,	NA	Post Oak, Blackjack Oak,	NA	Cedar Elm, Winged Elm	Juniper spec.	NA	Prickly Pear Cactus	Carax	NA
17	Upland Forest	0.64	Persimmon, Smilax Spec., Plum, Yaupon Holly	Lespedeza	Blackjack Oak	NA	Cedar Elm	Juniper spec.	NA	NA	Splitbeard Bluestem, Soft Leaf Aster, Late Purple Aster, Noseburn, Panicum spec., Broomweed, Paspalum spec.,	NA
18	Upland Forest	0.59	Hackberry, Smilax Spec.	Honey Locust, Honey Mesquite	Post Oak	NA	Cedar Elm	Juniper spec.	NA	Prickly Pear Cactus	Carex, Virginia Wildrye, Noseburn, Dropseed, Bermuda Grass, Bardyard Grass, Boneset, Purpletop	NA
19	Upland Forest	0.62	Rubus spec., Wild Plum, Poison Ivy, Hercules Club, Smilax Spec.	Lespedeza	NA	Pecan	Cedar Elm	Juniper spec.	NA	NA	Virginia Wildrye, Johnson Grass, Cocklebur, Western Ragweed, Giant Ragweed, Purpletop Tridens, Woolly Tridens, Purple Passion Flower, Bitter Sneezeweed, Little Bluestem, Guara	NA
20	Upland Forest	0.68	Smilax Spec., Persimmon, Hackberry	Honey Locust, Lespedeza	Post Oak	Hickory	Winged Elm, Green Ash, Cedar Elm	Juniper spec.	NA	NA	Inland Seaoats, Sedge, Rosette Grass, American Germander, Wood Meadow Grass, Boneset	NA
21	Upland Forest	0.60	Smilax Spec.	Downy Milkpea	Blackjack Oak, Post Oak	Hickory	Cedar Elm, Winged Elm,	Juniper spec.	NA	NA	Sedge	Good habitat
22	BHF/Riparian	0.64	Hackberry, Balloon Vine, Soapberry	Memosa, Honey Locust	NA	NA	Green Ash, American Elm	NA	NA	Black Willow	Giant Ragweed,Sumpweed, Virginia Wildrye, Smartweed, Sedge	NA
23	BHF/Riparian	0.55	Hackberry, Snailseed, Balloon Vine,	Honey Locust	NA	NA	Cedar Elm, Ash	NA	NA	NA	Sedge	Good access to water
24	Upland Forest	0.71	Smilax Spec.	Locust	Post Oak	NA	Cedar Elm	NA	NA	Willow	Broomweed, Milkweed, King Ranch Bluestem, unknown weed, Western Ragweed, Tickseed, Foxtail, Fuzzy Cocklebur, Croton spec., Blazing Star, Brome spec.,	Highly variable habitat
25	Grassland	0.88	Blackberry,	Honey Mesquite	NA	NA	NA	Juniper spec.	NA	NA	Broomsedge Bluestem, Oldfield Aster, Goldenrod, Milkweed, Silver Bluestem, Hysop, Western Ragweed, Blazing Star, Brome spec., Tickseed, Broomweed	NA
26	Grassland	0.73	NA	NA	NA	NA	Winged Elm, Cedar Elm	Juniper spec.	NA	NA	Sumpweed,, Broomsedge, Blazing Star, Western Ragweed, Smooth White Oldfield Aster, Hysop, Goldenrod	NA
27	Upland Forest	0.63	Smilax Spec., Persimmon, Chicasaw Plum, Privet, Hackberry, Poison Ivy, Yaupon	Honey Locust	NA	Pecan	Slippery Elm, Cedar Elm	Juniper spec.	NA	Black Willow	Sedge, Cutleaf Grape Fern, Canadian Wildrye, Smartweed, Aster spec.	drainage pond, hog rooted
28	Upland Forest	0.67	Hackberry, Smilax Spec., Poison Ivy, Western Soapberry, Rubus spec., Virginia Creeper, Possumhaw Holly, Tupelo	Honey Locust	Schumard Oak	Pecan	Cedar Elm	Juniper spec.	NA	NA	Virginia Wildrye, Honeysuckle, Sedge, 3 unknown herb, Jepsonia spec.,	NA
29	Upland Forest	0.70	Smilax Spec., Box Elder, Western Soapberry, Haw spec., Hackberry	Eastern Redbud, Locust	Schumard Oak, Post Oak,	NA	Green Ash, Cedar Elm, American Elm	NA	NA	NA	Virginia Wildrye, Sedge	NA
30	Upland Forest	0.68	Smilax Spec., Gum Bumelia, Poison Ivy, Smooth Leaf Sumac, Roughleaf Dogwood	Mesquite	Schumard Oak, White Oak	Pecan	Cedar Elm, Green Ash	Juniper spec.	NA	Prickly Pear Cactus	Sedge, Gayfeather, Goldenrod	NA

Point Number	Habitat Type	Final Score	Berry Drupe	Legume/Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
31	BHF/Riparian	0.41	Balloon Vine,	Honey Locust	NA	NA	NA	NA	NA	NA	Sumpweed, Sedge x2, Eryngo, Tickseed	NA
32	Marsh	0.58	Balloon Vine,	Honey Locust	NA	NA	NA	NA	NA	NA	Nutsedge, Needle Rush, Broad-leaved Cattail, Smartweed, Frogfruit	Feral hogs
32A	Upland Forest	0.74	Smilax Spec., Roughleaf Dogwood, Dewberry, Poison Ivy, Mustang Grape, Decidious Holly, Gum Bumelia, Hackberry, Trumpetvine	Honey Locust, Lespedeza	Schumard Oak, Blackjack Oak	NA	Winged Elm, American Elm, Texas Ash	Juniper spec.,	NA	NA	Passion Flower, Virginia Wildrye, Sedge, Scribner's Panicum, Boneset, Johnson Grass, American Germander, Beggar's Lice, Sumpweed	NA
33	Grassland	0.90	NA	Honey Locust, Mesquite	NA	NA	Cedar Elm, Green Ash	NA	NA	Osage Orange	Sumpweed, Canadian Wildrye, Curlydoc, Sedge, Common Mullen, Cocklebur, Dropseed, Rush	NA
34	BHF/Riparian	0.78	Smilax Spec., Box Elder, Hackberry, Western Soapberry, Mulberry, Rubus spec., Poison Ivy, Possumhaw Holly, Pidgeonberry	Honey Locust	Schumard Oak	Pecan	American Elm, Green Ash	NA	NA	Osage Orange	Sedge x 2, Inland Seaoats, Virginia Wildrye, Giant Ragweed, Violet,	NA
35	Grassland	0.68	Coralberry, Smilax Spec.	Partridge Pea, Mesquite, Honey Locust, Lespedeza	Post Oak	Pecan	NA	Juniper spec.	NA	NA	King Ranch Bluestem, American Basketflower, Western Ragweed, Little Bluestem, Gay Feather, Sneezeweed, Milkweed, Broomweed, Purpletop	NA
36	BHF/Riparian	0.64	Western Soapberry, Hackberry, Boxelder, Pokeweed	Honey Locust	NA	Hickory, Pecan	Green Ash, American Elm	NA	NA	Black Willow, Osage Orange	Cocklebur, Smartweed, Sedge, Water Primrose, Avens spec..	NA
37	BHF/Riparian	0.72	Persimmon, Poison Ivy, Smilax Spec., Mustang Grape, Dewberry, Snailseed, Alabama Supplejack, Balloon Vine	Honey Locust	Shumard Oak	Pecan, Hickory	Box Elder, American Elm	NA	NA	Black Willlow, Cottonwood	Blue Mistflower, Scirups, Cardinal Flower, Scirpus, Sida, Scarlet Toothcup, Smartweed, Sedge, Oxalis, 2 unknown, Nettle, Elephant Foot, Johnson Grass, Bellflower, Joe-Pye Weed, Hyssop, Beggar's Lice, Cocklebur, Barnyard Grass, Scribner's Panicum, Marsh Fleabane, Dayflower,	NA
38	BHF/Riparian	0.66	Possumhaw Holly, Box Elder, Smilax Spec. 2, Hackberry, Rubus spec.,	Honey Locust	Bur Oak	Pecan	Cedar Elm, American Elm	NA	NA	NA	Cardinal Flower, Sedge, Camphorweed, Smartweed	NA
39	BHF/Riparian	0.71	Possumhaw Holly, Gum Bumelia, Chinese Privet, Smilax Spec., Hackberry, Wild Grape, Virginia Creeper, Poison Ivy, unknown vine, Coralberry	NA	Red Oak	Pecan	Green Ash	Juniper spec.	NA	Osage Orange, Mushroom	Inland Seaoats, Canadian Wildrye, Sedge, Cardinal Flower, Aster spec.	NA
40	skipped	0	skipped	skipped	skipped	skipped	skipped	skipped	skipped	skipped	skipped	skipped

Point Number	Habitat Type	Final Score	Berry Drupe	Legume/Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
41	Upland Forest	0.64	Smilax Spec., Possumhaw Holly, Blackhaw, Coralberry, Poison Ivy, Hackberry	Honey Locust	Blackjack Oak, Schumard Oak, Post Oak	Pecan	Green Ash	Juniper spec.,	American Elm, Cedar Elm	NA	Virginia Wildrye	NA
42	Upland Forest	0.64	Smilax Spec., Poison Ivy, Coralberry	Honey Locust, Mimosa, Lespedeza	Post Oak, Bur Oak	Pecan	Cedar Elm, Winged Elm, Green Ash	Juniper spec.,	NA	Prickly Pear Cactus	Brome spec., Giant Ragweeed, Sedge, Virginia Wildrye, Dandelion, Annual Ragweed, Aster spec., Goldenrod	NA
43	Upland Forest	0.64	Smilax Spec., Plum, Coralberry, Yaupon, Poison Ivy, American Beautyberry, Mulberry, unknown vine	Honey Locust,	Post Oak	NA	Cedar Elm	Juniper spec.	NA	Prickly Pear Cactus	Goldenrod, Sedge, Wood Meadow Grass	NA
44	Upland Forest	0.66	Mexican Plum, Hackberry, Smilax Spec., Gum Bumelia, Coralberry, Privet, Winged Sumac, Poison Ivy, Summer Grape, Persimmon, Deciduous Holly	Honey Locust	Post Oak	NA	Cedar Elm	Juniper spec.	NA	NA	Inland Seaoats, American Germander, Canadian Wildrye, Rosette Grass, Sedge, Scribner Panicum	Hog heaven
45	Grassland	1.00	NA	Honey Locust, Lespedeza	NA	Pecan	Green Ash, Cedar Elm	NA	NA	Narrowleaf Willow	Thoroughwort, Sumpweed, Woolly Croton, Smartweed, Sedge, Western Ragweed, Bristlegrass, Sand Dropseed, Goldenrod, Stinging Nettle, Broomsedge Bluestem	NA
46	Grassland	0.93	Wild Plum, Silverleaf Nightshade, Blackberry	Lespedeza	NA	NA	Cedar Elm	Juniper spec.,	NA	Black Willow	Little Bluestem, Goldenrod, King Ranch Bluestem, Broomweed, Western Ragweed, Aster spec., Canadian Wildrye, Broomsedge Bluestem	NA
47	BHF/Riparian	0.68	Smilax Spec. x 2, Hackberry, Unknown Ivy,	Honey Locust	NA	Pecan	American Elm	NA	NA	Black Willow, Buttonbush	Sedge, Smartweed, Ironweed, Cocklebur, Purple Passion Flower	NA
48	BHF/Riparian	0.65	Hackberry, Smilax Spec., Poison Ivy, Possumhaw Holly, Soapberry, Gum Bumelia, Peppervine	NA	NA	Pecan	Ash, Box Elder, Cedar Elm, American Elm	NA	NA	Osage Orange, Moss	Sedge, Smartweed, Ragweed, Boneset, Mistflower, Cockle, Morning Glory, Inland Seaoats, Oxalis, Dayflower, Grass	Some large mature pecans, ground bare from flood
49	Upland Forest	0.71	Poison Ivy, American Beautyberry, Coral Berry, Soapberry, Snailseed, Dewberry, Privet, American Beautyberry,Coral Berry,Possumhaw Holly	Honey Locust,	Shumard Oak, Northern Red Oak	Hickory	Ash, Cedar Elm, Box Elder	Juniper spec.,	NA	Osage Orange, Moss	Inland Seaoats, Sedge, Avens spec.., Canadian Wildrye, Aster spec.	Emergent hardwood,
50	Upland Forest	0.47	Persimmon, Smilax Spec.	NA	Water Oak, Post Oak, Blackjack Oak	Pecan	Winged Elm, Amercan Elm, Cedar Elm	Juniper spec.,	NA	Fern	Sedge, Aster spec.	NA
51	Upland Forest	0.54	Persimmon, Hawthorn, Smilax Spec., Dewberry, Poison Ivy, Sumac,	Honey Locust, Lespedeza	NA	NA	Winged Elm, Ash	Juniper spec.,	NA	Cottonwood,	Golden Rod, Sedge, Canadian Wildrye, Scribner Panicum, Pokeweed, Purpletop Tridens, Giant Ragweed, Cocklebur, nonative Mulberry, Boneset, Frogfruit, Pony Foot, Knotroot Bristlegrass, Western Ragweed, White Heath Aster, Halberd-leaf Rosemallow	Emergent hardwood, prior disturbed area
52	Grassland	0.90	Dewberry, Sand Plum, Chinese Privet,	NA	NA	NA	Cedar Elm	Juniper spec.,	NA	NA	Goldenrod, Beebalm, American Basketflower, Bermuda Grass, Aster spec., Camphor Weed, Aster, Indian Grass, Croton spec., Tall Boneset, Mercury, Western Ragweed, Japanese Brome, Bluebeard	NA

Point Number	Habitat Type	Final Score	Berry Drupe	Legume/Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
53	Upland Forest	0.64	American Beautyberry, Coralberry, Gum Bumelia, Smilax Spec., Poison Ivy	NA	Blackjack Oak	NA	Green Ash, Cedar Elm	Juniper spec.,	NA	NA	Virginia Wildrye, Boneset, Sedge	NA
54	BHF/Ripari an	0.81	Smilax Spec., Persimmon, Trumpet Vine, Balloon Vine, unknown vine spec.,	NA	NA	NA	Green Ash, Cedar Elm	NA	NA	Black Willow	Cardinal Flower, Cypress, Marsh Fleabane, Smartweed,Barnyard Grass, Carex, Foxtail	NA
55	Upland Forest	0.63	NA	NA	Post Oak, Bur Oak, Blackjack Oak,	Black Hickory	Winged Elm	Juniper spec.,	NA	Prickly Pear Cactus	Buckwheat	NA
56	Upland Forest	0.61	Poison Ivy, Hackberry, Chinese Privet	NA	NA	NA	NA	NA	NA	NA	Wild Mercury, Panicum spec., Smartweed, Cypress, Splitbeard Bluestem,Virginia Wildrye, American Germander, Carex Spec., Aster spec. Buck Wheat	NA
57	Upland Forest	0.72	Persimmon	Honey Locust	NA	NA	Cedar Elm, Green Ash, American Elm	Juniper spec.,	NA	NA	Smartweed, Giant Ragweed, Cypress, Carex, Rush, Panicum spec., Sumpweed, Goldenrod, Splitbeard Bluestem, Virginia Wildrye, Boneset	NA
58	Upland Forest	0.79	Hackberry, Poison Ivy, Grapevine, Coralberry, Virginia Creeper, Smilax Spec., Red Mulberry, Mexican Plum	NA	Shumard Oak	Pecan	American Elm, Cedar Elm, Box Elder,	Juniper spec.,	NA	NA	Panicum spec., Cyperus, Sedge x2	NA
59	Grassland	1.00	American Persimmon,	Honey Mesquite	NA	NA	Cedar Elm	NA	NA	NA	Giant Ragweed, Splitbeard Bluestem, Goldenrod, Sumpweed, Aster, Broomweed, Skeleton Weed, Ragweed, Aster, Slim Tridens, Winged Loosestrife	NA
60	Upland Forest	0.90	Hackberry, Smilax Spec. spec., Coralberry, American Beautyberry, Poison Ivy	Wild Pea	Blackjack Oak	NA	Cedar Elm	Juniper spec.,	NA	Chinese Privet	Sedge, Inland Sea Oats, 4 unknowns, Panicum Spec., Buckwheat	NA
61	Upland Forest	0.72	Smilax Spec. spec.,, Poison Ivy, Roughleaf Dogwood, Mulberry, Grape spec., Persimmon	Lespedeza	Post Oak, Schumard Oak	NA	Cedar Elm, Slippery Elm,	Juniper spec.,	NA	Prickly Pear Cactus	Canadian Wildrye, Two Leaved Senna, Wood Meadow Grass, Japanese Brome, Sedge, Fuzzy Croton, Bedstraw, Unknown	NA
62	Grassland	0.81	Dewberry, Smilax Spec., Balloon Vine	Honey Locust	NA	NA	Cedar Elm	NA	NA	Black Willow	Sumpweed,Smartweed, Cocklebur, Little Bluestem, Goldenrod, Foxtail, Hyssop, Yellow Bluestem, American Germander, Western Ragweed, Bitteweed, Begggar's Tick	NA
63	Upland Forest	0.61	Hackberry, Soapberry, Coralberry, Smilax Spec., Privet	Honey Locust	Post Oak	NA	Cedar Elm	Juniper spec.,	NA	Osage Orange	Virginia Wildrye, Sedge, Scribner's Panicum, Switchgrass	NA
64	Upland Forest	0.64	Smilax Spec., Dewberry, Gum Bumelia, Hackberry	Honey Locust, Honey Mesquite	NA	NA	NA	Juniper spec.,	NA	NA	Dichondra, Japanese Brome, Golden Rod, King Ranch Bluestem, Broomweed, Aster x3, Boneset, Rattle, Purpletop Tridens, Snow on the Prairie, Illinois Bundleflower,	NA
65	Grassland	0.88	Dewberry, Hackberry, Flameleaf Sumac,	Honey Locust	NA	NA	Cedar Elm	Juniper spec.,	NA	Prickly Pear Cactus	Goldenrod, Broomweed, Marestale, White Tridens, Paspalum spec., Snow on the Praire, Indian Grass, Broomweed, Barnyard Grass, American Basket Flower, Mint Croton	NA

Point Number	Habitat Type	Final Score	Berry Drupe	Legume/Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
66	Upland Forest	0.48	Dewberry,	Honey Locust	NA	NA	Cedar Elm	NA	NA	NA	Johnson Grass, King Ranch Bluestem, Wild Mercury, Catnip Noseburn, Wood Sorrel, Big Bluestem, Croton spec., Panicum spec., Dropseed, Ragweed, Carex, Splitbeard Bluestem	Lots of King Ranch Bluestem
67	Grassland	1.00	Sandplum, Flameleaf Sumac	Honey Locust, Honey Mesquite	NA	Black Hickory	NA	Juniper spec.,	NA	Prickly Pear Cactus	Beebalm, Dropseed, Aster, Broomweed, Little Bluestem, Blazing Star, Snow on the Prairie, Indian Grass, Canadian Wildrye, Silver Bluestem, Croton spec., Panicum spec., Gay Feather, American Basketflower, Purpletop Tridens, Sideoats Grama, Slim Tridens, Thistle, Foxtail, Goldenrod, Noseburn, Western Ragweed	NA
68	Upland Forest	0.61	Hackberry, Poison Ivy, Smilax Spec., Snailseed, Soapberry, Sorrelvine, Coralberry, Privet, Graybark Grape	Honey Locust,	NA	Hickory	Green Ash	NA	NA	Osage Orange	Sedge x4, Giant Ragweed, Avens spec.., Morning Glory, Virginia Wildrye, Ironweed, Wild Lettuce, Goldenrod	NA
69	Marsh	0.52	Soapberry, Groundcherry,	NA	NA	NA	NA	NA	NA	Black Willow, Willow Primrose	Sedge, Smartweed, unknown grass, Obiwankanobia, Climbing Dayflower, Oxalis, Cocklebur, Camphorweed	NA
70	Upland Forest	0.64	Hackberry, Coral Berry, Smilax Spec., Soapberry, Poison Ivy, Gum Bumelia, Possumhaw Holly,	Eastern Redbud	Post Oak	Shumard Oak	Cedar Elm	Juniper spec.,	NA	Osage Orange	Sedge, unknown grass, Avens spec..	Some mature post oaks
71	BHF/Riparian	0.74	Hackberry, Mustang Grape, Poison Ivy, Smilax Spec., Mulberry Soapberry, Privet, Carolina Snailseed,	Honey Locust	NA	Pecan	Slippery Elm, Green Ash, Box Elder	NA	NA	Prickly Pear Cactus, Black Willow, Buttonbush	Rosette Grass, Sedge, Johnson Grass, Giant Ragweed, Virginia Wildrye, Prairie Tea, Goldenrod, Dewdrop, Scribner's Panicum, Morning Glory, Aster, Morning Glory, Dallis Grass, Indian Hemp, Wild Lettuce	NA
72	BHF/Riparian	0.55	Smilax Spec., Hackberry, Poison Ivy, Dewberry, Persimmon, Soapberry	Honey Locust	NA	NA	Cedar Elm, Winged Elm,Green Ash, Slippery Elm,	Juniper spec.,	NA	NA	Morning Glory, Sedge, Ragweed	NA
73	Grassland	0.64	Poison Ivy, Dewberry, Balloon Vine,	Honey Locust, Mimosa	NA	NA	NA	NA	NA	Moss	Goldenrod, Boneset, Sumpweed, Heath Aster, Woolly Croton, Texas Croton, Marsh Elder, Sunflower, Horsenettle, American Germander, Curly Dock, Ironweed, Johnson Grass, Noseburn, Sedge, Agalinus, Panicum spec.	Hundreds of Monarch Butterflies, possibly former ag, would benefit from burning
74	Upland Forest	0.53	Soapberry, Smilax Spec.,	Honey Locust	NA	Hickory	Cedar Elm, Elm, Ash, Box Elder	NA	NA	Buttonbush, Moss	Sedge, Scribner's Panicum, 3 Seeded Mercury, Giant Ragweed,	NA
75	BHF/Riparian	0.48	Smilax Spec., Soapberry, Hackberry,	Honey Locust	NA	NA	Green Ash, Cedar Elm	NA	NA	NA	NA	NA
76	skipped	0	skipped	skipped	skipped	skipped	skipped	skipped	skipped	skipped	skipped	skipped
77	skipped	0	skipped	skipped	skipped	skipped	skipped	skipped	skipped	skipped	skipped	skipped

Point Number	Habitat Type	Final Score	Berry Drupe	Legume/Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Notes
78	Grassland	0.69	Balloon Vine,	Honey Locust	NA	NA	NA	NA	NA	NA	Rosette Grass, Illinois Bundleflower, Beebalm, White Heath Aster, Snow on the Prairie, One Seed Croton, Boneset, Giant Ragweed,	NA
79	BHF/Riparian	0.55	Hackberry, Smilax Spec., Dewberry, Soapberry, Balloon Vine	Honey Locust	NA	NA	Cedar Elm, Green Ash, Box Elder, Slippery Elm, American Elm	NA	NA	Buttonbush, Osage Orange	Sedge,	NA
80	Grassland	0.92	NA	Honey Locust, Honey Mesquite, Partridge Pea	NA	NA	NA	NA	NA	NA	Boneset, Scribner's Panicum, Sumpweed, Beebalm, Slim Tridens, Illinois Bundleflower, Aster spec., Foxtail, Splitbeard Bluestem, Common Yarrow, Virginia Wildrye, Queen's Ann Lace, Frog Fruit, Goldenrod, Western Ragweed, Broomweed, American Basketflower, Oldfield, Snow on the Prairie, Dropseed, White Brush	NA
81	Grassland	0.85	Balloon Vine,	NA	NA	NA	NA	NA	NA	Buttonbush	Sumpweed, Switchgrass, Illinois Bundleflower, Goldenrod, Giant Ragweed, Aster, Boneset, Smartweed	NA
82	BHF/Riparian	0.78	Hackberry,Smilax Spec., Balloon Vine	Honey Locust	NA	NA	American Elm	NA	NA	Osage Orange, Buttonbush, Cottonwood	Aster, Cyperus, Marsh Flea Bane, Sumpweed, Johnson Grass, Heliotrope, Wild Mercury, Dandelion, Boneset	NA
83	BHF/Riparian	0.75	Balloon Vine,	NA	NA	NA	Green Ash	NA	NA	Black Willow, Buttonbush	Carex, Canary Grass, Marsh Fleabane, Morning Glory, Sumpweed, Rattlebox, Cyperus, Heliotropes, Barnyard Grass, American Germander	NA
84	Grassland	0.98	Hackberry, Chinese Privet, Persimmon, Coralberry,	Honey Locust	NA	NA	Cedar Elm	NA	NA	Osage Orange, Prickly Pear Cactus	Common Yarrow, Goldenrod, False Foxglove, Western Ragweed, Big Bluestem, Broomweed, Virginia Wildrye, Giant Ragweed, Aster, American Basketflower, Snow on the Prairie, Japanese Brome, Queen's Ann Lace, Indian Grass	NA
85	Upland Forest	0.64	Coralberry, Hackberry, Poison Ivy, Western Soapberry, Chinese Privet	Honey Locust	NA	NA	NA	Juniper spec.	NA	Prickly Pear Cactus	Giant Ragweed, Wild Carrot, Buckwheat, Scribner's Panicum, Big Bluestem, Queen's Ann Lace, Noseburn, Aster, Beggar's Lice, Boneset	NA
86	Grassland	0.80	Hackberry, Gum Bumelia, Sand Plum	Honey Locust, Honey Mesquite, Partridge Pea	NA	NA	NA	NA	NA	NA	Beebalm, Mexican Hat, Marestail, Snow on the Prairie, Broomweed, One Seed Croton, Goldenrod, Illinois Bundle Flower, Virginia Wildrye, Silver Bluestem, Splitbeard Bluestem, Silver Bluestem, Japanese Brome, Indian Blanket, Slim Trident, Heath Aster, Noseburn	NA
87	Grassland	0.90	Hackberry,	Honey Mesquite,	NA	NA	NA	NA	NA	Prickly Pear Cactus,	Big Bluestem, Indian Grass, Eryngo, Thistle spec., Goldenrod, Sideoats Gramma, Gayfeather, Western Ragweed, Scribner Panicum, Texas Croton, Yarrow, Crow Poison, Broomweed, Snow on the Prairie, Milkweed, Canadian Wildrye, Sunflower, Illinois Bundleflower	NA
88	Grassland	0.88	Plum, Dewberry	NA	NA	NA	NA	NA	NA	Prickly Pear Cactus	Panicum, King Ranch Bluestem, Splitbeard Bluestem, Little Bluestem, Silver Bluestem, Switchgrass, Gay Feather, unknown herb, Ragweed, Thistle, Camphorweed, Aster, Tickseed, Goldenrod, Croton, Thistle	Prior burn area

Attachment B: Ray Roberts WHAP Point Photographs

Ray Roberts Lake Site #: 1

Facing North

Facing East

Facing West

Facing South

Ray Roberts Lake Site #: 2

Facing North

Facing East

Facing West

Facing South

Ray Roberts Lake Site #: 3

Facing North

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Ray Roberts Lake Site #: 4

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Ray Roberts Lake Site #: 5

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Ray Roberts Lake Site #: 7

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Ray Roberts Lake Site #: 8

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Ray Roberts Lake Site #: 9

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Ray Roberts Lake Site #: 10

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Ray Roberts Lake Site #: 11

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Ray Roberts Lake Site #: 12

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Ray Roberts Lake Site #: 13

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Ray Roberts Lake Site #: 13A

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Ray Roberts Lake Site #: 14

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Ray Roberts Lake Site #: 15

Facing North

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Ray Roberts Lake Site #: 16

Facing North

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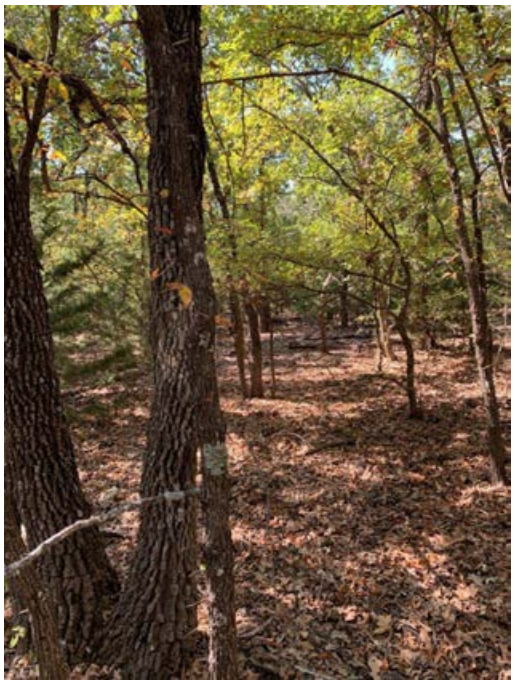
Facing West



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Ray Roberts Lake Site #: 17

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Ray Roberts Lake Site #: 18

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Ray Roberts Lake Site #: 19

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Ray Roberts Lake Site #: 53

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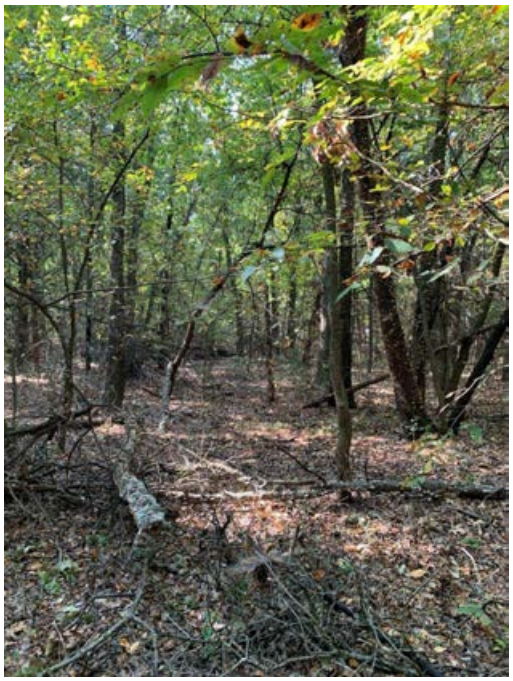

Ray Roberts Lake Site #: 54

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Ray Roberts Lake Site #: 55

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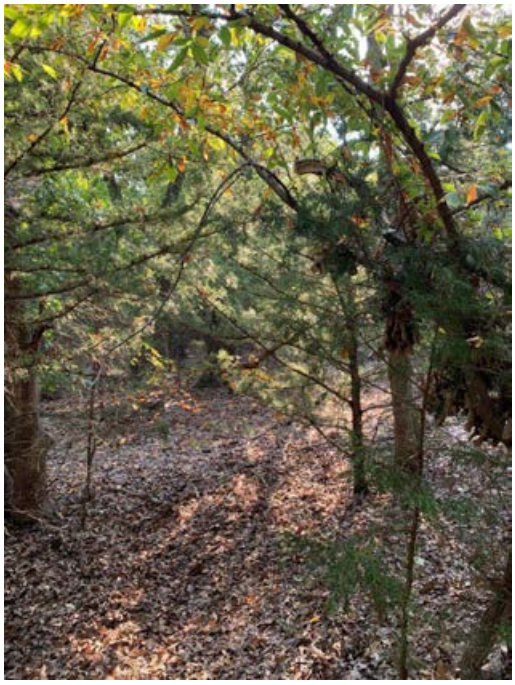

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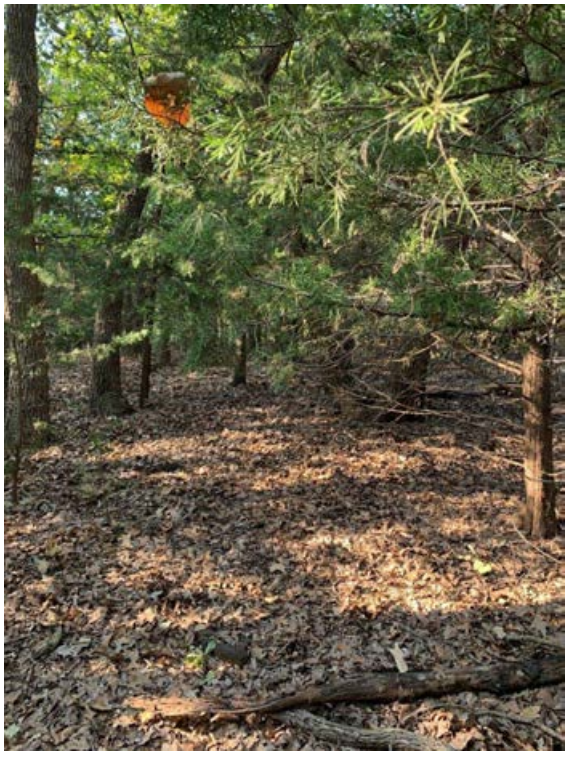

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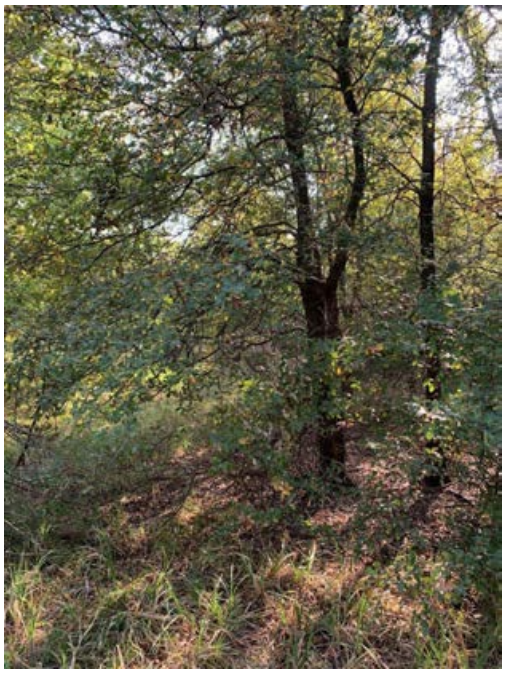

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Ray Roberts Lake Site #: 71

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Ray Roberts Lake Site #: 72

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Ray Roberts Lake Site #: 73

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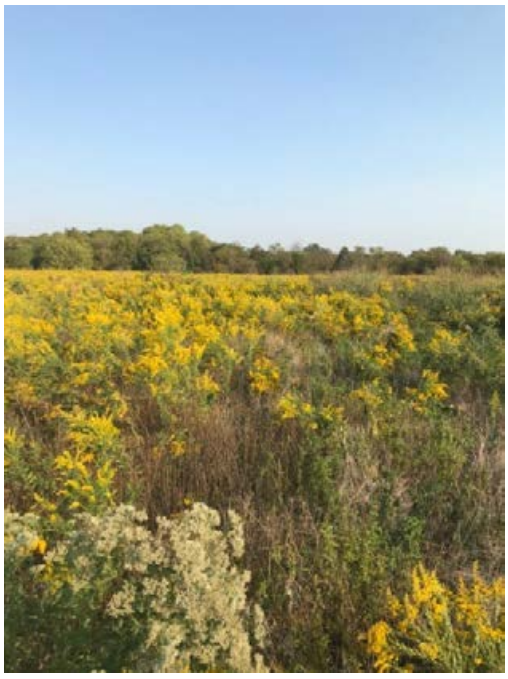

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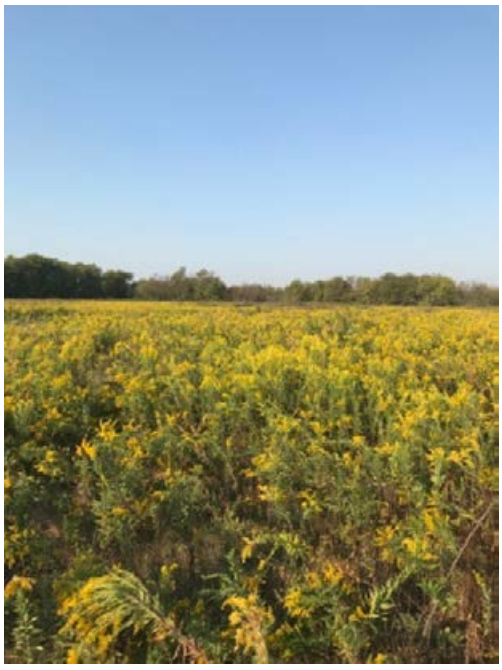

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Ray Roberts Lake Site #: 74

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Ray Roberts Lake Site #: 75

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Ray Roberts Lake Site #: 78

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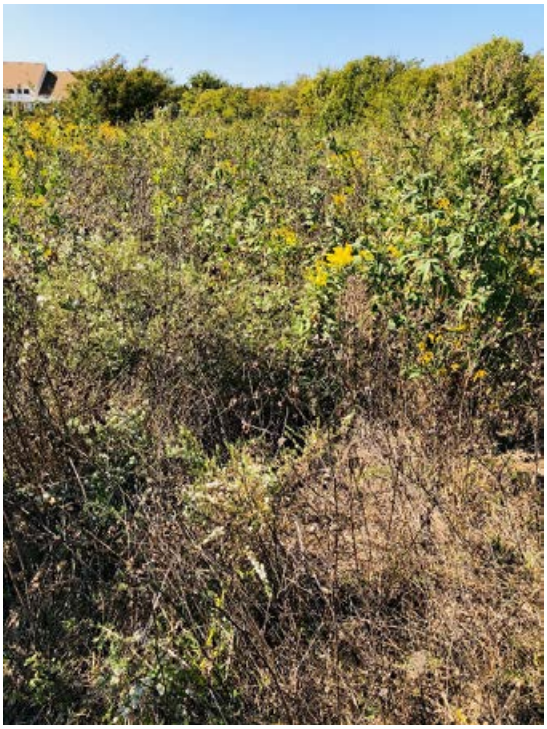

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Ray Roberts Lake Site #: 80

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Ray Roberts Lake Site #: 81

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Ray Roberts Lake Site #: 82

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Ray Roberts Lake Site #: 83

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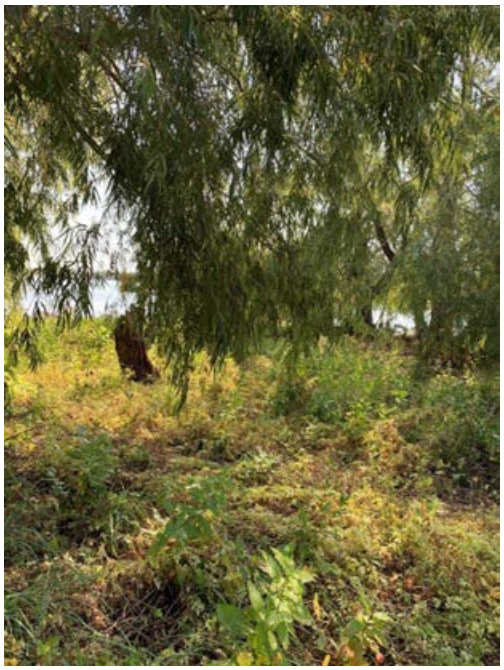

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Ray Roberts Lake Site #: 84

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Ray Roberts Lake Site #: 85

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Ray Roberts Lake Site #: 86

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Ray Roberts Lake Site #: 88

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