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ENVIRONMENTAL CONSULTING • PLANNING • PROJECT MANAGEMENT

Technical Memorandum

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From:	Velma Danielson, GRHCP Project Director (Blanton & Associates, Inc.) Clifton Ladd, HCP Project Manager (Blanton & Associates, Inc.)
Date:	December 17, 2021
Subject:	Proposed Plan Area for the Guadalupe River Habitat Conservation Plan and Incidental Take Permit

The purpose of this memorandum is to present guidance and options for the plan area and permit area for the Guadalupe-Blanco River Authority's (GBRA's) Guadalupe River Habitat Conservation Plan (GRHCP) and Incidental Take Permit (ITP). The size and configuration of the GRHCP *plan* area is ultimately up to GBRA, as the applicant; the U.S. Fish and Wildlife Service (USFWS) encourages applicants to consider a landscape-scale or regional plan area when possible. The *permit* area must be within the plan area.

AGENCY GUIDANCE

HCP Handbook. Section 6.1 of the joint USFWS and National Marine Fisheries Service (NMFS) "Habitat Conservation Planning and Incidental Take Permit (ITP) Processing Handbook" (HCP Handbook) (USFWS and NMFS 2016) discusses the *plan* area and defines it as "all areas that will be used for any activities described in the HCP, including covered activities and the conservation program." The plan area can be thought of as the planning boundary for the HCP—any covered activities or mitigation that the HCP may contemplate will be located within the plan area¹. Section 6.2 of the HCP Handbook discusses the *permit* area, which is the "geographic area where the impacts of the activity(ies) occur for which an incidental take permit coverage is requested (i.e., the covered activities)." One can think of the permit area as where incidental take authorization applies. In smaller HCPs, the plan area is often the same boundary as the permit area. In large-scale HCPs, the plan area may be larger than the permit area.

<u>Criteria to Define the Plan Area and Permit Area</u>. When defining the permit area or a larger plan area boundary, HCP applicants should consider geographic areas meaningful to the specifics of the HCP such as political boundaries, land ownership boundaries, physical boundaries, and ecological boundaries. The following boundaries were considered to determine the plan area and permit area of the GRHCP:

¹ The exception to this rule is species conservation banks. If an HCP conservation strategy proposes to buy credits in an existing conservation bank (or even a future conservation bank), the location of the conservation bank does not necessarily need to be within the HCP plan area. However, the bank service area must overlap with the HCP plan area at least to some degree, or the HCP would not be eligible to purchase credits from that bank.

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- GBRA's jurisdictional boundary (i.e., statutory district),
- locations of future economic growth and development within the Guadalupe River basin area over the course of the permit term,
- locations of other approved HCPs,
- locations of expected covered activities of GBRA and potential second-party take customers,
- boundaries of GBRA Certificates of Convenience and Necessity (CCNs),
- watershed boundaries (e.g., Guadalupe River basin),
- ecological boundaries such as the location of whooping crane (*Grus americana*) wintering habitat, and
- adequate areas for mitigation to account for authorized take for each of the covered species, generally within relatively close proximity to expected impacts of the covered activities.

<u>Preliminary Plan Area</u>. The preliminary plan area for the GRHCP and ITP is shown in Figure 1 (attached) and includes:

- The 10 counties within GBRA's District boundaries: Kendall, Comal, Hays (only the portion of the county within the Guadalupe River basin), Guadalupe, Caldwell, Gonzales, DeWitt, Victoria, Refugio, and Calhoun. GBRA's activities occur within these counties.
- The Colorado River basin portion of Hays County is excluded from the preliminary plan area, as the GBRA does not anticipate conducting activities in that area. The Lower Colorado River Authority (LCRA) does conduct certain activities in that area, and will be responsible for its own permitting and conservation activities.
- The Guadalupe River watershed within counties that are outside of GBRA's District boundaries (12 counties), as appropriate: Real, Kerr, Gillespie, Bandera, Blanco, Travis, Bastrop, Fayette, Wilson, Karnes, Lavaca, and Goliad. These areas are proposed to be in the plan area so that the GRHCP may provide take authorization or implement mitigation within the entire Guadalupe River watershed. This plan area will also allow the GRHCP to provide opportunities for other jurisdictions, districts, and entities with activities similar to the GBRA in the watershed to participate in the GRHCP and obtain incidental take coverage, which is a goal for GBRA as a regional leader. (Note, some of these areas may ultimately be removed from the plan area or permit area based on absence of major contributing streams, species habitats, and/or covered activities).

County	Area of County in Plan Area (acres)	Area of County within Guadalupe River Basin (acres)	County included in GBRA Statutory District?
Aransas	93,716	0	No
Bandera	9,889	9,889	No
Bastrop	24,989	24,989	No
Blanco	104,324	104,324	No

Table 1.	Counties	within	the	Preliminary	⁷ Plan	Area
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County	Area of County in Plan Area (acres)	Area of County within Guadalupe River Basin (acres)	County included in GBRA Statutory District?
Caldwell	350,499	313,371	Yes
Calhoun	348,218	546	Yes
Comal	368,048	305,456	Yes
DeWitt	582,540	440,007	Yes
Fayette	45,391	45,391	No
Gillespie	20,470	20,470	No
Goliad	125,482	125,482	No
Gonzales	684,504	677,902	Yes
Guadalupe	456,885	346,357	Yes
Hays	241,221	241,221	Yes
Karnes	31,743	31,743	No
Kendall	423,822	322,652	Yes
Kerr	494,281	494,281	No
Lavaca	5,420	5,420	No
Real	109	109	No
Refugio	497,868	0	Yes
Travis	3,540	3,540	No
Victoria	569,176	251,170	Yes
Wilson	34,152	34,152	No
TOTAL	5,654,315	3,798,472	-

Table 1. Counties within the Preliminary Plan Area

The plan area for the GRHCP includes the northern portion of Aransas County, north of Aransas and Copano bays (approximately 93,716 acres; see **Figure 1**). GBRA's existing and anticipated future operations do not include any areas in Aransas County, but the northern portion of Aransas County contains the Aransas National Wildlife Refuge (NWR) and surrounding lands that provide potential conservation opportunities for the whooping crane, a proposed covered species. The inclusion of the northern portion of Aransas NWR.

The plan area will continue to be evaluated and refined as the HCP planning effort progresses. When the covered activities are further defined, GBRA will define the permit area as either the same as the plan area or an area smaller than the plan area.

Ecoregions Associated with the Plan Area. Nine ecoregions occur within the plan/permit area for the GRHCP (Griffith et al. 2007; see **Figure 2**). General descriptions for these regions are included below, proceeding from north to south along the plan area. These descriptions will be included in the existing conditions chapter of the HCP. **Table 2** provides the area and percent of each ecoregion within the preliminary plan area.

Table 2. Ecoregions within the Preliminary Plan Are	a	

Ecoregion Name	Area in Preliminary Plan Area (acres)	Percent of Preliminary Plan Area
Edwards Plateau Woodland	192,383	3.5%
Balcones Canyonlands	1,347,550	24.5%

Ecoregion Name	Area in Preliminary Plan Area (acres)	Percent of Preliminary Plan Area
Southern Blackland/Fayette Prairie	353,631	6.4%
Southern Post Oak Savanna	1,616,680	29.4%
Southern Subhumid Gulf Coastal Prairies	488,573	8.9%
Floodplains and Low Terraces	59,372	1.1%
Northern Blackland Prairie	536,028	9.7%
Northern Humid Gulf Coastal Prairies	626,444	11.4%
Mid-Coast Barrier Islands and Coastal Marshes	283,683	5.2%
TOTAL	5,504,344	100.0%

Table 2. Ecoregions within the Preliminary Plan Area

Edwards Plateau Woodland. The Edwards Plateau Woodland ecoregion occurs in the central portion of the Edwards Plateau, which contains flat beds of limestone. Rolling hills and broad flat valleys are characteristic of this ecoregion. Additionally, solution and chemical weathering of the limestone beds resulted in a system of sinkholes, underground fissures, and caverns (karst). Historically, this region consisted of a savanna punctuated by mottes of plateau live oak (*Quercus fusiformis*), Texas oak (*Q. buckleyi*), and Ashe juniper (*Juniperus ashei*). These mottes also contained other shrubs, including Texas persimmon (*Diospyros texana*) and agarita (*Mahonia trifoliolata*). In grazed area, grasses like curlymesquite (*Hilaria belangeri*) and Texas wintergrass (*Nassella leucotricha*) have displaced prairie grasses like little bluestem (*Schizachyrium scoparium*), yellow Indiangrass (*Sorghastrum nutans*), sideoats grama (*Bouteloua curtipendula*), and Texas cupgrass (*Eriochloa sericea*). Riparian areas in this region contain sycamore (*Platanus occidentalis*), ash (*Fraxinus spp.*), black willow (*Salix nigra*), little walnut (*Juglans microcarpa*), and eastern cottonwood (*Populus deltoides*).

Balcones Canyonlands. The Balcones Canyonlands ecoregion occurs along the southern boundary of the Edwards Plateau. It is characterized by highly dissected streams, canyons, sinkholes, and caverns (karst). The Balcones Canyonlands is distinguished by its relative abundance of water and its escarpment topography, which supports a variety of habitats and high species diversity and wildlife numbers. Moist caves support endemic species of fish and salamanders, while several endemic and rare plant species have evolved to grow in limestone habitats, such as crevice seeps and springs. Riparian areas in this area typically contain bald cypress (*Taxodium distichum*), sycamore, black willow, slippery elm (*Ulmus rubra*), Ohio buckeye (*Aesculus glabra*), boxelder (*Acer negundo*), bigtooth maple (*Acer grandidentatum*), and Carolina basswood (*Tilia americana* var. *caroliniana*). Upland woodlands are dominated by Texas oak, plateau live oak, Texas persimmon, Ashe juniper, and cedar elm (*Ulmus crassifolia*). Minimally disturbed grasslands contain little bluestem, yellow Indiangrass, and sideoats grama, while grazed areas are dominated by Texas wintergrass and threeawn grasses (*Aristida* spp.).

Northern Blackland Prairie. The Northern Blackland Prairie contains rolling to nearly level plains and is characterized by dark clay soils that shrink when dry and swell when wet, creating cracks and soil movement. The shrink/swell clays contain gilgai microtopography, which consists of small knolls and small depressions. These small variations influence the composition of plant communities. Historically, this

ecoregion was dominated by a vast expanse of tallgrass prairie, which has been modified by human activity, like ranching, farming, and urbanization. Much of the native prairie has been converted to cropland and non-native pasture dominated by Johnsongrass (*Sorghum halepense*), Bermudagrass (*Cynodon dactylon*), or King Ranch bluestem (*Bothriochloa ischaemum*). Riparian areas were often wooded and were dominated by bur oak (*Q. macrocarpa*), Shumard oak (*Q. shumardii*), sugar hackberry (*Celtis laevigata*), elm (*Ulmus spp.*), ash, eastern cottonwood, and pecan (*Carya illinoinensis*).

Southern Post Oak Savanna. The Southern Post Oak Savanna ecoregion contains dissected and irregular topography. It was historically a post oak savanna and has been converted to a mix of post oak woods, improved pasture, and rangeland, with some invasive mesquite to the south. This ecoregion supports the endangered Navasota ladies'-tresses (*Spiranthes parksii*), primarily along the edges of post oak woodlands in sandy loams, near intermittent streams. Oak savannas and oak-history forests canopies are dominated by post oak (*Q. stellata*), blackjack oak (*Q. marilandica*), and black hickory (*Carya texana*), with an understory of yaupon (*Ilex vomitoria*), eastern redcedar (*Juniperus virginiana*), winged elm (*Ulmus alata*), American beautyberry (*Callicarpa americana*), and farkleberry (*Vaccinium arboreum*). Grasses include little bluestem, purpletop (*Tridens flavus*), curly threeawn (*Aristida desmantha*), and yellow Indiangrass.

Southern Blackland/Fayette Prairie. The Southern Blackland Prairie ecoregion, which is also known as the Fayette Prairie, is similar to the Northern Blackland Prairie. It is more dissected than the Northern Blackland Prairie, but elevations are generally lower, and there are fewer areas of cropland. The Southern Blackland Prairie also contains gilgai microtopography. This region was likely dominated by big bluestem (*Andropogon gerardii*) where Mollisol soils occur and by little bluestem and brownseed paspalum (*Paspalum plicatulum*) where Alfisol soils occur. This region contains some wooded areas, which are dominated by post oak, blackjack oak, and eastern redcedar. Wooded riparian corridors contain bur oak, Shumard oak, sugar hackberry, elm, ash, eastern cottonwood, and pecan.

Northern Humid Gulf Coastal Prairies. The Northern Humid Gulf Coastal Prairies are a gently sloping, mostly flat, coastal plain. This ecoregion generally has poor drainage due to the low relief and clay subsoils. Tallgrass grassland, dominated by little bluestem, yellow Indiangrass, brownseed paspalum, gulf muhly (*Muhlenbergia capillaris*), and switchgrass (*Panicum virgatum*), with post oak mottes historically dominated this area.

Floodplains and Low Terraces. The Floodplains and Low Terraces ecoregion of the Western Gulf Coastal Plain contains the floodplains of the Brazos, Colorado, Navidad, Lavaca, Guadalupe, San Antonio, and Nueces rivers. The bottomland forests in this region primarily contain pecan, water oak (*Q. nigra*), southern live oak (*Q. virginiana*), elm, ash, sugar hackberry, eastern cottonwood, black willow, with some bald cypress. Pasture and cropland have replaced large portions of these bottomland forests.

Mid-Coast Barrier Islands and Coastal Marshes. The Mid-Coast Barrier Islands and Coastal Marshes ecoregion of the Western Gulf Coastal Plains span the Texas coast from Galveston Bay south to Corpus Christi Bay. This ecoregion is characterized by saline, brackish, and freshwater marshes, barrier islands, and tidal flats. Copano and Mesquite bays attract whooping cranes and other birdlife. It supports the commercially important shrimp (*Penaeus* spp.) and blue crab (*Callinectes sapidus*) fisheries. In saline

zones, vegetation typically consists of smooth cordgrass (*Spartina alterniflora*), marshhay cordgrass (*S. patens*), and coastal saltgrass (*Distichlis spicata*). Grasslands are dominated by seacoast bluestem (*Schizachyrium scoparium* var. *littorale*), sea-oats (*Uniola paniculata*), common reed (*Phragmites australis*), gulfdune paspalum (*Paspalum monstachyum*), and soilbind morning-glory (*Ipomoea pescaprae*).

Southern Subhumid Gulf Coastal Prairies. The Southern Subhumid Gulf Coastal Prairies ecoregion of the Western Gulf Coastal Plains are a mostly flat coastal plain with low gradient streams containing sandy, silty, and clayey substrates. Much of this ecoregion is now used as cropland and rangeland. Prior to human activities, little bluestem, yellow Indiangrass, and tall dropseed (*Sporobolus asper*) dominated the prairies. Disturbances in this region have led to the invasion of honey mesquite (*Prosopis glandulosa*), huisache (*Vachellia farnesiana*), blackbrush (*V. rigidula*), and granjeno (*Celtis pallida*).

<u>Major River Systems in the Plan Area</u>. The major rivers and streams that occur within the GRHCP plan area include the entirety of the Guadalupe River, Blanco River, and San Marcos River, and portions of Cibolo Creek and the San Antonio River. The preliminary plan area also overlaps with watersheds in other river systems within the 10 counties comprising GBRA's jurisdictional boundary. Based on the National Hydrography Dataset (NHD) 8-digit Hydrologic Unit Codes (HUCs), all or portions of the watersheds listed below occur within the plan area (U.S. Geological Survey [USGS] 2021).

Guadalupe River Basin

- Upper, Middle, and Lower Guadalupe (HUCs 12100201, 12100202, 12100204, respectively)
- San Marcos (HUC 12100203)

Other River and Coastal Basins

- Pedernales (HUC 12090206)
- Austin-Travis Lakes (HUC 12090205)
- Medina (HUC 12100302)
- Cibolo (HUC 12100304)
- Lower Colorado-Cummins (HUC 12090301)
- Lavaca (HUC 12100101)
- West Matagorda Bay (HUC 12100402)
- Lower San Antonio (HUC 12100303)
- Aransas Bay (HUC 12100405)
- East San Antonio Bay (HUC 12100403)

Of these watersheds, the major rivers that do not directly cross the plan area include the Pedernales River, Colorado River, Medina River, and Lavaca River. Cibolo Creek runs along the western boundary of the plan area, in Comal and Guadalupe counties. The San Antonio River runs along the southwestern boundary of the plan area, in Goliad and Refugio counties.

REFERENCES

- Griffith, G., S. Bryce, J. Omernik, and A. Rogers. 2007. Ecoregions of Texas. Texas Commission on Environmental Quality. Austin, TX. 125p.
- U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). 2016. Habitat Conservation Planning and Incidental Take Permit Processing Handbook. 361 pp + apps. <u>https://www.fws.gov/endangered/what-we-do/hcp_handbook-chapters.html.</u>
- U.S. Geological Survey (USGS). 2021. National Hydrography Dataset. Available at <u>https://www.usgs.gov/core-science-systems/ngp/national-hydrography</u>.

Attachments

Figures



