Animal and Plant Health Inspection Service
U.S. DEPARTMENT OF AGRICULTURE

Cattle Fever Tick Eradication Program Fence Deterrent in Cameron and Willacy Counties, Texas

Final Environmental Assessment

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Agency Contact:

Denise L. Bonilla
Entomologist,
Cattle Fever Tick Program Coordinator
Veterinary Services
Animal and Plant Health Inspection Service
U.S. Department of Agriculture
2150 Centre Avenue
Fort Collins, CO 80526

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1. Introduction and Purpose and Need

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS), Veterinary Services is responsible for (1) protecting and improving the health, quality, and marketability of U.S. animals by eliminating animal diseases, and (2) monitoring and promoting animal health and productivity. The Animal Health Protection Act of 2002, as amended (7 United States Code (U.S.C.) § 8301-8317), provides broad authority for USDA-APHIS to prevent the introduction into or dissemination within the United States of any pest or disease of livestock (§ 8303-8305). The Act authorizes prohibition and restriction of the importation, exportation, and interstate movement of animals moving in trade and strays, as well as exportation, inspection, disinfection, seizure, quarantine, destruction and disposal of animals and conveyances (§ 8303-8308). This includes the ability to "carry out operations and measures to detect, control, or eradicate any pest or disease of livestock" and identifies specific cooperative programs as one way to achieve these actions (§ 8308).

USDA-APHIS established the Cattle Fever Tick Eradication Program (CFTEP) in 1906 as a cooperative State-Federal cattle fever eradication effort, which shared program costs and cooperation between the Federal government, States, local governments, and individual livestock producers. By 1943, the United States was declared free of cattle fever ticks (CFTs) (*Rhipicephalus* (*Boophilus*) *annulatus* and *R. (B.) microplus*), except in the Permanent Tick Quarantine Zone (PTQZ) in South Texas that extends more than 500 miles from Del Rio, Texas to the Gulf of Mexico (Figure 1).

With the increasing U.S. trade and animal movement in the Southern border, the risk of CFT entry and establishment in the United States may rise (Figure 3). For instance, in Central and South America, cattle diseases and CFTs are endemic and are highly likely to travel with transported animals and associated materials into the United States (CFSPH, 2008; Lew-Tabor, 2011), where there are wildlife hosts for CFTs such as white-tailed deer and nilgai antelope.

To ensure U.S. animal health continues to be unaffected by CFTs and associated diseases (such as bovine babesiosis), it is essential to prevent their establishment in the country. For this reason, USDA-APHIS will continue to maintain port-of entry inspections to reduce pest entry from imported animals. Moreover, USDA-APHIS is proposing to fund the installation of high game fencing at specific locations in Cameron and Willacy Counties, Texas, to limit the spread of cattle fever ticks by free-ranging animals into the tick-free area.

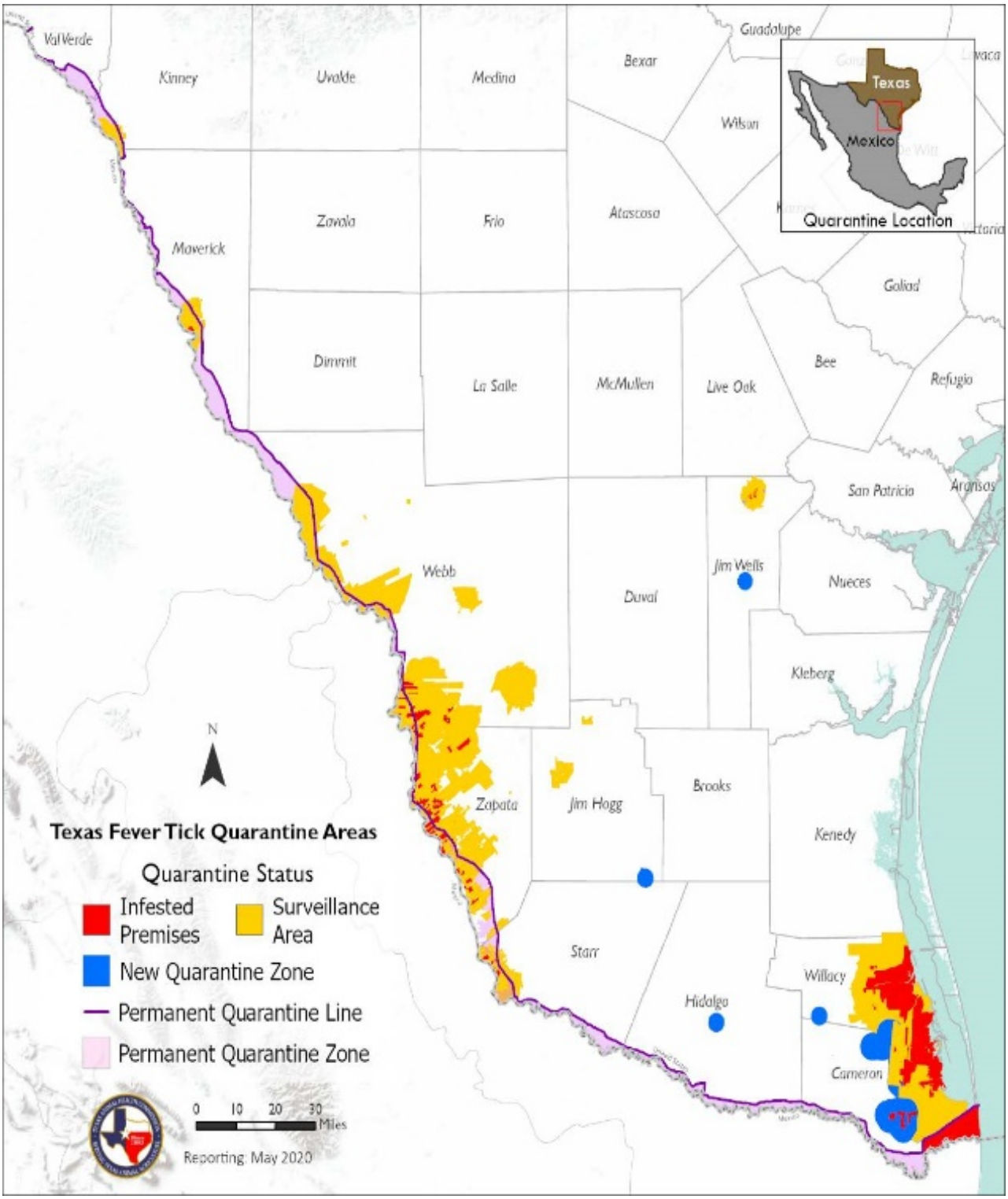

Figure 1. Location of the Permanent Quarantine Line, Quarantine Counties, Surveillance Area, and Infested Premises (Texas A&M University, 2020).

By preventing the establishment of CFTs in the United States, the program simultaneously eliminates the often-fatal bovine disease (babesiosis) from the U.S. cattle populations. In South Texas, the main protozoan[1] pathogens that cause babesiosis are: *Babesia bovis*, *B. bigemina*, and *B. divergens*. The first two species cause blood loss, damage to hides, and an overall decrease in the livestock's condition. The last species is the most lethal cause of babesia in Europe, although fatality is rare (Homer *et al*., 2000). In North America, human babesiosis is predominantly caused by *B. microti*, a rodent-borne piroplasm (Homer *et al*., 2000). Without the presence of CFT, there is no biological transmission of these *Babesia* organisms. CFTs infected with the protozoa feed on cattle and release the protozoa into the bloodstream. The protozoa break down the cellular membrane of red blood cells leading to anemia, jaundice, and the infected animal may die. Infected cattle exhibit neurological disturbances characterized by incoordination, seizures, muscle tremors, hyperexcitability, aggressiveness, blindness, head pressing, and coma.

The life cycle of CFTs consists of four stages (USDA-APHIS, 2018a): egg, larva, nymph, and adult (Figure 2). They are a one-host tick, meaning that they feed on only one host during their life cycle. A blood-engorged female tick releases 1,000 to 2,000 eggs into the surrounding environment after detaching from the host and before dying on the ground. This starts the life cycle again, and new hosts are sought by the larva after the eggs hatch. Many adult ticks are olive green while others are mottled yellow or olive brown in appearance (Figure 2).

Additional information on CFT biology, history, concerns, and previous program activities is in USDA-APHIS (2018a) entitled "*Cattle Fever Tick Eradication Program – Tick Control Barrier, Maverick, Starr, Webb, and Zapata Counties, Texas, Final Environmental Impact Statement – May 2018*" (CFTEP FEIS); USDA-APHIS (2017) entitled "*Cattle Fever Tick Eradication Program Use of Ivermectin – January 2017*" (Final EA); and USDA-APHIS (2018b) entitled "*Cattle Fever Tick Eradication on Laguna Atascosa and Lower Rio Grande Valley National Wildlife Refuges - February 2018*" (Final EA), incorporated in this EA by reference.

[1] Protozoan: single-celled microscopic organism in the Protista kingdom, such as an amoeba, flagellate, ciliate, or sporozoan.

Figure 2. Cattle fever tick life stages, from left to right: larva, nymph, and adult engorged female (USDA-APHIS, 2018a).

The purpose for providing funding toward the installation of high game fencing at specific locations in Cameron and Willacy Counties, Texas (proposed action) is to limit the spread of cattle fever ticks (*Rhipicephalus* (*Boophilus*) spp. [Acari: Ixodidae]) by free-ranging animals into the tick-free area within and possibly across the regions. This action is necessary because CFT wildlife hosts (such as white-tailed deer) easily jump over existing 4-foot high fencing to forage. The 8-foot high game fencing in this proposed action would serve as a deterrent to the unrestricted movement of these animals, and in this way enhance ongoing CFT eradication activities. Ongoing eradication efforts include surveillance and patrols for stray or smuggled tick-infested livestock, treatment of tick-infested animals, and the vacating of tick-infested pastures and premises. The proposed game fencing is needed given the increasing number of CFT-infested premises observed outside of the Tick Permanent Quarantine Zone in Southern Texas in recent years (Figure 3) and given the potential for CFTs and the bovine disease to spread throughout the region including Cameron and Willacy Counties.

By limiting the movement of tick hosts (such as white-tailed deer (*Odocoileus virginianus*) and nilgai antelope (*Boselaphus tragocamelus*)), the high game fencing would help the CFTEP with quarantine efforts, reduce the need for acaricide (chemical) treatment of tick-infested animals, and a decrease in animal production costs in the area. Employees of the Texas Animal Health Commission (TAHC) and CFTEP, who also are responsible for protecting animal health, may experience reduced workloads (USDA-APHIS, 2018a).

This Environmental Assessment (EA) is consistent with requirements in the National Environmental Policy Act of 1969 as amended (NEPA; 42 U.S.C. § 4321 et seq.), NEPA regulations promulgated by the Council on Environmental Quality (40 Code of Federal Regulations (C.F.R.) § 1500-1508) and APHIS implementing procedures at 7 C.F.R. part 372. In this document, USDA-APHIS analyzes the potential impacts on the human environment associated with the installation of high game fencing in Cameron and Willacy Counties, Texas.

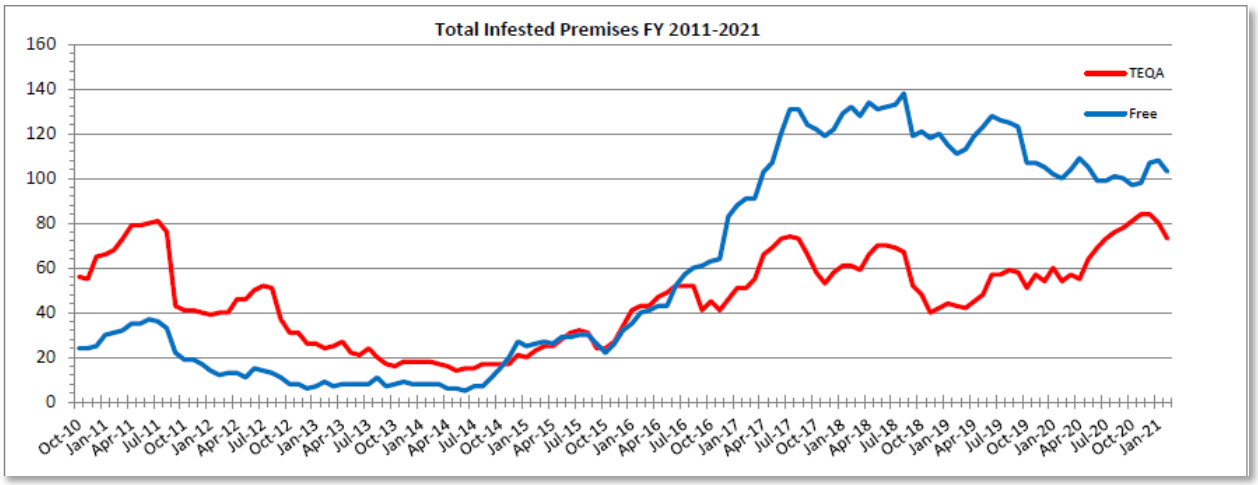

Figure 3 Infested premises in the Tick Eradication Quarantine Area (TEQA) and outside of the Tick Permanent Quarantine Zone (Tick Free Zone) from Fiscal Year (FY) 2011-2021 (USDA-APHIS, 2021)

2. Alternatives

This EA considers two alternatives in detail, including a no action alternative and a proposed action alternative.

Under the no action alternative, USDA-APHIS would not provide any funding toward the installation of 8-foot high game fencing in Cameron and Willacy Counties, Texas. A lack of physical barriers would allow the continued spread of CFT on infested wildlife ungulates in the area (USDA-APHIS, 2018a).

The proposed action alternative would improve game fencing in the affected area. USDA-APHIS is proposing to fund the installation of 8-foot high game fencing in five locations in Cameron and Willacy Counties, Texas (Figure 4). These locations are open areas used by potential CFT wildlife hosts (e.g., Laguna Atascosa National Wildlife Refuge) searching for food and shelter, or places where 4-foot high (low) cattle fencing currently exists. The proposed high game fencing would deter wildlife movement in these areas and facilitate current CFT eradication efforts.

Under the proposed action alternative, the five proposed high game fence segments would be: Port Mansfield, El Sauz Section 1, Floodway, Floodway-El Toro, and Laguna Atascosa National Wildlife Refuge (LANWR)-Unit 4 (Figure 4). Their measurements and locations (near center point of fence segments) are as follows:

1. Port Mansfield (2.5 miles): GPS coordinates (26.5362, -97.4358)
2. El Sauz Section 1 (0.8 miles): GPS coordinates (26.4073, -97.5436)
3. Flood Way (0.7 miles): GPS coordinates (26.3730, -97.5140)
4. Floodway-El Toro (0.9 mile) GPS coordinates (26.3704, -97.4707)
5. LANWR Unit 4 (4.9 miles) GPS coordinates (26.3707, -97.4137)

Game fencing features include:

- Fence design (StaTite50 [2096-12-330’]) would extend from the ground up to 8-feet high.
- Rectangular openings (7 inches by 12 inches wide) in the galvanized[2] wire mesh would be placed above the ground. These openings would apply to the entire length of the fence and would allow the movements of ocelot (*Leopardus pardalis*), jaguarundi (*Herpailurus yagouaroundi cacomitli*), and Texas tortoises (*Gopherus berlandieri*) across to northern ranches, and thereby enabling the genetic exchange between neighboring populations.
- A 2- to 3-foot wide wire skirt of the game fence would be placed perpendicularly (90-degree angle) to the vertical segments and buried underground to limit the passage of nontarget species by digging under the fence.

Under the preferred alternative, USDA-APHIS will support the cost of materials for the high fencing, and TAHC will erect and maintain the fence.

[2] Galvanized wires are usually coated steel materials with a layer of zinc that protects the steel from rust.

APHIS also considered, and then dismissed from consideration, alternatives with different wire fence components as well as additional locations. The lack of below-ground skirting and un-galvanized wire are deemed less effective over time because they require more maintenance, and consequently, APHIS would like to use the best available technologies to reduce long-term costs associated with fence upkeep. APHIS continually evaluates additional locations for CFT fencing; however, APHIS only fully evaluates areas likely to benefit from improved fences that are within budgetary and practical constraints.

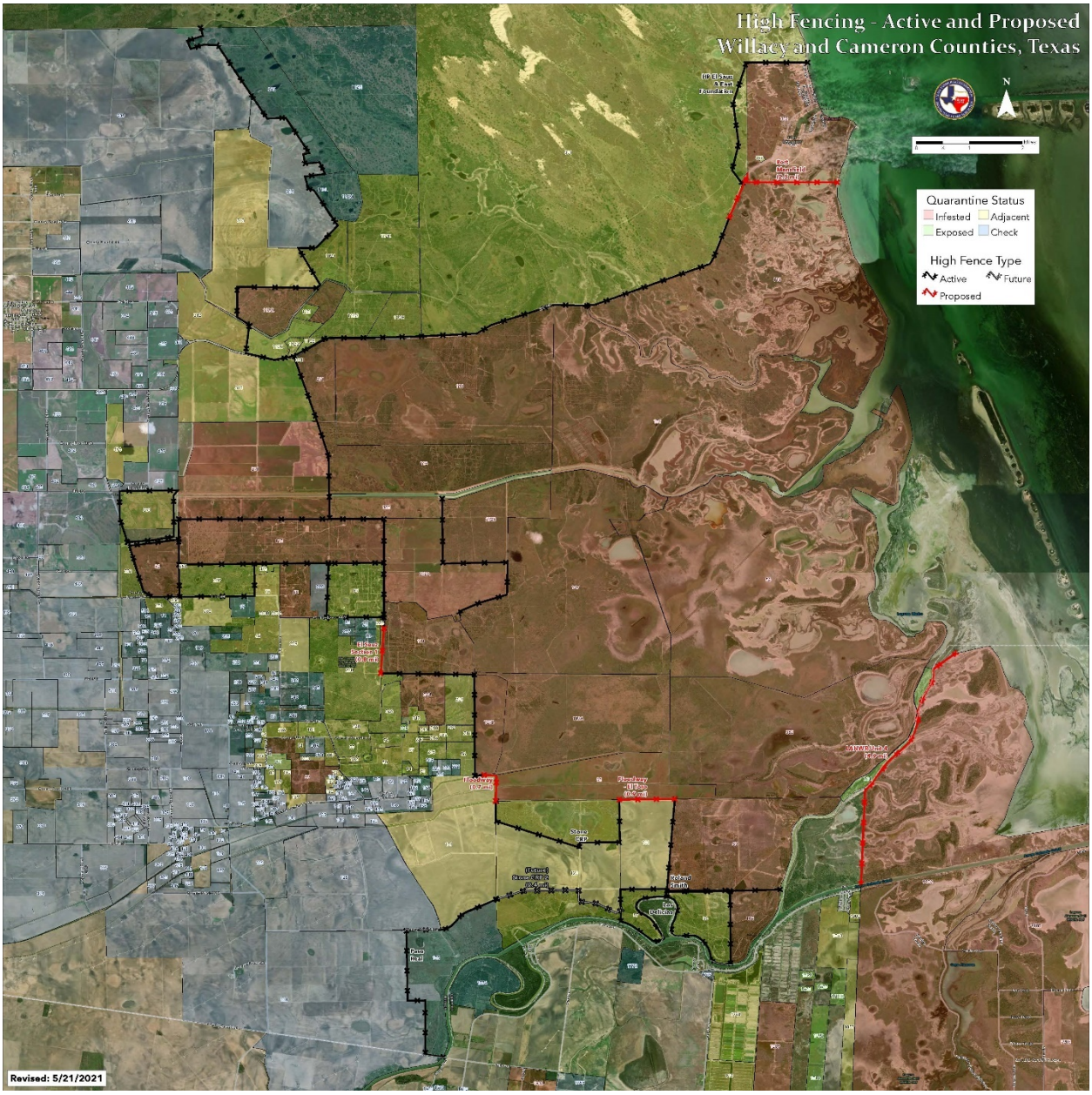

Figure 4. CFTEP Area showing five locations of the proposed high game fencing (red segments) in Cameron and Willacy Counties, TX.

3. Affected Environment

This chapter describes the physical environment in Cameron and Willacy Counties that could be potentially affected by both alternatives presented in Chapter 2. These counties are a part of the Gulf Coastal Plain of Southern Texas, in a region generally referred to as the Lower Rio Grande Valley or the Delta of the Rio Grande. Specific resources described in this Chapter are soil, vegetation, agriculture and livestock, wildlife, water quality, air quality, and the human and socioeconomic environment.

3.1. Soil

The soil types of Cameron County are variable and are usually regrouped in associations. USDA Soil Conservation Service, in cooperation with Texas Agricultural Experiment Station, describes in detail various soil types and associations in Cameron County, Texas (Figure 5). The soil type in the proposed program area in Cameron County (LANWR Unit 4) is dominated by the Sejita-Lomalta-Barrada soil association, which occupies about 23% of the county. This association consists of areas of saline, loamy and clayey soils at or near sea level and broad areas of barren clay that are inundated by high tides and heavy rains.

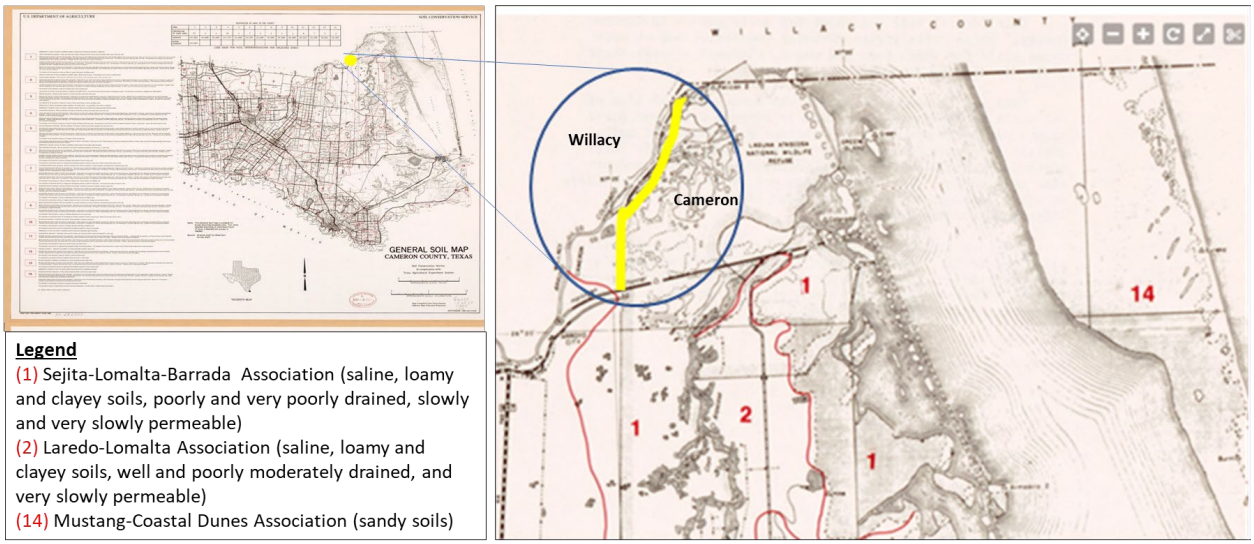

Figure 5. General soil map of Cameron County, Texas (USDA SCS, 1980) showing approximate location of the proposed action (yellow line in blue circle).

The dominant soil types in Willacy County are Victoria clay loam (21.8 percent), Willacy fine sandy loam (21.6 percent), and Nueces fine sand (13 percent) (USDA-NRCS, 1929). Figure 6 presents the general soil map of Willacy County, where loamy and clayey soils dominate the middle and high stream terraces (green color # 1–6); sandy soils of the eolian sand sheet and barrier island occupy parts of Padre Island, the northwest and northeast regions (yellow color # 7–9); and loamy and clayey soils of low coastal terrace and eastern barrier island (spruce, peacock, and hunter colors # 12-14) (USDA- NRCS, 1981).

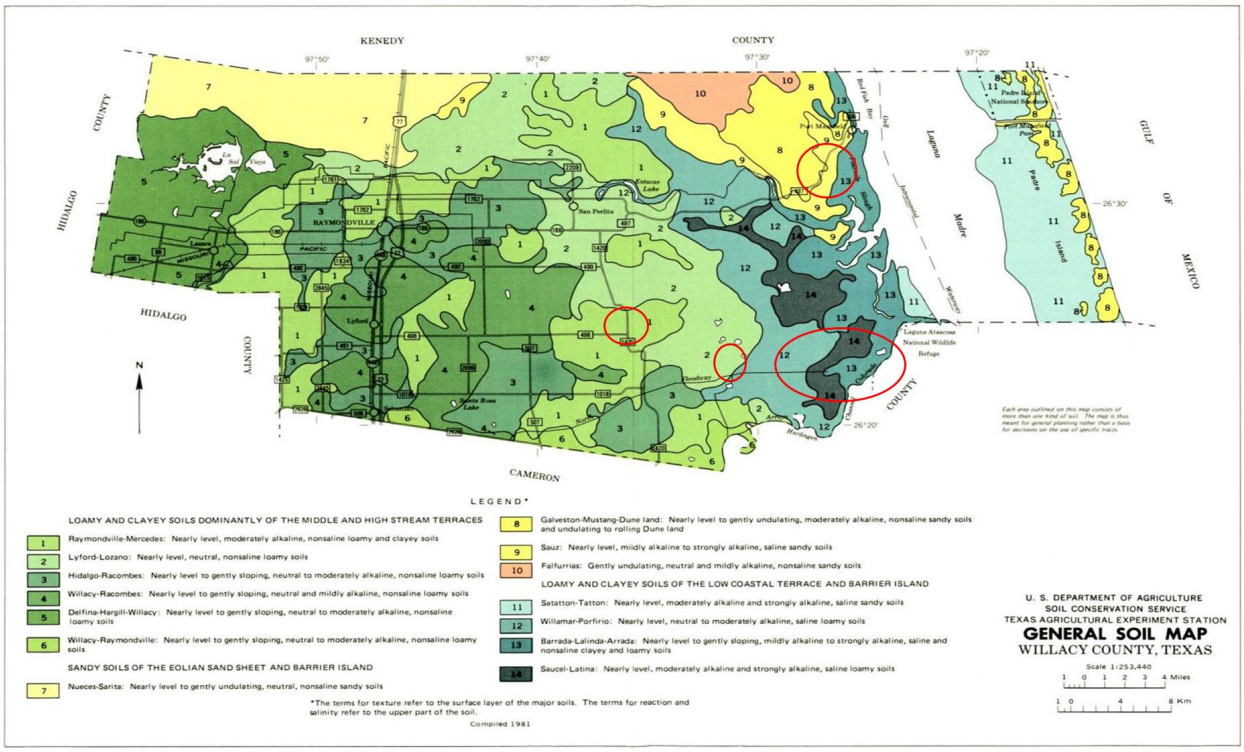

Figure 6. General soil map of Willacy County, Texas (USDA-NRCS, 1981) showing approximate locations of the proposed action (red circles).

3.2. Vegetation

According to the Texas Almanac (undated) the flora of Texas is divided into 10 vegetation areas of which two areas occur in Cameron and Willacy County: South Texas Plains and the Gulf Prairies and Marsh (Figure 7). Our proposed action will occur only in areas with the Gulf Prairies type of vegetation:

> Gulf Prairies vegetation includes marsh and salt grasses immediately at the tidewater, while bluestems and tall grasses grow a little farther inland. Oaks, elm, and other hardwoods grow to some extent along streams. The Gulf Prairies grow tall bunchgrasses, such as big bluestem, little bluestem, seacoast bluestem, indiangrass, eastern gamagrass, Texas wintergrass, switchgrass, and gulf cordgrass. Overall, the Gulf Prairies are fertile farmland, suitable for cattle grazing. Heavy grazing of these prairies changed the native vegetation into predominantly less desirable grazing vegetation, grasses such as broomsedge bluestem, smutgrass, threeawns, and tumblegrass. Invasive plants affecting the productive grasslands include oak underbrush, Macartney rose, huisache, mesquite, prickly pear, ragweed, bitter sneezeweed, and broomweed. Most marsh areas are covered with sedges, bullrush, beakrush, smooth cordgrass, hay cordgrass, marsh millet, and maiden cane.

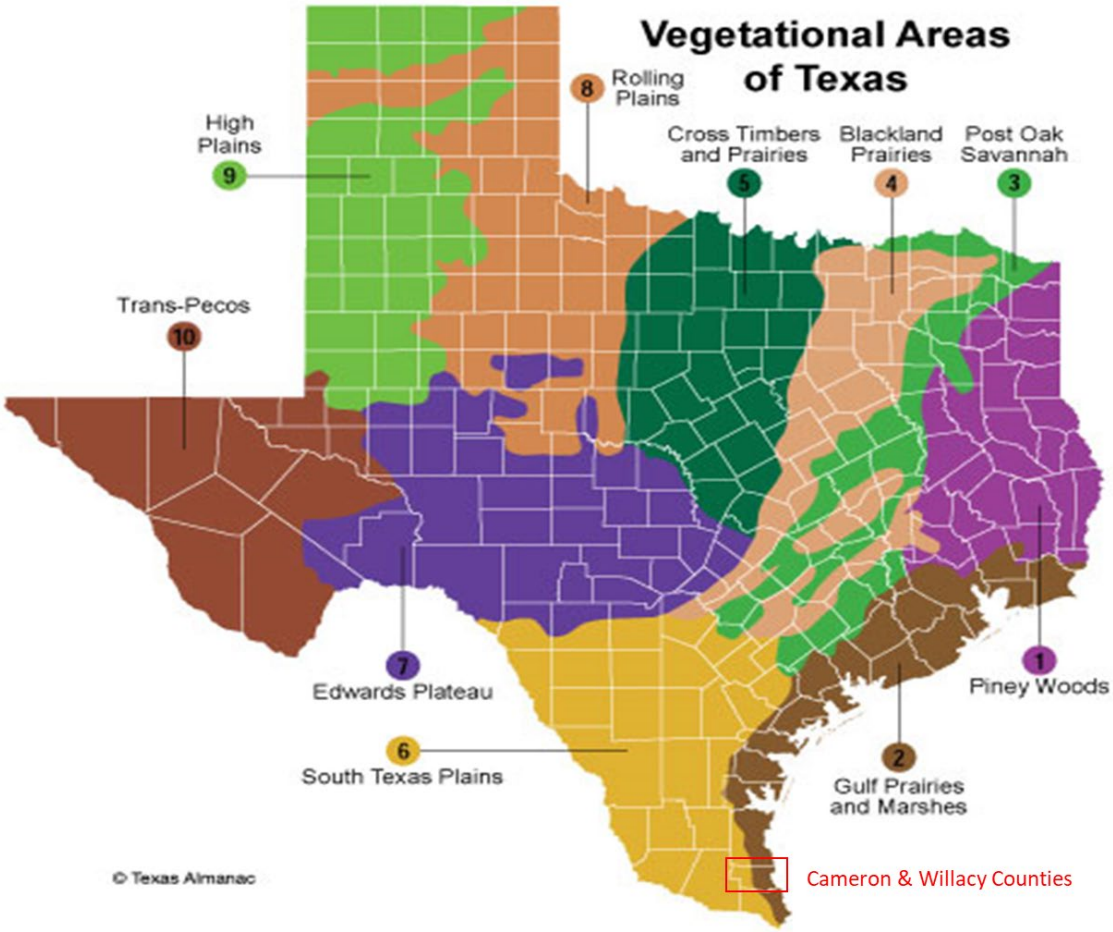

Figure 7. Vegetation Areas of Texas

Vegetation Inspection at Proposed Fence Locations

Figure 8 shows some general views of the current cattle fencing and vegetation types in the program area. TAHC inspected the vegetation of this area and did not observe any native brush habitat/native thorn shrub along the entire length of existing fences in Willacy County. The observations were the same on the refuge land (LANWR Unit 4) in Cameron County. However, TAHC noted overgrown grass and mesquite tree branches on all five sections proposed for the high fence installation. Based on visual assessments, the dimensions of overgrown mesquite trees could vary from approximately 50–70 feet in length and 5–10 feet wide at various location of the proposed high fencing. The exact measurements of overgrown vegetation could not be obtained due to accessibility issues because of adverse weather limiting access.

Figure 8. General views of current cattle fencing and vegetation types in the program area (Picture credit: TAHC)

3.3 Agriculture and Livestock

The agricultural profile of Cameron County shows cropland was estimated at 78 percent of the land in farm, pastureland at17 percent, woodland at 3 percent, and other land uses at 2 percent (USDA-NASS, 2017). The total farmland area was estimated as 271,500 acres with about 1,420 farms, and more than 100,000 acres were irrigated (USDA-NASS, 2017). In 2017, the market value of agricultural products sold in Cameron County was approximately $122.5 million (USDA-NASS, 2017). This included market value for crops such as grains, oilseeds, dry beans, dry peas, tobacco, cotton and cottonseed, melons, potatoes, sweet potatoes, tree nuts, berries, and hay, along with nursery, greenhouse, floriculture, sod, cultivated Christmas trees, and short rotation woody crops. Livestock market value was primarily for cattle and calves; the market values of poultry and eggs, hogs and pigs, sheep, goats, wool, mohair, horses, ponies, mules, burros, and donkeys totaled less than one-tenth of the cattle and calves market value (USDA-NASS, 2017).

The agricultural profile of Willacy County shows cropland was estimated at 62 percent of land in farm, pastureland at 34 percent, woodland at 2 percent, and 1 percent in other land uses (USDA-NASS, 2017). The total farmland area was estimated as 317,922 acres in about 351 farms, and

there were more than 19,000 irrigated acres (USDA-NASS, 2017). Main crops and animals produced are similar to those listed for Cameron County. In 2017, the market value of agricultural products sold in Willacy County approached $88.1 million (USDA-NASS, 2017). The total sale of livestock in 2017 was approximately $4.3 million (USDA-NASS, 2017).

3.4. Wildlife

Texas native wildlife and bird species are rich and varied. According to the Texas Parks and Wildlife Department (TPWD, undated) there are 142 species of wild animals in Texas, including rare species. In Cameron and Willacy Counties, species include white-tailed deer (*Odocoileus virginianus*), nilgai antelope (*Boselaphus tragocamelus*), coypu (*Myocastor coypu*), collared peccary (*Pecari tajacu*), common raccoon (*Procyon lotor*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), striped skunk (*Mephitis mephitis*), nine-banded armadillo (*Dasypus novemcinctus*), black-tailed jackrabbit (*Lepus californicus*), fox squirrel (*Sciurus niger*), eastern cottontail (*Sylvilagus floridanus*), American beaver (*Castor canadensis*), gray fox (*Urocyon cinereoargenteus*), and American badger (*Taxidea taxus*).

In the 2020-2021 hunting seasons, most animals targeted by hunters included alligator (*Alligator mississippiensis*), plain chachalaca *(Ortalis vetula),* dove (*Columbidae* spp.), duck (*Anatidae* spp.), goose (*Branta canadensis*), javelina (*Tayassu tajacu*), hares and rabbits (*Lepus* spp.), gallinules (*Gallinula galeata*), sandhill crane (*Antigone canadensis*), teal (*Anas crecca carolinensis*), wild turkey (*Meleagris gallopavo*), white-tailed deer (*Odocoileus virginianus*), Wilson's snipe (*Gallinago delicata*), and woodcock (*Scolopax rusticola*).

In South Texas, many species are listed by the U.S. Fish and Wildlife Service (USFWS) as endangered among those are the ocelot (*Leopardus pardalis*) and Gulf Coast jaguarundi (*Herpailurus yagouaroundi cacomitli*). There is currently one known breeding population of ocelots in Willacy County (Haines et al., 2005), and their number is estimated to be only seven (FWS, 2010). Section 5 of this assessment discusses potential Endangered Species Act issues in Cameron and Willacy County, Texas.

3.5. Water Quality

Under Section 303 D of the Clean Water Act (CWA), states, territories and authorized tribes are required to develop lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet the water quality standards set by states, territories, or authorized tribes. In Texas, the Texas Commission on Environmental Quality (TCEQ)'s Surface Water Quality Monitoring (SWQM) Program monitors and evaluates physical, chemical, and biological characteristics of aquatic systems as a basis for effective policy.

Both Cameron and Willacy Counties overlap two major water bodies: Arroyo Colorado River and Laguna Madre (Figure 9). The Arroyo Colorado river flows mostly eastward some 90 miles (143.2 km) from Lake Llano Grande into the hyper-saline lagoon (Laguna Madre) crossing Hidalgo, Cameron, and Willacy Counties. The Arroyo Colorado River is connected to three floodways (Raymondville Drain, the Willacy Main, and the North Floodway) that run into the Lower Laguna Madre collecting urban storm water and agricultural non-point source pollutants (Mahmoud, 2019). The Arroyo Colorado watershed (Figure 9) is mostly used for agricultural production, including row crops, sugar cane, and citrus fruit; however, rapid urbanization and population growth contribute to water quality problems in the tidal segment (Segment 2201).

This segment is impaired by a depressed dissolved oxygen (DO) concentration generally caused by dredging near the Port of Harlingen; it is also impaired by high levels of bacteria that exceed the State's standard (TCEQ, 2013).

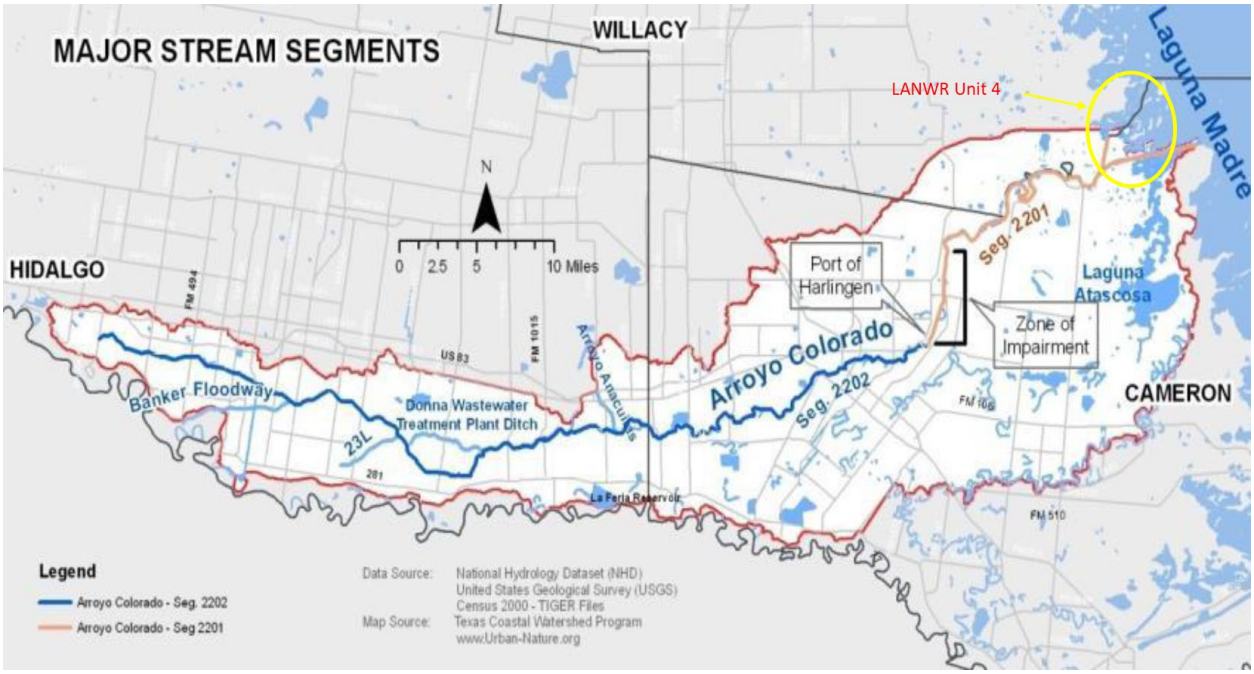

Figure 9. Arroyo Colorado watershed showing impaired Segment 2201 and approximate location of the proposed fence segment at LANWR Unit 4 (Adapted from TCEQ, 2013).

3.6. Air Quality

The Clean Air Act (CAA) is the comprehensive federal law that regulates air emissions from stationary and mobile sources (42 U.S.C. §7401 et seq. (1970). It protects the Nation's air quality for the purposes of public health and welfare. Among other things, this law authorizes EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants. These pollutants, known as criteria pollutants, include ozone, particulate matter, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. The CAA identifies two types of national ambient air quality standards (primary and secondary). The primary standards provide public health protection, including protecting the health of sensitive populations (e.g., asthmatics, children, and the elderly), and the secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. The status of air pollution in any area is based upon whether that area is in attainment (compliance) or nonattainment (noncompliance) with the NAAQS.

To enforce requirements under the CAA, the USEPA delegated responsibility for ensuring compliance of the NAAQS to local authorities. In Texas, TCEQ monitors and regulates air quality. As of May 2021 (date of the current assessment), Cameron and Willacy Counties are not on the nonattainment list for all criteria pollutants (EPA, undated). This indicates that the air

quality index (AQI) of each one of these two counties would be in the "good air quality" category (0 – 50) as defined by the U.S. Environmental Protection Agency (EPA). In general, places where carbon dioxide is released continually (such as major city roads, highways, and petroleum production fields) are often associated with higher levels of monitored air pollutants. As for the program area, a report generated from a five mile-buffer assessment of each fence location using the EPA's online NEPAssist Tool confirms that these fence locations are not in the nonattainment area.

3.7. Tribal and Historical Properties

According to the Bureau of Indian Affairs (BIA, undated), there are no Federally recognized Tribal lands in Cameron and Willacy Counties, Texas.

USDA-APHIS identified 33 historic properties located in Cameron County and four historic properties located in Willacy County. APHIS considered the historic buildings (houses, depots, church, warehouse, lighthouse, courthouse, and jail) and green places (such as cemetery, plantation, pasture, yard, ranch, park, fort, and battlefields) for potential effects. In Cameron County, the closest properties are the Palo Alto Battlefield and Point Isabel Lighthouse which do not overlap with the proposed fence locations because they are more than 20 miles away from the locations for fencing. In Willacy County, the historic properties include King Ranch (about 20 miles away from the proposed fencing locations), Mansfield Cut Underwater District (10-15 miles), Old Lyford High School (about 10 miles), and Willacy County Courthouse (more than 10 miles).The agency determined there would be no effect to historic properties, and submitted both the analysis and associated maps to Texas Historic Commission (THC)/State Historic Preservation Office (SHPO) for review and concurrence. The SHPO concurred with USDA-APHIS's finding of no effect of the proposed action on historic properties (letters of concurrence from the Texas SHPO are on file (THC Tracking #202101612 dated 10/30/2020 and THC Tracking #202108832 dated 05/03/2021).

3.8. Human Health and Socioeconomic

A general description of the human and socioeconomic environment in Cameron County is provided below as follows (CIP, 2020):

- Total area is 1,276.4 square miles (891.7 mi^2 for lands and 384.8 mi^2 for waters)
- Cameron County is 91.58 percent urban and 8.42 percent rural.
- The three largest communities are Brownsville City (182,781 residents), Harlingen City (65,022), and San Benito City (24,243). The nearest city to the proposed program location (LANWR Unit 4) is Rio Hondo City (2,707 residents), which is about 10 miles away from the closest fence line.
- Much of the county's nonfarm income came from processing fruits and vegetables, fishing, seafood processing, and light manufacturing. The county is also a producer of oil and natural gas. Gas-well gas production in 1982 totaled 2,424,550 thousand cubic feet;
- In 2019, the population was 423,163, of which 89.8 percent were Hispanic and 10.2 percent non-Hispanic (however, the census often misses migrant farmworkers, undocumented workers, and refugees).
- Residents aged 17 and under were 29.9 percent;

- Education-wise, residents aged 25 and over with high school diplomas were 67.9 percent and those with graduate degrees represent 17.3 percent;
- In 2019, the average annual salary was $34,689; the annual unemployment rate was 5.5 percent;
- Percent of population in poverty was 35.0 percent;
- Cameron County remains a favored tourist destination. Major attractions include Palo Alto Battlefield National Historic Site, Resaca de la Palma Site State Park, Port Isabel Lighthouse State Historic Structure, Brazos Island State Scenic Park, Immaculate Conception Cathedral, the Old Brulay Plantation, and the García Pasture.
- The county also offers hunting and fishing opportunities throughout the year, as well as special events (such as the Tourist Festival and Shuffleboard Tourney, the Winter Olympics, the Cameron County Livestock Show, Golden Gloves Boxing, Charro Days, the Winter Texan Fishing Tourney, the Valley Music Festival, the Tip O'Texas Wildcat Show, Little Bit of Mexico, the All-Valley Winter Texans Golden Tourney, Riofest, the Blessing of the Shrimp Fleet, the Texas International Fishing Tournament, Seafest, Fiesta Internacional, and the Welcome Home Winter Texans Party).

No human community is established in, or is adjacent to, the refuge (LANWR Unit 4) in Cameron County, where the proposed fence would be installed.

A general description of the human and socioeconomic environment in Willacy County is provided below as follows (CIP, 2020):

- Total area is 784.8 square miles (590.6 mi^2 for lands and 194.2 mi^2 for waters)
- Willacy County is 65.42 percent urban and 34.58 percent rural;
- Major communities in Willacy County include Raymondville (10,880 residents), Lyford City (2,540), Sebastian City (1,956), San Perlita City (556), and Port Mansfield (222);
- In 2019, about 21,358 people lived in Willacy County, of which about 88.5 percent were Hispanic and 11.7 percent non-Hispanic;
- Residents aged 17 and under were 23.5 percent, while older residents represented 76.5 percent of the population;
- The average annual salary in 2018 was reported at $35,510 while the annual unemployment rate in 2019 was 8.2 percent;
- Percent of population in poverty was 35.0 percent;
- Oil production and agriculture (raisinglivestock and producing crops) are central elements of the local economy;
- Transportation (three airports), a waterborne commerce served by Port Mansfield, and numerous recreation facilities (such as Padre Island National Seashore, Texas Tropical Trail, Willacy County Livestock Show places, Port Mansfield Fishing Tournament and Port Mansfield Lady Anglers Tournament facilities) offer socioeconomic opportunities to residents and visitors.

In Willacy County, the proposed high (8-foot) fencing would replace the existing low (4-foot) fencing in cattle ranches.

4. Potential Environmental Consequences

This chapter compares the potential environmental consequences associated with the no action and preferred action alternatives.

Under the no action alternative, USDA-APHIS would not fund the installation of high game fencing in Cameron and Willacy Counties, Texas. USDA-APHIS expects CFT would continue to spread from tick-infested areas during the movement of host wildlife ungulates into additional areas, despite current (non-fencing) eradication program efforts (USDA-APHIS, 2018a). Under the preferred alternative, USDA-APHIS would fund the installation of high game fencing on the wildlife refuge in Cameron County, and on privately-owned ranch properties in an agreement with landowners in Willacy County. The proposed high game fencing would not obstruct public or private access roads or driveways; it would not be installed through township areas. The intent of installing high game fencing is to reduce the spread of CFT on wild animals, including white-tailed deer and nilgai antelope.

Under both alternatives, there would be no effects to waterways because none of the existing cattle fences are in or near waterways and fencing would not be installed in or near waterways. Under both alternatives, there would be no alteration in the ground permeability to stormwater, or releases of particulates, chlorine, or heavy metals.

Under both alternatives, there would be no effect on tribal lands because there are no recognized Tribes in Cameron and Willacy Counties.

In accordance with Section 106 of the National Historic Preservation Act of 1966 and its implementing regulations, USDA-APHIS assessed the historic properties within Cameron and Willacy Counties and analyzed the agency's action's potential effects on those properties. USDA-APHIS found that the proposed action would have no effect on listed historic properties because none of these properties is in the program area (they are all located over 20 miles away from the proposed fence locations). USDA-APHIS submitted its analysis and associated maps to Texas State Historic Preservation Office (SHPO) for their review. The SHPO concurred with USDA-APHIS's finding of no effect of the proposed action on historic properties (letters of concurrence from the Texas SHPO are on file (THC Tracking #202101612 dated 10/30/2020 and THC Tracking #202108832 dated 05/03/2021).

The USDA-APHIS proposed action would not alter, change (restore or rehabilitate), modify, relocate, abandon, or destroy any historic buildings, edifices, or nearby infrastructure. USDA-APHIS program activities would not directly or indirectly alter the characteristics of any listed historic property that qualifies it for inclusion in the National Register of Historic Properties. USDA-APHIS activities would not use heavy equipment that could create noise levels requiring auditory protection. Any visual, atmospheric, or auditory impacts during the installation of high game fencing would be limited in duration, intensity, and area.

USDA-APHIS complies with Executive Order (EO) 13045, "Protection of Children from Environmental Health Risks and Safety Risks" by considering the likelihood and consequences of exposure to the proposed action. Residents aged 17 and younger represent less than 30 percent of the population in each county (29.9 percent in Cameron County and 23.5 percent in Willacy

County). Under both alternatives, children are highly unlikely to live in or near locations with fencing. There are no fence segments on public places or facilities where children typically use (such as parks, playgrounds, schools, or outdoor community centers).

4.1. Soil

Under the no action alternative, only minimal soil disturbance would occur to soil surfaces during border patrol surveillance for stray or smuggled livestock, and during the maintenance of existing cattle fences. This continued low-intensity foot, horse, and vehicular traffic would cause minimal soil erosion.

Under the preferred alternative, the installation of high game fencing would temporarily expose soil and potentially increase localized erosion. As the vegetation regrows, erosion would return to preconstruction levels. There is likely to be temporary soil compaction along the fence lines during construction activities. Installation of the underground skirting is not expected to appreciably increase the total footprint of the fence installation. The effects from soil disturbance during fence construction activities will be short-term and minimal. The weight associated with high fences is not expected to be substantially more than low fences, which means effects to soil structure, layering or profile would be unlikely in the fenced areas.

The effects to soil associated with construction and service vehicles would depend on the weight of the vehicles and number of trips through an area. USDA-APHIS anticipates use of light-duty vehicles that do not create appreciable amounts of fugitive dust. To maximize program efficiency, USDA-APHIS minimizes the number of trips for both construction and maintenance activities. While vehicles may move mud, the amount is related to how recently rain occurred.

Airborne particles arising from soil disturbance would quickly settle. Under the preferred alternative, USDA-APHIS would minimize the potential for dust emissions during the fence installation by using best-management practices including: (1) preserving grass and low-growing bush cover as much as possible, (2) mulching cleared vegetation and spreading it out over the easement, (3) periodically spraying water onto exposed soil to reduce the likelihood of traffic-raising dust, (4) using pre-determined staging areas to store fencing materials, and (5) replanting areas with native grasses to the extent necessary to reduce erosion. Overall, there would be minimal effects to soil associated with construction and maintenance activities and these effects would rapidly dissipate.

Galvanized fence materials often used are usually coated with a layer of zinc that protects steel from rusting and corrosion. Depending on the environment, a galvanized wire can last for decades without any impact on soil (DoD, 2019). The program does not expect galvanized materials of the proposed game fencing to leach or cause any impact on soil attributes (i.e., pH and salinity) from zinc coating because these materials are recognized as inert and they resist rust and corrosion (USDA-APHIS, 2018a). Galvanized wires are widely used for roofing, siding, gutters, telephone pole hardware, guardrails and storage, fencing, etc. (DOD, 2019). For these reasons, USDA-APHIS finds the preferred alternative does not have long-term, direct or indirect effects to soil.

4.2 Water Quality

Under the no action alternative, there would be no effects to water quality because maintenance of the existing low fencing does not cause soil erosion and any temporary disturbances to local vegetation are unlikely to alter water flow patterns.

Under the preferred alternative, the fence installation process would temporarily increase surface water runoff until vegetation regrew, but the fencing would not alter ground permeability to stormwater. Galvanized wire is designed to be inert, resist rust and corrosion, and last for decades (DOD, 2019). The underground skirting of the fence is not of sufficient size to alter the usual water flow pattern in an area. After the installation of the high fencing, erosion from water flow through the fence's wire grid and underground skirting is expected to continue at pre-fencing or prior levels. USDA-APHIS does not anticipate chlorine, zinc, heavy metals, or substantial particulate levels to enter runoff water either during or after fence construction based on the small footprint of activity at each fence-post location and the limited duration of construction activities.

4.3 Air Quality

Under the no action alternative, there would be negligible effects to air quality because the existing low fences do not release pollutants into the air and APHIS minimizes the number of trips by service vehicles to maintain these low fences.

Under the preferred alternative, release of air pollutants is associated with (a) production of fence materials, (b) installation activities, and (c) vehicular travel. The fence materials would be produced offsite which means any emissions from these activities occur off-site and are not under USDA control. Installation and maintenance activities are very limited in time and scope in comparison to the lifespan of the fencing. Based on the overall small scale of USDA-APHIS fencing projects, any on-site construction emissions are low in volume, temporary in duration, and highly likely to rapidly dissipate below detectable levels. Under the preferred alternative, the number of service vehicle trips would be minimized to reduce vehicle emissions. The USDA annually reports air emissions at the agency level. For these reasons, USDA-APHIS finds the preferred alternative would not create long-term or cumulative effects to air quality.

4.4 Vegetation

Under the no action alternative, the existing vegetative cover consisting of overgrown grasses and mesquite trees would continue to grow in the areas unless a weather event (hurricane, tornado, etc.) destroyed it. Weeds and invasive plants would continue to spread by wind, water, wildlife, and service vehicles maintaining the existing 4-foot fencing.

Under the preferred alternative, installation of the high game fencing would require temporary removal of vegetation along the fence line, particularly where posts and underground skirting are to be installed. The holes in the wire mesh skirting are too large to stop underground seeds from germinating and would be ineffective at stopping overgrowth from nearby plants. Construction activities may temporarily alter soil moisture in the ecosystem, which may temporarily disturb the balance of microflora along the fence line. These short-term effects would end as the vegetation regrows. Routine fence maintenance may involve physical removal of vegetation that

grew onto the fencing and interferes with fence integrity. USDA-APHIS does not use pesticides to retain vegetation-free zones around fencing.

4.5 Agriculture and Livestock Health

Under the no action alternative, movement of stray livestock (e.g., cattle and horses) across non-fenced or ineffectively fenced properties would continue. Such unrestricted movements can contribute to the increase of the number of CFT infestations like those observed in South Texas in recent years (USDA-APHIS, 2017). If this trend continues, cattle producers and government agencies may respond by increasing acaricide (pesticide) treatment of livestock and/or vacating pastures more often.

Under the no action alternative, open corridors for wildlife hosts searching for forage, shelter, and water resources are likely to increase the spread of CFTs. CFT infested white-tailed deer and nilgai antelope would continue to enter and traverse ranch areas by avoiding or jumping over existing low fences. Comingling livestock may become infested with CFT, increasing the likelihood of babesiosis outbreaks in U.S. cattle populations (Pérez de León et al., 2012).

Under the preferred alternative, high game fence segments would restrict the movement of white-tailed deer and nilgai by requiring them to search for a break where they can cross. USDA-APHIS expects reduced transport and spread of CFT by wildlife beyond tick-free areas in Cameron and Willacy Counties. Under the preferred alternative, animal health is likely to improve because of the potential for fewer contacts between tick-infested wildlife and healthy livestock.

4.6 Wildlife

Under the no action alternative, wildlife would continue to move in the area searching for water, forage, and shelter resources. If they become infested with CFT, then these animals could increase the spread of CFTs and the risk of disease outbreaks in wildlife populations in South Texas.

Regardless of the height, there can be negative effects of fencing on wildlife populations. For example, there may be accidental collisions into fencing by ungulates with poor depth perception when chased by predators. Fencing may be used by predators as a hunting perch. Animals may become entangled in woven wire fences made with strands of barbed wire. USDA-APHIS does not propose to use barbed wire in its game fences. Fences can restrict wildlife access to forage and water resources, which could be critical during seasonal migrations or prolonged droughts (USDA APHIS, 2018a). For these reasons, USDA uses the best available science to inform its decisions about fence design, materials, and sites. The design features of the high game fencing in the preferred alternative limit the potential for entanglement and allow passage of species. These 7-inch by 12-inch openings will apply to the entire length of the fence, and will allow movement of ocelots (*Leopardus pardalis*), jaguarundi (*Herpailurus yagouaroundi cacomitli*), and Texas tortoises (*Gopherus berlandieri*) across to northern ranches, thereby, enabling genetic exchange between neighboring populations (USDA-APHIS, 2020).

Under the preferred alternative, movement of wildlife would be minimally deterred by the high fencing. These fence segments are deliberately insufficient to stop all animal movement based on

small animals being able to crawl through fence holes, or larger animals being able to find and traverse both horizontal and vertical breaks in the fencing. Examples of these larger animals are coyotes (*Canis latrans*) and foxes (Canidae) who can navigate the 7- by 12- inch openings. These species are not preferred CFT hosts in comparison to nilgai or antelope. The free movement of smaller to medium-sized animals such as American badger (*Taxidea taxus*), desert cottontail (*Sylvilagus audubonii*), Mexican ground squirrel (*Ictidomys mexicanus*), desert shrew (*Notiosorex crawfordi),* and southern plains woodrat (*Neotoma micropus*) is not likely to be impacted by the high game fencing because they can pass through fence openings.

Under the preferred alternative, corridor connectivity for ground-dwelling birds (such as wild turkey (*Meleagris gallopavo*) and northern bobwhite quail (*Colinus virginianus*) may be temporarily lost due to reduced ground-cover vegetation during the fence installation (Stromberg, 1990 cited in USDA-APHIS, 2018a). This temporary effect would cease as groundcover vegetation regrew.

4.6.1 Endangered Species Act

Section 7 of the Endangered Species Act (ESA) and ESA's implementing regulations require Federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed T&E species or result in the destruction or adverse modification of critical habitat.

USDA-APHIS determined that the proposed action will have no effect on the following T&E species or their critical habitat: West Indian manatee (*Trichechus manatus*), piping plover (*Charadrius melodus*), red knot (*Calidris canutus*), least tern (*Sternula antillarum*), green sea turtle (*Chelonia mydas*), Kemp's ridley sea turtle (*Lepidochelys kempii*), leatherback sea turtle (*Dermochelys coriacea*), loggerhead sea turtle (*Caretta caretta*), hawksbill sea turtle (*Eretmochelys imbricata*), and Texas ayenia (*Ayenia limitaris*).

USDA-APHIS determined that the proposed action may affect, but is not likely to adversely affect, the Gulf Coast jaguarundi (*Herpailurus yagouaroundi cacomitli*), ocelot (*Leopardus pardalis*), piping plover (*Charadrius melodus*) and its critical habitat, and northern aplomado falcon (*Falco femoralis).* USDA-APHIS submitted a biological assessment (USDA-APHIS, 2020) to the USFWS, Ecological Services, Alamo Sub-office on October 7, 2020, requesting their concurrence with these determinations. USDA-APHIS received a concurrence letter from the USFWS dated November 2, 2020.

4.6.2 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668–668c) prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

The bald eagle (*Haliaeetus leucocephalus*) is present in the lower 48 States and Alaska. Although it was officially removed from the List of Endangered and Threatened Species as of August 8, 2007 due to recovery after near disappearance decades ago, bald eagles continue to be protected under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA).

The bald eagle's preferred habitats are undisturbed forests with tall canopies near water bodies. Nest sites typically include at least one perch with a clear view of water bodies or areas where the eagles usually forage (FWS, 2018). According to the Texas Parks and Wildlife Department (TPWD, undated), bald eagles are present year-round throughout Texas as spring and fall migrants, breeders, or winter residents. There are two populations in this State: breeding population and nonbreeding or wintering population. The breeding populations occur primarily in the eastern half of the State and along coastal counties from Rockport (Aransas County) to Houston (Harris County), while the nonbreeding or wintering populations are located primarily in the Panhandle, Central, and East Texas, and in other areas of suitable habitat throughout the State. There is no evidence that bald eagles occur in Cameron and Willacy Counties, although the online journal *iNaturalist.org* indicates its potential occurrence occasionally in Willacy County. In either case, the impact of the proposed action on potential bald eagle nests at the game fencing locations is unlikely because the proposed fencing locations are cattle ranches and refuge lands, not "undisturbed forests with tall canopies near water bodies". Moreover, based on the bald eagle distribution provided by TPWD, the program area in Cameron and Willacy Counties is more than 150 miles away from the breeding population area (between Rockport, Aransas County and Houston, Harris County), and several hundreds of miles away from the nonbreeding or wintering population areas (Panhandle, Carson County; Central and East regions of Texas).

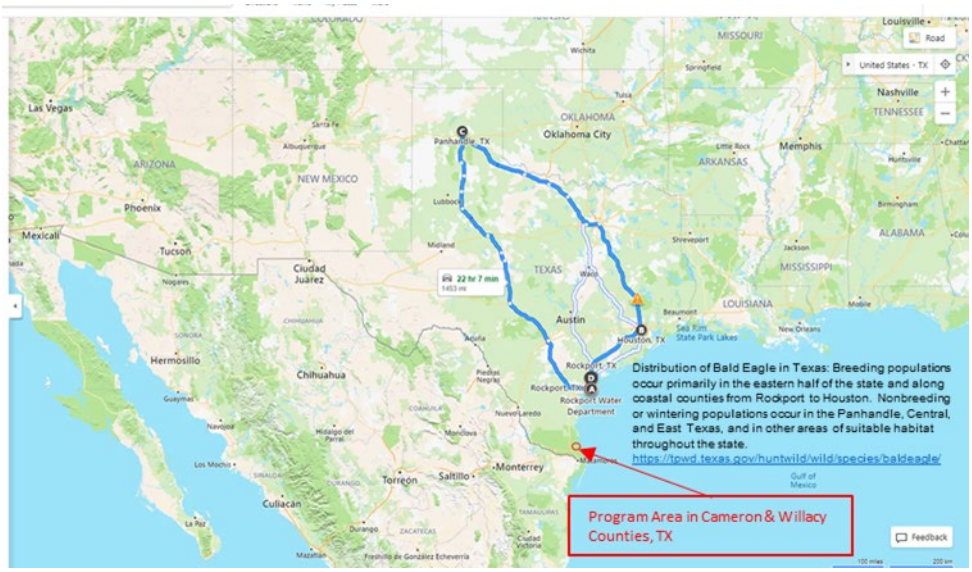

Figure 10. Approximative Location of the Program Area and Bald Eagle Distribution in Southern Texas (blue polygon)

As for the golden eagle (*Aquila chrysaetos*), this species is adaptable in habitat but often resides in areas with a few shared ecological characteristics. It is best suited to hunting in open or semi-

open areas and can be observable year-around. Native vegetation seems to be attractive to golden eagle and it typically avoids developed areas of any type from urban to agricultural as well as heavily forested regions. In isolated areas, the golden eagle can occur regularly at roadkill and garbage dumps where it typically scavenges on animal carcasses (Vukovich *et al*., 2015). This species seems to prefer mountainous regions, where populations are usually found in large numbers hunting and nesting on rock formations. However, this species can also breed in lowlands, wherever local habitats are suitable. According to the USFWS, the golden eagle is known or believed to occur in several counties in Texas including Cameron and Willacy County. However, there is no evidence of the existence of golden eagle on cattle ranches, where the proposed high game fencing would be installed.

In the event bald or golden eagles are observed eating live prey or scavenging on dead animals in or nearby the proposed fencing locations, chances that the eagles would be harmed during or after construction of game fencing are very unlikely because these locations have always been used for cattle ranching (Willacy County) and refuge (Cameron County), and would continue to serve the same purposes after the USDA fencing activities. The LANWR Unit 4 fence location is on a refuge land that is normally managed by the Wildlife Service. Potential disturbance of eagles would be limited in time and scope. In any case, if the program personnel discovers the presence of any eagle or nest in the project locations, the program would report this information to the State Wildlife Service, who would assist USDA-APHIS program personnel in minimizing potential impacts to the eagle or nest of concern following the National Bald Eagle Management guidelines (FWS, 2018). USFWS usually recommends buffer zones around active nests, and USDA-APHIS program personnel would carefully follow such recommendations as much as possible.

4.6.3 Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (16 U.S.C. 703–712) established a Federal prohibition, unless permitted by regulations, to intentionally pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird or any part, nest, or egg of any such bird.

USFWS and its partners manage migratory birds and their habitats based largely on routes the birds follow as they migrate between nesting and wintering areas. There are four Migratory Flyways including Atlantic, Mississippi, Central and Pacific Flyways (Figure 11). In the United States, Texas is covered by the Central Flyway along with Alaska, Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Utah, and Wyoming. Examples of migratory birds using the Central Flyway include American golden-plover (*Pluvialis dominica*), chimney swift (*Chaetura pelagica*), ruby-throated hummingbird (*Archilochus colubris*), purple Martin (*Progne subis*), northern parula (*Setophaga americana*), black-throated green warbler (Setophaga virens), yellow-throated warbler (*Setophaga dominica*), black-and-white warbler (*Mniotilta varia*), Hudsonian godwit (*Limosa haemastica*), buff-breasted sandpiper (*Calidris subruficollis*), olive-sided flycatcher (*Contopus cooperi),* eastern wood-pewee (*Contopus virens*), willow flycatcher (*Empidonax traillii*), Alder flycatcher (*E.*

alnorum), magnolia Warbler (*Setophaga magnolia),* blackburnian warbler (*Setophaga fusca*), barn swallow (*Hirundo rustica*), yellow-billed cuckoo (*Coccyzus americanus*), golden-winged warbler (*Vermivora chrysoptera*), cerulean warbler (*Setophaga cerulea*), and bay-breasted warbler (*Setophaga castanea*) (TPWD, 2005).

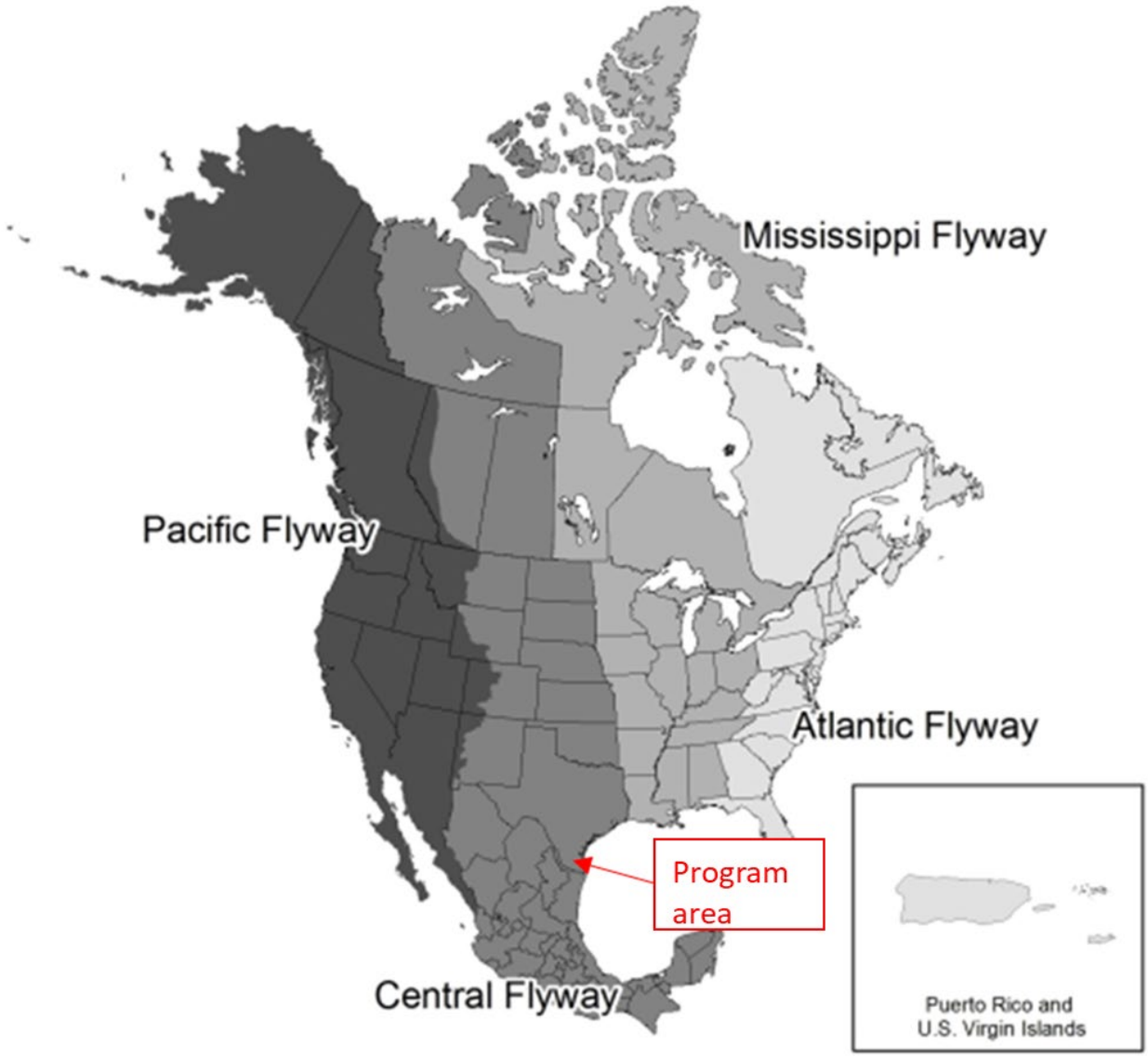

Figure 11. Migratory Birds Flyways (USFWS, undated)

According to TPWD (2005), some threats to migratory birds include: (a) habitat loss (such as food and shelter degradation by clearing of forestland and grassland), (b) human disturbances, (c) pet cats (which are serious threats to fledglings, roosting and nesting birds), and (d) lighthouses, skyscrapers, and other tall structures (such as electronic towers and cables for radio, television, and cellular phones by causing deadly collisions in the night or fog).

Under the preferred alternative, it is unlikely that the high game fencing would cause any harm to migratory birds either during or after its installation. Historically, the proposed fence locations

have served as ranch lands, and there is no indication that these places shelter migratory birds. USDA-APHIS and USFWS personnel would minimize impacts to migratory birds or nests, as necessary. To avoid impacts to migratory birds, the USFWS recommends migratory bird surveys be conducted prior to mechanical clearing of brush and trees between March 15 and September 15. Surveys should look for birds, nests, and eggs. The USFWS recommends leaving a buffer of vegetation (≥100 feet) around detected songbird nests either until the young have fledged or the nest is abandoned. Other species such as water birds or raptors require larger buffer distances of 500 feet or more (USFWS, 2020).

4.7 Human Health and Socioeconomic

Cattle fever ticks do not pose a direct risk to public health in the United States. There are no direct human health impacts expected from uncontrolled CFT populations.

Under the no action alternative, the continued spread of CFTs in Cameron and Willacy Counties is likely to impact livestock producers, and ranching communities. The cattle population's mortality rate in South Texas due to CFT is estimated at 70 to 90 percent (TFB, 2019). Without CFT control, the cattle industry across the southern tier of the country could lose more than a billion dollars annually. These kinds of losses are highly likely to increase unemployment and poverty levels, particularly in local Hispanic and immigrant communities that rely on local ranching employment opportunities.

The preferred alternative would limit the spread of cattle fever ticks across the region, and improve the cattle health and socioeconomic benefits to ranchers residing in Cameron and Willacy Counties. Beneficial effects associated with the fencing are expected to include: (a) reduced CFT spread and disease transmission to cattle population, (b) reduced likelihood of human exposures to CFT and diseases from wildlife sources (e.g., hunters in game fenced areas are likely to take CFT-free, healthier deer and Nilgai), (c) more productive animal husbandry in the area, and (d) reductions in the costs of animal products.

Under the preferred alternative, the materials and design features of the fencing do not pose risks to health and safety because they are inert and resist rust and corrosion. The high game fencing materials do not contain any chemicals that pose risks to ranchers and workers installing the fencing.

The public and nearby ranchers also are highly unlikely to be exposed to the limited amounts of dust and noise associated with fence construction and maintenance activities because dust and vehicle emissions would be minimal in scope and duration. An upgrade to cattle fencing may socioeconomically impact landowners if their property taxes increase due to perceived added value. Fencing upgrades and decreased access to ranch properties by wildlife may reduce the amount of bushmeat available to members of local communities.

Federal agencies comply with EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" and EO 13985 "Advancing Racial Equity and Support for Underserved Communities Through the Federal Government" by identifying and addressing equity for underserved communities. In comparison to the rest of the United States, this area appears to be poor with a large minority population. In 2019, about 90 percent of

residents of Cameron County and 88.5 percent of residents of Willacy County self-identified as Hispanic (CIP, 2020). Since 2018, the average annual salary reported in these counties varied between $34,500 and $35,500, with unemployment rates ranging from 5.5 to 8.2 percent, and poverty rates ranging from 25 to 35 percent (CIP, 2020). However, major communities such as Brownsville, Harlingen, San Benito, Raymondville, Lyford, Sebastian, San Perlita, and Port Mansfield cities are many miles away from the fencing locations. At about 10 miles away, USDA estimates the closest city is Rio Hondo. Based on this distance, it is highly unlikely the public would be exposed to effects associated with high fence construction and maintenance. Members of the local communities are highly unlikely to be aware of the USDA fence activities.

The locations of the proposed high game fencing do not overlap with any land used for crop or oil production, which are central elements of the local economy in Cameron and Willacy Counties. The preferred alternative would not negatively affect the standard of lifestyle, social behavior patterns, or the needs of local communities. Fence construction and maintenance would not interfere with ongoing socioeconomic activities in Cameron and Willacy Counties, particularly those at the airports, waterborne commerce, and recreation facilities.

On balance, USDA-APHIS does not expect the proposed action to pose any disproportionately high and adverse effects to minorities or members of low-income communities because they will share in the benefits of the preferred alternative and are highly unlikely to be exposed to effects associated with fence construction and maintenance.

5. Persons And Agencies Consulted

The CFTEP is a cooperative effort between Federal government, State of Texas, local governments, and individual livestock producers, who share program costs. USDA-APHIS has consulted with several people and agencies to gather, exchange, and/or review the information included in this Environmental Assessment. These individuals and agencies are:

Bonilla, Denise L.
National Cattle Fever Tick Eradication Program Coordinator/VS Entomologist
USDA/APHIS/Veterinary Services Strategy and Policy
Natural Resources Research Center, Bldg. B, 3E89
2150 Centre Avenue, Fort Collins, CO 80526-8117
Denise.L.Bonilla@usda.gov

Makhdoomi, **Muzafar** DVM, MVSc, MPVM, PhD, DACVPM
Texas Animal Health Commission, Laredo Region Director
500 E Mann Road, Suite B7, Laredo, TX 78041
muzafar.makhdoomi@tahc.texas.gov

U.S. Department of Agriculture, **Animal and Plant Health Inspection Service**
Policy and Program Development, Environmental Risk and Analysis Services
4700 River Road, Unit 149, Riverdale, MD 20737

U.S. Fish and Wildlife Service
Ecological Services, Alamo Sub-Office
3325 Green Jay Rd, Alamo, Texas 78516

Wolfe, Mark, Executive Director, Preservation Officer
Texas State Historical Commission
P.O. Box 12276, Austin, TX 78711-2276

Appendix A. References

Anderson, D.P., Hagerman, A.D., Teel, P.D., Wagner, G.G., Outlaw, J.L. and Herbst, B.K. 2010. Economic impact of expanded fever tick range. Agricultural and Food Policy Center, TAMU, College Station, TX Research Report 10-2. 28 pp. http://www.afpc.tamu.edu [last accessed October 2020]

BIA (Bureau of Indian Affairs). Undated. Indian Lands of Federally Recognized Tribes of the United States. Map resource available online at https://www.bia.gov/sites/bia.gov/files/assets/bia/ots/webteam/pdf/idc1-028635.pdf [last accessed April 30, 2021].

CIP (County Information Profile). 2020. Texas County Profiles. Available online at Texas County Profiles (txcip.org) [last accessed April 30, 2021].

CFSPH (Center for Food Security and Public Health). 2008. *Bovine babesiosis*. Center for Food Security and Public Health, Iowa State University, Ames, IA 6pp. http://www.cfsph.iastate.edu/DiseaseInfo/disease.php?name=bovine-babesiosis&lang=en [last accessed October 2020]

DOD (Department of Defense), 2019. Corrosion Prevention & Control (CPC) Fencing Knowledge Area. Last updated on 11-20-2019 by Joseph C. Dean, P.E., and Steve Geusic, P.E., for the Director, Corrosion Policy & Oversight (DASD) [Materiel Readiness] and available online at https://www.wbdg.org/ffc/DOD/cpc-source/fencing-knowledge-area [last accessed March 2021]

EPA (Environmental Protection Agency). Undated. Texas Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Available online at https://www3.epa.gov/airquality/greenbook/anayo_tx.html [last accessed May 19, 2021].

USFWS (U.S. Fish and Wildlife Service). 2010. Draft Ocelot (*Leopardus pardalis*) Recovery Plan, First Revision, FWS Southwest Region, Albuquerque, NM.

USFWS (U.S. Fish and Wildlife Service). 2018. Federally endangered, threatened, and candidate species in Mississippi. USFWS Mississippi Field Office. Available online at www.fws.gov/mississippiES/_pdf/MS_Species_Habitat_Descriptions_2018final.pdf [last accessed October 2020]

USFWS (U.S. Fish and Wildlife Service). 2020. Concurrence letter regarding effects of a proposed game fence on federally listed species in Willacy County, Texas; Letter Reference # 02ETTX00-2021-I-0180 dated November 2, 2020.

USFWS (U.S. Fish and Wildlife Service. 2021. Intra-Service Section 7 Biological Evaluation Form. Consultation No. 02ETTX00-2021-I-1259. 8 pp.

Haines, A.M., Tewes, M.E., Laack, L.L., Grant W.E. and Young, J. 2005. Evaluating recovery strategies for an ocelot population in southern Texas. Biological Conservation 126:512-

522. https://www.researchgate.net/publication/222425896_Evaluating_recovery_strategies_for_an_ocelot_Leopardus_pardalis_population_in_the_United_States [last accessed October 2020]

Homer, M.J., Irma Aguilar-Delfin, Sam R. Telford, III, Peter J. Krause, and David H. Persing. 2000. Babesiosis. Clin Microbiol Rev.; 13(3): 451–469. https://cmr.asm.org/content/13/3/451.short [last accessed October 2020]

Lew-Tabor, A.E. 2011. Blood Parasites – Anaplasmosis. Merck Veterinary Manual. http://www.merckmanuals.com/vet/circulatory_system/blood_parasites/anaplasmosis.html *last accessed* May 13, 2013. http://www.merckmanuals.com/vet/circulatory_system/blood_parasites/anaplasmosis.html [last accessed October 2020]

Mahmoud, Ahmed. 2019. Northern &Central Watershed Protection Plan Project; Civil Engineering Department University of Texas Rio Grande Valley. http://www.lrgvdc.org/downloads/water/Norther%20and%20Central%20Watershed.pdf [last accessed October 2020]

Pérez de León, A.A., Teel, P.D., Auclair, A.N., Messenger, M.T., Guerrero, F.D., Schuster, G. and Miller, R.J. 2012. Integrated strategy for sustainable cattle fever tick eradication in USA is required to mitigate the impact of global change. Frontiers Physiology 3:1-17.

Stromberg, M.R. 1990. Habitat, movements, and roost characteristics of Montezuma quail in Southeastern Arizona. Condor 92:229-236.

Texas Almanac (undated). Vegetation Areas of Texas. Available online at https://texasalmanac.com/topics/environment/texas-plant-life [last accessed May 19, 2021]

Texas A&M University. 2020. Notice to Livestock Owners: Cattle Fever Ticks Spreading in South Texas https://tickapp.tamu.edu/cattle-fever-ticks-spreading.html

TCEQ (Texas Commission on Environmental Quality). 2013. Historical Data Review Report of Arroyo Colorado Tidal Segment 2201. Available online at https://www.researchgate.net/publication/321962400_Historical_Data_Review_Report_Arroyo_Colorado_Tidal_Segment_2201 [last accessed October 2020]

TFB (Texas Farm Bureau). 2019. USDA expands fever tick fencing in South Texas https://texasfarmbureau.org/usda-expands-fever-tick-fencing-south-texas [last May 2021]

TPWD (Texas Parks and Wildlife Department). Undated. Outdoor Annual hunting, fishing, and boating regulations: 2020-2021 Seasons by Animal. Available online at https://tpwd.texas.gov/huntwild/wild/species/ or 2020-2021 — Texas Parks & Wildlife Department [last accessed May 19, 2021]

TPWD (Texas Parks and Wildlife Department). Undated. Bald Eagle (*Haliaeetus leucocephalus).* Available online at https://tpwd.texas.gov/huntwild/wild/species/baldeagle/ [last accessed May 19, 2021]

TPWD (Texas Parks and Wildlife Department). 2005. Migration and the Migratory Birds of Texas: Who they are and Where they are going; Fourth edition.

https://tpwd.texas.gov/publications/pwdpubs/media/pwd_bk_w7000_0511.pdf [last accessed October 2020]

TSHA (Texas State Historical Association). 2015. Cameron County, Hidalgo County, Jim Wells County, Kinney County, Val Verde County, and Willacy County in: The Handbook of Texas State Historical Association.

UNT (University of North Texas). 1982. Texas Soil Surveys of Willacy County, Texas (Turner, August J. & Hyde, Harold H. 1982); UNT Libraries Government Documents Department; https://texashistory.unt.edu/ark:/67531/metapth130255/m1/11/ [last accessed October 2020]

USDA-APHIS (U.S. Department of Agriculture, Animal and Plant Health Inspection Service). 2017. Cattle Fever Tick Eradication Program Use of Ivermectin Corn Final Environmental Assessment, January 2017. Available online at https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/ivermectin-corn.pdf

USDA-APHIS (U.S. Department of Agriculture, Animal and Plant Health Inspection Service). 2018a. Cattle Fever Tick Eradication Program – Tick Control Barrier, Maverick, Starr, Webb, and Zapata Counties, Texas, Final Environmental Impact Statement – May 2018"

USDA-APHIS (U.S. Department of Agriculture, Animal and Plant Health Inspection Service). 2018b. Cattle Fever Tick Eradication on Laguna Atascosa and Lower Rio Grande Valley National Wildlife Refuges - February 2018" (Final EA)

USDA-APHIS (U.S. Department of Agriculture, Animal and Plant Health Inspection Service). 2020. Game Fence for the Cattle Fever Tick Eradication Program in Willacy County, Texas; Biological Assessment

USDA-APHIS (U.S. Department of Agriculture, Animal and Plant Health Inspection Service). 2021. CFTEP Highlights Letter –February, Reporting Period: February 1 – February 28 [Internal Report]

USDA NASS (U.S. Department of Agriculture, National Agricultural Statistics Service). 2017. Census of Agriculture, Willacy County Profile. Available online at https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Texas/cp48489.pdf [Last accessed: September 2020]

USDA NRCS (U.S. Department of Agriculture, National Conservation Service). 1929. Soil Survey of Willacy County. Available online at https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/texas/willacyTX1929/willacyTX1929.pdf [Last accessed: September 2020]

USDA NRCS. 1981. General Soil Map, Willacy County. https://texashistory.unt.edu/ark:/67531/metapth130328/m2/1/high_res_d/gsm.pdf [Last accessed: September 2020]

USDA SCS (Soil Conservation Service). 1980. General Soil Map of Cameron County 9483733.pdf (texas.gov) [Last accessed: April 2021]

USFWS (U.S. Fish and Wildlife Service). Undated. Flyways. Available online at https://www.fws.gov/birds/management/flyways.php [Last accessed: April 2021].

Vukovich, Mark, Kelsey L. Turner, Tracy E. Grazia, Thomas Mims, James C. Beasley, and John C. Kilgo, 2015. Wintering golden eagles on the coastal plain of South Carolina. *J. Field Ornithol*. 86(4):337–344. Available online at https://www.researchgate.net/publication/285580778/download [Last accessed: September 2020]

Appendix B. Identification of Locations for Proposed High game fencing in Cameron and Willacy Counties

Port Mansfield

Starting point: 26.527881, -97.450018

Bend 1: 26.539123, -97.445162

Bend 2: 26.537337, -97.445151

End point: 26.537314, -97.420664

El Sauz Section 1

Starting point: 26.403831, -97.544858

End point: 26.416060, -97.543998

Flood way

Starting point: 26.376244, -97.516743

Bend 1: 26.375807, -97.513360

Bend 2: 26.376099, -97.513758

End point: 26.369169 -97.513628

Floodway – El Toro

Starting point: 26.369547, -97.479970

End point: 26.369718, -97.464878

LANWR Unit 4

Starting Point: 26.409223,-97.388528
Bend 1: 26.407698,-97.390772
Bend 2: 26.40483,-97.394662
Bend 3: 26.403277,-97.394486
Bend 4: 26.401198,-97.394998
Bend 5: 26.398271,-97.396865
Bend 6: 26.397215,-97.397186
Bend 7: 26.395973,-97.397891
Bend 8: 26.394733,-97.398301
Bend 9: 26.393756,-97.398675
Bend 10: 26.390711,-97.398682
Bend 11: 26.387837,-97.399682

Bend 12: 26.385207,-97.400918
Bend 13: 26.383393,-97.402937
Bend 14: 26.381863,-97.404756
Bend 15: 26.380805,-97.405851
Bend 16: 26.379548,-97.407151
Bend 17: 26.377677,-97.408448
Bend 18: 26.376956,-97.40915
Bend 19: 26.375729,-97.410096
Bend 20: 26.374138,-97.411128
Bend 21: 26.3734,-97.411725
Bend 22: 26.372074,-97.413131
Bend 23: 26.371288,-97.413164
End Point: 26.346693,-97.414217