



Environmental Services, Inc.

26 July 2022

Jason McMillon
MCM Land Company
630 W 34th Street
Austin, Texas 78705

RE: Habitat Assessment
Brownlee Ranch site located southwest of the intersection of Highway 281 and
Park Road 4 South, Burnet, Burnet County, Texas
HJN 22248.001HA

Dear Mr. McMillon:

This letter provides the results of a habitat assessment of federally listed threatened or endangered species conducted by Horizon Environmental Services, Inc. (Horizon) on the above-referenced site. Horizon conducted the field reconnaissance on 20 July 2022 and spent a minimum of 40 person-hours in the field evaluating the site and surrounding area. The assessment process was completed by conducting a review of existing state and federal agency literature.

1.0 GENERAL SITE DESCRIPTION

The subject site is located southwest of the intersection of Highway 281 and Park Road 4 South, Burnet, Burnet County, Texas (Appendix A, Figure 1). The subject site consists of approximately 1003.8 acres of partially wooded rangeland surrounded by existing rural single-family residences, wooded rangeland, roadways, and aggregate quarries. On-site vegetation includes primarily immature Ashe juniper (*Juniperus ashei*), mature and immature Texas live oak (*Quercus fusiformis*), Texas prickly pear (*Opuntia engelmannii*), Texas croton (*Croton texensis*), silverleaf nightshade (*Solanum elaeagnifolium*), common ragweed (*Ambrosia artemisiifolia*), honey mesquite (*Prosopis glandulosa*), and silver bluestem (*Bothriochloa laguroides*). Photographs are provided in Appendix B.

Topographically, the subject site is sloping, with elevations ranging 1100 to 1220 feet above mean sea level (AMSL). Surface water drains from west to east via Long Branch and unnamed tributaries of Long Branch which converge into Honey Creek on the eastern portion of the subject site (USGS, 1986). The subject site is within the Headwaters Hamilton Creek watershed (EPA, 2022). The central and eastern portions of the subject site are within the 100-year floodplain (FEMA, 2019).

Mapped soils on the subject site include the following:

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**TABLE 1
SOILS**

Soil Name	Soil Type	Soil Depth (Feet)	Underlying Material	Permeability	Available Water Capacity	Shrink-Swell Capacity
Eckert-Rock outcrop complex, 2 to 20% slopes (10)	stony loam	0.5	indurated, unweathered bedrock	moderate	moderate	moderate
Eckrant-Rock outcrop association, 1 to 10% slopes (11)	very cobbly clay	0.9	unweathered bedrock	moderately slow	very slow to slow	moderate
Hensley gravelly loam, 1 to 8% slopes (17)	stony loam, clay, clay loam	1.5	unweathered bedrock	moderately slow to slow	slow	low to moderate
Purves clay, 1 to 8% slopes (38)	stony clay, gravelly clay, very gravelly clay	1.3	unweathered bedrock	moderately slow	low to moderate	high
Tarpley-Eckrant complex, 1 to 8% slopes, stony (42)	stony clay, clay, cobbly clay	1.2	unweathered bedrock	moderately slow to slow	moderate to high	high to very high

Source: NRCS, 2022

Geologically, the subject site is underlain by the following:

**TABLE 2
GEOLOGY**

Unit	Period	Epoch	Description
San Saba Member (Cws)	Cambrian	Upper Cambrian Moore Hollow Group	Dolomite and limestone, thickly to thinly bedded; dolomite mostly sparsely cherty; limestone moderately glauconitic. In southeastern area dolomite, fine- to very fine grained, yellowish gray to brownish gray and medium-gray; northwestward mottled limestone, in part <i>Girvanella</i> -bearing, comes in at base. In northwestern area mostly limestone, predominantly granular, moderately glauconitic, light- to medium-gray and greenish-gray, locally stromatolitic bioherms in lower part become dolomite westward and thicken into a north-south reef extending almost to the top of the San Saba, west of the reef numerous sandstone beds characterize the upper part of the Member; fossils are mostly calcitic trilobites in limestone; upper part Ordovician in age. Thickness 215 to 325 feet.
Point Peak Member (Cwp)	Cambrian	Upper Cambrian Moore Hollow Group	Siltstone, limestone, and shale. Predominantly siltstone containing abundant authigenic feldspar, mostly laminated, lower part without bioturbation; limestone consists of aphanitic stromatolitic bioherms, beds of intraformational conglomerate, and granular limestone beds, one of which contains silicified <i>Plectotrophia</i> and alate <i>Billingsella</i> ; shale mostly silty, grayish-green; thickness 25 to about 200 feet, thins southeastward, also thin in the western area where stromatolitic bioherms included in the San Saba Member probably started growth in the upper part of the Point Peak Member.

Source: TWSC, 2014

2.0 THREATENED OR ENDANGERED SPECIES

Literature and agency file searches were conducted to identify the potential occurrence of any federally listed threatened or endangered (T/E) species in the vicinity of the subject site. The search included information from the US Fish and Wildlife Service (USFWS), the Texas Parks and Wildlife Department (TPWD) Natural Diversity Database, and The University of Texas Bureau of Economic Geology (UT-BEG).

Federally listed T/E species for Burnet County that are potentially affected by activities within the subject site are presented in the following table:

**TABLE 3
T/E SPECIES LISTED FOR BURNET COUNTY**

Common Name	Scientific Name	Federal Status
Golden-cheeked warbler	<i>Setophaga chrysoparia</i>	Endangered
Piping plover	<i>Charadrius melodus</i>	Threatened
Red knot	<i>Calidris canutus rufa</i>	Threatened
Bee Creek Cave harvestman	<i>Texella reddelli</i>	Endangered
Texas fatmucket	<i>Lampsilis bracteata</i>	Proposed Endangered

Source: USFWS, 2022a

Golden-cheeked Warbler

Golden-cheeked warbler (GCWA) habitat in central Texas typically consists of mature Ashe juniper and broad-leaved oak woodlands, with a high percentage of canopy coverage within and adjacent to incised canyons of central Texas. Due to a low percentage of mature Ashe juniper trees, a low percentage of broad-leaved oaks, a low percentage of canopy cover on the subject site, and the overall low canopy height, it is Horizon's opinion that the subject site does not provide suitable habitat for the GCWA. The vegetation did not meet the criteria described in the TPWD's management guidelines for GCWAs (Campbell, 2003). Additionally, it is Horizon's experience from past presence/absence surveys that GCWAs are not observed in the habitat located within the subject site. Horizon staff members observed potentially suitable habitat on adjacent properties to the south and southwest of the subject site.

Piping Plover

The piping plover is indicated by the USFWS as a potential transitory migrant species for most of Texas, including Burnet County. The piping plover winters on the Texas coast, occupying beaches and tidal mud flats. Its migratory path from its breeding grounds in the northern plains, Great Lakes, and northern Atlantic coast to the Texas coast carries it primarily through the eastern third of Texas where it may occasionally stop over during migration. It occasionally lake shores and marshes along its migratory path (NatureServe, 2022). No suitable habitat for the piping plover

(lake shores or marshes) was observed on the subject site; therefore, it is Horizon's opinion that the subject site does not provide habitat for this species.

Red Knot

The red knot is a migratory shorebird which nests in the Arctic and winters mainly in southern South America. Red knots are commonly found along sandy, gravel, or cobble beaches, tidal mudflats, salt marshes, shallow coastal impoundments and lagoons, and peat banks. Red knots forage on beaches, oyster reefs, and exposed bay bottoms and roost on high sand flats, reefs, and other sites protected from high tides (NatureServe, 2022). No shorelines or adequate water sources were observed on the subject site; therefore, it is Horizon's opinion that the subject site does not provide habitat for this species.

Terrestrial Karst Invertebrates

The Bee Creek Cave harvestman is a terrestrial karst invertebrate (TKI) specially adapted to subterranean existence that feeds on well-decomposed organic matter. "Karst" habitat is formed when calcium carbonate from limestone bedrock slowly dissolves by groundwater, creating caves, sinkholes, fractures and voids (Campbell, 1995).

The subject site is not underlain by a geologic formation that is known to form caves or voids that may provide habitat for the federally listed endangered terrestrial karst invertebrates (TWSC, 2014).

During Horizon's field reconnaissance, no surface expressions of karst features indicative of potential habitat for TKIs were observed; therefore, TKIs would not be expected to occur. However, in the event subsurface karst habitat is encountered during construction activities associated with development of the subject site, construction activities should stop immediately, and a qualified karst geologist/biologist should be contacted to perform an inspection of the voids.

Texas Fatmucket

The Texas fatmucket is a species of freshwater mussel occurring in streams and smaller rivers within the Texas Hill Country. The Texas fatmucket is found occupying flowing waters with depths less than 1 meter, usually within sand and gravel substrates (NatureServe, 2022). No flowing waters or adequate water sources were observed on the subject site; therefore, it is Horizon's opinion that the subject site does not provide habitat for this species.

Additional Resources Reviewed

The USFWS's Critical Habitat Mapper did not indicate critical habitat for a listed species on or within a 0.5-mile radius of the subject site (USFWS, 2022b).

Examination of the TPWD Natural Diversity Database indicated no documented occurrence(s) of listed species on or within a 0.5-mile radius of the subject site (TPWD, 2022).

T/E Species Summary and Recommendations

Horizon did not observe potentially suitable habitat on the subject site for any of the federally listed T/E species of Burnet County.

3.0 SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

Horizon has performed a habitat assessment for federally listed threatened or endangered species to learn if there are any recorded occurrences or potential habitat on the subject site. Horizon evaluated the subject site to the extent that was reasonably possible within the scope of work.

For Horizon Environmental Services, Inc.



Zachary Blackburn
Ecological Technician



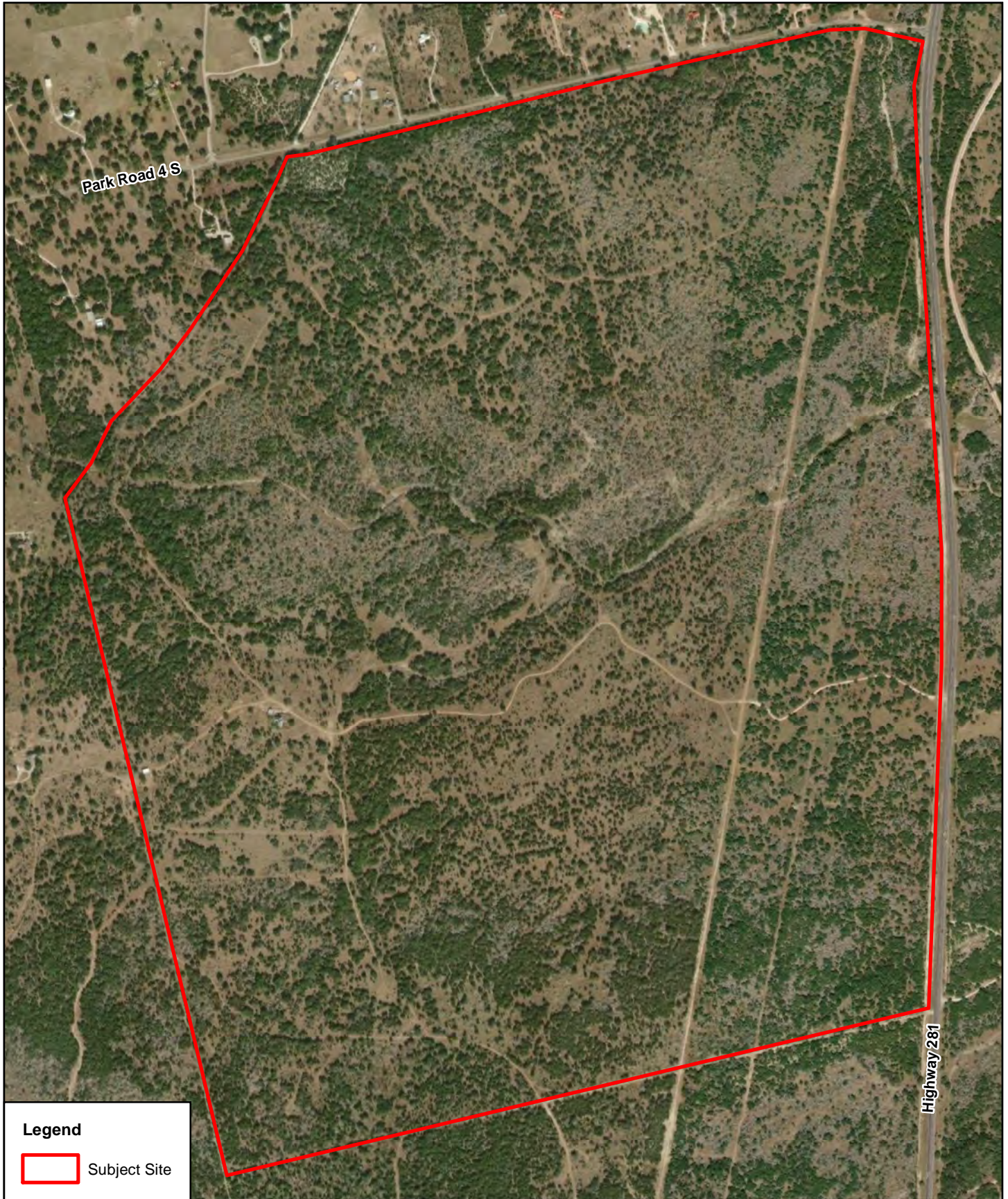
Scott Flesher
Vice President | Ecological Program Manager
USFWS Permit ESPER0004032

4.0 REFERENCES

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APPENDIX A


FIGURE 1 – SITE-SPECIFIC AERIAL PHOTOGRAPH



Park Road 4 S

Highway 281


Legend

 Subject Site

HorizonTM
Environmental Services, Inc.

Date:	07/19/2022
Drawn:	ZHB
HJN NO:	22248.001HA
Source:	ESRI, 2017

Figure 1
Site-Specific Aerial Photograph
Brownlee Ranch
Burnet, Burnet County, Texas



0 500 1,000
Feet

APPENDIX B
SITE PHOTOGRAPHS



PHOTO 1
View of immature Ashe juniper on subject site (not suitable habitat for GCWA)



PHOTO 2
View of low canopy cover observed on subject site (not suitable habitat for GCWA)



PHOTO 3
General view of subject site



PHOTO 4
General view of subject site



PHOTO 5
General view of the dry drainage feature on subject site



PHOTO 6
Additional view of immature Ashe juniper and low canopy on subject site (not GCWA habitat)