



May 29, 2012

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Ms. Stacey M. Zee
Federal Aviation Administration
c/o Cardno TEC Incorporated
275 West Street, Suite 110
Annapolis, MD 21409

RE: Natural resource issues regarding Space Exploration Technologies' proposed construction of a vertical launch area and control center, Cameron County, Texas

Dear Ms. Zee:

This letter is in response to your request for information concerning the impacts upon fish, wildlife and plant resources associated with the proposed development of a vertical launch area and control center in Cameron County, Texas. The Federal Aviation Administration (FAA) Office of Commercial Space Transportation will prepare an Environmental Impact Statement (EIS) under the National Environmental Policy Act (NEPA) to evaluate the potential environmental impacts of the proposed issuance of launch licenses and/or experimental permits to the applicant, Space Exploration Technologies Corporation (SpaceX).

Texas Parks and Wildlife Department (TPWD) is the agency with primary responsibility for protecting the state's fish and wildlife resources (Texas Parks and Wildlife Code §12.0011(a)). Furthermore, TPWD is charged with providing information on fish and wildlife resources to any local, state, and federal agencies or private organizations that make decisions affecting those resources (Texas Parks and Wildlife Code §12.0011(b)(3)).

Project Description

SpaceX proposes to construct a vertical launch area, control center, and utility connections in southern Cameron County near the terminus of State Highway (SH) 4 to support up to 12 commercial space vehicle launches per year. The vehicles to be launched include the Falcon 9, Falcon Heavy (up to two per year), and a variety of smaller reusable suborbital launch vehicles. The Falcon 9 is a medium-lift class launch vehicle with a gross lift-off weight of approximately one-million pounds with a maximum length of 230 feet. It uses liquid oxygen and highly refined kerosene, also known as rocket propellant-1 or refined petroleum-1, as propellants to carry payloads into orbit. The Falcon Heavy is similar to the Falcon 9, except it has two additional boosters "strapped on." The Falcon Heavy

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is a heavy-lift class launch vehicle with a gross lift-off weight of approximately 3.4 million pounds. It has an overall length of approximately 230 feet.

Permanent structures at the launch area site would consist of a hangar, a launch pad and stand with associated flame duct, four lighting towers, propellant storage tanks and handling areas, a workshop, an office, a warehouse for parts storage and an elevated water storage tank. The footprint of the facilities developed at the launch site is anticipated to be less than eight acres with the rest of the property remaining undeveloped.

The control center would be located on private property approximately 1.5 miles west of the launch area on the north side of SH 4. The control area would consist of a control center building, a payload processing facility, parking lots, and possibly a launch vehicle preparation hangar. Access roads, security fences, guard shacks and utility connections would also be included at both the launch site and control center locations.

The launch area site is bounded to the north, west and east by property owned by TPWD (Boca Chica State Park) and leased to the U.S. Fish and Wildlife Service (USFWS) as part of its Lower Rio Grande Valley National Wildlife Refuge complex. The site currently proposed to be developed for the control center is bounded to the east and south by the same TPWD-owned property.

TPWD staff has reviewed the information provided and offers the following comments and recommendations.

Rare and Protected Species

Based on the project as presented, the TPWD annotated county list of rare species for Cameron County, and presently known Texas Natural Diversity Database (TXNDD) records for the general project areas, the following listed species could be impacted by proposed project activities *if suitable habitat is present*.

Federal- and State-Listed Endangered

- Northern Aplomado Falcon (*Falco femoralis septentrionalis*)
- * Jaguarundi (*Herpailurus yaguarondi*)
- * Ocelot (*Leopardus pardalis*)
- Atlantic hawksbill turtle (*Eretmochelys imbricata*)
- Kemp's Ridley sea turtle (*Lepidochelys kempii*)
- Leatherback sea turtle (*Dermochelys coriacea*)

Federal- and State-Listed Threatened

- * Piping Plover (*Charadrius melodus*)
- * Green sea turtle (*Chelonia mydas*)
- Loggerhead sea turtle (*Caretta caretta*)

Federal Candidate for Listing

- Sprague's Pipit (*Anthus spragueii*)

State-Listed Threatened

- Sheep frog (*Hypopachus variolosus*)
- American Peregrine Falcon (*Falco peregrinus anatum*) (Federally Delisted; DL)
- Gray Hawk (*Asturina nitida*)
- * Peregrine Falcon (*Falco peregrinus*) (DL)
- Reddish Egret (*Egretta rufescens*)
- Sooty Tern (*Sterna fuscata*)
- Texas Botteri's Sparrow (*Aimophila botterii texana*)
- White-tailed Hawk (*Buteo albicaudatus*)
- Wood Stork (*Mycteria americana*)
- Zone-tailed Hawk (*Buteo albonotatus*)
- Southern yellow bat (*Lasiurus ega*)
- Black-striped snake (*Coniophanes imperialis*)
- Northern cat-eyed snake (*Leptodeira septentrionalis septentrionalis*)
- Speckled racer (*Drymobius margaritiferus*)
- Texas horned lizard (*Phrynosoma cornutum*)
- Texas indigo snake (*Drymarchon melanurus erebennus*)
- Texas tortoise (*Gopherus berlandieri*)

Species of Concern

- Brown Pelican (*Pelecanus occidentalis*) (DL)
- Snowy Plover (*Charadrius alexandrinus*)
- Western Snowy Plover (*Charadrius alexandrines nivosus*)
- Keeled earless lizard (*Holbrookia propinqua*)
- Bailey's ballmoss (*Tillandsia baileyi*)
- Green Island echeandia (*Echeandia texensis*)
- * Lila de los llanos (*Echeandia chandleri*)

Special Features and Natural Communities

- * South Bay Coastal Preserve
- * Rookery
- * Sea Oats-Bitter Panicum Series (*Uniola paniculata*-*Panicum amarum* Series)
- * Texas ebony-Snake-eyes Series (*Pithecellobium ebano*-*Phaulothamnus spinescens* Series)
- * Texas ebony-Snake-eyes-Berlandier Fiddlewood Series (*Pithecellobium ebano*-*Phaulothamnus spinescens*-*Citharexylum berlandieri* Series)

Please be aware that the TXNDD is intended to assist users in avoiding harm to rare species or significant ecological features. Absence of information in an area does not imply that a species is absent from that area. Given the small proportion of public versus private land in Texas, the TXNDD does not include a representative inventory of rare resources in the state. Although it is based on the best data available to TPWD regarding rare species, the data from the TXNDD do not provide a definitive statement as to the presences, absence or condition of special species, natural communities, or other significant features within your project area. These data are not inclusive and **cannot be used as presence/absence data**. They represent species that could potentially be in your project area. This information cannot be substituted for on-the-ground surveys.

Please review the most current TPWD county list for Cameron County, as other rare species could be present depending upon habitat availability. These lists are available online at <http://www.tpwd.state.tx.us/gis/ris/es/default.aspx>.

For the USFWS rare species lists please visit: http://eco.fws.gov/tess_public/serviet/gov.doi.tess_public.serviets.EntryPage.

Federal Regulations

Endangered Species Act (ESA)

Federally-listed animal species and their habitat are protected from “take” on any property by the ESA. Take of a federally-listed species can be allowed if it is

*

Data from the TXNDD has documented occurrences of the species shown above, preceded by an asterisk, on and/or possibly within five miles of the project sites. Element occurrence records and a map are included for planning reference (Attachment 1).

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“incidental” to an otherwise lawful activity and must be permitted in accordance with Section 7 or 10 of the ESA. Federally-listed plants are not protected from take except on lands under federal/state jurisdiction or for which a federal/state nexus (i.e., permits or funding) exists. Any take of a federally-listed species or its habitat without the required take permit (or allowance) from the USFWS is a violation of the ESA.

The proposed project is located on a privately owned tract of land that is bounded on three sides by a tract of land owned by TPWD and managed by the USFWS as part of the Rio Grande Valley Wildlife Corridor, a long-standing program aimed at preserving, restoring, and managing habitat for wildlife including threatened and endangered species. This tract of land lies at the eastern terminus of an approximately 200,000-acre network of state, federal, nonprofit and private conservation lands. The Rio Grande Valley Wildlife Corridor initiative extends from Falcon Lake in the west to Boca Chica at the mouth of the Rio Grande into the Gulf of Mexico. This initiative has been an active project of TPWD, USFWS, many private landowners, local communities and nonprofit conservation organizations such as Audubon, The Nature Conservancy, Valley Land Fund, and others since the 1970s.

Within or near the proposed project areas, occurrences of federally-listed Ocelots, Jaguarundi, Piping Plover, and Green sea turtles have been documented. Additionally, suitable nesting habitat for all five species of sea turtles is available on the beach less than one-quarter mile east of the proposed launch site. In addition to the direct loss of habitat resulting from the construction of the project, TPWD is concerned that the quality and natural resource value of the surrounding properties will also be diminished as a result of the project.

Recommendation: The Draft EIS (DEIS) will evaluate impacts to biological resources, including threatened and endangered species. TPWD is especially concerned with the direct impact noise, heat, vibration, fencing, and hazardous material spills may have on federally-listed species and recommends that the DEIS thoroughly evaluate these items.

In particular, the DEIS should evaluate the impact these modifications to the landscape will have on daily and/or seasonal migrations of wildlife through the area (e.g., effect of lighting on Kemps Ridley and fencing on ocelot movements through the area) and whether listed species will be displaced permanently from the area.

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TPWD recommends that if any fences are constructed around the SpaceX property (excluding the launch pad) they should be designed to allow wildlife to pass while restricting vehicles, humans and debris (e.g., plastic trash). Fences will require regular inspections and maintenance to keep them intact and free of windblown debris. The DEIS should address fence design, inspection and maintenance.

Noise, heat, and vibration impacts, from both space vehicle launches and routine daily activities at the control center and launch site, should be evaluated with respect to wildlife. The DEIS should provide specific references regarding the impact of launch-associated vibrations on nesting success of sea turtles.

Migratory Bird Treaty Act (MBTA)

The MBTA implicitly prohibits intentional and unintentional take of migratory birds, including their nests and eggs, except as permitted by the USFWS. Although not documented in the TXNDD, many bird species that are protected by the MBTA are known to reside in or migrate through the proposed project areas.

The proposed project area is within the Central Flyway, a route through which over 500 species of birds migrate annually. This translates into millions of trans- and circum-Gulf birds using the Central Flyway during spring and fall. The Lower Rio Grande Valley is at the northernmost range for many species of Neo-Tropical migrants and at the southernmost range for a number of raptors and shorebirds that winter in South Texas. The mud and sand flats surrounding the site (and into which the launch pad's flame duct would discharge) are used by numerous shorebirds, including the federally-listed (threatened) Piping Plover, during the winter. Areas surrounding the project are managed or preserved as high quality wildlife habitat that provides for foraging, loafing and nesting sites for birds.

Recommendation: The DEIS should address the direct impacts that construction and operation of the control center and space launch site may have on birds. Impacts from noise, heat, vibrations, permanent lights, and hazardous material spills should be evaluated. Also, proposed permanent structures should be designed to avoid and/or minimize potential bird impacts. For example, structures or substrates that attract birds by providing perches or suitable nesting sites and structures requiring guy wires should be excluded from project designs. And, recent studies

indicate birds in migration may be attracted to permanently lighted facilities during times of low visibility (e.g., storms and dense fog).

The DEIS should address shorebird use in the project area, especially for Plovers, Long-billed Curlews, Red Knots and ground nesting birds. Grassland birds may also utilize the proposed project site for nesting. The DEIS should address proposed plans to avoid and or minimize potential impacts to nesting and wintering birds. Specifically, the DEIS should include a detailed discussion of the effects of a permanently lit facility on bird use in the area.

During construction, TPWD recommends scheduling any necessary vegetation clearing or trampling outside of the April 1–July 15 migratory bird nesting season in order to fully comply with the MBTA. SpaceX and its contractors should be made aware of the potential of encountering migratory birds on the proposed project site (especially nesting grassland and shore birds) and be instructed to avoid negatively impacting them. If vegetation clearing must occur during the nesting season, nest surveys should be conducted by a qualified biologist prior to commencing work. If active nests are observed, TPWD recommends leaving a 150-foot buffer of vegetation around the nests until the young have fledged or the nest is abandoned.

Clean Water Act

The Clean Water Act (CWA) provides for the federal protection and regulation of surface water quality. The CWA regulates point and nonpoint sources of water pollution, including the placement of “fill” in jurisdictional waters.

Coordination with the U.S. Army Corps of Engineers regarding potential impacts to jurisdictional wetlands has been initiated.

Recommendation: In addition to jurisdictional wetlands, TPWD is concerned with the loss of the function and value of all wetlands. The DEIS should address loss of all wetlands, regardless of jurisdictional status, and include compensation for losses.

State Regulations

Parks and Wildlife Code

State law prohibits any take of state-listed species. Laws and regulations pertaining to state-listed endangered or threatened animals are contained in Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code; laws pertaining to endangered or threatened plants are contained in Chapter 88 of the TPW Code. There are penalties, which may include fines and/or jail time in addition to payment of restitution values, associated with take of state-listed species (see Attachment 2-Protection of State-listed Species).

Due to the diversity of habitat types available in the project area, suitable habitat for a number of state-listed species occurs in the proposed project area and adjacent areas. Suitable habitat for several state-listed reptiles is known to occur in or near the project area. TPWD has concerns regarding the physical and behavioral barriers that may be created, as the development of the launch site, control center and increased traffic along SH 4 will further fragment the habitat. Specifically, TPWD is concerned with direct impacts to the following state-threatened reptiles: Texas horned lizard (*Phrynosoma cornutum*), Texas indigo snake (*Drymarchon melanurus erebennus*), and Texas tortoise (*Gopherus berlandieri*).

Recommendation: TPWD recommends the availability of suitable habitat for state-listed species be evaluated in the DEIS. Potential occurrence, impacts, and proposed impact avoidance strategies, if necessary, should also be included in the DEIS. This may best be accomplished by conducting species-specific surveys and through continued coordination with TPWD biologists.

Many of the tidal flats near the proposed project area consist of topographic features called lomas, small mounds unique to the south Texas coast formed from wind-blown silt and clay that form “miniature ecosystems” of wooded islands that support assemblages of rare plants adapted to the saline environment. Rare plants (i.e., lila de los llanos, *Echeandia texensis*) and terrestrial plant communities unique to lomas have been documented near the proposed project site.

Recommendation: TPWD recommends that areas affected by the project be surveyed for the presence of rare plants. Surveys should be conducted by a qualified botanist familiar with rare plants of south Texas. The DEIS should address any potential impacts the project may have on rare plants.

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Protection of Public Parks and Recreational Lands

TPW Code §26.001 states that a department, agency, political subdivision, county, or municipality of this state may not approve any program or project that requires the use or taking of public lands unless it determines that there is “no feasible and prudent alternative to the use or taking of such land,” and the project “includes all reasonable planning to minimize harm to the land...resulting from the use or taking.” Chapter 26 requires that before a state agency can approve any project that will result in the use or taking of public land designated and used as a park, that state agency must provide certain notices to the public, conduct a hearing, and render a finding that there is no feasible and prudent alternative and that the project includes all reasonable planning to minimize harm to the park. Chapter 26 is modeled on a federal statute, known as “section 4(f)” and codified at 49 U.S.C. §303. In fact, much of Chapter 26 is taken word for word from section 4(f). Chapter 26 requirements must also be met by the Texas Parks and Wildlife Commission (Commission) before it can grant an easement to cross TPWD property. The Commission is not obligated to grant approval for an easement. If an easement is granted, a fee and mitigation for possible adverse impacts would be required. The process of seeking Commission approval of an easement would likely require at least several months.

The proposed SpaceX launch site is situated on a 50-acre privately owned tract bounded on three sides by the 1,054-acre Boca Chica State Park. Boca Chica State Park is owned by TPWD but leased to USFWS, which manages this site. Available maps have conflicting information but indicate that TPWD *may* own a narrow (20 – 40-foot-wide) strip of land on the south side of SH 4 between the SpaceX tract and the roadway.

Recommendation: TPWD recommends the DEIS include copies of accurate land surveys of the property to be developed by SpaceX. TPWD would also appreciate receiving copies of the survey. If a narrow strip of land between SH 4 and the SpaceX property is owned by TPWD, coordination with TPWD would be required per Chapter 26 to develop the project as currently proposed.

SH 4 may need to be widened to accommodate spectators and increased traffic to and from the proposed facilities. It is also possible that an effort would be made to acquire TPWD owned land to expand SH 4. Additionally, it is not clear if proposed utility corridors (water, electricity) would require the use of adjacent public lands that serve as parks, recreation areas, scientific areas, wildlife refuges, or historic sites.

Recommendation: The DEIS should address compensation for taking public land and other natural resources related issues associated with any anticipated improvements to SH 4.

When routing utilities, TPWD strongly discourages a route that crosses land owned or managed by TPWD and recommends the applicant consider alternative routes. If any utilities to support SpaceX are anticipated to be located within or across land owned or managed by TPWD, compliance with Chapter 26 and approval from the Commission will be required.

Indirect Impacts to Natural Resources

As currently configured, the proposed SpaceX launch site would be approximately 300 feet from TPWD property; the control center would be immediately adjacent to TPWD property along Eichorn Boulevard. TPWD is concerned that the impacts of launching a space vehicle could significantly reduce the natural resource conservation value of some or all of the state owned property.

Recommendation: As part of the indirect impact analysis included in the DEIS, potential impacts to fish, wildlife and plant resources on state property that may be affected by the launching of space vehicles should be evaluated. Specifically, the DEIS should describe the expected impacts (e.g., noise, heat, vibration, fuel emissions) on vegetation and wildlife. For expected impacts for which no data exists to assist in predicting their significance (e.g., vibrations to sea turtles nests, noise and light on ocelot movement), TPWD recommends SpaceX propose and conduct research to help predict and minimize those impacts. The DEIS should also address mitigation and/or compensation for lost value of TPWD owned land.

To ensure human safety, it is anticipated that a zone, potentially up to 1.5 miles from the launch site, will be cleared for several hours during launches. According to information presented at the agency scoping meeting in Brownsville, Texas, on May 15, 2012, in order to maintain and secure a 1.5-mile clear zone around the launch site, security sweeps would be conducted that could include the use of helicopters, sirens, air cannons, fencing and on-the-ground security personnel.

Recommendation: In addition to evaluating the direct impacts associated with launching space vehicles, the DEIS should address the indirect impacts associated with securing the area prior to launches (e.g., noise, vegetation trampling).

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TPWD owned land would be included in the 1.5-mile clear zone that would require evacuation during launches. Recreational use of the TPWD lands as currently planned would need to be revised. Also, beach access and access to near-shore waters of the Gulf of Mexico east of the launch pad would also be restricted during launches.

Recommendation: The DEIS should address mitigation and/or compensation for the loss of recreational value as well as the procedure for evacuating TPWD owned land and enforcing security.

The launch site is located among grasslands and mixed thorn-scrub communities that are extremely susceptible to wildfires. TPWD is concerned with the potential impacts of unintentional fires resulting from launch failures, accidental fires, careless spectators, etc. and the effect they could have on the sensitive resources on adjacent properties.

Recommendation: The DEIS should include contingency plans to address potential wildfires.

The proposed launch site, which is located in a wash-over pass, would contain tanks of liquid oxygen, nitrogen, helium, and rocket propellant-1. Fuel would be stored on site for several months prior to a launch.

Recommendation: TPWD is concerned with the potential for significant contamination of very sensitive resources in the event of a catastrophic event (i.e., hurricane). The DEIS should thoroughly address fuel storage and clean up procedures in the event of a catastrophic event.

Comments made at public scoping meetings by city and county officials focused on the anticipated increase in tourism due to public interest in attending launches at the proposed SpaceX site. Local officials anticipate as many as 10,000 spectators will attend the launches. Approximately 15 miles of SH 4 west of the SpaceX launch site is bounded to the north and south by TPWD or USFWS property. The proposed project does not include plans to accommodate up to 10,000 spectators or propose a plan to prevent impacts to the adjacent properties owned by TPWD and USFWS. TPWD is concerned with the potential significant impacts of spectators parking along the sides of SH 4, driving off-road through the tidal flats, and leaving litter along the roads. Additionally, TPWD has concerns that spectators may attempt to view launches by entering the very shallow South Bay Coastal Preserve in boats and impacting sensitive seagrass meadows.

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Recommendation: TPWD recommends that plans to strictly control traffic be developed and enforced. SH 4 is not currently designed to accommodate this anticipated increase in traffic volume.

Traffic should either be completely prevented from entering the conservation areas or managed with physical barriers (e.g., fences or bollards) and enforcement to prevent visitors from entering TPWD owned land. The DEIS should address how the sensitive resources of adjacent properties will be protected and how the protection will be enforced. If installing fencing on TPWD is necessary to protect fish and wildlife resources, the fences should be designed to allow wildlife passage and the DEIS should address compensation.

Plans to provide parking for spectators should be established prior to the first launch. The DEIS should address traffic and parking scenarios, alternatives, and associated impacts.

TPWD appreciates the opportunity to provide comments and recommendations during the scoping phase for this project. Questions may be directed to Clayton Wolf, Wildlife Division Director, at (512) 389-8092. Thank you.

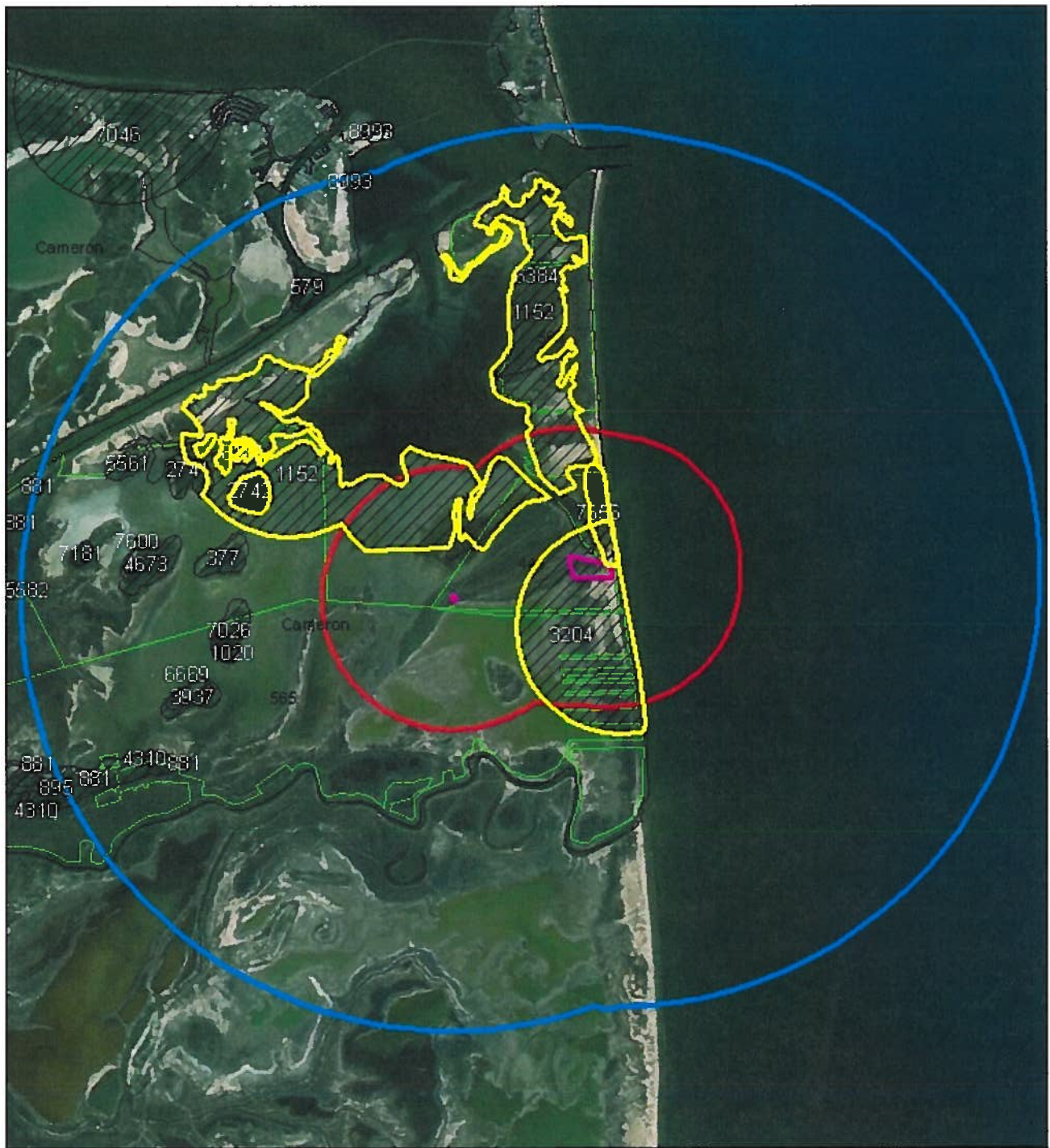
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

Ross Melinchuk
Deputy Executive Director, Natural Resources

RM:KB:RH.gg

Attachments (2)



Attachment 1. Rare resources near proposed SpaceX Project Site, Cameron County, Texas

-  1.5-mile buffer of SpaceX facilities_2
-  5-mile buffer of SpaceX facilities
-  SpaceX facilities
-  Element Occurrence ID #
-  USFWS/TPWD Property



**Code Key for Printouts from
Texas Parks and Wildlife Department
Texas Natural Diversity Database (TXNDD)**

This information is for your assistance only; due to continuing data updates, vulnerability of private land to trespass and of species to disturbance or collection, **please refer all requesters to our office to obtain the most current information available.** Also, please note, identification of a species in a given area does not necessarily mean the species currently exists at the point or area indicated.

LEGAL STATUS AND CONSERVATION RANKS

FEDERAL STATUS (as determined by the US Fish and Wildlife Service)

LE	Listed Endangered
LT	Listed Threatened
PE	Proposed to be listed Endangered
PT	Proposed to be listed Threatened
PDL	Proposed to be Delisted (Note: Listing status retained while proposed)
SAE, SAT	Listed Endangered on basis of Similarity of Appearance, Listed Threatened on basis of Similarity of Appearance
DL	Delisted Endangered/Threatened
C	Candidate. USFWS has substantial information on biological vulnerability and threats to support proposing to list as threatened or endangered. Data are being gathered on habitat needs and/or critical habitat designations.
C*	C, but lacking known occurrences
C**	C, but lacking known occurrences, except in captivity/cultivation
XE	Essential Experimental Population
XN	Non-essential Experimental Population
Blank	Species is not federally listed

TX PROTECTION (as determined by the Texas Parks and Wildlife Department)

E	Listed Endangered
T	Listed Threatened
Blank	Species not state-listed

GLOBAL RANK (as determined by NatureServe)

G1	Critically imperiled globally, extremely rare, typically 5 or fewer viable occurrences
G2	Imperiled globally, very rare, typically 6 to 20 viable occurrences
G3	Very rare and local throughout range or found locally in restricted range, typically 21 to 100 viable occurrences
G4	Apparently secure globally
G5	Demonstrably secure globally
GH	Of historical occurrence through its range
GU	Possibly in peril range-wide, but status uncertain
G#G#	Ranked within a range as status uncertain
GX	Apparently extinct throughout range
Q	Rank qualifier denoting taxonomic assignment is questionable
#?	Rank qualifier denoting uncertain rank
C	In captivity or cultivation only
G#T#	"G" refers to species rank; "T" refers to variety or subspecies rank

STATE (SUBNATIONAL) RANK (as determined by the Texas Parks and Wildlife Department)

S1	Critically imperiled in state, extremely rare, vulnerable to extirpation, typically 5 or fewer viable occurrences
S2	Imperiled in state, very rare, vulnerable to extirpation, typically 6 to 20 viable occurrences
S3	Rare or uncommon in state, typically 21 to 100 viable occurrences
S4	Apparently secure in State
S5	Demonstrably secure in State
S#S#	Ranked within a range as status uncertain
SH	Of historical occurrence in state and may be rediscovered
SU	Unrankable – due to lack of information or substantially conflicting information
SX	Apparently extirpated from State
SNR	Unranked – State status not yet assessed
SNA	Not applicable – species id not a suitable target for conservation activities
?	Rank qualifier denoting uncertain rank in State

ELEMENT OCCURRENCE RECORD

Element Occurrence Record (EOR) Spatial and tabular record of an area of land and/or water in which a species, natural community, or other significant feature of natural diversity is, or was, present and associated information; may be a single contiguous area or may be comprised of discrete patches or subpopulations

Occurrence # Unique number assigned to each occurrence of each element when added to the NDD

LOCATION INFORMATION

Watershed Code Eight digit numerical code determined by US Geological Survey (USGS)

Watershed Name of watershed as determined by USGS

Quadrangle Name of USGS topographical map

Directions Directions to geographic location where occurrence was observed, as described by observer or in source

SURVEY INFORMATION

First/Last Observation Date a particular occurrence was first/last observed; refers only to species occurrence as noted in source and does not imply the first/last date the species was present

Survey Date If conducted, date of survey

EO Type State rank qualifiers:

M	Migrant – species occurring regularly on migration at staging areas, or concentration along particular corridors; status refers to the transient population in the State																																
B	Qualifier indicating basic rank refers to the breeding population in State																																
N	Qualifier indicating basic rank refers to the non-breeding population in State																																
EO Rank	<table><tbody><tr><td>A</td><td>Excellent</td><td>AI</td><td>Excellent, Introduced</td></tr><tr><td>B</td><td>Good</td><td>BI</td><td>Good, Introduced</td></tr><tr><td>C</td><td>Marginal</td><td>CI</td><td>Marginal, Introduced</td></tr><tr><td>D</td><td>Poor</td><td>DI</td><td>Poor, Introduced</td></tr><tr><td>E</td><td>Extant/Present</td><td>EI</td><td>Extant, Introduced</td></tr><tr><td>H</td><td>Historical/No Field Information</td><td>HI</td><td>Historical, Introduced</td></tr><tr><td>X</td><td>Destroyed/Extirpated</td><td>XI</td><td>Destroyed, Introduced</td></tr><tr><td>O</td><td>Obscure</td><td>OI</td><td>Obscure, Introduced</td></tr></tbody></table>	A	Excellent	AI	Excellent, Introduced	B	Good	BI	Good, Introduced	C	Marginal	CI	Marginal, Introduced	D	Poor	DI	Poor, Introduced	E	Extant/Present	EI	Extant, Introduced	H	Historical/No Field Information	HI	Historical, Introduced	X	Destroyed/Extirpated	XI	Destroyed, Introduced	O	Obscure	OI	Obscure, Introduced
A	Excellent	AI	Excellent, Introduced																														
B	Good	BI	Good, Introduced																														
C	Marginal	CI	Marginal, Introduced																														
D	Poor	DI	Poor, Introduced																														
E	Extant/Present	EI	Extant, Introduced																														
H	Historical/No Field Information	HI	Historical, Introduced																														
X	Destroyed/Extirpated	XI	Destroyed, Introduced																														
O	Obscure	OI	Obscure, Introduced																														

EO Rank Date Latest date EO rank was determined or revised

Observed Area Acres, unless indicated otherwise

COMMENTS

Description General physical description of area and habitat where occurrence is located, including associated species, soils, geology, and surrounding land use

Comments Comments concerning the quality or condition of the element occurrence at time of survey

Protection Comments Observer comments concerning legal protection of the occurrence

Management Comments Observer comments concerning management recommendations appropriate for occurrence conservation

DATA

EO Data Biological data; may include number of individuals, vigor, flowering/fruitleting data, nest success, behaviors observed, or unusual characteristic, etc.

SITE

Site Name Title given to site by surveyor

MANAGED AREA INFORMATION

Managed Area Name Place name or (on EOR printout) name of area when the EO is located within or partially within an area identified for conservation, such as State or Federal lands, nature preserves, parks, etc.

Alias Additional names the property is known by

Acres Total acreage of property, including non-contiguous tracts

Manager Contact name, address, and telephone number for area or nearest area land steward

Please use one of the following citations to credit the source for the printout information:

Texas Natural Diversity Database. [year of printouts]. Wildlife Diversity Program of Texas Parks & Wildlife Department. [day month year of printouts].

Texas Natural Diversity Database. [year of printouts]. Element occurrence printouts for [scientific name] *records # [occurrence number(s)]. Wildlife Diversity Program of Texas Parks & Wildlife Department. [day month year of printouts]. *Use of record #'s is optional.

Element Occurrence Record

Scientific Name:	<i>Pithecellobium ebano-phaulothamnus spinescens series</i>	Occurrence #:	16	Eo Id:	4673
Common Name:	Texas Ebony-snake-eyes Series	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G2	State Rank:	S2	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	25097-H2	Mouth of Rio Grande	TX
		26097-A2	Port Isabel	TX

Directions:

2.4 MILES NORTH OF HIGHWAY 4, ON THE LANDWARD EDGE OF SOUTH BAY, LAGUNA MADRE

Survey Information:

First Observation:	Survey Date:	Last Observation:
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	73	Estimated Representation Accuracy:

Comments:

General Description: DOMINATED BY LOW SUBTROPICAL SHRUBS

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

JOHNSTON, M. C. 1952. VEGETATION OF EASTERN CAMERON COUNTY, TEXAS. M. S. THESIS, UNIV. OF TEXAS AT AUSTIN.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

<u>Scientific Name:</u> Rookery	<u>Occurrence #:</u> 1	<u>Eo Id:</u> 579
<u>Common Name:</u>	<u>TX Protection Status:</u>	<u>ID Confirmed:</u> Y
<u>Global Rank:</u> GNR	<u>State Rank:</u> SNR	<u>Federal Status:</u>

Location Information:

<u>Watershed Code:</u>	<u>Watershed Description:</u>
12110208	South Laguna Madre

<u>County Code:</u>	<u>County Name:</u>	<u>Mapsheet Code:</u>	<u>Mapsheet Name:</u>	<u>State:</u>
TXCAME	Cameron	26097-A2	Port Isabel	TX

Directions:

SOUTH OF PORT ISABEL AT JUNCTION OF PORT ISABEL CHANNEL AND INTRACOASTAL WATERWAY

Survey Information:

<u>First Observation:</u> 1973	<u>Survey Date:</u>	<u>Last Observation:</u> 1990
<u>Eo Type:</u>	<u>EO Rank:</u>	<u>EO Rank Date:</u>
<u>Observed Area (acres):</u> 15	<u>Estimated Representation Accuracy:</u>	

Comments:

General Description: SAND AND SHELL BEACH; LOW SHRUBS; BLACK MANGROVE ISLAND; ELEVATION 1.5 METERS; PROXIMITY TO HUMANS

Comments: COLONY NUMBER 618-240

Protection Comments:

Management Comments:

Data:

EO Data: NESTING COLONY OF THE BLACK SKIMMER

Managed Area:

<u>Managed Area Name:</u>	<u>Managed Area Type:</u>
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Reference:

Element Occurrence Record

Full Citation:

Martin, Catrina. 1991. Texas Colonial Waterbird Census Summary - 1990. Compiled for Texas Parks & Wildlife Dept. and Texas Colonial Waterbird Society. 13 March 1991.

Mullins, L.M. ET.AL. 1982. An atlas and census of Texas waterbird colonies, 1973-1980. Texas Colonial Waterbird Society.

WAHL, C. R. ET AL. 1986. SURVEY OF COASTAL WATERBIRD COLONIES ON NATURAL AND MAN-MADE ISLANDS IN THE S. LAGUNA MADRE, TEXAS. 2-6 JUNE 1986.

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>

Element Occurrence Record

Scientific Name: *Pithecellobium ebano-phaulothamnus spinescens-citharexylum* be **Occurrence #:** 1 **Eo Id:** 895
Common Name: Texas Ebony-snake-eyes-berlandier Fiddlewood Series **TX Protection Status:** **ID Confirmed:** Y
Global Rank: G2 **State Rank:** S2 **Federal Status:**

Location Information:

Watershed Code: 13090002 **Watershed Description:** Lower Rio Grande

<u>County Code:</u>	<u>County Name:</u>	<u>Mapsheet Code:</u>	<u>Mapsheet Name:</u>	<u>State:</u>
TXCAME	Cameron	25097-H3	Palmito Hill	TX
		25097-H2	Mouth of Rio Grande	TX

Directions:

7.4 MILES INLAND FROM BOCA CHICA BEACH ON HWY 4; PRIMARILY ON SOUTH SIDE OF HWY 4

Survey Information:

First Observation: 1984 **Survey Date:** 1984-10-17 **Last Observation:** 1984-10
Eo Type: **EO Rank:** **EO Rank Date:**
Observed Area (acres): 5 **Estimated Representation Accuracy:**

Comments:

General Description: CLAY LOAM LOMA WITH RUNNING MESQUITE, CROSS-THORN, MAYTENAS, EBONY, SNAKE-EYES, BRAZIL AND A VARIETY OF SUBTROPICAL SHRUBS

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Managed Area:

Managed Area Name: **Managed Area Type:**

Reference:

Full Citation:

POOLE, J. M. & C. R. WAHL. 1984. FIELD SURVEY TO LOMA DE LA ESTRELLA OF OCTOBER 17, 1984.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>

Element Occurrence Record

Scientific Name: <i>Echeandia chandleri</i>	Occurrence #: 23	Eo Id: 1020
Common Name: lila de los llanos	TX Protection Status:	ID Confirmed: Y
Global Rank: G3	State Rank: S2S3	Federal Status:

Location Information:

Watershed Code:	Watershed Description:
13090002	Lower Rio Grande

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	25097-H2	Mouth of Rio Grande	TX

Directions:

SOUTHWEST QUARTER OF LOMA DE LA LENA SECA, PLAYA DEL RIO

Survey Information:

First Observation:	Survey Date:	Last Observation: 1987
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	Estimated Representation Accuracy:	

Comments:

General Description: OPEN GRASSY AREAS ALONG MARGIN OF IMPENETRABLE BRUSH

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: 3250 PLANTS

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

ESPEY, HUSTON AND ASSOCIATES, INC. 1987. REPORT ON A SURVEY FOR ANTHERICUM CHANDLERI ON THE PLAYA DEL RIO PROJECT SITE, CAMERON COUNTY, TEXAS. ESPEY, HUSTON AND ASSOCIATES, AUSTIN.

Element Occurrence Record

<u>Scientific Name:</u>	<i>Charadrius melodus</i>	<u>Occurrence #:</u>	9	<u>Eo Id:</u>	1152
<u>Common Name:</u>	Piping Plover	<u>TX Protection Status:</u>	T	<u>ID Confirmed:</u>	Y
<u>Global Rank:</u>	G3	<u>State Rank:</u>	S2	<u>Federal Status:</u>	LT

Location Information:

<u>Watershed Code:</u>	<u>Watershed Description:</u>
12110208	South Laguna Madre

<u>County Code:</u>	<u>County Name:</u>	<u>Mapsheet Code:</u>	<u>Mapsheet Name:</u>	<u>State:</u>
TXCAME	Cameron	26097-A2	Port Isabel	TX
		25097-H2	Mouth of Rio Grande	TX

Directions:

southern, western and eastern areas of South Bay, south of Port Isabel; flats on west side of Brazos Island and between Clark Island and Brazos Island just below Brownsville Ship Channel and west of Brazos Santiago Pass

Survey Information:

<u>First Observation:</u>	1991	<u>Survey Date:</u>	1991	<u>Last Observation:</u>	1991
<u>Eo Type:</u>		<u>EO Rank:</u>		<u>EO Rank Date:</u>	
<u>Observed Area (acres):</u>		<u>Estimated Representation Accuracy:</u>	Low		

Comments:

General Description: algal mat and sand/silt with algal mat

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Managed Area:

Managed Area Name:

Managed Area Type:

Reference:

Element Occurrence Record

Full Citation:

LINAM, LEE ANN JOHNSON. 1992. SECTION 6 PERFORMANCE REPORT. JOB NO. 9.1: PIPING PLOVER AND PEREGRINE FALCON COASTAL HABITAT USE. JANUARY 3, 1992.

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

<u>Scientific Name:</u>	<i>Leopardus pardalis</i>	<u>Occurrence #:</u>	15	<u>Eo Id:</u>	881
<u>Common Name:</u>	Ocelot	<u>TX Protection Status:</u>	E	<u>ID Confirmed:</u>	Y
<u>Global Rank:</u>	G4	<u>State Rank:</u>	S1	<u>Federal Status:</u>	LE

Location Information:

<u>Watershed Code:</u>	<u>Watershed Description:</u>
12110208	South Laguna Madre

<u>County Code:</u>	<u>County Name:</u>	<u>Mapsheet Code:</u>	<u>Mapsheet Name:</u>	<u>State:</u>
TXCAME	Cameron	26097-A2	Port Isabel	TX
		25097-H2	Mouth of Rio Grande	TX
		26097-A3	Laguna Vista	TX
		26097-B3	La Coma	TX
		25097-H3	Palmito Hill	TX

Directions:

North of State Hwy. 4 in the general vicinity of the Port of Brownsville, eastward to Loma de los Ebanitos and northward to Brownsville Ship Channel; also in the Holly Beach vicinity.

Survey Information:

<u>First Observation:</u>	1990-03	<u>Survey Date:</u>		<u>Last Observation:</u>	1998-08-10
<u>Eo Type:</u>		<u>EO Rank:</u>	E - Verified extant (viability not assessed)	<u>EO Rank Date:</u>	1998-08-10
<u>Observed Area (acres):</u>		<u>Estimated Representation Accuracy:</u>	Medium		

Comments:

General Trap site was a brush covered loma

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: A male ocelot weighing 20 lbs. was captured on 27 April 1998 in a Tomahawk live trap. The ocelot was anesthetized, checked for injuries, and had vital signs and blood samples taken. It appeared healthy, though possibly a little underweight. The ocelot was fitted with a radio collar and tracked for 3 1/2 months. It was relocated twice in April, 24 times in May, and five times in June, last date of 13 June. Subsequent aerial flight did not detect a signal. Second aerial flight on 14 July 1998 detected a signal ~8.5 mi northwest of last known location; one Class I observation in March 1990 and one Class I on 30 April 1991 in the vicinity of Holly Beach

Element Occurrence Record

Managed Area:

Managed Area Name:

Managed Area Type:

Reference:

Full Citation:

HOMERSTAD, GARY E. 1989. PERFORMANCE REPORT, NONGAME WILDLIFE INVESTIGATIONS, FEDERAL AID PROJECT NO. W-103-R-19, JOB NO. 12: ENDANGERED FELINE STATUS SURVEY. TPWD. OCTOBER 6, 1989.

PRIETO, FELIPE G. 1990. PERFORMANCE REPORT, WILDLIFE RESEARCH AND SURVEYS, FEDERAL AID PROJECT NO. W-125-R-1 AND ESEC6-1, JOB NO. 12: ENDANGERED FELINE POPULATION AND HABITAT ENHANCEMENT. TPWD. OCTOBER 29, 1990.

PRIETO, FELIPE G. 1991. PERFORMANCE REPORT, WILDLIFE RESEARCH AND SURVEYS, FEDERAL AID PROJECT NO. W-125-R-2 AND ESEC6-2, JOB NO. 12: ENDANGERED FELINE POPULATION AND HABITAT ENHANCEMENT. TPWD. NOVEMBER 8, 1991.

BENN, STEPHEN J. 1993. PERFORMANCE REPORT, WILDLIFE RESEARCH AND SURVEYS, FEDERAL AID PROJECT NO. W-125-R-3, JOB NO. 12: ENDANGERED FELINE POPULATION AND HABITAT ENHANCEMENT. TPWD. SEPTEMBER 22, 1993.

BLANTON & ASSOCIATES, INC. 1998. ANNUAL TRAPPING SURVEY-1998 FOR THE ENDANGERED OCELOT AND JAGUARUNDI: PORT OF BROWNSVILLE PROPOSED INTERNATIONAL CROSSING. OCTOBER 1998.

PHILLIPS, RICK. NO DATE. BLANTON & ASSOCIATES, 5 LAKEWAY CENTRE COURT, AUSTIN, TEXAS 78734. 512/264-1095. <RPHILLIPS@BLANTONASSOCIATES.COM>.

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name:	<i>Pithecellobium ebano-phaulothamnus spinescens series</i>	Occurrence #:	20	Eo Id:	2742
Common Name:	Texas Ebony-snake-eyes Series	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G2	State Rank:	S2	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	26097-A2	Port Isabel	TX

Directions:

JUST WEST OF LOMA DEL GATO IN SOUTH BAY, LAGUNA MADRE

Survey Information:

First Observation:	Survey Date:	Last Observation:
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	73	Estimated Representation Accuracy:

Comments:

General Description: DOMINATED BY LOW SUBTROPICAL SHRUBS

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

JOHNSTON, M. C. 1952. VEGETATION OF EASTERN CAMERON COUNTY, TEXAS. M. S. THESIS, UNIV. OF TEXAS AT AUSTIN.

Element Occurrence Record

Scientific Name:	<i>Pithecellobium ebano-phaulothamnus spinescens series</i>	Occurrence #:	19	Eo Id:	2741
Common Name:	Texas Ebony-snake-eyes Series	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G2	State Rank:	S2	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	26097-A2	Port Isabel	TX

Directions:

JUST WEST OF LOMA DE LAS GACHUPINES, SOUTH OF BROWNSVILLE SHIP CHANNEL IN SOUTH BAY, LAGUNA MADRE

Survey Information:

First Observation:	Survey Date:	Last Observation:
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	60	Estimated Representation Accuracy:

Comments:

General
Description:

Comments:

Protection
Comments:

Management
Comments:

Data:

EO Data:

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

JOHNSTON, M. C. 1952. VEGETATION OF EASTERN CAMERON COUNTY, TEXAS. M. S. THESIS, UNIV. OF TEXAS AT AUSTIN.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name: <i>Herpailurus yaguarondi</i>	Occurrence #: 19	Eo Id: 3204
Common Name: Jaguarundi	TX Protection Status: E	ID Confirmed: Y
Global Rank: G4	State Rank: S1	Federal Status: LE

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	25097-H2	Mouth of Rio Grande	TX
		26097-A2	Port Isabel	TX

Directions:

BOCA CHICA

Survey Information:

First Observation:	Survey Date:	Last Observation: 1990-03
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	Estimated Representation Accuracy:	

Comments:

General Description:

Comments: CLASS II = RELIABLE OBSERVATION/OBSERVER

Protection Comments:

Management Comments:

Data:

EO Data: ONE CLASS II OBSERVATION

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Element Occurrence Record

Full Citation:

HOMERSTAD, GARY E. 1987. PERFORMANCE REPORT, NONGAME WILDLIFE INVESTIGATIONS, FEDERAL AID PROJECT NO. W-103-R-17, JOB NO. 12: ENDANGERED FELINE STATUS SURVEY. TPWD. OCTOBER 9, 1987.

HOMERSTAD, GARY E. 1988. PERFORMANCE REPORT, NONGAME WILDLIFE INVESTIGATIONS, FEDERAL AID PROJECT NO. W-103-R-18, JOB NO. 12: ENDANGERED FELINE STATUS SURVEY. TPWD. NOVEMBER 9, 1988.

HOMERSTAD, GARY E. 1989. PERFORMANCE REPORT, NONGAME WILDLIFE INVESTIGATIONS, FEDERAL AID PROJECT NO. W-103-R-19, JOB NO. 12: ENDANGERED FELINE STATUS SURVEY. TPWD. OCTOBER 6, 1989.

PRIETO, FELIPE G. 1990. PERFORMANCE REPORT, WILDLIFE RESEARCH AND SURVEYS, FEDERAL AID PROJECT NO. W-125-R-1 AND ESEC6-1, JOB NO. 12: ENDANGERED FELINE POPULATION AND HABITAT ENHANCEMENT. TPWD. OCTOBER 29, 1990.

PRIETO, FELIPE G. 1991. PERFORMANCE REPORT, WILDLIFE RESEARCH AND SURVEYS, FEDERAL AID PROJECT NO. W-125-R-2 AND ESEC6-2, JOB NO. 12: ENDANGERED FELINE POPULATION AND HABITAT ENHANCEMENT. TPWD. NOVEMBER 8, 1991.

BENN, STEPHEN J. 1993. PERFORMANCE REPORT, WILDLIFE RESEARCH AND SURVEYS, FEDERAL AID PROJECT NO. W-125-R-3, JOB NO. 12: ENDANGERED FELINE POPULATION AND HABITAT ENHANCEMENT. TPWD. SEPTEMBER 22, 1993.

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name:	<i>Pithecellobium ebano-phaulothamnus spinescens series</i>	Occurrence #:	17	Eo Id:	377
Common Name:	Texas Ebony-snake-eyes Series	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G2	State Rank:	S2	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	25097-H2	Mouth of Rio Grande	TX
		26097-A2	Port Isabel	TX

Directions:

2.7 MILES NORTH OF FM 4, EAST OF LOMA DEL BURRO, WITHIN SOUTH BAY, LAGUNA MADRE

Survey Information:

First Observation:	Survey Date:	Last Observation:
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	63	Estimated Representation Accuracy:

Comments:

General Description: DOMINATED BY LOW TROPICAL SHRUBS

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

JOHNSTON, M. C. 1952. VEGETATION OF EASTERN CAMERON COUNTY, TEXAS. M. S. THESIS, UNIV. OF TEXAS AT AUSTIN.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

<u>Scientific Name:</u>	<i>Echeandia chandleri</i>	<u>Occurrence #:</u>	1	<u>Eo Id:</u>	4310
<u>Common Name:</u>	lila de los llanos	<u>TX Protection Status:</u>		<u>ID Confirmed:</u>	Y
<u>Global Rank:</u>	G3	<u>State Rank:</u>	S2S3	<u>Federal Status:</u>	

Location Information:

<u>Watershed Code:</u>	<u>Watershed Description:</u>
12110208	South Laguna Madre

<u>County Code:</u>	<u>County Name:</u>	<u>Mapsheet Code:</u>	<u>Mapsheet Name:</u>	<u>State:</u>
TXCAME	Cameron	25097-H3	Palmito Hill	TX
		25097-H2	Mouth of Rio Grande	TX

Directions:

North side of State Hwy 4, on Loma de la Estrella, 7.4 miles west of Boca Chica Beach

Survey Information:

<u>First Observation:</u>	1973-09-06	<u>Survey Date:</u>	1984-10-17	<u>Last Observation:</u>	1984-10-17
<u>Eo Type:</u>		<u>EO Rank:</u>	B - Good estimated viability	<u>EO Rank Date:</u>	1984-10-17
<u>Observed Area (acres):</u>	1	<u>Estimated Representation Accuracy:</u>			

Comments:

General Description: CLAY DUNE SLIGHTLY ELEVATED ABOVE SURROUNDING SAND, WITH SCATTERED SHRUBBY TEXAS EBONIES AND THICK HERBACEOUS GROUND COVER

Comments: SOON TO BE LISTED AS CATEGORY ONE BY USF& WS, EVENTUALLY TO BE LT OR LE; FLOWERS OPEN EARLY IN THE MORNING

Protection

Comments:

Management

Comments:

Data:

EO Data: IN FLOWER AND FRUIT; APPROXIMATELY 2600 INDIVIDUALS IN GOOD CONDITION; CLUSTERS OF NUMEROUS PLANTS SCATTERED ACROSS LENGTH OF LOMA

Managed Area:

<u>Managed Area Name:</u>	<u>Managed Area Type:</u>
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Reference:

Element Occurrence Record

Full Citation:

POOLE, JACKIE M. NO DATE. TEXAS PARKS AND WILDLIFE DEPARTMENT, WILDLIFE DIVERSITY BRANCH, 4200 SMITH SCHOOL ROAD, AUSTIN, TEXAS 78744; 512/389-8019; jackie.poole@tpwd.state.tx.us

POOLE, J. M. & C. R. WAHL. 1984. FIELD SURVEY TO LOMA DE LA ESTRELLA OF OCTOBER 17, 1984.

ESPEY, HUSTON AND ASSOCIATES, INC. 1987. REPORT ON A SURVEY FOR ANTHERICUM CHANDLERI ON THE PLAYA DEL RIO PROJECT SITE, CAMERON COUNTY, TEXAS. ESPEY, HUSTON AND ASSOCIATES, AUSTIN.

Specimen:

UNIVERSITY OF TEXAS-PAN AMERICAN HERBARIUM, EDINBURG. 1973. G. DONOHUE #799, SPECIMEN # NONE PAUH. 6 SEPTEMBER 1973.

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name: <i>Chelonia mydas</i>	Occurrence #: 12	Eo Id: 8993
Common Name: Green Sea Turtle	TX Protection Status: T	ID Confirmed: Y
Global Rank: G3	State Rank: S3	Federal Status: LT

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	26097-A2	Port Isabel	TX
		26097-B3	La Coma	TX

Directions:

Southern Laguna Madre. The directions were created by database staff. The directions are generalized as this record consists of multiple populations/observations.

Survey Information:

First Observation: 1979-05-23	Survey Date: 2007-06-12	Last Observation: 2007-06-12
Eo Type:	EO Rank: E - Verified extant (viability not assessed)	EO Rank Date: 2007-06-12
Observed Area (acres):	Estimated Representation Accuracy: High	

Comments:

General Description:

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: 23 May 1979: Two individuals were observed with curved carapace lengths of 472 millimeters and 451 millimeters. 20 Sept 1990: One individual was observed with a curved carapace length of 390 millimeters. 7 June 1994: Two individuals were observed with curved carapace length of 290 millimeters and 295 millimeters. 10 Sep 1996: One individual was observed with a curved carapace length of 301 millimeters. 30 April 1997: One individual was observed with a curved carapace length of 371 millimeters. 07 July 1997: One individual was observed with a curved carapace length of 560 millimeters. 11 June 1998: One individual was observed with a curved carapace length of 293 millimeters. 13 May 1999: Three individuals were observed with curved carapace length of 390 millimeters, 382 millimeters and 282 millimeters. 18 Sep 2001: One individual was observed with a curved carapace length of 418 millimeters. 25 Jan 2005: One individual was observed with a curved carapace length of 676 millimeters. 12 June 2007: One individual was observed with a curved carapace length of 472 millimeters.

Element Occurrence Record

Managed Area:

Managed Area Name:

Managed Area Type:

Reference:

Full Citation:

Texas Parks and Wildlife Department. 2008. Texas Parks and Wildlife Department - Coastal Fisheries Division summary of stranding and catch information for tracked sea turtles and terrapin.

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name:	<i>Pithecellobium ebano-phaulothamnus spinescens series</i>	Occurrence #:	18	Eo Id:	5561
Common Name:	Texas Ebony-snake-eyes Series	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G2	State Rank:	S2	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	26097-A2	Port Isabel	TX

Directions:

LANDWARD-MOST LOMA WITHIN SOUTH BAY, LAGUNA MADRE, SOUTH OF BROWNSVILLE SHIP CHANNEL

Survey Information:

First Observation:	Survey Date:	Last Observation:
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	29	Estimated Representation Accuracy:

Comments:

General Description: DOMINATED BY LOW SUBTROPICAL SHRUBS

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

JOHNSTON, M. C. 1952. VEGETATION OF EASTERN CAMERON COUNTY, TEXAS. M. S. THESIS, UNIV. OF TEXAS AT AUSTIN.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name:	<i>Echeandia chandleri</i>	Occurrence #:	22	Eo Id:	6669
Common Name:	lila de los llanos	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G3	State Rank:	S2S3	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
13090002	Lower Rio Grande

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	25097-H2	Mouth of Rio Grande	TX

Directions:

NORTHERN HALF OF LOMA DE LAS VACAS, PLAYA DEL RIO

Survey Information:

First Observation:	Survey Date:	Last Observation:	1987
Eo Type:	EO Rank:	EO Rank Date:	
Observed Area (acres):	Estimated Representation Accuracy:		

Comments:

General Description: OPEN GRASSY AREAS NEAR EDGE OF BRUSH

Comments:

Protection Comments:

Management Comments:

Data:

EO Data: THREE COLONIES TOTALLING 3100 PLANTS

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

ESPEY, HUSTON AND ASSOCIATES, INC. 1987. REPORT ON A SURVEY FOR ANTHERICUM CHANDLERI ON THE PLAYA DEL RIO PROJECT SITE, CAMERON COUNTY, TEXAS. ESPEY, HUSTON AND ASSOCIATES, AUSTIN.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name:	<i>Falco peregrinus</i>	Occurrence #:	1	Eo Id:	6384
Common Name:	Peregrine Falcon	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G4	State Rank:	S3	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	26097-A2	Port Isabel	TX

Directions:

NORTHEAST PART OF SOUTH BAY BETWEEN CLARK ISLAND AND BRAZOS ISLAND

Survey Information:

First Observation:	Survey Date:	Last Observation:	1991
Eo Type:	EO Rank:	EO Rank Date:	
Observed Area (acres):	Estimated Representation Accuracy:		

Comments:

General
Description:

Comments:

Protection
Comments:

Management
Comments:

Data:

EO Data:

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

LINAM, LEE ANN JOHNSON. 1992. SECTION 6 PERFORMANCE REPORT. JOB NO. 9.1: PIPING PLOVER AND PEREGRINE FALCON COASTAL HABITAT USE. JANUARY 3, 1992.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name:	<i>Pithecellobium ebano-phaulothamnus spinescens series</i>	Occurrence #:	15	Eo Id:	7026
Common Name:	Texas Ebony-snake-eyes Series	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G2	State Rank:	S2	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	25097-H2	Mouth of Rio Grande	TX

Directions:

SECOND LOMA WITHIN SOUTH BAY, LAGUNA MADRE, NORTH OF FM 4, 1.4 MILES NORTH OF FM 4

Survey Information:

First Observation:	Survey Date:	Last Observation:
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	68	Estimated Representation Accuracy:

Comments:

General Description: DOMINATED BY LOW SUBTROPICAL SHRUBS

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

JOHNSTON, M. C. 1952. VEGETATION OF EASTERN CAMERON COUNTY, TEXAS. M. S. THESIS, UNIV. OF TEXAS AT AUSTIN.

Element Occurrence Record

Scientific Name: <i>Echeandia chandleri</i>	Occurrence #: 24	Eo Id: 7181
Common Name: lila de los llanos	TX Protection Status:	ID Confirmed: Y
Global Rank: G3	State Rank: S2S3	Federal Status:

Location Information:

Watershed Code:	Watershed Description:
13090002	Lower Rio Grande

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	26097-A2	Port Isabel	TX
		25097-H2	Mouth of Rio Grande	TX
		25097-H3	Palmito Hill	TX

Directions:

LOMA PELONA, PLAYA DEL RIO

Survey Information:

First Observation:	Survey Date:	Last Observation: 1987
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	Estimated Representation Accuracy:	

Comments:

General OPEN GRASSY AREAS INTERMIXED WITH YUCCA AND OTHER BRUSH

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: FOUR POPULATIONS TOTALLING MORE THAN 400 PLANTS

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Element Occurrence Record

Full Citation:

ESPEY, HUSTON AND ASSOCIATES, INC. 1987. REPORT ON A SURVEY FOR ANTHEMICUM CHANDLERI ON THE PLAYA DEL RIO PROJECT SITE, CAMERON COUNTY, TEXAS. ESPEY, HUSTON AND ASSOCIATES, AUSTIN.

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>

Element Occurrence Record

Scientific Name:	<i>Echeandia chandleri</i>	Occurrence #:	30	Eo Id:	7600
Common Name:	lila de los llanos	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G3	State Rank:	S2S3	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	25097-H2	Mouth of Rio Grande	TX
		26097-A2	Port Isabel	TX

Directions:

LOWER RIO GRANDE VALLEY NATIONAL WILDLIFE REFUGE, LOMA PRESERVE TRACT, ON WEST SIDE OF LOMA DEL BURRO

Survey Information:

First Observation:	Survey Date:	1994-09-06	Last Observation:	1994-09-06
Eo Type:	EO Rank:		EO Rank Date:	
Observed Area (acres):	Estimated Representation Accuracy:			

Comments:

General Description: ONE POPULATION ON TOP OF HIGH BLUFF, AMONG TYPICAL LOMA BRUSH; OTHER ON FLAT SCARCELY ELEVATED ABOVE HALOPHYTE ZONE

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data: NO COUNT ATTEMPTED, FEWER THAN 1000 PLANTS SEEN; NOT FLOWERING, NOT EVEN IN BUD

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

CARR, W.R. 1994. FIELD SURVEY OF LOMA PRESERVE TRACT (LRGVNWR), 5-6 SEPTEMBER 1994.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name:	<i>Uniola paniculata-panicum amarum series</i>	Occurrence #:	6	Eo Id:	7656
Common Name:	Sea Oats-bitter Panicum Series	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G4	State Rank:	S3	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	25097-H2	Mouth of Rio Grande	TX
		26097-A2	Port Isabel	TX

Directions:

BRAZOS ISLAND STATE RECREATION AREA (BOCA CHICA BEACH), ON SAND DUNES AND LOW HUMMOCKS; AREA VISITED LIES WITHIN 500 FEET OF EAST END OF STATE ROUTE 4

Survey Information:

First Observation:	Survey Date:	1991-12-01	Last Observation:	1991-12-01
Eo Type:	EO Rank:	BC - Good or fair estimated viability	EO Rank Date:	1991-12-01
Observed Area (acres):	Estimated Representation Accuracy:			

Comments:

General Description: DUNES TO CA. 10-12 FEET, SOME STABILIZED BY SEA OATS, BITTER PANICUM, BEACH CROTON (CROTON PUNCTATUS), ETC.; OTHER TERRESTRIAL BARRIER ISLAND PLANT COMMUNITIES NOT WELL DEVELOPED AT SOUTHERN END OF STATE RECREATION AREA

Comments: 4-WHEEL DRIVE VEHICLES WERE DRIVING OVER HIGHEST DUNE TOPS AT TIME OF VISIT; NO TPWD STAFF ON SITE, NO LAW ENFORCEMENT OF ANY KIND

Protection

Comments:

Management

Comments:

Data:

EO Data: NO DATA COLLECTED, CASUAL VISIT; ONLY SOUTHERN TIP VISITED; NEEDS EXTENSIVE SURVEY

Managed Area:

Managed Area Name:	Managed Area Type:
BRAZOS ISLAND	LCAPK

Reference:

Element Occurrence Record

Full Citation:

CARR, W.R. 1991. FIELD SURVEY OF BRAZOS ISLAND STATE RECREATION AREA, 1 DECEMBER 1991.

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

Scientific Name:	<i>Pithecellobium ebano-phaulothammus spinescens series</i>	Occurrence #:	21	Eo Id:	8181
Common Name:	Texas Ebony-snake-eyes Series	TX Protection Status:		ID Confirmed:	Y
Global Rank:	G2	State Rank:	S2	Federal Status:	

Location Information:

Watershed Code:	Watershed Description:
12110208	South Laguna Madre

County Code:	County Name:	Mapsheet Code:	Mapsheet Name:	State:
TXCAME	Cameron	26097-A2	Port Isabel	TX

Directions:

JUST NORTH OF LOMA DE LA BANDERITA WITHIN SOUTH BAY, LAGUNA MADRE, SOUTH OF BROWNSVILLE SHIP CHANNEL

Survey Information:

First Observation:	Survey Date:	Last Observation:
Eo Type:	EO Rank:	EO Rank Date:
Observed Area (acres):	13	Estimated Representation Accuracy:

Comments:

General Description: DOMINATED BY LOW SUBTROPICAL SHRUBS

Comments:

Protection Comments:

Management Comments:

Data:

EO Data:

Managed Area:

Managed Area Name:	Managed Area Type:
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Reference:

Full Citation:

JOHNSTON, M. C. 1952. VEGETATION OF EASTERN CAMERON COUNTY, TEXAS. M. S. THESIS, UNIV. OF TEXAS AT AUSTIN.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>
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Element Occurrence Record

<u>Scientific Name:</u> <i>Pithecellobium ebano-phaulothammus spinescens series</i>	<u>Occurrence #:</u> 14	<u>Eo Id:</u> 3937
<u>Common Name:</u> Texas Ebony-snake-eyes Series	<u>TX Protection Status:</u>	<u>ID Confirmed:</u> Y
<u>Global Rank:</u> G2	<u>State Rank:</u> S2	<u>Federal Status:</u>

Location Information:

<u>Watershed Code:</u>	<u>Watershed Description:</u>
12110208	South Laguna Madre

<u>County Code:</u>	<u>County Name:</u>	<u>Mapsheet Code:</u>	<u>Mapsheet Name:</u>	<u>State:</u>
TXCAME	Cameron	25097-H2	Mouth of Rio Grande	TX

Directions:

NORTH OF FM 4, THE FIRST LOMA WITHIN SOUTH BAY LAGUNA MADRE, JUST SOUTH OF THE BOUNDARY OF LOMA PRESERVE - A UNIT OF THE LOWER RIO GRANDE VALLEY NATIONAL WILDLIFE REFUGE

Survey Information:

<u>First Observation:</u>	<u>Survey Date:</u>	<u>Last Observation:</u>
<u>Eo Type:</u>	<u>EO Rank:</u>	<u>EO Rank Date:</u>
<u>Observed Area (acres):</u> 50	<u>Estimated Representation Accuracy:</u>	

Comments:

General DOMINATED BY LOW SUBTROPICAL SHRUBS

Description:

Comments:

Protection

Comments:

Management

Comments:

Data:

EO Data:

Managed Area:

<u>Managed Area Name:</u>	<u>Managed Area Type:</u>
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Reference:

Full Citation:

JOHNSTON, M. C. 1952. VEGETATION OF EASTERN CAMERON COUNTY, TEXAS. M. S. THESIS, UNIV. OF TEXAS AT AUSTIN.

Element Occurrence Record

Specimen:

Associated Species:

<u>Species Name</u>	<u>Type</u>	<u>Comments</u>

Protection of State-Listed Species
Texas Parks and Wildlife Department Guidelines

Protection of State-Listed Species

State law prohibits any take (incidental or otherwise) of state-listed species. State-listed species may only be handled by persons possessing a **Scientific Collecting Permit** or a **Letter of Authorization** issued to relocate a species.

- **Section 68.002 of the Texas Parks and Wildlife (TPW) Code** states that species of fish or wildlife indigenous to Texas are endangered if listed on the United States List of Endangered Native Fish and Wildlife or the list of fish or wildlife threatened with statewide extinction as filed by the director of Texas Park and Wildlife Department. Species listed as Endangered or Threatened by the Endangered Species Act are protected by both Federal and State Law. The State of Texas also lists and protects additional species considered to be threatened with extinction within Texas.
- **Animals** - Laws and regulations pertaining to state-listed endangered or threatened animal species are contained in **Chapters 67 and 68 of the Texas Parks and Wildlife (TPW) Code** and **Sections 65.171 - 65.176 of Title 31 of the Texas Administrative Code (TAC)**. State-listed animals may be found at **31 TAC §65.175 & 176**.
- **Plants** - Laws and regulations pertaining to endangered or threatened plant species are contained in **Chapter 88 of the TPW Code** and **Sections 69.01 - 69.9 of the TAC**. State-listed plants may be found at **31 TAC §69.8(a) & (b)**.

Prohibitions on Take of State Listed Species

Section 68.015 of the TPW Code states that no person may capture, trap, take, or kill, or attempt to capture, trap, take, or kill, endangered fish or wildlife.

Section 65.171 of the Texas Administrative Code states that except as otherwise provided in this subchapter or **Parks and Wildlife Code, Chapters 67 or 68**, no person may take, possess, propagate, transport, export, sell or offer for sale, or ship any species of fish or wildlife listed by the department as endangered or threatened.

"Take" is defined in **Section 1.101(5) of the Texas Parks and Wildlife Code** as:

"Take," except as otherwise provided by this code, means collect, hook, hunt, net, shoot, or snare, by any means or device, and includes an attempt to take or to pursue in order to take.

Penalties

The penalties for take of state-listed species (**TPW Code, Chapter 67 or 68**) are:

- 1ST Offense = Class C Misdemeanor:
\$25-\$500 fine
- One or more prior convictions = Class B Misdemeanor
\$200-\$2,000 fine and/or up to 180 days in jail.
- Two or more prior convictions = Class A Misdemeanor
\$500-\$4,000 fine and/or up to 1 year in jail.

Restitution values apply and vary by species. Specific values and a list of species may be obtained from the TPWD Wildlife Habitat Assessment Program.