

U.S. Department of the Interior

Bureau of Land Management

Decision Record
Finding of No Significant Impact
Environmental Assessment
DOI-BLM-NM-040-2013-14-EA
July, 2013

July 2013 Competitive Oil and Gas Lease Sale

Shelby, Sabine, and Live Oak Counties, Texas

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**DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
OKLAHOMA FIELD OFFICE**

**Project: July 2013 Competitive Oil and Gas Lease Sale
EA Log Number: DOI-BLM-NM-040-2013-14-EA
Location: Shelby, Sabine and Live Oak Counties, Texas.**

Finding of No Significant Impact

Based on the analysis of potential environmental impacts contained in the attached Environmental Assessment (EA), I have determined the Proposed Action Alternative is not expected to have significant impacts on the environment.

The impacts of leasing the fluid minerals estate in the areas described with this EA have been previously analyzed in the Texas Resource Management Plan (RMP), 1996, as amended and the lease stipulations that accompany the tracts proposed for leasing would mitigate the impacts of future development on these tracts. Therefore, preparation of an Environmental Impact Statement (EIS) is not warranted.

Prepared by:

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Date:_____

Reviewed by:

Stephen G. Tryon
Field Manager, Oklahoma Field Office

Date:_____

Approved by:

Jesse Juen
State Director, New Mexico

Date:_____

1.0 INTRODUCTION

It is the policy of the Bureau of Land Management (BLM) as derived from various laws, including the Mineral Leasing Act of 1920 (MLA), as amended [30 U.S.C. 181 *et seq.*], and the Federal Land Policy and Management of 1976 (FLPMA), as amended, to make mineral resources available for disposal and to manage for multiple resources which include the development of mineral resources to meet national, regional, and local needs.

The BLM New Mexico State Office (NMSO) conducts a quarterly competitive lease sale to offer available oil and gas lease parcels in New Mexico, Oklahoma, Texas, and Kansas. A Notice of Competitive Lease Sale (NCLS), which lists lease parcels to be offered at the auction, is published by the NMSO at least 90 days before the auction is held. Lease stipulations applicable to each parcel are specified in the Sale Notice. The decision as to which public land and minerals are open for leasing and what leasing stipulations are necessary, based on information available at the time, is made during the land use planning process. Surface management of non-BLM administered land overlaying Federal minerals is determined by the BLM in consultation with the appropriate surface management agency or the private surface owner.

In the process of preparing a lease sale the NMSO sends a draft parcel list to any field offices in which parcels are located. Field office staff then review the legal descriptions of the parcels to determine if they are in areas open to leasing; if new information has become available which might change any analysis conducted during the planning process; if appropriate consultations have been conducted of which potential bidders should be made aware. The parcels nominated for this sale, along with the appropriate stipulations from the Resource Management Plan (RMP), the Sabine National Forest, Sabine River Authority (SRA), and Bureau of Reclamation (BOR) are posted online for a two week public scoping period. Comments received are reviewed and incorporated into the environmental assessment (EA).

Once the draft parcel review is completed and returned to the NMSO, a list of nominated lease parcels with specific, applicable stipulations is made available online to the public through the NCLS. On rare occasions, additional information obtained after the publication of the NCLS may result in deferral of certain parcels prior to the lease sale.

This EA documents the review of the thirteen (13) parcels nominated for the July 2013 Competitive Oil and Gas Lease Sale, six (6) parcels of which have multiple SMAs within the same parcel. Eleven (11) of the 13 parcels are located on surface estate administered by the Sabine National Forest, seven (7) of the 13 are located on surface estate administered by the SRA, one (1) of the 13 parcels is located on surface estate administered by the BOR, and one (1) of the 13 parcels is located on split-estate private surface, with the Federal mineral estate under each administered by the Oklahoma Field Office (OFO). It serves to verify conformance with the approved land use plan as well as demonstrates the effectiveness of attaching the lease stipulations to specific parcels. Where the surface is administered by the Forest Service, SRA or BOR and the mineral estate is also federally owned, the Forest Service/BOR and BLM share the responsibility for enforcing mineral leasing policies and regulations. Forest Service regulations under 36 CFR 228.102(e) allow the agency to authorize the BLM to lease individual, specified areas of

land administratively available for lease and include the stipulations determined to be necessary. The Forest Service is responsible for reviewing the effects of leasing the proposed parcels, although the final decision is made by the BLM authorizing official.

The BLM issues and administers oil and gas leases on Forest Service, SRA, or BOR lands only after the agency authorizes leasing for specific lands. Once a Federal lease is issued on Forest Service lands, the Forest Service has the full responsibility and authority to approve and regulate all surface disturbing activities associated with oil and gas exploration and development through analysis and approval of the surface use plan of operation (SUPO) component of an Application for Permit to Drill (APD). The BLM has the authority and responsibility to provide final approval of all APDs including those for operations on Federal leases on Forest Service lands. Each APD includes a SUPO and a drilling plan. The BLM has the authority and responsibility to regulate all downhole operations and directly related surface activities and use, and provide approval of the drilling plan and final approval of the APD on Forest Service lands (USDA/USDI 2006). On SRA, BOR and split-estate lands, the BLM has the sole responsibility to regulate all surface disturbing activities associated with oil and gas exploration and development.

The parcels and applicable stipulations were posted online for a two-week public scoping period beginning on January 28, 2013. Comments were received from the Center for Biological Diversity. In addition, this EA was made available for public review and comment for 30 days beginning on March 1, 2013. No additional comments were received. Comments provided prior to the lease sale were considered and incorporated into the EA as appropriate.

1.1 Purpose and Need

The purpose is to provide opportunities for private individuals or companies to explore for and develop Federal oil and gas resources through a competitive leasing process.

The need for the action is established by the BLM's responsibility under the MLA, as amended, to promote the exploration and development of oil and gas on the public domain. The MLA also establishes that deposits of oil and gas owned by the United States are subject to disposition in the form and manner provided by the MLA under the rules and regulations prescribed by the Secretary of the Interior, where consistent with the FLPMA, the National Environmental Policy Act (NEPA) of 1969, as amended (Public Law 91-90, 42 USC 4321 *et seq.*), and other applicable laws, regulations, and policies.

The BLM will decide whether or not to lease the nominated parcels and, if so, under what terms and conditions.

1.2 Land Use Plan Conformance

The applicable land use plan for this action is the Texas Resources Management Plan (RMP) (May 1996), as amended and Final Environmental Impact Statement (FEIS) (February 1996), as amended. The Texas RMP, as amended, does not specifically describe individual tracts of split estate; rather it broadly describes the split estate situation in Texas and includes "all Federal minerals underlying other Federal Surface Management Agencies (SMAs) lands as wells as split-estate (non-federal surface over Federal minerals)" (pg. 1).

The RMP identifies the potential stipulations that could be attached to split-estate tracts that are proposed for leasing and states “All new leases and all expired leases that are reissued would be leased with surface resource protection stipulations. Mandatory stipulations would be incorporated into each lease where those stipulations apply. In addition, options stipulations will be included where resource values exist that warrant special protections” (pg. 8). The potential stipulations could include seasonal timing limitations and other controlled surface use stipulations which were designed to minimize or alleviate potential impacts to special resource values. Since the parcels under consideration falls within this planning area and the applicable stipulations identified in the RMP would be attached to the parcels, if leased, leasing the parcels would be in conformance with the Texas RMP. Leasing the split-estate parcels would also be consistent with the RMPs goals and objectives for natural and cultural resources.

For SMA parcels, the RMP states “the SMA is contacted for consent to lease and also for identification of specific agency surface protection stipulations” (pg. 9). The Forest Service and BOR were contacted regarding parcels in their jurisdiction. Each submitted letters of Consent to Lease, along with specific stipulations to attach to each parcel. Leasing the SMA parcels is consistent with the Texas RMP.

Pursuant to 40 CFR 1508.28 and 1502.21, this EA is tiered to and incorporates by reference the information and analysis contained in the RMP (1996), as amended. While it is unknown precisely when, where, or to what extent well sites or roads would be proposed, the analysis of projected surface disturbance impacts, should a lease be developed, is based on potential well densities listed in the Reasonable Foreseeable Development (RFD) Scenario included in the RMP. While an appropriate level of site-specific analysis of individual wells or roads would occur when a lease holder submits an Application for Permit to Drill (APD), assumptions based on the RFD scenario may be used in the analysis of impacts in this EA.

FLPMA established guidelines to provide for management, protection, development, and enhancement of public lands (Public Law 94-579). Section 103(e) of FLPMA defines public lands as any lands and interest in lands owned by the US, the BLM has no authority over use of the surface by the surface owner; however, the BLM is required to declare how the federal mineral estate will be managed in the RMP including identification of all appropriate lease stipulations (43 CFR 3101.1 and 43 CFR 1601.0-7(b); BLM Manual Handbook 1601.009 and 1621-1).

1.3 Federal, State, or Local Permits, Licenses or Other Consultation Requirements

Purchasers of oil and gas leases are required to comply with all applicable federal, state, and local laws and regulations, including obtaining all necessary permits required should lease development occur.

OFO biologists reviewed the proposed action and determined it would be in compliance with threatened and endangered species management and consultation guidelines outlined in the Texas RMP biological assessments (BA). No further consultation with US Fish and Wildlife (USFWS) is required at this leasing stage.

Compliance with National Historic Preservation Act (NHPA) Section 106 responsibilities are adhered to by following the BLM Manual 8100, 36 CFR Part 800, 43 CFR Part 7, and the Cultural Resources Handbook H-8100-1 (for New Mexico, Oklahoma, Kansas, and Texas). When draft parcels locations are received by the OFO, cultural resource staff reviews the location for any known cultural resources on BLM records.

Tribal consultations would be completed when specific locations for proposed projects are received, reviewed by the State Historic Preservation Office (SHPO), the Bureau of Indian Affairs (BIA), and specific Tribes. When particular Tribes respond during consultation, that tribe would be directly involved in negotiations with the BLM to determine if the project should be moved, or other mitigation required.

In Section 1835 of the Energy Policy Act of 2005 (43 USC 1508), Congress directed the Secretary of the Interior to review current policies and practices with respect to management of federal subsurface oil and gas development activities and their effects on privately owned surface. The Split Estate Report, submitted in December 2006, documents the findings resulting from consultation on the split estate issue with affected private surface owners, the oil and gas industry, and other interested parties.

NMSO contacts the surface owners and notifies them of the expression of interest and the date the oil and gas rights would be offered for competitive bidding. The BLM would provide the surface owners with its website address so they may obtain additional information related to the oil and gas leasing process, the imposition of any stipulations on that lease parcel, federal and state regulations, and best management practices (BMPs). The surface owners may elect to protest the leasing of the minerals underlying their surface.

If the BLM receives a protest, the parcel would remain on the lease sale. However, the BLM would resolve any protest prior to issuing an oil and gas lease for that parcel. If the protest is upheld, the BLM would return the payments received from the successful bidder for that parcel. After the lease sale has occurred, the BLM would post the results on its website and the surface owner may access the website to learn the results of the lease sale.

1.4 Identification of Issues

The parcels included the Proposed Action, along with the appropriate stipulations from the RMP and the Sabine National Forest, SRA, and BOR, were posted online at http://www.blm.gov/nm/st/en/prog/energy/oil_and_gas/oil_and_gas_lease.html for a two-week public scoping period beginning January 28, 2013. Comments were received from the Center for Biological Diversity.

An internal review of the Proposed Action, along with the appropriate stipulations from the RMP, the Sabine National Forest and BOR, was conducted by an interdisciplinary team of OFO resource specialists on January 17, 2013, to identify and consider potentially affected resources and associated issues (Table 1). During the meeting, the interdisciplinary team also identified and subsequently addressed any unresolved issues or conflicts related to the Proposed Action.

Table 1. Potentially affected resources.

Resources	Not Present On Site	No Impacts	May Be Impacts	Mitigation Necessary
Air Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Watershed Hydrology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Floodplains	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Water Quality – Surface	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Water Quality – Ground	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cultural or Historical	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Native American Religious Concerns	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Paleontology	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Areas of Critical Environmental Concern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Farmlands, Prime or Unique	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Invasive, Non-native Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Vegetation, Forestry	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Livestock Grazing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Threatened or Endangered Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Special Status Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Wildlife/Migratory Birds	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Wetlands/Riparian Zones	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Wild & Scenic Rivers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wilderness	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recreation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visual Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Caves and Karst	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wastes, Hazardous or Solid	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental Justice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Public Health and Safety	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fluid Mineral Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Rights-of-Way	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wild Horse and Burros	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Several issues were considered during internal scoping but dismissed from detailed analysis because there would be no potentially significant effects related to the issues resulting from any of the alternatives presented below. The following elements are determined by the IDT, following onsite visits, review of the Texas RMP (1996), as amended, and other data sources, to not be present:

- Areas of Environmental Concern
- Livestock Grazing
- Wild Horse and Burros
- Public Health and Safety
- Farmlands, Prime or Unique
- Wild and Scenic Rivers
- Wilderness
- Cave and Karst
- Rights-of-way

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative A—No Action

The BLM NEPA Handbook (H-1790-1) states that for EAs on externally initiated proposed actions, the no action alternative generally means that the action would not take place. In the case of a lease sale, this would mean that an expression of interest to lease (parcel nomination) would be denied or rejected, and the thirteen (13) parcels would not be offered for lease during the July 2013 Competitive Oil and Gas Lease Sale. Surface management and any ongoing oil and gas development on surrounding federal, private, and state leases would continue under current guidelines and practices. The selection of the no action alternative would not prevent these parcels from being nominated in a future lease sale.

2.2 Alternative B—Proposed Action

The Proposed Action would be to lease Federal minerals on:

- Portions of eleven (11) parcels totaling 2,430.884 acres administered by the Sabine National Forest in Sabine and Shelby Counties, TX.
- Portions of seven (7) parcels totaling 566.936 acres administered by the SRA in Sabine County, TX.
- Portions of one (1) parcel totaling 23.09 acres administered by the BLM OFO and on private surface in Sabine County, TX.
- One (1) parcel totaling 800.40 acres administered by BOR in Live Oak County, TX.

Standard terms and conditions as well as stipulations listed in the Texas RMP (1996), as amended, and stipulations identified by the SMAs would apply. A complete description of these parcels, including any stipulations, is provided in Table 2. A description of each stipulation is included in Appendix 1.

Sabine National Forest stipulations are attached to portions of 10 of the parcels, including -132, -133, -134, -135, -137, -138, -139, -140, -141, and -142. Parcel -136 did not have any Forest Service stipulations attached. BOR stipulations are attached to parcel -144.

The OFO identified stipulations for SRA and split-estate portions of the parcels. ORA-4 would be attached to parcels -133, -138, -139, -140, and -141, which states no surface occupancy would be permitted on the parcel and only permit directional drilling. These parcels are currently located within the Toledo Bend Reservoir and currently inundated with water. Two lease notices, WO-ESA-7 and WO-NHPH, would also be attached to these parcels and -136 and -143. These notices would notify the lease holder that the BLM reserves direction to modify, if necessary, any action proposed on the lease to ensure:

- Threatened, endangered, or other special status species, and their habitats (WO-ESA-7) and
- Historic properties and/or resources protected under the National Historic Preservation Act, American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders (WO-NHPH)

would not be adversely affected. Under the Endangered Species Act (ESA) of 1973, as amended, Section 7 Consultation with the USFWS would occur if development is proposed on a lease containing habitat suitable for these special status species. Under the National Historic Preservation Act (NHPA) and other authorities, the BLM would undergo consultation with the State Historic Preservation Officer and any interested or affected tribes prior to approving any development activities.

Once sold, the lease purchaser would have the exclusive right to use as much of the leased lands as would be necessary to explore and drill for oil and gas within the lease boundaries, subject to stipulations attached to the lease; restrictions deriving from specific, nondiscretionary statutes; and such reasonable measures as may be required by the authorized officer to minimize adverse impacts to other resource values, land uses or users not addressed in the lease stipulations at the time operations are proposed (43 CFR 3101). Oil and gas leases are issued for a 10-year period and continue for as long thereafter as oil or gas is produced in paying quantities. If a lease holder fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease, exclusive right to develop the leasehold reverts back to the federal government and the lease can be reoffered in another lease sale.

Drilling of wells on a lease would not be permitted until the lease owner or operator secures approval of a drilling permit and a surface use plan as specified under Onshore Oil and Gas Orders (43 CFR 3162). A permit to drill would not be authorized until site-specific NEPA analysis is conducted.

Standard terms and conditions, stipulations listed in the Texas RMP, and any new stipulations would apply as appropriate to each lease. In addition, site specific mitigation measures and BMPs would be attached as Conditions of Approval (COAs) for each proposed exploration and development activity authorized on a lease.

Table 2: Alternative B—Proposed Action Parcels

Parcel	Comments	Acres
<p><u>NM-201307-132</u></p> <p>TX TR S-1 B-1, PARCEL #3; PART A (983.99 ACRES) PART B (411.32 ACRES)</p> <p>Shelby County, TX</p>	<p><u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest</p> <p><u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection</p>	<p>1395.310</p>

Parcel	Comments	Acres
<u>NM-201307-133</u> TX TR S-2F Sabine County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest (47.28 acres) Sabine River Authority (109.72 acres) <u>Lease with the following FS Stipulations (applies to 47.28 acres):</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1E: Toledo Bend Lakeshore Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection FS8 (TX) TLS-1B: Bald Eagle Timing Stipulation FS8 (TX) LN-4B: FS-COE Joint Approval Notice <u>Lease with the following BLM Stipulations (applies to 109.72 acres):</u> ORA-4: No Surface Occupancy, Directional Drilling Only WO-ESA-7: Threatened & Endangered Species Consultation WO-NHPA: Tribal & Cultural Consultation	157.000
<u>NM-201307-134</u> TX TR S-2Q-II Sabine County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection	98.000
<u>NM-201307-135</u> TX TR S2R Sabine County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection	107.000
<u>NM-201307-136</u> TX TR S2AQ Sabine County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest (1.594 acres) Sabine River Authority (0.406 acres) <u>Lease with the following FS Stipulations (applies to 1.594 acres):</u> None attached <u>Lease with the following BLM Stipulations (applies to 0.406 acres):</u> WO-ESA-7: Threatened & Endangered Species Consultation WO-NHPA: Tribal & Cultural Consultation	2.000
<u>NM-201307-137</u> TX TR S3 Sabine County, TX	<u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest <u>Lease with the following Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection	99.000

Parcel	Comments	Acres
<p><u>NM-201307-138</u></p> <p>TX TR S13-I</p> <p>Sabine County, TX</p>	<p><u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest (177.96 acres) Sabine River Authority (164.04 acres)</p> <p><u>Lease with the following FS Stipulations (applies to 177.96 acres):</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1E: Toledo Bend Lakeshore Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection FS8 (TX) TLS-1B: Bald Eagle Timing Stipulation FS8 (TX) LN-4B: FS-COE Joint Approval Notice</p> <p><u>Lease with the following BLM Stipulations (applies to 164.04 acres):</u> ORA-4: No Surface Occupancy, Directional Drilling Only WO-ESA-7: Threatened & Endangered Species Consultation WO-NHPA: Tribal & Cultural Consultation</p>	282.000
<p><u>NM-201307-139</u></p> <p>TX TR S-13A PARCEL 3</p> <p>Sabine County, TX</p>	<p><u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest (266.00 acres) Sabine River Authority (40.0 acres)</p> <p><u>Lease with the following FS Stipulations (applies to 266.00 acres):</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1E: Toledo Bend Lakeshore Protection FS8 (TX) CSU-1H: Texas Natural Heritage Program Sensitive Plant & Natural Community Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection FS8 (TX) NSO-2A: No Surface Occupancy Mill Creek Cover Research Natural Area FS8 (TX) TLS-1B: Bald Eagle Timing Stipulation FS8 (TX) LN-4B: FS-COE Joint Approval Notice</p> <p><u>Lease with the following BLM Stipulations (applies to 40.00 acres):</u> ORA-4: No Surface Occupancy, Directional Drilling Only WO-ESA-7: Threatened & Endangered Species Consultation WO-NHPA: Tribal & Cultural Consultation</p>	306.000

Parcel	Comments	Acres
<p><u>NM-201307-140</u></p> <p>TX TR S-13A PARCEL 4</p> <p>Sabine County, TX</p>	<p><u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest (110.34 acres) Sabine River Authority (89.66 acres)</p> <p><u>Lease with the following FS Stipulations (applies to 110.34 acres):</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1E: Toledo Bend Lakeshore Protection FS8 (TX) CSU-1H: Texas Natural Heritage Program Sensitive Plant & Natural Community Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection FS8 (TX) NSO-2A: No Surface Occupancy Mill Creek Cover Research Natural Area FS8 (TX) TLS-1B: Bald Eagle Timing Stipulation FS8 (TX) LN-4B: FS-COE Joint Approval Notice</p> <p><u>Lease with the following BLM Stipulations (applies to 89.66 acres):</u> ORA-4: No Surface Occupancy, Directional Drilling Only WO-ESA-7: Threatened & Endangered Species Consultation WO-NHPA: Tribal & Cultural Consultation</p>	200.000
<p><u>NM-201307-141</u></p> <p>TX TR S-19</p> <p>Sabine County, TX</p>	<p><u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest (123.80 acres) Sabine River Authority (160.20 acres)</p> <p><u>Lease with the following FS Stipulations (applies to 123.80 acres):</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU-1E: Toledo Bend Lakeshore Protection FS8 (TX) CSU-1H: Texas Natural Heritage Program Sensitive Plant & Natural Community Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection FS8 (TX) TLS-1B: Bald Eagle Timing Stipulation FS8 (TX) LN-4B: FS-COE Joint Approval Notice</p> <p><u>Lease with the following BLM Stipulations (applies to 160.20 acres):</u> ORA-4: No Surface Occupancy, Directional Drilling Only WO-ESA-7: Threatened & Endangered Species Consultation WO-NHPA: Tribal & Cultural Consultation</p>	284.000
<p><u>NM-201307-142</u></p> <p>TX TR S-20L</p> <p>Sabine County, TX</p>	<p><u>Other Surface Management Agency (SMA):</u> U.S. Forest Service (USFS), Sabine National Forest</p> <p><u>Lease with the following FS Stipulations:</u> FS1 (Lufkin): Secretary of Agriculture Rules and Regulations Compliance FS8 (TX) CSU-1A: Streamside Management Zone (floodplain, wetland) Protection FS8 (TX) CSU1-I2: Red-Cockaded Woodpecker Protection</p>	4.600

Parcel	Comments	Acres
<u>NM-201307-143</u> TX TR S-1341 Sabine County, TX	<u>Private Surface (23.09 acres):</u> <u>Other Surface Management Agency (SMA):</u> Sabine River Authority (2.91 acres) <u>Lease with the following BLM Stipulations (applies to all 26.000 acres):</u> WO-ESA-7: Threatened & Endangered Species Consultation WO-NHPA: Tribal & Cultural Consultation	26.000
<u>NM-201307-143</u> TX TR NR-34-1; NR-34-2; NR-34-3; NR-34-4; NR-34-5; NR-34-6; NR-34-7; NR-34-8; Live Oak County, TX	<u>Other Surface Management Agency (SMA):</u> Bureau of Reclamation (BOR), Choke Canyon Reservoir <u>Lease with the following BOR Stipulations:</u> BOR-GS (Nueces River)	800.400

3.0 DESCRIPTION OF AFFECTED ENVIRONMENT

This section describes the environment that would be affected by implementation of the alternatives described in Section 2. Aspects of the affected environment described in this section focus on the relevant resources and issues. Only those elements of the affected environment that have potential to be significantly impacted are described in detail.

The seven SRA parcels, one proposed private surface parcel, and one proposed BOR parcel will be analyzed in detail in this EA. The United States Department of Agriculture Sabine National Forest analyzed the environmental effects associated with leasing their portions of the 11 Forest Service surface parcels identified in this document. After a review conducted by the OFO staff in the winter of 2013, the OFO concluded that there have not been any changed circumstances that would render the analysis invalid. Hence, the following resource analysis tiers to and incorporates by reference the information and analysis contained in the U.S. Forest Service EIS.

Sabine County (Parcels -133, -136, -138, -139, -140, -141, and -143)

The proposed parcels are along the eastern boundary of Sabine County, Texas at an elevation ranging from 145 feet to 265 feet above sea level. All of the SRA parcels (-133, -136, -138 through -143) underlay the Toledo Bend Reservoir. Parcel -143 is on private surface. Sabine County is bordered to the east by the Toledo Bend Reservoir, which adjoins Louisiana; to the southeast by Newton County; to the southwest by Jasper County; to the west by San Augustine; and to the north by Shelby County. The nearly level to very steep topography of Sabine County covers an area of 314,489 acres (491 square miles), of which 267,001 acres (416.8 square miles) is land (84.9%) and 47,487 acres (74.2 square miles) is water (14.9%).

Several hard-surfaced federal and state highways pass through Sabine County, including U.S. Highway 96 and three state highways (SH 21, 87, and 103). Several hard-surfaced and gravel county and private roads are kept in passable condition throughout the year. The roads are generally in good condition.

Live Oak County (-144)

The proposed parcel is along the western boarder of Live Oak County at about 200 feet above sea level. The parcel is in the middle of Choke Canyon Reservoir and is completely overlain with water. Live Oak County is in south Texas bordered on the north by Atascosa and Karnes Counties; in the east by Bee and San Patricio Counties; in the south by Duval and Jim Wells Counties; and in the west by McMullen County. The county covers 690,643 acres (1,079 square miles), of which 664,066 acres (1,037 square miles) is land (96.2%) and 26,577 acres (41 square miles) is water (3.8%).

Strategically situated between the Rio Grande and Gulf of Mexico, and on the route from central Texas to the Rio Grande Valley, Live Oak County has always been a vital transportation link. The old Spanish trails from Laredo and Camargo to Goliad and Indianola have been replaced by present U.S. Highway 59, which carries traffic between the ports of Houston and Laredo. The north-south artery from San Antonio to Brownsville has been replaced by U.S. Highway 281 and Interstate Highway 37 connecting San Antonio to Corpus Christi, Brownsville, and McAllen.

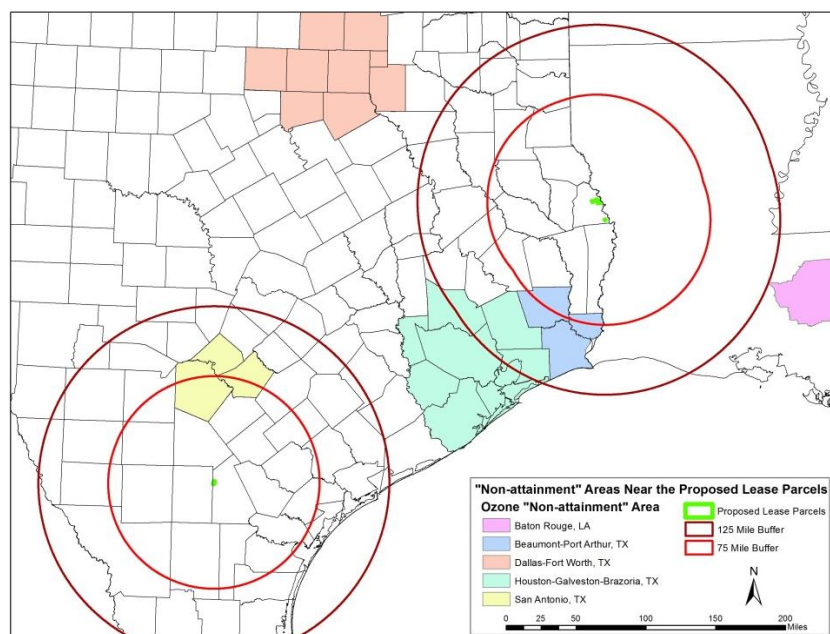
3.1 Air Quality

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality nationwide, including six “criteria” air pollutants. These criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ & PM_{2.5}), sulfur dioxide (SO₂) and lead (Pb). EPA has established National Ambient Air Quality Standards (NAAQS) for criteria air pollutants. The NAAQS are protective of human health and the environment. EPA has approved Texas’ State Implementation Plan and the state enforces state and federal air quality regulations on all public and private lands within the state, except for tribal lands.

The area of the analysis is considered a Class II air quality area by the EPA. There are three classifications of areas that attain national ambient air quality standards, Class I, Class II and Class III. Congress established certain national parks and wilderness areas as mandatory Class I areas where only a small amount of air quality degradation is allowed. All other areas of the U.S. are designated as Class II, which allow a moderate amount of air quality degradation. No areas of the U.S. have been designated Class III, which would allow more air quality degradation. The primary sources of air pollution are dust from blowing wind on disturbed or exposed soil, exhaust emissions from motorized equipment, oil and gas development, agriculture, and industrial sources.

All parcels are <75 miles from at least one EPA designated “non-attainment” area (O₃) while five areas were identified <200 miles from any of the proposed parcels. All parcels in Sabine County are <100 miles north of the Beaumont-Port Arthur, TX and Houston-Galveston-Brazoria, TX “non-attainment” areas; <175 miles northwest of the Dallas-Ft. Worth “non-attainment” area; and <160 miles northwest of the Baton Rouge, LA “non-attainment” area. The parcel in Live Oak County is about 50 miles south of the San Antonio, TX “non-attainment” area and about 150 miles west of the Houston-Galveston-Brazoria, TX “non-attainment” area (Figure 1).

Figure 1. “Non-attainment” areas near the proposed lease parcels.



Air quality in a given region can be measured by its Air Quality Index value. The air quality index (AQI) is reported according to a 500-point scale for each of the major criteria air pollutants, with the worst denominator determining the ranking. For example, if an area has a CO value of 132 on a given day and all other pollutants are below 50, the AQI for that day would be 132. The AQI scale breaks down into six categories: good (AQI<50), moderate (50-100), unhealthy for sensitive groups (100-150), unhealthy (>150), very unhealthy and hazardous. The AQI is a national index, the air quality rating and the associated level of health concern is the same everywhere in the country. The AQI is an important indicator for populations sensitive to air quality changes.

Current Pollution concentrations

There is no data available for SO₂, lead and CO. Lead and CO concentrations would not be elevated in rural areas, so there is no monitoring conducted for these pollutants. “Design Concentrations” are the concentrations of air pollution at a specific monitoring site that can be compared to the NAAQS. The 2011 design concentrations of criteria pollutants are listed below.

Figure 2. 2011 Design Concentrations of Criteria pollutants (EPA 2012a)

Pollutant	Design Value	Averaging period	NAAQS
O ₃	0.074 ppm	8-hour	0.075 ppm ¹
PM _{2.5}	12.4 µg/m ³	Annual	12.0 µg/m ^{3,2}
PM _{2.5}	24 µg/m ³	24-hour	35 µg/m ^{3,3}
NO ₂	5 ppb	Annual	53 ppb
NO ₂	58 ppb	1-hour	100 ppb ³

¹ Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years

² Annual mean, averaged over 3 years

³ 98th percentile, averaged over 3 years

Mean AQI values for the area of the proposed lease were generally in the good range (AQI<50) in 2011. 76% of the days in 2011 were classified as “good”, 21% were classified as “moderate”, and 8 days were classified as “unhealthy for sensitive groups”. The median AQI was 39 or “good” and the maximum AQI was 140. The air quality index in the area annually reaches “unhealthy for sensitive groups” on a number of days each year. Over the past decade, there appears to be a trend toward improved air quality, with no “very unhealthy” and “unhealthy” in the past six years. From 2002 through 2006, there were 1-2 “unhealthy” and “very unhealthy” days each year except for 2005. Recent years’ improvement in the air quality index may be due to reduced air pollution resulting from local, state and national regulations aimed at reducing ozone and particulate matter concentrations. This data is shown in Figure 3 (EPA 2012b). Years not included in the table had no days classified as “unhealthy for sensitive groups”.

Figure 3. Number of Days classified as “unhealthy for sensitive groups” or worse (EPA 2012b).

	2002	2003	2004	2005	2006	2007	2008	2010	2011
Lease Area	7*	12**	5***	15	12*	7	3	4	8

* Includes 2 days of “unhealthy”

** Includes 1 day of “unhealthy” and 2 days of “very unhealthy”

*** Includes 1 day of “unhealthy”

3.2 Climate

Texas lies within both “cool” and “warm” parts of the Temperate Zone of the northern hemisphere. There are three major climatic types which are classified as Continental, Mountain, and Modified Marine. There are no distinct boundaries which divide these climate types. Most of the State, climatologically, has a Modified Marine climate which is classified and named “subtropical” with four subheadings. A marine climate is caused by the predominant onshore flow of tropical maritime air from the Gulf of Mexico. The onshore flow is modified by a decrease in moisture content from east to west and by intermittent seasonal intrusions of continental air. The four subheadings of Subtropical—humid, subhumid, semi-arid and arid—account for the changes in moisture content of the northward flow of Gulf air across the State (Larkin and Bomar 1983).

Sabine County is within the subtropical humid climate region of Texas. Subtropical humid climate is characterized by hot, humid summers and generally mild to cool winters, with evenly distributed precipitation throughout the year. Live Oak County is in the Subtropical Subhumid climate region, which is characterized by hot summers generally mild to cool and dry winters.

Table 3. Summary of climate components that could affect air quality in the region.

Climate Component	Sabine County	Live Oak County
Mean maximum summer temperatures	92.1°F	95.3°F
Mean minimum winter temperatures	37.9°F	43.9°F
Mean annual temperature	65.3°F	70.4°F
Total annual precipitation	54.92 inches	26.36 inches
Total annual snowfall	0.1 inches	0.1 inches
Mean annual wind speed	10 mph	9.7 mph
Prevailing Wind Direction	South	South-Southeast

In addition to the air quality information in the Texas RMP, new information about greenhouse gases (GHGs) and their effects on national and global climate conditions has emerged since the RMP was prepared. Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring and modeling systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions; what is known is that increasing concentrations of GHGs are likely to accelerate the rate of climate change.

GHGs that are included in the US GHG Inventory are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). CO₂ and CH₄ are typically emitted from combustion activities or are directly emitted into the atmosphere. On-going scientific research has identified the potential impacts of GHG emissions (including CO₂, CH₄, N₂O; and several trace gases) on global climate. Through complex interactions on regional and global scales, these GHG emissions cause a net warming effect of the atmosphere (which make surface temperatures suitable for life on Earth), primarily by decreasing the amount of heat energy radiated by the Earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in

climatic conditions), recent industrialization and burning of fossil carbon sources have caused CO₂ concentrations to increase dramatically, and are likely to contribute to overall climatic changes. Increasing CO₂ concentrations may also lead to preferential fertilization and growth of specific plant species.

In 2007, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4°C to 5.8°C (2.5°F to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increase in daily minimum temperatures are more likely than increases in daily maximum temperatures. It is not, however, possible at this time to predict with any certainty the causal connection of site specific emissions from sources to impacts on the global/regional climate relative to the proposed lease parcel and subsequent actions of oil and gas development.

A 2007 US Government Accountability Office (GAO) Report on Climate Change found that, “federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others: 1) physical effects such as droughts, floods, glacial melting, and sea level rise; 2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and 3) economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses.”

A number of activities contribute to the phenomenon of climate change, including emissions of GHGs (especially CO₂ and CH₄) from fossil fuel development, large wildfires, activities using combustion engines, changes to the natural carbon cycle, and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over different temporal scales due to their differences in global warming potential (described above) and life span of the atmosphere.

3.3 Soils

The varied climate and topography of Texas have combined to produce broad differences in state soils. In the eastern part of the state, soils have been developed where leaching is intense and conditions are humid. These conditions produce soils low in phosphorous and potassium, while at the same time being moderately to strongly acidic.

The Natural Resource Conservation Service (NRCS) has surveyed the soils in the proposed parcels. Only three soil types were identified in one parcel; the remaining parcels were classified as water (Table 4).

The NRCS has assigned a wind erodibility index value to each soil type. The value indicates the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion. Three index values were identified from

parcel -143 ranging from 56 to 250 tons per year (Table 4). In this parcel the soil becomes more susceptible to wind erosion as the topography slopes towards the water and a higher percentage of sand in the soil. The higher the value indicates higher susceptibility and more tons per acre lost per year from wind, with the highest value being 330.

The NRCS has also assigned an erosion Factor K, which indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised USLE to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water. Two values (0.20 and 0.37) were identified for the proposed lease parcels (Table 4) indicating moderate susceptibility to soil loss by sheet and rill erosion.

Table 4. Soil properties of the proposed lease parcels.

Parcel	Soil Name	Soil Symbol	Acres in Area	% in area	Erosion K Factor	Wind Erodibility Index	Farmlands, Prime or Unique
-133	Water	W	109.72	100	--	--	--
-136	Water	W	0.406	100	--	--	--
-138	Water	W	164.04	100	--	--	--
-139	Water	W	40.00	100	--	--	--
-140	Water	W	89.66	100	--	--	--
-141	Water	W	160.20	100	--	--	--
-143	Letney loamy sand	LiB	4.8	19.0	.20	134	No
	Moswell loam	MsD	15.19	60.5	.37	56	No
	Tehran loamy sandy	TeD	2.2	8.8	.20	250	No
	Water	W	2.91	11.6	--	--	--
-144	Water	W	800.400	100	--	--	--

3.4 Water Resources

3.4.1 Surface water

Texas' abundant surface water resources include rivers, streams and both natural and man-made reservoirs. There are 23 surface water basins in Texas, including 15 major river basins and eight coastal basins, each with varying hydrological regimes and abilities to provide water supplies. The state's water availability models estimate that available surface water during drought is 13.3 million acre-feet in 2010. Of this amount, only 9.0 million acre-feet can be used as existing supply due to physical and legal constraints. Existing surface water supply is project to decrease to 8.4 million acre-feet by 2060, primarily from sedimentation of existing reservoirs.

Sabine County

The proposed lease parcels are within the Sabine River Basin. The basin has the second largest average watershed yield of any major river basin in Texas because of the region's high precipitation and low evaporation rates. The major river in the basin is the Sabine River, which flows from its head-waters in Hunt County and forms much of the border between Texas and Louisiana before draining to the Gulf of Mexico through Sabine Lake. The Sabine River has the second largest average flow volume of any river in Texas. The SRA portion (566.936 acres) of the proposed lease parcels underlay the Toledo Bend Reservoir, which was created by damming the Sabine River. The extreme northern corners of the private surface portion of parcel -143 is <0.4 miles from the Toledo Bend Reservoir/Sabine River high water mark.

The Toledo Bend Reservoir is the largest man-made body of water in the south and the fifth largest in surface acres in the U.S., with water normally covering an area of 185,000 acres and have a controlled storage capacity of 4,477,000 acre-feet (1,448,934,927,000 gallons) of water. The Toledo Bend was constructed by the Sabine River Authority of Texas, and the Sabine River Authority, State of Louisiana, primarily for the purposes of water supply, hydroelectric power generation, and recreation. The operation of the reservoir for hydroelectric power generation and water supply provides a dependable yield of 1,868 million gallons per day, which is shared equally by Texas and Louisiana. Most of this water is passed through the turbines for the generation of electrical power and is available for municipal, industrial, and agricultural purposes.

The proposed parcels are within the Toledo Bend Reservoir watershed (USGS 12010004). All of the parcels are overlain by or <0.4 miles from a listed impaired water (Toledo Bend Reservoir) as a result of mercury in fish tissue.

Live Oak County

The proposed parcel is in the Nueces River Basin. The Nueces Basin occupies a relatively arid region of Texas, resulting in the third lowest value of average annual watershed yield among major river basins of Texas. From the headwaters in Edwards and Real counties, the Nueces River flows to Nueces Bay, which drains to the Gulf of Mexico. Other streams within the basin include the Leona, Frio, Sabinal and Atacosa Rivers and San Casimiro, Seco, Hondo, and San Miguel Creeks. An important issue in the Nueces Basin, exacerbated by drought, is the limited water supply. The basin is an important water supply for portions of the Nueces-Rio Grande Coastal Basin, including the city of Corpus Christi.

Choke Canyon Reservoir is one of three lakes in the Nueces Basin. The proposed parcel is in the middle of the reservoir completely covered by water. Choke Canyon is approximately 4 miles west of Three Rivers, on the Frio River, a major tributary of the Nueces River. The reservoir, extending in both Live Oak and McMullen counties, was built by the Bureau of Reclamation, and is owned and operated by the City of Corpus Christi and the Nueces River Authority for municipal water supply and recreational purposes. The reservoir has a storage capacity of approximately 695,271 acre-feet (226,554,750,621 gallons) encompassing a surface area of 25,989 acres, with a drainage area above the dam of about 4,667 square miles.

The proposed parcel is within the Lower Frio watershed (USGS 12110108). Choke Canyon Reservoir is listed as impaired as a result of dissolved oxygen. In the past, the reservoir was also impaired because of bacteria but has since reached attainment.

3.4.2 Groundwater

Groundwater deposits underlie about 76 percent of Texas and it is considered to be one of the state's most valuable resources. Sixty percent of the freshwater used in Texas is supplied from 23 major aquifers. Groundwater supplies are produced from numerous saturated geologic formations comprised of various mineralogic types such as sand and gravel alluviums and cavernous limestones and dolomites.

The source of all groundwater in Sabine and Live Oak Counties is precipitation. Most of the recharge occurs as rainfall on the outcrops of the water-bearing formations, although lesser amounts of recharge probably result from seepage from streams that cross the outcrop areas. The water that enters the formations moves generally down the dip of the water-bearing beds into the artesian sections of the aquifers. Several factors affect recharge including: the intensity and amount of rainfall, the slope of the land surface, the type of soil, the permeability of the aquifer, the rate of evapotranspiration, and the quantity of water in the aquifer.

Proposed parcels -133, -138, -139, -140, -141, and -144 are in the Carrizo Major Aquifer. The Carrizo aquifer can produce 500 to 3,000 gallons per minute (gpm). The aquifer extends across much of eastern Texas and cross 66 counties. The aquifer contains water under artesian pressure. Under artesian conditions, the water is confined under hydrostatic pressure in the sands between relatively impermeable beds, and where the elevation of the land surface at a well is considerably below the general level of the area of outcrop. Pumpage for irrigation accounts for just over half the water pumped, and pumping for municipal supply accounts for another 40 percent. The groundwater, although hard, is generally fresh in the outcrop, whereas softer groundwater with higher total dissolved solids occurs in the subsurface. High iron and manganese content is characteristic of much of the aquifer, and localized saline contamination has affected portions of the aquifer (TWDB 2011).

Proposed parcels -136 and -143 are in the extreme northeastern corner of the Gulf Coast Major Aquifer. The aquifer parallels the Gulf of Mexico coastline from the Louisiana border to the border of Mexico and covers 54 counties. The maximum total sand thickness of the aquifer ranges from 700 feet in the south to 1,300 feet in the north. Freshwater saturated thickness averages about 1,000 feet. Water quality varies with depth and locality; it is generally good in the central and northeastern parts of the aquifer, including the proposed parcels, where the water contains less than 500 milligrams per liter of total dissolved solids, but declines to the south, where it typically contains 1,000 to more than 10,000 milligrams per liter of total dissolved solids and where the Gulf Coast Aquifer productivity decreases. High levels of radionuclides, thought mainly to be naturally occurring are found in some wells in the outcrop and in South Texas. The aquifer is used for municipal, industrial, and irrigation purposes. In Harris, Galveston, Fort bend, Jasper, and Wharton Counties, water level declines of as much as 350 feet have led to land subsidence (TWDB 2011).

Proposed parcel -143 is within the Yegua-Jackson minor aquifer and proposed parcels -139, -140, and -141 are within the Sparta minor aquifer. These aquifers contain water under water-table conditions in their outcrop areas, and the water becomes artesian as the formations pass beneath less permeable rocks in the subsurface. Under water-table conditions are when the water is confined and does not rise in wells above the top of the aquifer. Groundwater for domestic purposes and livestock is available from shallow wells over most of the each aquifer's extent. Locally, water for municipal, industrial, and irrigation purposes is also available. The Yegua-Jackson aquifer yields range from a few gpm to over 300 gpm and the Sparta aquifer yields 100 to 500 gpm and locally iron concentrations may exceed the state's secondary drinking water standard (TWDB 2011).

3.5 Floodplains, Wetlands, Riparian Areas

3.5.1 Floodplains

For administrative purposes, the 100-year floodplain serves as the basis for floodplain management for Federal actions. These are in general relatively narrow areas along natural drainage ways that carry large quantities of runoff following periods of high precipitation.

All of the proposed lease parcels are within a mapped floodplain due to their proximity to rivers and established reservoirs.

3.5.2 Wetlands, Riparian Areas

Wetland habitats provide important wintering and migration habitat for several species of Migratory Birds. Wetlands also provide a link between land and water and are some of the most productive ecosystems in the world. Executive Order (EO) 11990 on the Protection of Wetlands provides opportunity for early review of Federal agency plans regarding new construction in wetland areas. Under EO 11990, each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for conduction federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating and licensing activities.

The National Wetlands Inventory (NWI) was established by the US Fish and Wildlife Service (USFWS) to conduct a nationwide inventory of U.S. wetlands to provide biologists and others with information on the distribution and type of wetlands to aid in conservation efforts. To do this, the NWI developed a wetland classification system (Cowardin et al. 1979) that is now the official USFWS wetland classification system and the Federal standard for wetland classification. Table 5 describes the wetland areas found within each parcel as identified in the NWI.

Table 5. Wetland areas or issues within the proposed lease parcels.

Wetland Code	Description	Parcel
L2UBFh	<ul style="list-style-type: none"> • L: Lacustrine system—wetlands/deepwater habitats with: 1) situated in a topographic depression or dammed river channel; 2) lacking trees, shrubs, persistent emergent, emergent mosses or lichens with >30% areal coverage; 3) total area >20 acres • 2: Littoral—extends from shoreward boundary to 6.6 feet below annual low water or to the maximum extent of nonpersistent emergents, if these grow at depths >6.6 feet • UB: Unconsolidated bottom—all wetlands and deepwater habitats with >25% cover of particles smaller than stones and a vegetative cover <30% • F: Semipermanently flooded—surface water persists throughout the growing season in most years; when surface water absent, water table is usually at or near the surface. • h: Diked/Impounded—created or modified by a man-made barrier or dam which obstructs the inflow or outflow of water 	-133
L2USCh	<p>Lacustrine system, Littoral, Diked/Impounded</p> <ul style="list-style-type: none"> • US: Unconsolidated Shore—all wetland habitats having: 1) unconsolidated substrates with <75% areal cover of stones, boulders or bedrock; 2) <30% areal cover of vegetation (i.e. beaches, bars, and flats) • C: Seasonally flooded—surface water is present for extended periods especially early in growing season, but is usually absent by the end of the growing season; water table varies and extends from saturated to the surface to water well below the surface. 	-136
L2AB3Hh	<p>Lacustrine system, Littoral, Diked/Impounded</p> <ul style="list-style-type: none"> • AB: Aquatic Bed—wetlands/deepwater habitats dominated by plants growing principally on or below the surface water for most of the growing season in most years • 3: Rooted Vascular—large array of vascular species in the marine and estuarine systems; commonly referred to as grass flats; occur at all depths in the photic zone; often sheltered areas that have little water movement • H: Permanently Flooded—water covers the land surface throughout the year 	-138
PFO1C	<ul style="list-style-type: none"> • P: Palustrine—nontidal wetlands dominated by trees, shrubs, emergent, mosses or lichens, and wetlands occurring in tidal areas where salinity from ocean derived salts <0.5 ppt; wetlands lacking vegetation included if: 1) <20 acres; 2) don't have active wave-formed or bedrock shoreline feature; 3) have at low water a depth <6.6 feet in the deepest part of the basin; 4) have salinity due to ocean-derived salts of <0.5 ppt • FO: Forested—characterized by woody vegetation that is >19.6 feet tall • 1: Broad-Leaved Deciduous—woody trees or shrubs with relatively wide, flat leaves that are shed during the cold or dry season (i.e. Black Ash) • Seasonally Flooded 	-139
PSS1Ch	<p>Palustrine; Broad-Leaved Deciduous; Seasonally Flooded; Diked/Impounded</p> <ul style="list-style-type: none"> • SS: Scrub-shrub—areas dominated by woody vegetation <19.6 feet tall including true shrubs, saplings, and trees or shrubs that are small or stunted because of environmental conditions 	-140
PFO6Fh	<p>Palustrine; Forested; Semipermanently flooded; Diked/Impounded</p> <ul style="list-style-type: none"> • 6: Deciduous—plant community where deciduous trees or shrubs are >50% of areal coverage of trees and shrubs; canopy is normally leafless some time during the year 	-141
L1UBHh	<p>Lacustrine; Unconsolidated Bottom; Permanently Flooded; Diked/Impounded</p> <ul style="list-style-type: none"> • 1: Limnetic—extends outward from Littoral boundary and includes all deepwater habitats within the Lacustrine System 	-144

3.6 Heritage Resources

3.6.1 Cultural Resources

Approximately 25,000 archeological sites are recorded in Texas and over 3,000 historic properties in the state are listed on the National Register of Historic Places.

To comply with Section 106 of the National Historic Preservation Act (NHPA), as amended, a cultural resources background review was conducted. A section 106 review at the lease sale stage is helpful in that it is a first look at parcels to see if concerns about historic properties are warranted, and possibly to determine if a parcel should be withdrawn from the lease sale process due to concerns about historic properties.

A Class I cultural resource review was done on each parcel and no historic properties were identified, although some parcels have known archeological sites within them. The Comanche and Tonkawa tribes responded that no properties of concern were within the area of potential effect (APE).

3.6.2 Paleontology

The extent, if any, of paleontological resources within the APE are unknown. During the APD phase, site-specific surveys would be completed and included with the cultural resource report and include statements on any new paleontological material discovered during inventory. These reports are reviewed and new fossil material is reported to paleontologists.

3.6.3 Native American Religious Concerns

Traditional Cultural Properties (TCPs) are places that have cultural values that transcend the values of scientific importance that are normally ascribed to cultural resources such as archaeological sites. Native American communities are most likely to identify TCPs, although TCPs are not restricted to those associations. Some TCPs are well known, while others may only be known to a small group of traditional practitioners, or otherwise only vaguely known.

There are several pieces of legislation or Executive Orders that should be considered when evaluating Native American religious concerns. These govern the protection, access and use of sacred sites, possession of sacred items, protection and treatment of human remains, and the protection of archaeological resources ascribed with religious or historic importance. These include the following:

- The American Indian Religious Freedom Act of 1978 (AIRFA; 42 USC 1996, P.L. 95-431 Stat. 469).
- Executive Order 13007 (24 May 1996).
- The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA; 25 USC 3001, P.L. 101-601).
- The Archaeological Resources Protection Act of 1979 (ARPA; 16 USC 470, Public Law 96-95).

For the Proposed Action, identification of TCPs were limited to reviewing existing published and unpublished literature, and BLM tribal consultation efforts specific to this proposed action with the Comanche Nation, and the Tonkawa, Caddo and Osage tribes. The Tonkawa and Comanche tribes replied with no concerns and the literature review did not indicate any TCPs. No TCPs are known to exist within the APE.

3.7 Invasive, Non-native Species

Noxious weeds can have a disastrous impact on biodiversity and natural ecosystems. Noxious weeds affect native plant species by out-competing native vegetation for light, water and soil nutrients. Noxious weeds cause \$2 to \$3 million in estimated losses to producers annually. These losses are attributed to: (1) decreased quality of agricultural products due to high levels of competition from noxious weeds; (2) decreased quantity of agricultural products due to noxious weed infestations; and (3) costs to control and/or prevent the spread of noxious weeds.

The State of Texas listed 27 plant species as having a serious potential to cause economic or ecological harm to the state (4 TAC §19.300, as amended). The Early Detection & Distribution Mapping System (2013) at the University of Georgia has identified 32 species in Sabine County and 22 species in Live Oak County as being exotic to the US and listed as a problem somewhere in the US. Six of the 32 species in Sabine County and two of the 22 species in Live Oak County were also listed by the State of Texas (2012: Table 6).

Table 6. Invasive and Non-native Species documented in Sabine and Live Oak Counties.

County	Species	Habitat	Potential Habitat
Sabine; Live Oak	Giant reed <i>Arundo donax</i>	Grows in various ecosystems, habitat types, and cover types; areas following disturbances where vegetation is killed and/or removed and/or soil is disturbed; more common in riparian, floodplain, and wetland habitats	Yes: -143 No: -133, -136, -138, -139, -140, -141, -144—parcels covered by water too deep to grow giant reed
Live Oak	Waterhyacinth <i>Eichhornia crassipes</i>	Floating plant in all types of freshwater; occurs throughout the southeast	Yes—found in nearby lakes
Sabine	Hydrilla <i>Hydrilla verticillata</i>	Grows in only a few inches to >20 feet deep freshwater (springs, lakes, marshes, ditches, rivers, tidal zones); somewhat winter-hardy, optimum water temperature is 68-81°F; can grow in any nutrient conditions with or without full sun and even in 7% salinity of seawater	Yes—found in nearby lakes
Sabine	Japanese climbing fern <i>Lygodium japonicum</i>	Can grow in sun or shade, damp, disturbed or undisturbed areas; usually moist, swampy habitat; disturbed areas are preferred; needs other vegetation around it to spread	Yes: -143 No: -133, -136, -138, -139, -140, -141— no vegetation in water for species to climb
Sabine	Kudzu <i>Pueraria Montana</i> var. <i>lobata</i>	Spreads rapidly in open, disturbed areas (abandoned fields, roadsides, forest edges), in densely vegetated areas spread slowly; areas with mild winters (40-60°F), summer temperatures >80°F and annual precipitation >40"; deep, well-drained, loamy soils	No: all parcels are within water or do not have loamy soils that are deep and well-drained
Sabine	Giant salvinia <i>Salvinia molesta</i>	Slightly acidic, high nutrient, warm, slow-moving freshwater (streams, lakes, ponds, ditches, rice fields); resistant to periods of low temperature, dewatering, and elevated pH levels; low tolerance to salinity	Yes—documented in Toledo Bend Reservoir
Sabine	Chinese tallowtree <i>Triadica sebifera</i>	Invades several plant communities including Gulf coastal prairies and many types of forests in the southeastern U.S.; common on disturbed sites such as spoilbanks, roadsides, agricultural lands, urban areas, and storm-damaged forests.	Yes: -143—several disturbed sites in parcel No: -133, -136, -138, -139, -140, -141—not aquatic species

3.8 Vegetation

Differences in amount and frequency of rainfall, variation in soils and temperatures gives Texas a great diversity of vegetation. From the grassy plains of North Texas to the coastal and inland wetlands to the semi-arid brush lands of South Texas, plant species change accordingly.

Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. A Roman numeral hierarchical scheme has been adopted for different levels of ecological regions. Level I is the coarsest level, dividing North American into 15 ecological regions. Level II divided the continent into 52 regions. At level III, the continental U.S. contains 104 regions whereas the conterminous U.S. has 48. Level IV ecoregions are further subdivisions of level III ecoregions. In Texas, there are 12 level III ecoregions and 56 level IV ecoregions and most continue into ecologically similar parts of adjacent states.

Proposed parcel -133, -136, -138, -139, -140, -141, and -143 are in the Tertiary Uplands ecoregion (EPA 35a). The Tertiary Uplands ecoregion is part of the larger South Central Plains (Level III) ecoregion. The South Central Plains is locally termed the “piney woods” and is made up of mostly irregular plains on the western edge of the southern coniferous forest belt. The rolling Tertiary Uplands (Level IV ecoregion) covers a large area in east Texas, southern Arkansas, and northern Louisiana (11,607 square miles). The natural vegetation has been altered by multiple timber harvests and commercial pine plantation activities. The pine-hardwood forests include loblolly pine (*Pinus taeda*), shortleaf pine (*P. echinata*), southern red oak (*Quercus falcata*), post oak (*Q. stellata*), white oak (*Q. alba*), hickory (*Carya spp.*) and sweetgum (*Liquidambar styraciflua*), and mid and tall grasses such as yellow Indiangrass (*Sorghastrum nutans*), pinehill bluestem (*Schizachyrium scoparium var. divergens*), narrowleaf woodoats (*Chasmodon sessiliflorum*), and panicums (*Panicum spp.*). American beautyberry (*Callicarpa Americana*), sumac (*Rhus spp.*), greenbriar (*Smilax spp.*), and hawthorn (*Crataegus spp.*) are part of the understory (Griffith et al. 2007).

Proposed parcel -144 is in the Texas-Tamaulipan Thornscrub ecoregion (EPA 31c). The Texas-Tamaulipan Thornscrub covers a large portion of the Southern Texas plains, and extending into Mexico, encompasses a mosaic of vegetation assemblages and a variety of soils. This South Texas region owes its diversity to the convergence of the Chihuahuan Desert to the west, the Tamaulipan thornscrub and subtropical woodlands along the Rio Grande to the south, and coastal grasslands to the east. The thorn woodland and thorn shrubland vegetation is distinctive and commonly called the “brush country.” The vegetation is dominated by drought-tolerant, mostly small-leaved, and often thorn-laden small trees and shrubs, especially legumes. The most important woody species is honey mesquite (*Prosopis glandulosa*). Where conditions are suitable, there is a dense understory of smaller trees and shrubs such as brasil (*Condalia hookeri*), Colima or lime pricklyash (*Zanthoxylum fagara*), Texas persimmon (*Diospyros texana*), lotebush (*Ziziphus obtusifolia*), Texas paloverde (*Parkinsonia texana*), anacahuita (*Cordia boissieri*), and various species of cacti. Xerophytic brush species, such as blackbrush (*Acacia rigidula*), guajillo (*A. berlandieri*), and ceniza (*Leucophyllum frutescens*), are typical on the rocky, gravelly ridges and uplands. The brush communities also tend to grade into desert scrub near the Rio Grande. Mid and short grasses are common, including cane bluestem (*Bothriochloa barbinodis*), silver bluestem

(*B. laguroides*), multiflowered false rhodesgrass (*Trichloris pluriflora*), sideoats grama (*Bouteloua curtipendula*), pink papusgrass (*Pappophorum bicolor*), bristlegrasses (*Setaria spp.*), lovegrasses (*Eragrostis spp.*), and tobosa (*Hilaria mutica*). Three centuries of grazing, fire suppression, and drought have contributed to the spread of brush and the decrease of grasses.

Although the parcels are in the described ecoregion, the actual parcels themselves are covered by water and do not have any vegetation growing on them, except for 23.09 acres of proposed parcel -143, which can be characterized by the Tertiary Upland ecoregion's description.

3.9 Wildlife

3.9.1 Threatened and Endangered Species

The purpose of the Endangered Species Act (ESA) is to ensure that federal agencies and departments use their authorities to protect and conserve endangered and threatened species. Section 7 of ESA requires that federal agencies prevent or modify any projects authorized, funded, or carried out by the agencies that are "likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat of such species." A biological evaluation was prepared by an OFO biologist to document the potential for and effects on federally protected species. Three federally protected species (1 endangered, 2 candidate) were identified as occurring or have the potential to occur in Sabine County and three species (3 endangered) were identified for Live Oak County (Table 7).

Table 7. Federally Protected Threatened and Endangered Species.

Scientific Name	Status	County	Habitat/Distribution
Louisiana pine snake <i>Pituophis ruthveni</i>	C	Sabine	<i>Habitat:</i> Occur in longleaf pine-oak sandhills interspersed with moist bottomlands; sometimes in adjacent blackjack oak woodlands and in sandy areas of short-leaf pine/post oak forest; prefers openly wooded areas over dense forest; frequently found in fields, farmland, and tracts of second-growth timber. <i>Distribution:</i> Historically in portions of west-central Louisiana and extreme east-central Texas. This area roughly coincides with a disjunct portion of the longleaf pine ecosystem situated west of the Mississippi River. Currently extant in a small portion of the historical range.
Red-cockaded woodpecker <i>Picoides borealis</i>	E	Sabine	<i>Habitat:</i> Open pine forests with large, widely-spaced older trees provide essential habitat for the red-cockaded woodpecker. <i>Distribution:</i> The red-cockaded woodpecker can be found in the Pineywoods of east Texas.
Texas golden gladeceess <i>Leavenworthia texana</i>	C	Sabine	<i>Habitat:</i> Edaphically influenced herbaceous communities on shallow calcareous soils in vernal moist to wet glades on glauconite or ironstone outcrops of the Weches Formation <i>Distribution:</i> Nacogdoches, Sabine and San Augustine
<i>Jaguarondi</i> <i>Herpailurus (=Felis)</i> <i>yagouaroundi cacomitli</i>	E	Live Oak	<i>Habitat:</i> spend most of their time on the ground, but can be agile climbers; hunt small rodents, reptiles, and birds in dense vegetation, especially thornscrub <i>Distribution:</i> Laguna Atascosa National Wildlife Refuge in Texas; also in the south Texas brush country, lower Rio Grande Valley, northern Mexico, central and south America

Scientific Name	Status	County	Habitat/Distribution
<i>Ocelot</i> <i>Leopardus (=Felis) pardalis</i>	E	Live Oak	<i>Habitat:</i> Dense, thorny, low brush such as spiny hackberry, lotebush, and blackbrush; prefers elevated terrain <i>Distribution:</i> South Texas brush country and lower Rio Grande valley
<i>Grus Americana</i> Whooping Crane	E	Live Oak	<i>Habitat:</i> Typically found in shallow wetlands, marshes, the margins of ponds and lakes, sandbars and shorelines of shallow rivers, wet prairies, and crop fields near wetlands; salt marshes of Aransas National Wildlife Refuge (NWR); coastal prairies with swales and ponds <i>Distribution:</i> Breed in Canada during the summer months; migrate to Texas' coastal plains near Rockport in and around Aransas NWR November – March

3.9.2 Special Status Species

Texas legislature authorized the Texas parks and Wildlife Department (TPWD) to establish a list of endangered plants and animals in the state (31 T.A.C §65.171 -65.176). Endangered species, under the Texas legislation, means “species which the Executive Director of TPWD has named as being ‘threatened with statewide extinction (animals)’ [or] ‘in danger of extinction throughout all of a significant portion of its range’ (plants).” Threatened species, under Texas legislation, means “species which the TPWD Commission has determined are likely to become endangered in the future.” TPWD regulations prohibit the taking, possession, transportation, or sale of any of the animal species designated by state law as endangered or threatened without the issuance of a permit. In addition, some species listed as threatened or endangered under state law are also listed under federal regulations. These animals are provided additional protection by the USFWS and ESA.

Eighteen species were identified as occurring or having the potential to occur in Sabine County and 17 species were identified in Live Oak County (Table 8).

Table 8. TPWD state listed species.

Scientific Name	Status	County	Habitat/Distribution
Amphibians			
Black spotted newt <i>Notophthalmus meridionalis</i>	T	Live Oak	<i>Habitat:</i> Adults, juveniles, and larvae inhabit permanent and temporary ponds, roadside ditches, and quiet stream pools, habitats that are relatively uncommon in at least the northern part of the range; Terrestrial; Freshwater <i>Distribution:</i> Along the Gulf Coastal Plain, from south of the San Antonio River in TX southward along the Atlantic versant to Tamaulipas, northern Veracruz, and southeastern San Luis Potosi, Mexico; never found >80 miles inland; sea level to 2,625 feet.
Sheep frog <i>Anaxyrus houstonensis</i>	E	Live Oak	<i>Habitat:</i> common in various habitats but seldom seen. <i>Distribution:</i> extends from southern TX southward through the Pacific and Atlantic slopes of Mexico to Costa Rica.

Scientific Name	Status	County	Habitat/Distribution
Birds			
American peregrine falcon <i>Falco peregrinus anatum</i>	T	Sabine Live Oak	<i>Habitat:</i> nesting at elevations <12,000 feet; along rivers and coastlines or in cities, where the local Rock Pigeon populations offer a reliable food supply; during migration and winter found in nearly any open habitat, but with a greater likelihood along barrier islands, mudflats, coastlines, lake edges, and mountain chains. <i>Distribution:</i> resident of the Trans-Pecos region, including the Chisos, Davis, and Guadalupe Mountain ranges.
Bachman's sparrow <i>Aimophila aestivalis</i>	T	Sabine	<i>Habitat:</i> Old field, Savanna, Woodland - Conifer, Woodland - Hardwood <i>Distribution:</i> Eastern TX and the Gulf Coast
Bald Eagle <i>Haliaeetus leucocephalus</i>	T	Sabine	<i>Habitat:</i> Nest in forested areas adjacent to large bodies of water, away from heavily developed areas when possible; may congregate around fish processing plants, dumps, and below dams where fish concentrate; For perching, prefer tall, mature coniferous or deciduous trees that afford a wide view of the surroundings; in winter, use dry, open uplands if there is access to open water for fishing. <i>Distribution:</i> Present year-round throughout; population in TX is divided into two populations: breeding birds and nonbreeding/wintering birds; breeding populations primarily in eastern half of the state and along coastal counties from Rockport to Houston; nonbreeding/wintering populations primarily in the Panhandle, Central and East TX, and in other areas of suitable habitat throughout the state
Interior least tern <i>Sterna antillarum athalassos</i>	E	Live Oak	<i>Habitat:</i> large rivers; sometimes found hunting fish in shallow wetlands and margins of ponds and lakes; require bare sand and gravel for nesting of small colonies (2-20 pairs) along large rivers on sand bars and scoured bends <i>Distribution:</i> three reservoirs along the Rio Grande River, on the Canadian River in the northern Panhandle, on the Prairie Dog Town Fork of the Red River in the eastern Panhandle, and along the Red River (TX/OK boundary) into AR
Peregrine falcon <i>Falco peregrinus</i>	T	Live Oak	<i>Habitat:</i> nesting at elevations <12,000 feet; along rivers and coastlines or in cities, where the local Rock Pigeon populations offer a reliable food supply; during migration and winter found in nearly any open habitat, but with a greater likelihood along barrier islands, mudflats, coastlines, lake edges, and mountain chains <i>Distribution:</i> Migrate across the state from more northern breeding areas in U.S. and Canada to winter along coast and farther south.
Piping plover <i>Charadrius melodus</i>	T	Sabine	<i>Habitat:</i> live on sandy beaches and lakeshores <i>Distribution:</i> Gulf Coast beaches from Florida to Mexico, and Atlantic coast beaches from Florida to North Carolina provide winter homes for plovers.
Red-cockaded woodpecker <i>Picoides borealis</i>	E	Sabine	See section 3.9.1
Swallow-tailed kite <i>Elanoides forficatus</i>	T	Sabine	<i>Habitat:</i> Nesting and foraging habitats include various pine forests and savannas, cypress swamps and savannas, cypress-hardwood swamps, hardwood hammocks, mangrove swamps, narrow riparian forests, prairies, and freshwater and brackish marshes. <i>Distribution:</i> Breeding range extends from South Carolina south to Florida, and west to Louisiana and east Texas
White-faced ibis <i>Plegadis chihi</i>	T	Live Oak	<i>Habitat:</i> Marshes, swamps, ponds and rivers. <i>Distribution:</i> breed and winter along the Gulf Coast and may occur as migrants in the Panhandle and West TX.

Scientific Name	Status	County	Habitat/Distribution
Birds (Continued)			
White-tailed hawk <i>Buteo albicaudatus</i>	T	Live Oak	<i>Habitat:</i> Open country, primarily savanna, prairie, and arid habitats of mesquite, cacti, and bushes, very rarely in open forest <i>Distribution:</i> Central and southeastern TX
Whooping Crane <i>Grus Americana</i>	E	Live Oak	See section 3.9.1
Wood stork <i>Mycteria Americana</i>	T	Sabine Live Oak	<i>Habitat:</i> Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; mud flats, other wetlands, and forested areas <i>Current Distribution:</i> Breeds in Mexico and then moves into the Gulf States; no breeding records in TX since 1960
Mammals			
Jaguarondi <i>Herpailurus (=Felis) yagouaroundi cacomitli</i>	E	Live Oak	See section 3.9.1
Ocelot <i>Leopardus (=Felis) pardalis</i>	E	Live Oak	See section 3.9.1
Rafineque's big-eared bat <i>Corynorhinus rafinesquii</i>	T	Sabine	<i>Habitat:</i> forested regions <i>Distribution:</i> Eastern edge of Texas
Red wolf <i>Canis rufus</i>	E	Sabine Live Oak	<i>Habitat:</i> Brushy and forested areas; coastal prairies <i>Distribution:</i> Extirpated; historically known in eastern half of TX
Mussels			
Golden orb <i>Quadrula aurea</i>	T	Live oak	<i>Habitat:</i> Freshwater <i>Distribution:</i> Endemic to the Guadalupe-San Antonio and Nueces-Frio systems; Only seven extant populations have been noted from the upper and central Guadalupe River, central San Antonio River, lower San Marcos River, and Lake Corpus Christi.
Louisiana pigtoe <i>Pleurobema riddellii</i>	T	Sabine	<i>Habitat:</i> Freshwater; in streams and moderate-size rivers; usually in flowing water and not generally known from impoundments; on substrates of mud, sand, and gravel; to depths of 20 feet but usually less. <i>Distribution:</i> Historically, occurred as far west as the San Jacinto and Trinity Rivers, Texas, eastward through the Neches and Sabine systems into the Red River and Bayou Pierre of north-central Louisiana.
Sandbank pocketbook <i>Lampsilis satura</i>	T	Sabine	<i>Habitat:</i> Freshwater; may occur in small to large rivers with moderate flows on gravel, gravel-sand, and sand bottoms <i>Distribution:</i> southern portions of the Mississippi Interior basin and western Gulf drainages of Arkansas, Mississippi (extreme south), Louisiana, and Texas.
Southern hickorynut <i>Obovaria jacksoniana</i>	T	Sabine	<i>Habitat:</i> Freshwater; found in medium sized gravel in water with low to moderate current in small to large sized rivers <i>Distribution:</i> Historically distributed from Alabama west to eastern Texas, and in the Mississippi embayment as far north as southeastern Missouri
Texas heelsplitter <i>Potamilus amphichaenus</i>	T	Sabine	<i>Habitat:</i> Freshwater; found in flowing water but not necessarily in riffles or shoals; prefers mud or sand in small to medium rivers and may be found in reservoirs <i>Distribution:</i> known only from the Sabine River that forms the border between Texas and Louisiana, and the Neches and Trinity rivers in Texas

Scientific Name	Status	County	Habitat/Distribution
Mussels (Continued)			
Texas pigtoe <i>Fusconaia askewi</i>	T	Sabine	<i>Habitat:</i> freshwater; collected in rivers with mixed mud, sand, and fine gravel in protected areas <i>Distribution:</i> western Gulf drainages of TX and Louisiana; TX records are from the Neches, Sabine, and San Jacinto Rivers in east TX.
Reptiles			
Alligator snapping turtle <i>Macrochelys temminckii</i>	T	Sabine	<i>Habitat:</i> slow-moving, deep water of rivers, sloughs, oxbows, and canals or lakes associated with rivers (e.g., large impoundments); also swamps, bayous, and ponds near rivers, and shallow creeks that are tributaries to occupied rivers, including swift upland streams; sometimes enters brackish waters near river mouths, but usually in water with a mud bottom and some aquatic vegetation; may use sand-bottomed creeks <i>Distribution:</i> Eastern Texas
Louisiana pine snake <i>Pituophis ruthveni</i>	T	Sabine	See section 3.9.1
Northern scarlet snake <i>Cemophora coccinea copei</i>	T	Sabine	<i>Habitat:</i> Hardwood, mixed, or pine forest/woodland and adjacent open areas with sandy or loamy well-drained soils. Habitats include: pine flatwoods, dry or dry prairie, salt grass prairie, maritime hardwood hammock, bottomland forest, sandhills, margins of irrigation canals in sawgrass prairies, borders of swamps and plowed fields, abandoned fields, and roadsides <i>Distribution:</i> Range extends from southern NJ, MD, VA, KY, southern IN, southern IL, and MO, and eastern OK south to southern TX, most of the Gulf Coast (except LA), and southern FL
Reticulate collared lizard <i>Crotaphytus reticulatus</i>	T	Live Oak	<i>Habitat:</i> thorn-scrub vegetation, usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils. <i>Distribution:</i> Occurs in relatively small areas in southern TX; range extends from Eagle Pass, TX, on the north to Mission, TX, on the southeast.
Texas horned lizard <i>Phrynosoma cornutum</i>	T	Live Oak	<i>Habitat:</i> arid and semiarid habitats in open areas with sparse plant cover; found in loose sand or loamy soils <i>Distribution:</i> south-central U.S. to northern Mexico, throughout much of TX, OK, KS and NM
Texas indigo snake <i>Drymarchon melanurus erebennus</i>	T	Live Oak	<i>Habitat:</i> grassland, coastal sand dunes, lightly vegetated areas near permanent water; Shelters in burrows <i>Distribution:</i> Southern Texas
Texas tortoise <i>Gopherus berlandieri</i>	T	Live Oak	<i>Habitat:</i> Open scrub woods, arid brush, lomas, grass-cactus association; often in areas with sandy well-drained soils <i>Distribution:</i> extends from South-Central TX in the U.S. southward into the Mexican states of Coahuila, Nuevo Leon, and Tamaulipas.
Timber (canebrake) rattlesnake <i>Crotalus horridus</i>	T	Sabine	<i>Habitat:</i> Prefer moist lowland forests and hilly woodlands or thickets near permanent water sources such as rivers, lakes, ponds, streams and swamps where tree stumps, logs and branches provide refuge. <i>Distribution:</i> upland woods and rocky ridges in the eastern U.S.; the eastern third of Texas.

3.9.3 Migratory Birds

Executive Order (EO) 13186, 66 Fed. Reg. 3853, (January 17, 2001) identifies the responsibility of federal agencies to protect migratory birds and their habitats, and directs executive departments and agencies to undertake actions that will further implement the Migratory Bird Treaty Act (MBTA). Under the MBTA, incidental, unintentional, and accidental take, killing, or possession of a migratory bird or its parts, nests, eggs or products, manufactured or not, without a permit is unlawful. EO 13186 includes a directive for federal agencies to develop a memorandum of understanding (MOU) with the USFWS to promote the conservation of migratory bird populations, including their habitats, when their actions have, or are likely to have, a measurable negative effect on migratory bird populations.

For the purpose of this biological evaluation, the term “migratory birds” applies generally to native bird species protected by MBTA. This includes native passerines (flycatchers and songbirds) as well as birds of prey, migratory waterbirds (waterfowl, wading birds, and shorebirds), and other species such as doves, hummingbirds, swifts, and woodpeckers. The term “migratory” is a misnomer and should be interpreted broadly to include native species that remain in the same area throughout the year as well as species that exhibit patterns of latitudinal or elevational migration to avoid winter conditions of cold or a shortage of food. For most migrant and native resident species, nesting habitat is of special importance because it is critical for supporting reproduction in terms of both nesting sites and food. Also, because birds are generally territorial during the nesting season, their ability to access and utilize sufficient food is limited by the quality of the territory occupied. During non-breeding seasons, birds are generally non-territorial and able to feed across a larger area and wider range of habitats.

Among the wide variety of species protected by the MBTA, special concern is usually given to the following groups:

- Species that migrate across long distances, particularly Neotropical migrant passerines that winter in tropical or Southern Hemisphere temperate zones.
- Birds of prey, which require large areas of suitable habitat for finding sufficient prey.
- Species that have narrow habitat tolerances and hence are vulnerable to extirpation from an area as a result of a relatively minor habitat loss.
- Species that nest colonially and hence are vulnerable to extirpation from an area and hence are vulnerable to extirpation from an area as a result of minor habitat loss.

Because of the many species that fall within one or more of these groups, BLM focuses on species identified by the USFWS as Birds of Conservation Concern (BCC). Table 9 lists the BCC in or near the proposed parcels.

Table 9. Birds of Conservation Concern (BCC) known to breed and/or nest in or near the proposed parcels.

Parcel	BCC Region (Region)	BCC Within Region	Survey Route Near Proposed Parcel	BCC Known to Breed and/or Nest In or Near the Proposed Parcel*
-133, -136, -138, -139, -140, -141, -143	West Gulf Coastal Plain/Ouachitas (25)	28	Burr Ferry	<u>Little blue heron</u> , red-headed woodpecker, loggerhead shrike, brown-headed nuthatch, prairie warbler, prothonotary warbler, <u>Louisiana waterthrush</u> , Kentucky Warbler, painted bunting, orchard oriole
-144	Oaks and Prairies (21)	19	George West	<u>Little blue heron</u> , scissor-tld flycatcher, loggerhead shrike, Bell's vireo, orchard oriole

* *Species in Underline and Italicized*: Wetland Associated Species

All other species: Woodland or Scrub Associated Species

3.9.4 Wildlife

Wildlife includes all non-domesticated plants, animals and other organisms. Several species of interest inhabit the lease parcel areas. Sabine County is located in the Pineywoods ecoregion (Level III) and Live Oak County is located in the south Texas plains ecoregion (Level III). Common wildlife are identified in Table 10.

Table 10. Common wildlife found in or near the proposed parcels.

Scientific Name	County	Habitat/Distribution
Birds		
Bald Eagle	Sabine	See section 3.9.2
<i>Elf owl</i>	Live Oak	<i>Habitat</i> : found in the arid Big Bend and Trans-Pecos areas of the lower Chihuahuan desert. <i>Distribution</i> : neotropical migrants; winter in central Mexico and return to West TX and other parts of the southwest to nest and raise their young
<i>Roadrunner</i>	Live Oak	<i>Habitat</i> : desert and shrubby country in the southwestern US and northern Mexico <i>Current Distribution</i> : recorded in all counties, but most common in the Chihuahuan Desert of West TX and South TX brushlands
Mammal		
<i>Bobcat</i>	Sabine	<i>Habitat</i> : variety of habitats, but favor rocky canyons or outcrops when available; may choose thickets for protection and den sites; highly adaptable, and in most places have been able to thrive despite habitat loss and fragmentation. <i>Distribution</i> : Bobcats are distributed throughout Texas
<i>Coati</i>	Live Oak	<i>Habitat</i> : wooded areas, some rocky canyons entering from the lowlands <i>Distribution</i> : woodland areas of the warmer parts of Central America, Mexico, and the extreme southern U.S. including southern TX; In TX, only rarely known from Brownsville to the Big Bend region of the Trans-Pecos
<i>Eastern cottontails</i>	Sabine	<i>Habitat</i> : occupy habitats in and around farms including fields, pastures, open woods, thickets associated with fencerows, wooded thickets, forest edges, and suburban areas with adequate food and cover; also in swamps and marshes and usually avoid dense woods; seldom found in deep woods. <i>Distribution</i> : meadows and shrubby areas in the eastern and south-central U.S.

Scientific Name	County	Habitat/Distribution
<i>Eastern flying squirrel</i>	Sabine	<i>Habitat:</i> forested areas where suitable trees are present for den sites <i>Distribution:</i> wooded areas in eastern one-third of TX
<i>Striped skunks</i>	Sabine	Habitat: wooded or brushy areas and farmlands; prefer taking shelter in rocky outcrops or under large boulders, but when these are unavailable, den in the abandoned burrows of other animals. Current Distribution: statewide in TX

3.10 Wastes – Hazardous or Solid

The Resource Conservation and Recovery Act (RCRA) of 1976 established a comprehensive program for managing hazardous wastes from the time they are produced until their disposal. The EPA regulations define solid wastes as any “discarded materials” subject to a number of exclusions. On January 6, 1988, EPA determined that oil and gas exploration, development and production wastes would not be regulated as hazardous wastes under RCRA. The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980, deals with the release (spillage, leaking, dumping, accumulation, etc.), or threat of a release of hazardous substances into the environment. Despite many oil and gas constituent wastes being exempt from hazardous waste regulations, certain RCRA exempt contaminants could be subject to regulations as hazardous substances under CERCLA.

No hazardous or solid waste materials are known to be present on any of the proposed lease parcels.

3.11 Mineral Resources

Texas has produced more oil and natural gas than any other state and to date remains the largest daily producer. Oil and natural gas are found in most parts of the state. No state or any other region worldwide has been as heavily explored or drilled for oil and natural gas as Texas. The Railroad Commission of Texas (RRC) lists 399,488 wells (active and inactive well but not including plugged and abandoned) statewide (RRC 2012). In Texas, an average of 356,621,060 barrels (BBL) of crude oil and 7,362,263,313 thousand cubic feet (MCF) were produced from 2006-2011. Oil and natural gas production in Texas can be divided into seven major producing basins. The Permian Basin dominates oil production in the state, and the Gulf Coast Basin dominates natural gas production. Major oil fields in Texas include Wasson, Yates, and Spraberry in West Texas, as well as the largest Texas oil field, East Texas field in the East Texas Basin. Major natural gas fields in Texas include Newark East field in the Fort Worth basin; Carthage field in East Texas; Panhandle, West, field in the Anadarko Basin; and Giddings field in the Gulf Coast basin (Kim and Ruppel 2005).

The main oil and gas field in Sabine County is the Haynesville Shale in the Carthage (Haynesville Shale) field. The Haynesville Shale is a hydrocarbon producing geological formation that may be capable of delivering large amounts of gas. It is located in East Texas and Western Louisiana. The core counties are Panola, Harrison and Shelby, while six additional counties including Sabine county are non-core counties. The productive interval of the shale is greater than 10,000 feet below the land surface. It was not until 2008 that operators realized the Haynesville formation might be as commercially attractive as

the other shale gas plays. As of December 2012, the RRC has issued 245 permits to drill and have 784 gas wells on schedule and no oil wells on schedule.

The main oil and gas field in Live Oak County is the Eagle Ford Shale play. The Eagle Ford Shale is a hydrocarbon producing formation of significant importance due to its capability of producing both gas and more oil than other traditional shale plays. It contains a much higher carbonate shale percentage, upwards to 70 percent in south Texas and becomes shallower and the shale content increases as it moves to the northwest. The high percentage of carbonate makes it more brittle and “fracable.” The shale play trends across Texas from the Mexican border up into East Texas, roughly 50 miles wide and 400 miles long with an average thickness of 250 feet. It is Cretaceous in age resting between the Austin Chalk and the Buda Lime at a depth of approximately 4,000 to 12,000 feet. Since 2009, the number of producing oil and leases on schedule has drastically increased. There were 1262 producing oil leases on schedule in 2012; 368 producing oil leases on schedule in 2011; 72 producing oil leases in 2010 and only 40 producing oil leases in 2009. In 2012 there were 875 producing gas wells on schedule; 550 producing gas wells in 2011, 158 producing gas wells in 2010, and 67 producing gas wells in 2009.

3.12 Visual Resources

BLM Manual H-8410-1 lays out the visual resource inventory process for determining visual values. The inventory consists of scenic quality evaluation, sensitivity level analysis, and a delineation of distance zones. The purpose of the analysis is to determine the area’s Visual Resource Management Class (VRM), which defines the degree of acceptable visual change within a characteristic landscape on BLM lands. Because the proposed parcels are on private surface a VRM class has not been established for the areas.

The existing landscape throughout all of the proposed parcel counties include oil and gas development visual impacts from facilities, lease roads, pipelines, utility lines, and above ground components such as tanks, pumpjacks, wellheads, fences, and signs. Visual impacts from agricultural/farming and timber production activities include croplands, pastures, timber plots, clear cuts, outbuildings (i.e. barns, storage sheds, and chicken coups), irrigation pipes/ditches/pivots, and improved and unimproved roads to access outbuildings, crops, pastures, plots, etc. Oil/gas development, agriculture/farming, and timber production facilities are readily visible from residences, highways, and country roads in all of the counties, including each proposed parcel.

All of the proposed parcels are in or near developed recreation areas where water resources and bank vegetation is an important value that has not been drastically altered from the natural state. In the recreation areas, boat launches, buildings, camping spots, trails, and roads are common in addition to the increase in visitors as opposed to the proposed parcels not near a recreation area. Outside the recreation areas, the landscape described in the previous paragraph applies.

Proposed parcel -143 is <8.0 miles from Interstate 37. The remaining proposed parcels are >40.0 miles from Interstate 40. All of the proposed parcels are <1.5 miles from State Highways.

3.13 Recreation

Sabine County

The proposed lease parcels are within or adjacent to the Toledo Bend Reservoir. The reservoir, with its 1,200 miles of shoreline, offers an almost unlimited opportunity for recreational development and is a major element in serving the growing demand for water oriented outdoor recreation. Both public and private facilities are available for swimming, boating, picnicking, fishing, camping, hunting, fishing, and sightseeing. The Toledo Bend Reservoir has an excellent year-round fishery for the largemouth bass, while good year-round crappie and catfish are present. Striped bass, white bass, stripers, bluegill, and redear sunfish are also plentiful in the reservoir.

The Sabine National Forest adjoins many of the proposed lease parcels. The Sabine National Forest offers visitors numerous recreation activities including: bicycling, camping, hiking, equestrian riding, OHV riding, wildlife watching, picnicking, water activities, hunting, and fishing. The Forest offers a number of recreational sites for fishing, camping, and launching boats into Toledo Bend Reservoir. Additionally, there are large tracts of land available for “exploration” and primitive camping and hunting.

Hunting and trapping in Sabine County is common. Typical hunted species include white-tailed deer, feral hog, waterfowl, dove, other migratory game birds, squirrel, turkey, quail, doves, rabbits, hares, coyotes, bobcats, fox, skunk, raccoons, opossums, badgers, and frogs.

Live Oak County

The proposed lease parcel is within Choke Canyon Reservoir. Recreation at this reservoir is managed by the Texas Parks and Wildlife Department for BOR. Several boat ramps and camping facilities offer year-round recreational opportunities including boating, camping, fishing, hiking, hunting, picnicking, recreational vehicle riding, swimming, water sports activities, and wildlife viewing. Largemouth bass and catfish are the most popular sportfish in the reservoir. Blue catfish, flathead catfish, channel catfish, white bass, crappie, sunfish, and alligator gar exist in the reservoir.

The James E. Daughtrey Wildlife Management Area (WMA) is a 4,400-acre low fenced, multiple-use recreational area surrounding Choke Canyon Reservoir. The WMA is representative of South Texas habitats and is a component of the South Texas Ecosystem Project. The WMA occupies five noncontiguous parcels adjacent to the lake. White-tailed deer, javelin, wild turkey, mourning and white-winged dove, bobwhite and scaled quail, rabbits, coyotes, gray foxes, bobcats, mountain lions, feral hogs, and waterfowl are common game species hunted in the WMA.

Choke Canyon State Park is located on the reservoir and is broken into two recreation areas. The South Shore Unit is a day-use only park offering boating, fishing, picnicking, wildlife viewing and bird watching. The Calliham Unit offers camping, picnicking, boating, hiking, wildlife viewing, bird watching, fishing, lake beach and softball and volleyball areas.

3.14 Socioeconomics and Environmental Justice

3.14.1 Socioeconomics

Texas saw an increase in employment in 2011, gaining 205,100 seasonally adjusted nonfarm jobs, representing an annual growth of 2 percent. Over the same period, U.S. nonfarm employment only rose 1.3 percent. All Texas industries except the information and construction industries and the government sector saw job increases. The state's mining and logging industry ranked first in job creation with an annual employment growth rate of 18.8 percent in 2011. The professional and business services industry ranked second in job creation, seeing a 4.1 percent increase. The Texas unemployment rate remained below the national unemployment rate in 2011 and even decreased in the last half of 2011.

Sabine County

The economy is based on tourism, livestock and broiler chicken production, and the lumber industry. In 2011, the unemployment rate in Sabine County was 16.3 percent, nearly double (8.1%) the unemployment rate in 2007 prior to the recession in 2008.

Live Oak County

Ranching and farming is the main source of income in Live Oak County. About 75,000 acres of grain sorghum, corn, cotton, and winter wheat were cultivated in the county, while 67,500 acres were used as pastureland. Oil and gas is the largest nonagricultural industry in the county. Unemployment in Live Oak County in 2011 was 5.5 percent, significantly lower than the state and national rate. In the past 5 years, the unemployment rate has ranged from 3.9 percent in 2007 to 6.9 percent in 2009 to 5.5 percent in 2011.

3.14.2 Environmental Justice

Executive Order 12989, issued on 11 February 1994, addresses concerns over disproportionate environmental and human health impacts on minority and low-income populations. The impetus behind environmental justice is to ensure that all communities, including minority, low-income or federally recognized tribes, live in a safe and healthful environment. Table 11 describes the demographics of each proposed parcel county.

Table 11. Demographics of proposed lease parcel counties.

	Population	Identified as Hispanic or Latino Origin	Not Identified as White or of Hispanic or Latino Origin	Median Household Income	Living Below the Poverty Level
Texas	26,059,203	38.1%	19.0%	\$50,920	17.0%
Sabine	10,740	3.5%	9.7%	\$33,109	21.8%
Live Oak	11,447	36.2%	7.4%	\$45,276	14.6%

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Assumptions for Analysis

The act of leasing parcels would, by itself, have no impact on any resources in the OFO. All impacts would be linked to as yet undetermined future levels of lease development. The effects of oil and gas leasing in Texas are analyzed in the Texas RMP (1996), as amended (Chapter 4). That analysis, which assumes that the impacts from an average well, pipeline and access road would total 5.65 acres of surface disturbance in Texas is incorporated by reference into this document.

Proposed lease parcels -133, -136, -138, -139, -140, and -141 are all within bodies of water and have lease stipulation ORA-4: No Surface Occupancy attached to each. Proposed lease parcel -144 has BOR-GS (Nueces) stipulation attached, which states that no surface occupancy is permitted below 220.5 feet mean surface elevation (top of conservation pool). As a result of these stipulations, accessing the minerals in these leases would occur through directional drilling where surface disturbance would occur outside the boundaries of the lease parcel. Exploration/development of the lease would produce no effect on any resources, except for minerals, within the boundaries of the lease parcel as a result of the no surface occupancy stipulation. However, when the minerals are accessed from a surface location outside the lease parcel, effects to the resources at the access site are likely. The effects described in section 4.3 apply to all proposed lease parcels, assuming that the seven parcels are accessed through directional drilling with surface disturbance outside the proposed lease parcel boundaries.

If lease parcels were developed, short-term impacts would be stabilized or mitigated within five years and long-term impacts are those that would substantially remain for more than five years. Potential impacts and mitigation measures are described below.

Cumulative impacts include the combined effect of past projects, specific planned projects and other reasonably foreseeable future actions such as other infield wells being located within these leases. Potential cumulative effects may occur should an oil and gas field be discovered if these parcels are drilled and other infield wells are drilled within these leases or if these leases become part of a new unit. All actions, not just oil and gas development may occur in the area, including foreseeable non-federal actions.

4.2 Effects from the No Action Alternative

Under the No Action Alternative, the proposed parcels under analysis in this EA would not be leased. There would be no subsequent impacts from oil and/or gas construction, drilling and production activities. The No Action Alternative would result in the continuation of the current land and resource uses in the proposed lease areas. The No Action Alternative is also used as the baseline for comparison of alternatives.

It is an assumption that the No Action Alternative (no lease option) may result in a slight reduction in domestic production of oil and gas. This would likely result in reduced Federal and state royalty income, and the potential for Federal minerals to be drained by wells on adjacent private or state lands.

Consumption is driven by a variety of complex interacting factors including energy costs, energy efficiency, availability of other energy sources, economics, demography, and weather or climate. If the BLM were to forego leasing and potential development of those minerals, the assumption is the public's demand for the resource would not be expected to change. Instead, the undeveloped resource would be replaced in the short- and long-term by other sources that may include a combination of imports, using alternative energy sources (e.g. wind, solar) and other domestic production. This displacement of supply would offset any reductions in emissions achieved by not leasing the subject tracts in the short-term.

4.3 Effects from the Proposed Action

4.3.1 Air Quality

While the act of leasing Federal minerals would produce no impacts to air quality, subsequent exploration/development of the proposed lease could increase air borne soil particles blown from new well pads or roads, exhaust emissions from drilling equipment, compressor engines, vehicles, dehydration and separation facilities coupled with volatile organic compounds during drilling or production activities.

In order to reasonably quantify emissions associated with well exploration and production activities, certain types of information are needed. Such information includes a combination of activity data such as the types of equipment needed if a well were to be completed successfully (e.g. compressor, separator, dehydrator), the technologies which may be employed by a given company for drilling any new wells, area of disturbance for each type of activity (e.g. roads, pads, electrical lines compressor station), number of days to complete each kind of construction, number of days for each phase of the drilling process, type(s), size, number of heavy equipment used for each type of construction (backhoe, dozer, etc.), number of wells of all types (shallow, deep, exploratory, etc.), compression per well (sales, field booster), or average horsepower for each type of compressor. The degree of impact will also vary according to the characteristics of the geological formations from which production occurs. Currently, it is not feasible to directly quantify emissions. What can be said is that emissions associated with oil and gas exploration and production would incrementally contribute to increases in over air quality emissions into the atmosphere.

The most significant criteria pollutants emitted by oil and gas operations in general are VOCs, particulate matter and NO₂. VOCs and NO_x contribute to the formation of ozone, which is a pollutant of concern in Oklahoma. The proposed leasing area is a significant distance from ozone nonattainment areas in Texas. The additional NO_x and VOCs emitted from any new oil and gas development on this lease is likely too small to have a significant effect on the overall ozone levels of the area.

Mitigation

The BLM encourages industry to incorporate and implement best management practices (BMPs), which are designed to reduce impacts to air quality by reducing emissions, surface disturbances, and dust from field production and operations. Typical measures include: adherence to BLM's Notice to Lessees' (NTL)

4(a) concerning the venting and flaring of gas on Federal leases for natural gas emissions that cannot be economically recovered, flared hydrocarbon gases at high temperatures in order to reduce emissions of incomplete combustion; water dirt roads during periods of high use in order to reduce fugitive dust emissions; collocate wells and production facilities to reduce new surface disturbance; implementation of directional drilling and horizontal completion technologies whereby one well provides access to petroleum resources that would normally require the drilling of several vertical wellbores; require that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored; and perform interim reclamation to reclaim areas of the pad not required for production facilities and to reduce the amount of dust from the pads. In addition, the BLM encourages oil and natural gas companies to adopt proven, cost-effective technologies and practices that improve operational efficiency and reduce natural gas emissions.

4.3.2 Climate

The assessment of GHG emissions, their relationship to global climatic patterns, and the resulting impacts is an ongoing scientific process. It is currently not feasible to know with certainty the net impacts from the proposed action on climate—that is, while BLM actions may contribute to the climate change phenomenon, the specific effects of those actions on global climate are speculative given the current state of the science. The BLM does not have the ability to associate a BLM action’s contribution to climate change with impacts in any particular area. The science to be able to do so is not yet available. The inconsistency in results of scientific models used to predict climate change at the global scale coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level and determining the significance of any discrete amount of GHG emissions is beyond the limits of existing science. When further information on the impacts to climate change is known, such information would be incorporated into the BLM’s planning and NEPA documents as appropriate.

Leasing the subject tract would have no direct impact on climate as a result of GHG emissions. There is an assumption, however, that leasing the parcels would have indirect effects on global climate through GHG emissions. However, those effects on global climate change cannot be determined. (Refer to cumulative effects section, Chapter 4 for additional information.). It is unknown whether the petroleum resources specific to these leases in the Proposed Action are gas or oil or a combination thereof.

Production statistics developed from EIA (EIA, 2012) are shown in table below for the US and Texas.

2010 Oil and Gas Production

Location	Oil (bbl)	% U.S. Total	Gas (MMcf)	% U.S. Total
United States	1,999,731,000	100	26,836,353	100
Texas	427,386,000	21.4	7,593,697	28.3
Federal leases in Texas	291,000	0.01	20,831	0.08

In order to estimate the contribution of Federal oil and gas leases to greenhouse gases in Texas it is assumed that the percentage of total U.S. production is comparable to the percentage of total emissions. Therefore, emissions are estimated based on production starting with total emissions for the United States from EPA's *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010* (EPA, 2012b), and applying production percentages to estimate emissions for Texas. It is understood that this is a rather simplistic technique and assumes similar emissions in basins that may have very different characteristics and operational procedures, which could be reflected in total emissions. This assumption is adequate for this level of analysis due to the unknown factors associated with eventual exploration and development of the leases. However, the emissions estimates derived in this way, while not precise, will give some insight into the order of magnitude of emissions from federal oil and gas leases administered by the Bureau of Land Management (BLM) and allow for comparison with other sources in a broad sense.

2010 Oil and Gas Field Production Potential Emissions

Location	Oil (Metric tons of CO ₂ ^e)		Gas (Metric tons of CO ₂ ^e)		Total O&G Production (Metric tons CO ₂ e)	%U.S. Total GHG emissions
	CO ₂	CH ₄	CO ₂	CH ₄		
United States	300,000	30,600,000	10,800,000	126,000,000	167,700,000	2.6
Texas	64,200	6,548,400	3,056,400	35,658,000	45,327,000	0.71
Federal leases in Texas	30	3,060	8,640	100,800	112,530	0.002

The table above shows the estimated greenhouse gas emissions for oil and gas field production for the U.S., Texas, and Federal leases in Texas. Because oil and gas leaves the custody and jurisdiction of the BLM after the production phase and before processing or refining, only emissions from the production phase are considered here. It should also be remembered that following EPA protocols, these numbers do not include fossil fuel combustion which would include such things as truck traffic, pumping jack engines, compressor engines and drill rig engines. Nor does it include emissions from power plants that generate the electricity used at well sites and facilities. The estimates are only for operations, not for construction and reclamation of the facilities, which may have a higher portion of a project's GHG contribution. Note that units of Metric tons CO₂^e have been used in the table above to avoid very small numbers. CO₂^e is the concentration of CO₂ that would cause the same level of radiative forcing as a given type and concentration of greenhouse gas.

The table above provides an estimate of direct emissions that occur during production of oil and gas.

This phase of emissions represents a small fraction of overall emissions of CO₂^e from the life cycle of oil and gas. For example, acquisition (drilling and development) for petroleum is responsible for only 8% of the total CO₂e emissions, whereas transportation of the petroleum to refineries represents about 10% of the emissions, and final consumption as a transportation fuel represents fully 80% of emissions (U.S.DOE, CCSP 2008).

To estimate the potential emissions from the proposed lease sale, an estimate of emission per well is useful. To establish the exact number of Federal wells in Texas is problematic due to the ongoing development of new wells, the abandonment of unproductive wells, land sales and exchanges, and incomplete or inaccurate data bases.

Potential Greenhouse Gas Emissions Resulting from Proposed Lease Sale

Referenced to Latest Available Estimates from 2010

Total U.S. GHG Emissions From All Sources	6,372,900,000 metric tons	100.00 %
Total U.S. GHG Emissions From Oil & Gas Field Production	167,700,000 metric tons	2.6%
Total Texas Emissions From Oil & Gas Field Production	45,327,000 metric tons	0.71%
Total Texas Emissions From Federal lease Oil & Gas Field Production (4,513 wells)	112,530 metric tons	0.002%
Total Potential GHG Emissions From Oil & Gas Field Production at Full Development For Proposed Action (1 Well)	24.93 metric tons	0.0000004%

The table above estimated that the total emissions from Federal leases in Texas in 2010 were 112,530 metric tons CO₂^e. Therefore, the estimate of emission per well is 24.93 metric tons CO₂e annually.

Environmental impacts of GHG emissions from oil and gas consumption are not effects of the proposed action as defined by the Council on Environmental Quality (CEQ), and thus are not required to be analyzed under NEPA. GHG emissions from consumption of oil and gas are not direct effects under NEPA because they do not occur at the same time and place as the action. They are also not indirect effects because oil and gas leasing and production would not be a proximate cause of GHG emissions resulting from consumption.

Mitigation

The EPA's GHG emissions data describes "Natural Gas Systems" and "Petroleum Systems" as two major categories of US sources of GHG emissions. The inventory identifies the contributions of natural gas and petroleum systems to total CO₂ and CH₄ emissions (natural gas and petroleum systems do not produce noteworthy amounts of any of the other greenhouse gases). Within the larger category of "Natural Gas Systems", the EPA identifies emissions occurring during distinct stages of operation, including field production, processing, transmission and storage, and distribution. "Petroleum Systems" sub-activities include production field operations, crude oil transportation and crude oil refining. Within the two categories, the BLM has authority to regulate only those field production operations that are related to oil and gas measurement, and prevention of water (via leaks, spills and unauthorized flaring and venting).

The EPA data show that improved practices and technology and changing economics have reduced CO₂ emissions from oil and gas exploration and development (Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2010 (EPA, 2012b)). One of the factors in this improvement is the adoption by industry of the BMPs proposed by the EPA's Natural Gas Energy Star (2006) program. The OFO will work with industry to facilitate the use of the relevant BMPs for operations proposed on Federal mineral leases where such mitigation is consistent with agency policy. While EPA data shows that methane emissions increased from oil and gas exploration and development from 1990-2010, reductions in methane emissions from oil and gas exploration and development should occur in future years as a result of EPA's recently finalized oil and gas air emissions regulations.

4.3.3 Soils

While the act of leasing Federal minerals would produce no impacts to soils, subsequent exploration/development of the proposed lease may produce impacts by physically disturbing the topsoil and exposing the substratum soil on subsequent project areas. Direct impacts resulting from the oil and gas construction of well pads, access roads, and reserve pits include removal of vegetation, exposure of the soil, mixing of horizons, compaction, loss of topsoil productivity and susceptibility to wind and water erosion. Wind erosion would be expected to be a minor contributor to soil erosion with the possible exception of dust from vehicle traffic. These impacts could result in increased indirect impacts such as runoff, erosion and off-site sedimentation. Activities that could cause these types of indirect impacts include construction and operation on well sites, access roads, gas pipelines and facilities.

Contamination of soil from drilling and production wastes mixed into soil or spilled on the soil surfaces could cause a long-term reduction in site productivity. Some of these direct impacts can be reduced or avoided through proper design, construction, maintenance and implementation of BMPs.

Additional soil impacts associated with lease development would occur when heavy precipitation causes water erosion damage. When water saturated segment(s) on the access road become impassable,

vehicles may still be driven over the road. Consequently, deep tire ruts would develop. Where impassable segments are created from deep rutting, unauthorized driving may occur outside the designated route of access roads.

Mitigation

The operator would stockpile the topsoil from the surface of well pads which would be used for surface reclamation of the well pads. The impact to the soil would be remedied upon reclamation of well pads when the stockpiled soil that was specifically conserved to establish a seed bed is spread over well pads and vegetation re-establishes.

Reserve pits would be re-contoured and reseeded as described in Conditions of Approval (COA) attached to the APD. Upon abandonment of wells and/or when access roads are no longer in service the Authorized Officer (AO) would issue instructions and/or orders for surface reclamation/restoration of the disturbed areas as described in attached COAs. During the life of the development, all disturbed areas not needed for active support of production operations should undergo “interim” reclamation in order to minimize the environmental impacts of development on other resources and uses. Earthwork for interim and final reclamation must be completed within 6 months of well completion or well plugging (weather permitting). The operator shall submit a Sundry Notice and Report on Wells (Notice of Intent), prior to conducting interim reclamation.

Road construction requirements and regular maintenance would alleviate potential impacts to access roads from water erosion damage.

4.3.4 Water Resources

While the act of leasing Federal minerals would produce no impacts to water resources, subsequent exploration/development of the proposed leases may produce impacts. Surface disturbance from the construction of well pads, access roads, pipelines, and utility lines can result in degradation of surface water and groundwater quality from non-point source pollution, increased soil losses, and increased gully erosion.

Potential impacts that would occur due to construction of well pads, access roads, pipelines, and utility lines include increased surface runoff and off-site sedimentation brought about by soil disturbance; increased salt loading and water quality impairment of surface waters; channel morphology changes due to road and pipeline crossings; and possible contamination of surface waters by produced water. The magnitude of these impacts to water resources would depend on the proximity of the disturbance to the drainage channel, slope aspect and gradient, degree and area of soil disturbance, soil character, duration and time within which construction activity would occur, and the timely implementation and success or failure of mitigation measures.

Direct impacts would likely be greatest shortly after the start of construction activities and would likely decrease in time due to natural stabilization, and reclamation efforts. Construction activities would occur over a relatively short period; therefore, the majority of the disturbance would be intense but

short lived. Direct impacts to surface water quality would be minor, short-term impacts which may occur during storm flow events.

Hydraulic fracturing is a common process and applied to nearly all wells drilled. Hydraulic fracturing fluid is roughly 99 percent water but also contains numerous chemical additives as well as propping agents, such as sands. Chemicals added to stimulation fluids include friction reducers, surfactants, gelling agents, scale inhibitors, acids, corrosion inhibitors, antibacterial agents, and clay stabilizers. Stimulation techniques have been used in the United States since 1949. Over the last 10 years, advances in multi-stage and multi-zone hydraulic fracturing has allowed development of gas fields that previously were uneconomic.

Contamination of groundwater could occur without adequate cementing and casing of the proposed well bore. Casing specifications are designed and submitted to the BLM. The BLM independently verifies the casing program, and the installation of the casing and cementing operations are witnessed by certified Petroleum Engineering Technicians. Surface casing setting depth is determined by regulation. Adherence to APD COAs and other design measures would minimize potential effects to groundwater quality.

Petroleum products and other chemicals, accidentally spilled, could result in surface and groundwater contamination. Similarly, possible leaks from reserve and evaporation pits could degrade surface and groundwater quality. Authorization of the proposed projects would require full compliance with BLM directives and stipulations that relate to surface and groundwater protection.

Mitigation

The use of a plastic-lined reserve pit, closed systems or steel tanks would reduce or eliminate seepage of drilling fluids into the soil and eventually reaching groundwater. Spills or produced fluids (e.g. saltwater, oil, and/or condensate in the event of a breach, overflow, or spill from storage tanks) could result in contamination of the soils onsite, or offsite, and may potentially impact surface and groundwater resources in the long term. The casing and cementing requirements imposed on proposed wells would reduce or eliminate the potential for groundwater contamination from drilling muds and other surface sources.

4.3.5 Floodplains, Wetlands, Riparian Areas

4.3.5.1 Floodplains

While the act of leasing Federal minerals would produce no direct impacts to floodplains, subsequent exploration/development of the proposed lease parcel may produce impacts. Surface disturbance from the development of well pads, access roads, pipelines, and utility lines can result in impairment of the floodplain values from removal of vegetation, removal of wildlife habitat, impairment of water quality, decreased flood water retention and decreased groundwater recharge.

Mitigation

Potential mitigation is deferred to site-specific development at the APD stage.

4.3.5.2 Wetlands, Riparian Areas

While the act of leasing Federal minerals would produce no direct impacts to wetlands or riparian areas; no adverse impacts are expected for wetlands or riparian areas if exploration/development occurred on this lease parcel in the future because of the attached ORA-4 lease stipulation.

Mitigation

Potential mitigation is deferred to site-specific development at the APD stage.

If surface disturbance occurs in or near wetlands or riparian areas, future operations within this lease sale parcel will require, but are not limited to, the following mitigation measures:

- The BLM Wildlife Resource General Conditions of Approval (WRCOAs) #3 **Pipelines and Wetlands**: Bore under any encountered wetlands for the purpose of pipeline installation. Trenching will not be used to install any pipeline through a wetland or to cross any creek.
- Best Management Practices (BMPs) (i.e. silt fencing, haybales, etc.) are required to minimize sediment and run-off from entering into associated water courses or stock ponds during operations.

4.3.6 Heritage Resources

4.3.6.1 Cultural Resources

No previously recorded historic properties have been documented within the APE. A determination of No Historic Properties Affected has been made and none of the proposed parcels have been recommended for withdrawal from the sale. The Texas State Historic Preservation Office has been consulted and Section 106 of the National Historic Preservation Act as amended compliance has been completed.

While the act of leasing Federal minerals would produce no direct impacts to cultural resources, subsequent development of a lease could. To comply with Section 106, a cultural resources survey will need to be conducted for all surface disturbance activities related to development of the lease. Direct and indirect effects cannot be predicted without analysis of site-specific development at the APD stage of development. Potential impacts at that stage could include increased human activity in the area increasing the possibility of removal of, or damage to, heritage artifacts. The increase in human activity in the area increases the possibility of irretrievable loss of information pertaining to the heritage of the project region. Conversely, the benefits to heritage resources derived from the future development are the heritage and historic survey that adds to literature, information, and knowledge of cultural resources.

Many cultural resource issues exist beyond the NHPA, such as state and municipal registers of historic sites, National Heritage Areas, National Trails, or other heritage designations. Leasing the proposed parcels would have no effect on any of these types of cultural resources.

Please refer to the Cultural and Paleontological Resources Summary and BLM Cultural Determination in Appendix 4 for more information.

4.3.6.2 Paleontology

While the act of leasing Federal minerals would produce no direct impacts to paleontological resources, subsequent development of a lease could. Direct and indirect effects cannot be predicted without analysis of site-specific development at the APD stage of development. Potential impacts at that stage could include increased human activity in the area increasing the possibility of removal of, or damage to, paleontology resources. The increase in human activity in the area increases the possibility of irretrievable loss of information pertaining to the paleontology of the project region. Conversely, the benefits to paleontology resources derived from the future development are the paleontology survey that adds to literature, information, and knowledge of cultural resources.

Protection and preservation of significant fossil materials in specific locations would be required for any BLM permitted project.

4.3.6.3 Native American Religious Concerns

The proposed action is not known to physically threaten any TCPs, prevent access to sacred sites, prevent the possession of sacred objects, or interfere or otherwise hinder the performance of traditional ceremonies and rituals pursuant to AIRFA or EO 13007. There are currently no known remains that fall within the purview of NAGPRA or ARPA that are threatened by leasing.

Please refer to the Cultural and Paleontological Resources Summary and BLM Cultural Determination in Appendix 4 for more information.

Mitigation Common to all Heritage Resources

Specific mitigation measures, including but not limited to, site avoidance or excavation and data recovery would be determined when site-specific APDs and cultural surveys are received. As well, a second NHPA section 106 evaluation would be completed. The Texas State Historic Preservation Office confirmed that studies will need to be done at the APD stage.

Standard Conditions of Approval are attached to each APD including:

- In the event that lease development practices are found in the future to have an adverse effect on significant cultural resources, the operator and the BLM, in consultation with the affected tribe(s), and Texas State Historic Preservation Office will take action to mitigate or negate those effects. Measures include, but are not limited to physical barriers to protect resources, relocation of practices responsible for the adverse effects, or other treatments as appropriate.

- If additional ground disturbance is required outside of the currently proposed APE, the Bureau of Land Management archaeologist must be notified prior to any work. If archeological material such as chipped stone tools, pottery, bone, historic ceramics, glass, metal, or building structures are exposed; stop work at that spot immediately and contact the BLM archeologist at (918) 621-4153 or (918) 621-4100.
- If human remains are discovered the procedures of the Texas Health and Safety Code (Title 13, Part 2, Chapter 22 of TAC) or the NAGPRA shall apply, as appropriate.

4.3.7 Invasive, Non-native Species

While the act of leasing Federal minerals would not contribute to the spread or control of invasive or non-native species, subsequent exploration/development of the proposed lease may. Any surface disturbance could establish new populations of invasive non-native species, although the probability of this happening cannot be predicted using existing information. Noxious weed seeds can be carried to and from the project areas by construction equipment, the drilling rig and transport vehicles. At the APD stage, BLM requirements for use of weed control strategies would minimize the potential for the spread of these species.

Mitigation

Mitigation is deferred to site-specific development at the APD stage. BMPs require that all Federal actions involving surface disturbance or reclamation take reasonable steps to prevent the introduction or spread of noxious weeds, including requirements to use weed-free hay, mulch and straw.

4.3.8 Vegetation

While the act of leasing Federal minerals would produce no impacts to vegetative resources, subsequent exploration/development of the proposed lease would have impacts to vegetation. The level of impact depends on the vegetation type, the vegetative community composition, soil type, hydrology, and the topography of the parcel. Surface-disturbing activities could affect vegetation by removing, trampling, or killing the vegetation; churning soils; losing substrates for plant growth; impacting biological crusts; disrupting seedbanks; burying individual plants; reducing germination rates; covering plants with fugitive dust; and generating sites for undesirable weedy species. In addition, development could reduce available forage or alter livestock distribution leading to overgrazing or other localized excess grazing impacts to palatable plant species. If these impacts occurred after seed germination but prior to seed establishment, both current and future generations could be affected.

Vegetation would be lost within the construction areas of pads, roads, and rights of ways. Those areas covered in compacted native substrates, such as pads and roads, would have no vegetation for the life of the well. Interim and final reclamation should result in vegetation establishment in three to five growing season (one to two years) with appropriate techniques used and adequate precipitation. Inadequate precipitation over several growing seasons could result in loss of vegetative cover, leading to weed invasion and deterioration of native vegetation.

Mitigation

Mitigation is primarily deferred to site-specific development at the APD stage. If potential wells are productive disturbed areas not needed for the production facility would be reclaimed. In the case of non-productive wells, all disturbed areas would be reclaimed through reseeding or vegetative cover reestablishment. BMPs identified in BLM guidance documents such as the Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development: The Gold Book (USDI, 2007) recommend areas to be restored with native vegetation in regards to both species and structure. This recommendation is contingent upon the wishes of the surface owner.

4.3.10 Wildlife

4.3.9.1 Threatened and Endangered Species

While the act of leasing Federal minerals produces no impacts to Threatened and Endangered Species, subsequent exploration/development of the proposed parcel may produce impacts. Surface disturbance from the development of well pads, access roads, pipelines, and utility lines can result in removal of wildlife habitat.

Mitigation

General mitigation includes attaching protective stipulation WO-ESA-7, which states that consultation with USFWS may be needed, would be attached to all proposed parcels since Federally protected species or their habitat may be in or near the proposed parcel either now or in the future.

4.3.9.2 Special Status Species

While the act of leasing Federal minerals would produce no direct impacts to special status species, subsequent development of a lease may produce impacts. Impacts could result from increased habitat fragmentation, noise, or other disturbance during development.

4.3.9.3 Migratory Birds

While the act of leasing Federal minerals would not produce impacts to migratory birds, subsequent exploration/development of the proposed parcel may produce impacts. Surface disturbance from the development of well pads, access roads, pipelines, and utility lines can result in an impact to migratory birds and their habitat.

Mitigation

Per the Memorandum of Understanding between BLM and the USFWS, entitled "To Promote the Conservation of Migratory Birds," the following temporal and spatial conservation measures must be implemented as part of the Conditions of Approval with any permit to drill:

- 1) Avoid any take of migratory birds and/or minimize the loss, destruction, or degradation of migratory bird habitat while completing the proposed project or action.

- 2) If a proposed project or action includes a reasonable likelihood that take of migratory birds will occur, then complete actions that could take migratory birds outside of their nesting season. This includes clearing or cutting of vegetation, grubbing, etc. Strive to complete all disruptive activities outside the peak of migratory bird nesting season to the greatest extent possible.
- 3) If no migratory birds are found nesting in proposed project or action areas immediately prior to the time when construction and associated activities are to occur, then the project activity may proceed as planned.

Additionally, the Wildlife Resource General Conditions of Approval (WRGCOAs) #4 (Burying Transmission Lines) and Notice to Lessees (NTL) 96-01-TDO (Modification of Oil and Gas Facilities to Minimize Bird and Bat Mortality) address measures designed to protect migratory birds from accidental deaths associated with power line collisions/electrocutions, open-vent exhaust stacks and open pits and tanks.

4.3.9.4 Wildlife

While the act of leasing Federal minerals would produce no direct impacts to wildlife, subsequent development of a lease may produce impacts. Impacts could result from increased habitat fragmentation, noise, or other disturbance during development. Although reclamation and restoration efforts for surface disturbance could provide for the integrity of other resources, these efforts may not always provide the same habitat values (e.g. structure, composition, cover, etc.) in the short or in some instance, the long-term in complex vegetative community types (e.g., shrub oak communities).

The short-term negative impact to wildlife would occur during the construction phase of the operation due to noise and habitat destruction. In general, most wildlife species would become habituated to the new facilities. For other wildlife species with a low tolerance to activities, the operations on the well pad would continue to displace wildlife from the area due to ongoing disturbances such as vehicle traffic, noise and equipment maintenance. The conditions of approval would alleviate most losses of wildlife species, such as; fencing the reserve pits, netting storage tanks, installation or other modifications of cones on separator stacks, and timing stipulations. The magnitude of above effects would be dependent on the rate and location of the oil and gas development, but populations could likely not recover to pre-disturbance levels until the activity was completed and the vegetative community restored.

Mitigation Common to ALL Species

The BLM will require oil and gas lessees to operate in a manner that will minimize adverse impacts to wildlife and apply reasonable measures to all oil and gas exploration/development activities. Measures would be taken to prevent, minimize, or mitigate impacts to fish and wildlife animal species from exploration and development activities, including specific mitigation measures (i.e. rapid revegetation, noise restriction, project relocation, pre-disturbance surveys, etc.) unique to the proposed development site, but would be deferred until the APD process.

The Wildlife Resource General Conditions of Approval (WRGCOAs) are included in all approved APDs and use standard BMPs to provide extra measures of protection to wildlife populations and habitats in the

area. Impacts to the wildlife resource component of the environment can be avoided or minimized by adopting the WRGCOAs and BMPs.

4.3.10 Wastes – Hazardous or Solid

While the act of leasing Federal minerals would produce no impacts on the environment from hazardous or solid wastes, subsequent exploration/development of the proposed lease could have result in the introduction of hazardous substances to the site. Hazardous substances may be produced, used, stored, transported or disposed of as a result of the project. Properly used, stored, and disposed of hazardous and non-hazardous substances greatly decreases the potential for any impact on any environmental resources. One way operators and the BLM ensure hazardous and non-hazardous substances are properly managed in through the preparation of a Spill Prevention, Control, and Countermeasure (SPCC) plan.

Mitigation

Specific mitigation is deferred to the APD process. The following measures are common to most projects: all trash would be placed in a portable trash cage and hauled to an approved landfill, with no burial or burning of trash permitted; chemical toilets would be provided for human waste; fresh water zones encountered during drilling operations would be isolated by using casing and cementing procedures; a berm or dike would enclose all production facilities if a well is productive; and all waste from all waste streams on site would be removed to an approved disposal site.

4.3.11 Mineral Resources

While the act of leasing Federal minerals would produce no impacts to mineral resources, subsequent exploration/development of the proposed lease could impact the production horizons and reservoir pressures. If production wells are established, the resources allotted to the wells would eventually be depleted. The amount and location of direct and indirect effects cannot be predicted until site-specific development information is available typically during the APD stage.

The proposed lease parcel does not appear to conflict with other mineral resources such as coal, sand, gravel, or salt resulting in no impacts to these resources.

Mitigation

Mitigation is deferred to site-specific development at the APD stage. Spacing orders and allowable production orders are designed to conserve the oil and/or gas resource and provide maximum recovery.

4.3.12 Visual Resources

While the act of leasing Federal minerals would produce no impacts to visual resources, subsequent exploration/development of the proposed lease could impact visual quality through: increased visibility of constructed features such as roads, well pads, pipelines, tank batteries; road degeneration from heavy trucks and vehicles following rain and snow; dust and exhaust from construction, drilling, and

production vehicles and equipment; vegetation removal and construction of steep slopes; unreclaimed sites; and discarded equipment. Well pads, power lines, access roads, and associated production facilities and storage tanks have the greatest potential to alter visual conditions for the life of the well. Vegetation removal would present an obvious contrast in color with the surrounding vegetation and affect foreground and middleground distance zones for more than a decade. These impacts would be most obvious immediately after construction. Impacts would decrease as the disturbed surface began to blend in color, form, and texture, when interim or final reclamation occurs. Long-term visual impacts could persist as long as the well is producing, which could be a couple of years to more than 50 years. Long-term impacts may include vegetation removal, alteration of the landscape, and installation of equipment and facilities.

Mitigation

Mitigation is deferred to site-specific development at the APD stage.

4.3.13 Recreation

While the act of leasing Federal minerals would produce no impacts to recreation resources, subsequent exploration/development of the proposed lease could impact recreation quality and opportunities through: increased vehicle traffic and human presence, loss of areas to recreate, blocked access, and increased noise and visual disturbance.

Mitigation

Mitigation is deferred to site-specific development at the APD stage.

4.3.14 Socioeconomics and Environmental Justice

No minority or low income populations would be directly affected in the vicinity of the proposed lease parcel. Indirect impacts could include an increase in overall employment opportunities related to the oil and gas and service support industry in the region, as well as the economic benefits to State and County governments related to royalty payments and severance taxes. Other impacts could include a small increase in activity and noise disturbance in areas used for agriculture and recreational activities. However, these impacts would apply to all land users in the area.

Mitigation

Mitigation is deferred to site-specific development at the APD stage.

4.3.15 Cumulative Effects

The NMSO manages approximately 41 million acres of Federal mineral estate. Of the 41 million acres, 35 million acres are available for oil and gas leasing. Approximately 17% of the 35 million acres is currently leased (73% of the leases are in production and 63% of the lease acres are in production). The NMSO received 151 parcel nominations (92,147.63 acres) for consideration in the July 2013 Oil & Gas Lease Sale, and is proposing to lease 68 (30,820.16 acres) of the 151 parcels. If these 68 parcels were leased,

the percentage of Federal minerals leased would not change. The Carlsbad, Roswell, Las Cruces, and Farmington parcels are analyzed under separate EAs.

Table 5A. Actual - Acres of Federal Minerals/Acres Available/Acres Leased:

State	Federal O&G Mineral Ownership	Acres Available	Acres Leased	Percent Leased
KS	744,000	614,586	127,414	21%
NM	34,774,457	29,751,242	5,023,215	17%
OK	1,998,932	1,668,132	330,800	20%
TX	3,404,298	3,013,207	391,091	13%
Totals/Average	40,921,687	35,058,167	5,862,520	17%

Table 5B. Parcels Nominated & Offered in the July 2013 Oil & Gas Lease Sale:

Field Office	No. of Nominated Parcels	Acres of Nominated Parcels	No. of Parcels to be Offered	Acres of Parcels to be Offered
Carlsbad	39	17,148.76	25	9,172.14
Farmington	48	23,878.12	6	2280.20
Las Cruces	35	43,160.58	10	11,417.65
Texas	13	3,761.31	13	3,761.31
Oklahoma	16	4,468.855	14	4,188.855
Totals	151	92,417.63	66	30,820.16

Table 5C. Foreseeable - Acres of Federal Minerals/Acres Available/Acres Leased:

State	Federal O&G Mineral Ownership	Acres Available	Acres Leased	Percent Leased
KS	744,000	614,586	127,654	21%
NM	34,774,457	29,751,242	5,046,084.99	17%
OK	1,998,932	1,668,132	334,988.85	20%
TX	3,404,298	3,013,207	394,852.31	13%
Totals/Average	40,921,687	35,058,167	5,903,260	17%

The cumulative impacts fluctuate with the gradual reclamation of well abandonments and the creation of new additional surface disturbances in the construction of new access roads and well pads. The on-going process of restoration of abandonments and creating new disturbances for drilling new wells gradually accumulates as the minerals are extracted from the land. Preserving as much land as possible and applying appropriate mitigation measures will alleviate the cumulative impacts.

Analysis of cumulative impacts for reasonably foreseeable development of oil and gas wells in Texas was analyzed in the Texas RMP (1996), as amended (pg. 4-6 – 4-8). Potential development of all available

federal minerals in Texas including those in the proposed lease parcels was included as part of the analysis. Total surface disturbance projected by the plan was based on an estimated 20 Federal wells being drilled annually in Texas with an estimated 113 acres of disturbance. Over the last 10 years there have been no changes to the basic assumptions or projections described in the Texas RMP (1996), as amended, analysis.

More than 100 years of oil and gas development in Texas has resulted in an extensive infrastructure of existing roads and pipelines. The Railroad Commission of Texas lists 399,488 current wells (288,073 active and 111,415 inactive) statewide, of which 1,209 active and inactive wells are on Federal leases. Impacts from this development would remain on the landscape until final abandonment and reclamation of facilities occurs as wells are plugged when they are no longer economically viable.

4.3.16.1 Effects on Air Quality

The following analysis of cumulative impacts of the proposed action on air quality will be limited to the two counties in which the proposed lease parcels occur.

The primary activities that contribute to levels of air pollutants in the five counties are predominately combustible engines of road and non-road, diesel and gasoline vehicles and equipment. The Air Quality Technical Report includes a description of the varied sources of national and regional emissions that are incorporated here to represent the past, present and reasonably foreseeable impacts to air resources (USDI BLM 2011). It includes a summary of emissions on the national and regional scale by industry source. Sources that are considered to have notable contributions to air quality impacts and GHG emissions include electrical generating units, fossil fuel production (nationally and regionally) and transportation.

The small increase in emissions that could result from approval of the proposed action or preferred alternative would not result in the area violating the NAAQS for any criteria pollutant. In October 2012, EPA regulations that require control of VOC emissions from oil and gas development became effective. These regulations will reduce VOC emissions from oil and gas exploration and production emissions that contribute to the formation of ozone. Emissions from the any development of the leases is not expected to impact the 8-hour average ozone concentrations, or any other criteria pollutants in the area of the proposed lease.

4.3.16.2 Cumulative Effects of the Proposed Action on Climate Change

The cumulative impacts of GHG emissions and their relationship to climate change are evaluated at the national and global levels in the Air Quality Technical Report (USDI 2011). The very small increase in GHG emissions that could result from approval of the proposed action would not produce climate change impacts that differ from the No Action Alternative. This is because climate change is a global process that is impacted by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from the proposed action cannot be translated into effects on climate change globally or in the area of this site-specific action. It is currently not feasible to predict with certainty the net impacts from particular emissions associated with Federal actions; however, EPA's recently finalized oil and gas

air quality regulations have a co-benefit of methane reduction that will reduce greenhouse gas emissions from any oil and gas development that would occur on this lease.

5.0 CONSULTATION/COORDINATION

This section includes the resource specialists located within the OFO that specifically participated and provided input in the lease parcel review process and the development of this EA document.

ID Team Member	Title	Organization
Larry Moore	Archaeologist	BLM
Becky Peters	Wildlife Biologist	BLM
Pat Stong	Geologist	BLM
Melinda Fisher	Natural Resource Specialist	BLM
Galen Schwertfeger	Environmental Specialist	BLM
Gary McDonald	Environmental Specialist	BLM
Larry Levesque	Planning and Environmental Coordinator	BLM

On 14 February 2013 a briefing for the BLM NM State Director was held at the Oklahoma Field Office to review Field Office recommendations for nominated parcels.

5.1 Public Involvement

The nominated parcels, along with the appropriate stipulations from the Texas RMP (1996), as amended were posted online for a two week review period beginning January 28, 2013. Comments were received from the Center for Biological Diversity. This EA was made available for public review and comment for 30 days beginning March 1, 2013. No additional comments were received. Comments provided prior to the lease sale were considered and incorporated into the EA as appropriate.

6.0 REFERENCES

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7.0 AUTHORITIES

Code of Federal Regulations (CFR)

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APPENDIX 1. OKLAHOMA FIELD OFFICE LEASE STIPULATION SUMMARY—TEXAS

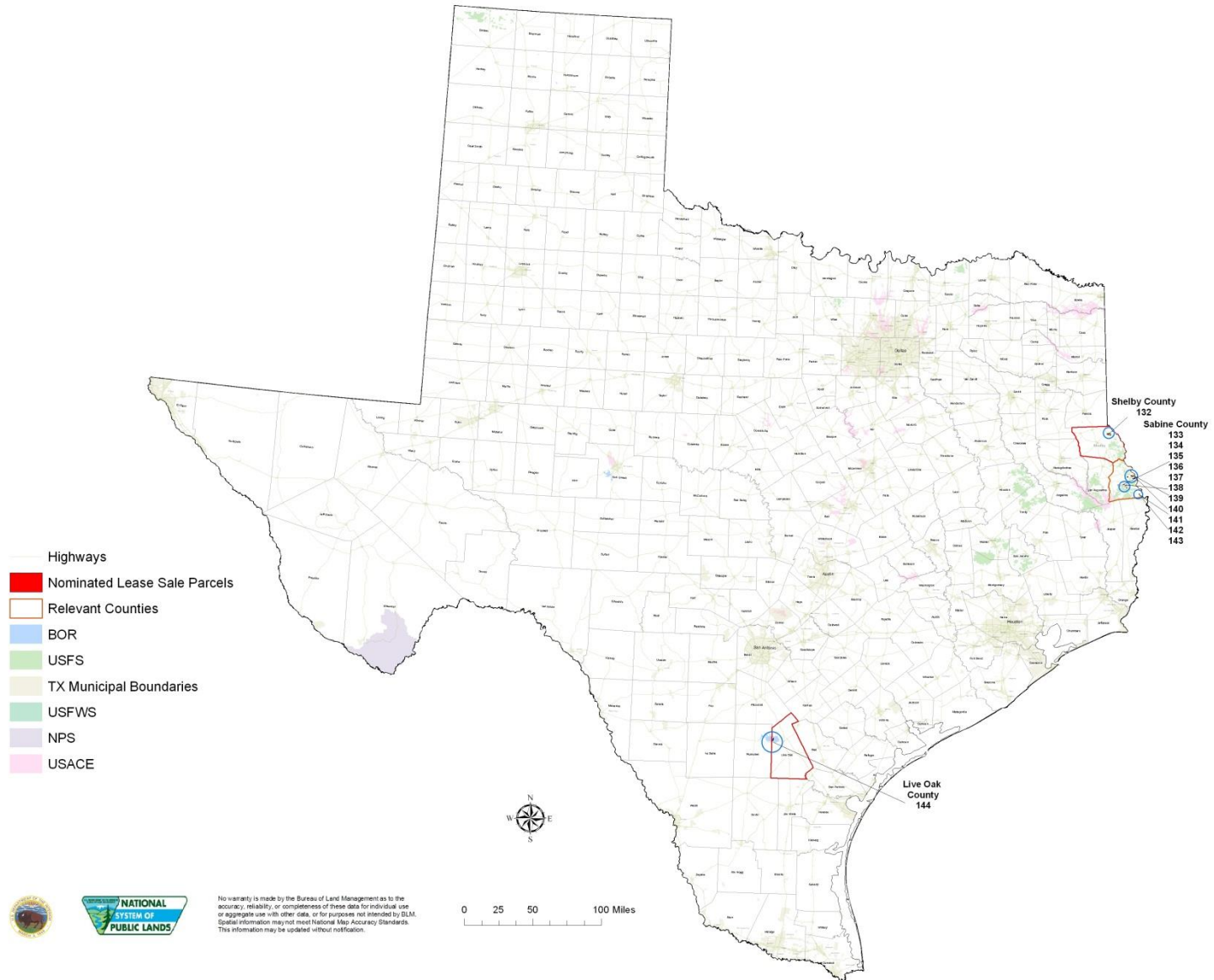
<u>Stipulation</u>	<u>Description/Purpose</u>
BOR GS NUECES TX	<p>GENERAL STIPULATIONS FOR NUECES RIVER PROJECT: All surface work performed by the lessee on the lands shall be under the general supervision of the Area Manager, Bureau of Reclamation (Reclamation) in direct charge of the project, and shall be subject to such conditions and regulations as may be prescribed. All oil or gas drilling and producing operations shall be under the supervision of the District Manager, Bureau of Land Management (BLM), in accordance with 43 CFR 3160. General stipulations include, but are not limited to: No well shall be drilled for oil or gas below the surface elevation of 220.5 feet mean sea level (msl) (top of conservation pool). All storage tanks shall be constructed outside the flood plain above elevation 222.5 feet msl. No “mud pits” shall be constructed below elevation 222.5 feet msl. These elevation restrictions do not apply to areas downstream of the dam. No drilling will be allowed within 400 feet of any developed recreation area. Berms shall be constructed around storage batteries, tanks, and separators to contain their entire volume should an accidental spill or rupture occur. Drilling a well for oil or gas is prohibited within 1,000 feet of any dam, dike, or other major structure and no well shall be drilled within 1/8 mile (660 feet) of a river, channel, permanent stream, tributary, or marsh site unless otherwise approved by the Area Manager in consultation with the local managing agency(s).</p>
FS 1 TX, OK, KS	<p>STIPULATION FOR LANDS OF THE NATIONAL FOREST SYSTEM UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE: The permittee/lessee must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights granted by the Secretary of the Interior in the permit. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of an exploration plan by the Secretary of the Interior, (2) uses of all existing improvements, such as Forest development roads, within and outside the area permitted by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by an exploration plan approved by the Secretary of the Interior.</p>
FS 8 TX CSU-1A	<p>CONTROLLED SURFACE USE - STREAMSIDE MANAGEMENT: Portions of this lease contain streamside management zones (floodplains, wetlands). Site- specific proposals for surface-disturbing activities within these areas will be analyzed and will normally result in establishment of protective requirements or limitations for the affected site. Surface occupancy for oil and gas wells will not be allowed within the streamside management zone.</p>

<u>Stipulation</u>	<u>Description/Purpose</u>
FS 8 TX CSU-1E	CONTROLLED SURFACE USE STIPULATION - TOLEDO BEND RESERVOIR LAKESHORE PROTECTION: Proposals for a structure, facility, or motorized uses on Toledo Bend Reservoir lands between the 172' and 175' MSL contours, or on a strip of land extending inland 200 meters from the 175' contour, may be subject to special requirements or limitations, such to be determined on a case-by-case basis.
FS 8 TX CSU-1H	CONTROLLED SURFACE USE - UNIQUE PLANTS OR PLANT COMMUNITIES: Portions of this lease may contain areas identified under the Texas Natural Heritage Program's Sensitive Plant and Natural Community Inventory. Site-specific proposals for surface-disturbing activities within these areas will be analyzed. Such analysis could result in establishment of protective requirements, limitations for the affected site, or possibly require relocation of the activities.
FS 8 TX CSU-1I-2	CONTROLLED SURFACE USE - RED-COCKADED WOODPECKER: Portions of the land in this lease are, or may be, occupied by clusters of the endangered red-cockaded woodpeckers (RCWs). Exploration and development proposals may be modified and/or limited, in accordance with the Recovery Plan for the Red-cockaded Woodpecker, second revision approved January 27, 2003.
FS 8 TX LN-4B	LEASE NOTICE – COE/FS JOINT APPROVAL (Sabine River Authority): Other than foot travel, any proposals for surface occupancy involving those lands below the 172' MSL contour, which have been exchanged to the Sabine River Authority (SRA), will require coordination with the United States Corps of Engineers (COE) as the Forest Service is not the responsible surface management agency for the transferred lands. In addition, the Sabine River Authority of Texas will be requested to comment on such proposals. Proposals for surface occupancy involving both FS administered and COE administered lands will require joint approval from both agencies.
FS 8 TX TLS-1B	TIMING LIMITATION STIPULATION – PROBABLE BALD EAGLE NESTING LOCATIONS (October 1 – May 15): Part or this entire lease is within one (1) mile of a bald eagle nesting site. During nesting periods, seismic exploration, new clearing of vegetation, and exploratory drilling or any other site-specific proposals for activities within these areas will be analyzed. Such analysis could result in establishment of protective requirements or limitations for the affected site and activities may be restricted if, in the opinion of the responsible agency biologist, restrictions are necessary to assure nesting success.
FS 8 TX NSO-2A	NO SURFACE OCCUPANCY STIPULATION - PROTECT SCENIC AREA VALUES: No surface occupancy or use is allowed on the lands to meet visual quality objectives and to protect various values in accordance with MA-8c-62; MA-9a-72; MA-9b-72; MA-7 of the National Forests and Grasslands in Texas Final Land and Resource Management Plan dated March 28, 1996.

<u>Stipulation</u>	<u>Description/Purpose</u>
ORA-4 TX	NO SURFACE OCCUPANCY: To protect and preserve significant cultural and other resource values of this lease. The tract could be leases for inclusion in a drilling unit and may be drilled directionally from an off-site location where occupancy is allowed.
WO-ESA-7 TX,OK	ENDANGERED SPECIES ACT SECTION 7 CONSULTATION STIPULATION: The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened, endangered, or other special status species. BLM may recommend modifications to exploration and development proposals to further its conservation and management objective to avoid BLM-approved activity that will contribute to a need to list such a species or their habitat. BLM may require modifications to or disapprove proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species or result in the destruction or adverse modification of a designated or proposed critical habitat. BLM will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act as amended, 16 U.S.C. § 1531 <u>et seq.</u> , including completion of any required procedure for conference or consultation.
WO-NHPA TX, OK	CULTURAL RESOURCES AND TRIBAL CONSULTATION STIPULATION: This lease may be found to contain historic properties and/or resources protected under the National Historic Preservation Act (NHPA), American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007, or other statutes and executive orders. The BLM will not approve any ground-disturbing activities that may affect any such properties or resources until it completes its obligations (e.g., State Historic Preservation Officer (SHPO) and tribal consultation) under applicable requirements of the NHPA and other authorities. The BLM may require modification to exploration or development proposals to protect such properties, or disapprove any activity that is likely to result in adverse effects that cannot be successfully avoided, minimized, or mitigated.

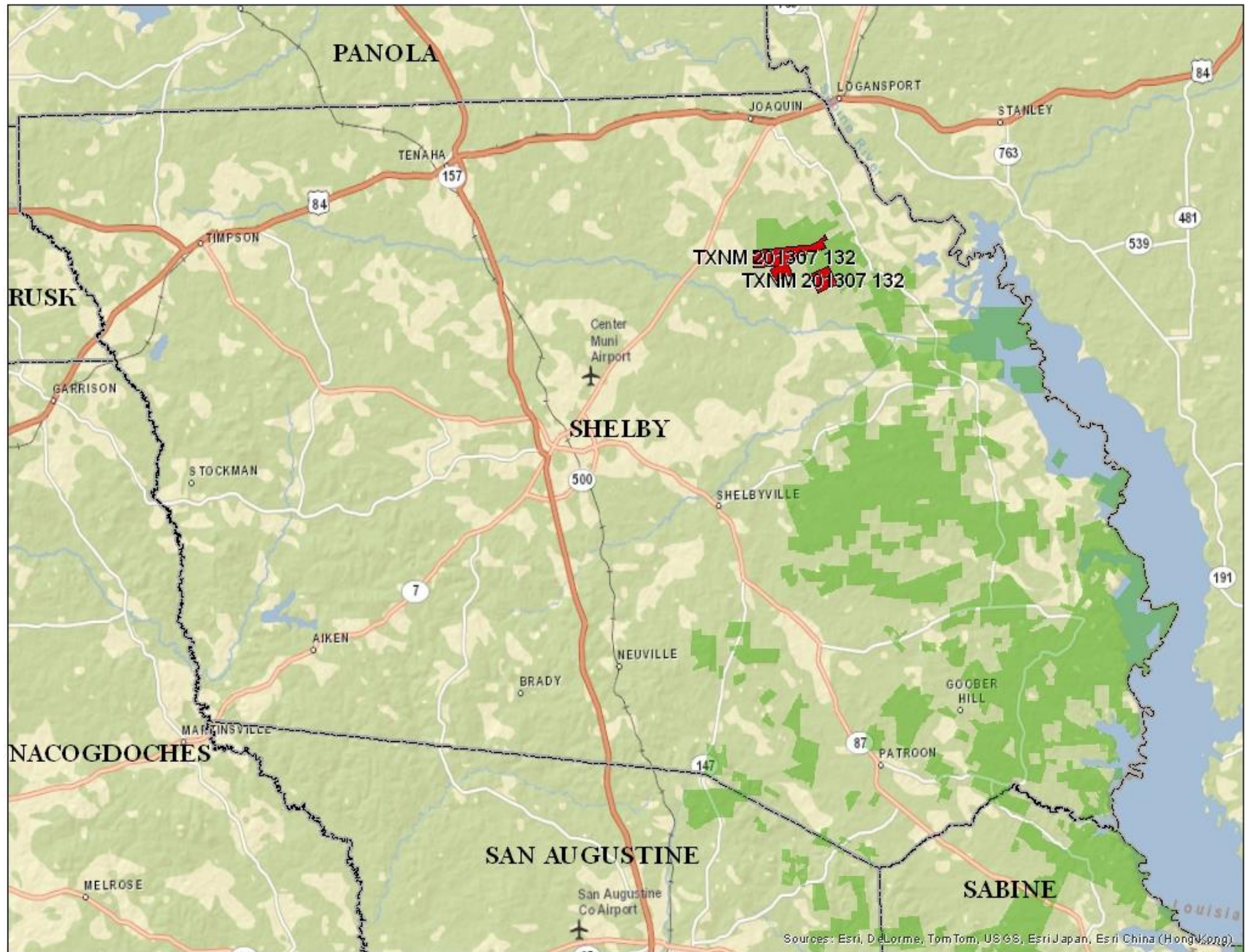
APPENDIX 2. TEXAS NOMINATED LEASE SALE PARCEL.

**BLM New Mexico Competitive Oil and Gas Lease Sale
July 17, 2013
Texas Nominated Parcels**

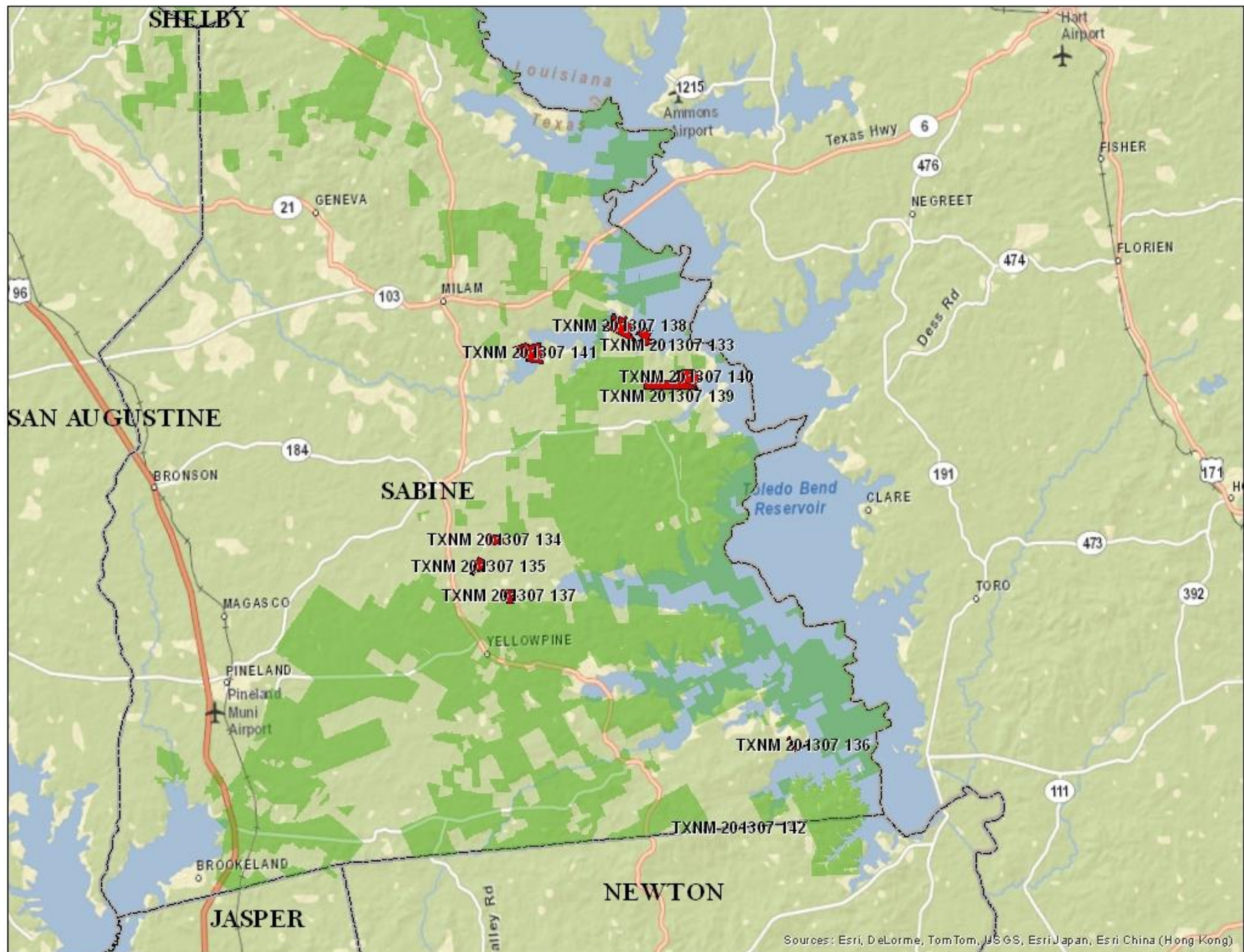


Produced by the BLM Oklahoma Office Geographic Sciences Team Jan. 2013

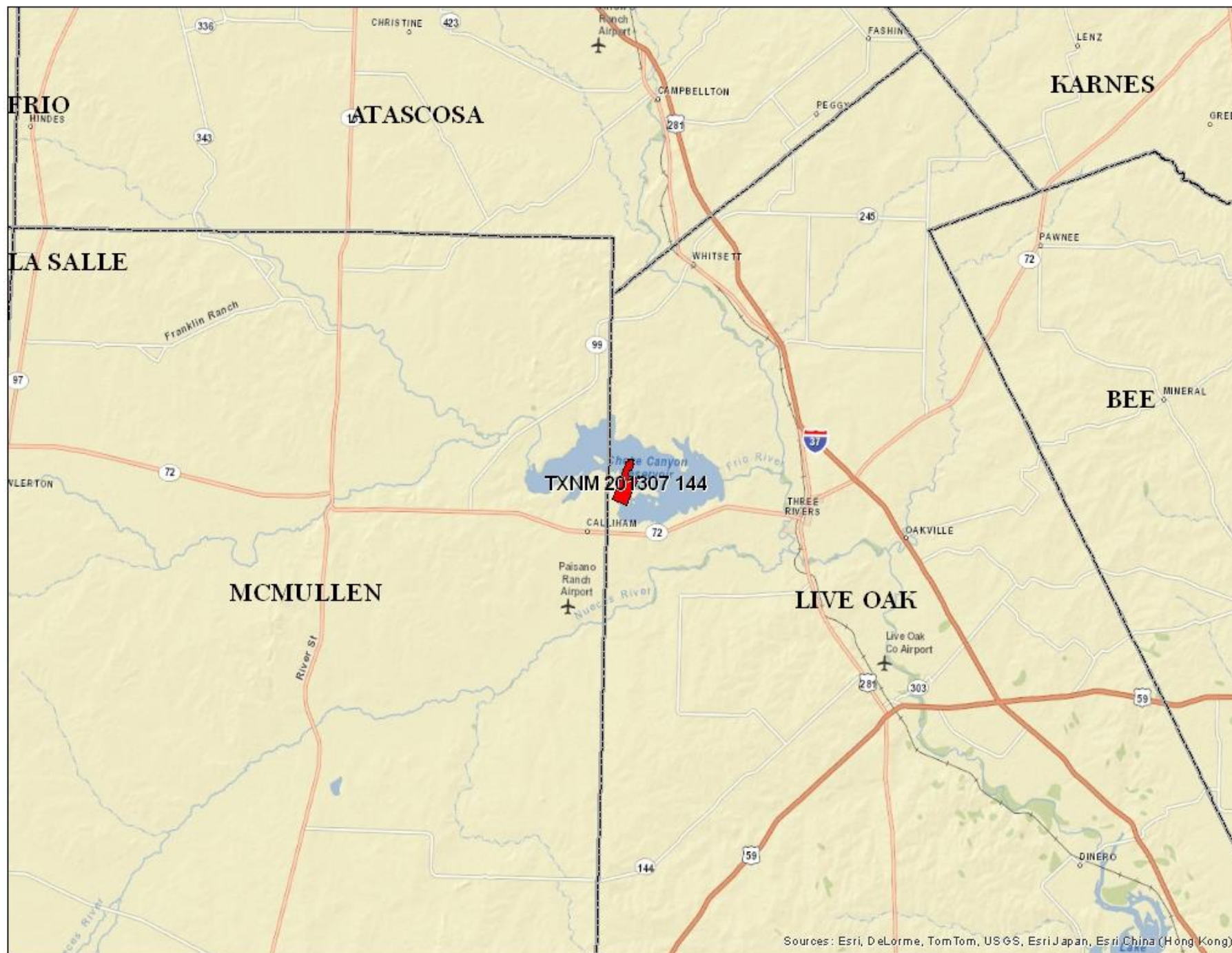
Shelby County nominated parcels.



Sabine County nominated parcels.



Live Oak County nominated parcels.



APPENDIX 3. BIOLOGICAL EVALUATION.



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

OKLAHOMA FIELD OFFICE

7906 E. 33rd St., Suite 101

TULSA, OK 74145-1352

<http://www.blm.gov>



RE: Biological Evaluation for the July, 2013 Texas Lease Sale

NM-201307-133 Sabine County, Texas; Lat/Long: 31.408444 -93.729579 (NAD83)

NM-201307-136 Sabine County, Texas; Lat/Long: 31.211533, -93.64235 (NAD 83)

NM-201307-138 Sabine County, Texas; Lat/Long: 31.413271, -93.743634 (NAD 83)

NM-201307-139 Sabine County, Texas; Lat/Long: 31.387005, -93.72149 (NAD 83)

NM-201307-140 Sabine County, Texas; Lat/Long: 31.395918, -93.702747 (NAD 83)

NM-201307-141 Sabine County, Texas; Lat/Long: 31.410916, -93.798606 (NAD 83)

NM-201307-143 Sabine County, Texas; Lat/Long: 31.213596, -93.653875 (NAD 83)

NM-201307-144 Live Oak County, Texas; Lat/Long: 28.476857, -98.32261 (NAD 83)

(DOI-BLM-NM-040-2013-014).

The Bureau of Land Management's (BLM) environmental assessment (EA) for this project contains all pertinent information regarding the specific characteristics of the proposed leasing of federal oil & gas minerals. The purpose of this report is to document BLM's "No Effect" for threatened & endangered species based on the administrative action on making the proposed parcels available for leasing.

Wetland and Riparian Habitat

Wetland habitats provide important wintering and migration habitat for several species of Migratory Birds. Wetlands also provide a link between land and water and are some of the most productive ecosystems in the world. Executive Order (EO) 11990 on the Protection of Wetlands provides opportunity for early review of Federal agency plans regarding new construction in wetland areas. Under EO 11990, each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for conduction federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating and licensing activities.

NM-201307-133 Sabine County, Texas

U.S. Fish and Wildlife USFWS (USFWS) National Wetlands Inventory map shows L2UBFh and L1OWHh wetland issues.

NM-201307-136 Sabine County, Texas

USFWS National Wetlands Inventory map shows L2USCh and L1OWHh wetland issues.

NM-201307-138 Sabine County, Texas

USFWS National Wetlands Inventory map shows L2AB3Hh and L1OWHh wetland issues.

NM-201307-139 Sabine County, Texas

USFWS National Wetlands Inventory map shows PFO1C and L1OWHh wetland issues.

NM-201307-140 Sabine County, Texas

USFWS National Wetlands Inventory map shows PSS1Ch and L1OWHh wetland issues.

NM-201307-141 Sabine County, Texas

USFWS National Wetlands Inventory map shows PFO6Fh and L1OWHh wetland issues.

NM-201307-143 Sabine County, Texas

USFWS National Wetlands Inventory map shows L1OWHh wetland issues.

NM-201307-144 Live Oak County

USFWS National Wetlands Inventory map shows L1UBHh wetland issues.

Threatened and Endangered Species

The purpose of the Endangered Species Act (ESA) is to ensure that federal agencies and departments use their authorities to protect and conserve endangered and threatened species. Section 7 of the ESA requires that federal agencies prevent or modify any projects authorized, funded, or carried out by the agencies that are "likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat of such species."

The USFWS's federally-listed endangered, threatened, proposed, and candidate species for Sabine County, Texas consist of the Louisiana pine snake, red-headed woodpecker and the Texas golden gladeecress.

The USFWS's federally-listed endangered, threatened, proposed, and candidate species for Live Oak County, Texas consist of the golden orb, Gulf Coast jaguarondi, ocelot and the whooping crane.

Special Status Species

The Texas Parks and Wildlife department threatened and endangered species for Sabine County consist of the American peregrine falcon, Bachman's sparrow, Bald Eagle, peregrine falcon, piping plover, red-cockaded woodpecker, swallow-tailed kite, wood stork, Rafinesque's big-eared bat, red wolf, Louisiana pigtoe, sandbank pocketbook, southern hickorynut, Texas heelsplitter, Texas pigtoe, alligator snapping turtle, Louisiana pine snake, northern scarlet snake, timber/canebrake rattlesnake.

The Texas Parks and Wildlife department threatened and endangered species for Live Oak County consist of the black spotted newt, sheep frog, American peregrine falcon, interior least tern, peregrine falcon, white-faced ibis, wood stork, white-tailed hawk, red wolf, golden orb, ocelot, reticulate collared lizard, Texas horned lizard, Texas indigo snake, Texas tortoise, white-tailed hawk, whooping crane, wood stork, jaguarondi, red wolf, golden orb and the ocelot.

Texas golden glade cress

Habitat: Edaphically influenced herbaceous communities on shallow calcareous soils in vernal moist to wet glades on glauconite or ironstone outcrops of the Weches Formation.

Current Distribution: Nacogdoches, Sabine and San Augustine.

Bachman's sparrow

Habitat: Old field, Savanna, Woodland - Conifer, Woodland - Hardwood

Current Distribution: Eastern Texas and the Gulf Coast.

Bald Eagle

Habitat: Bald Eagles typically nest in forested areas adjacent to large bodies of water, staying away from heavily developed areas when possible. Bald Eagles are tolerant of human activity when feeding, and may congregate around fish processing plants, dumps, and below dams where fish concentrate. For perching, Bald Eagles prefer tall, mature coniferous or deciduous trees that afford a wide view of the surroundings. In winter, Bald Eagles can also be seen in dry, open uplands if there is access to open water for fishing.

Current Distribution: Bald Eagles are present year-round throughout Texas as spring and fall migrants, breeders, or winter residents. The Bald Eagle population in Texas is divided into two populations; breeding birds and nonbreeding or wintering birds. Breeding populations occur primarily in the eastern half of the state and along coastal counties from Rockport to Houston. Nonbreeding or wintering populations are located primarily in the Panhandle, Central, and East Texas, and in other areas of suitable habitat throughout the state

Piping plover

Habitat: Shorebirds live on sandy beaches and lakeshores.

Current Distribution: Gulf Coast beaches from Florida to Mexico, and Atlantic coast beaches from Florida to North Carolina provide winter homes for plovers.

Red-cockaded woodpecker

Habitat: Open pine forests with large, widely-spaced older trees provide essential habitat for the red-cockaded woodpecker.

Current Distribution: The red-cockaded woodpecker can be found in the Pineywoods of east Texas.

Swallow-tailed kite

Habitat: Nesting and foraging habitats include various pine forests and savannas, cypress swamps and savannas, cypress-hardwood swamps, hardwood hammocks, mangrove swamps, narrow riparian forests, prairies, and freshwater and brackish marshes.

Current Distribution: Breeding range extends from South Carolina south to Florida, and west to Louisiana and east Texas

Rafineque's big eared bat

Habitat: This is a bat of forested regions.

Current Distribution: Eastern edge of Texas.

Louisiana pigtoe

Habitat: Freshwater, This species occurs in streams and moderate-size rivers; usually in flowing water and not generally known from impoundments; on substrates of mud, sand, and gravel; to depths of 20 feet but usually less.

Current Distribution: Historically, this species occurred as far west as the San Jacinto and Trinity rivers, Texas, eastward through the Neches and Sabine systems into the Red River and Bayou Pierre of north-central Louisiana.

Sandbank pocketbook

Habitat: Freshwater, it may occur in small to large rivers with moderate flows on gravel, gravel-sand, and sand bottoms

Current Distribution: This species is known from southern portions of the Mississippi Interior basin and western Gulf drainages of Arkansas, Mississippi (extreme south), Louisiana, and Texas.

Southern hickorynut

Habitat: Freshwater, This species is found in medium sized gravel in water with low to moderate current in small to large sized rivers.

Current Distribution: Historically, this species was distributed from Alabama west to eastern Texas, and in the Mississippi embayment as far north as southeastern Missouri.

Texas heelsplitter

Habitat: Freshwater, This species is found in flowing water but not necessarily in riffles or shoals. It prefers mud or sand in small to medium rivers and may also be found in reservoirs.

Current Distribution: This species is known only from the Sabine River that forms the border between Texas and Louisiana, and the Neches and Trinity rivers in Texas.

Texas pigtoe

Habitat: A freshwater mussel, this species has been collected in rivers with mixed mud, sand, and fine gravel in protected areas

Current Distribution: This species is known from the western Gulf drainages of Texas and Louisiana. Most of the Texas records are from the Neches and Sabine rivers in east Texas, but also from the Sabine and San Jacinto Rivers.

Alligator snapping turtle

Habitat: Habitat consists of slow-moving, deep water of rivers, sloughs, oxbows, and canals or lakes associated with rivers (e.g., large impoundments); also swamps, bayous, and ponds near rivers, and shallow creeks that are tributary to occupied rivers, sometimes including swift upland streams. This turtle sometimes enters brackish waters near river mouths. Usually it occurs in water with a mud bottom and some aquatic vegetation but may use sand-bottomed creeks.

Current Distribution: Eastern Texas

Louisiana pine snake

Habitat: In Texas, these snakes occur in longleaf pine-oak sandhills interspersed with moist bottomlands; sometimes in adjacent blackjack oak woodlands and in sandy areas of short-leaf pine/post oak forest; the snake prefers openly wooded areas over dense forest; it is frequently found in fields, farmland, and tracts of second-growth timber.

Current Distribution: The Louisiana pine snake historically occurred in portions of west-central Louisiana and extreme east-central Texas. This area roughly coincides with a disjunct portion of the longleaf pine ecosystem situated west of the Mississippi River. The species is currently extant in a small portion of the historical range.

Northern scarlet snake

Habitat: Hardwood, mixed, or pine forest/woodland and adjacent open areas with sandy or loamy well-drained soils. Specific habitats include pine flatwoods, dry or dry prairie, salt grass prairie, maritime hardwood hammock, bottomland forest, sandhills, margins of irrigation canals in sawgrass prairies, borders of swamps and plowed fields, abandoned fields, and roadsides.

Current Distribution: The range extends from southern New Jersey, Maryland, Virginia, Kentucky, southern Indiana, southern Illinois, and Missouri, and eastern Oklahoma south to southern Texas, most of the Gulf Coast (except in Louisiana), and southern Florida.

Timber/canebrake rattlesnake

Habitat: Timber rattlesnakes prefer moist lowland forests and hilly woodlands or thickets near permanent water sources such as rivers, lakes, ponds, streams and swamps where tree stumps, logs and branches provide refuge.

Current Distribution: Timber rattlesnakes are found in upland woods and rocky ridges in the eastern United States; the eastern third of Texas.

Golden orb

Habitat: Freshwater

Current Distribution: Endemic to the Guadalupe-San Antonio and Nueces-Frio systems. Only seven extant populations of this mussel have been noted from the upper and central Guadalupe River, central San Antonio River, lower San Marcos River, and Lake Corpus Christi.

Gulf Coast jaguarundi

Habitat: They spend most of their time on the ground, but can be agile climbers when inspired, such as when they are pursued. They hunt small rodents, reptiles, and birds in dense vegetation, especially thornscrub.

Current Distribution: The Laguna Atascosa National Wildlife Refuge in Texas. It is also found in the south Texas brush country and lower Rio Grande valley and in northern Mexico and central and south America

Ocelot

Habitat: Dense, thorny, low brush such as spiny hackberry, lotebush, and blackbrush offer the Ocelot the best habitat. The Texas ocelot prefers elevated terrain.

Current Distribution: South Texas brush country and lower Rio Grande valley.

Whooping Crane

Habitat: Whooping cranes winter on the Aransas National Wildlife Refuge 22,500 acres of salt flats and marshes. The area's coastal prairie rolls gently here and is dotted with swales and ponds. They summer and nest in poorly drained wetlands in Canada's Northwest Territories at Wood Buffalo National Park.

Current Distribution: Although they breed in Canada during the summer months, whooping cranes migrate to Texas' coastal plains near Rockport, in and around Aransas National Wildlife Refuge, from November through March.

Black-spotted newt

Habitat: Adults, juveniles, and larvae inhabit permanent and temporary ponds, roadside ditches, and quiet stream pools, habitats that are relatively uncommon in at least the northern part of the range. Terrestrial; Freshwater

Current Distribution: This species occurs along the Gulf Coastal Plain, from south of the San Antonio River in Texas southward along the Atlantic versant to Tamaulipas, northern Veracruz, and southeastern San Luis Potosi, Mexico. It has never been found more than 130 km inland. It occurs from sea level to 800 m.

Sheep frog

Habitat: In Texas, fairly common in various habitats but seldom seen.

Current Distribution: Range extends from southern Texas southward through the Pacific and Atlantic slopes of Mexico to Costa Rica.

American peregrine falcon

Habitat: They can be found nesting at elevations up to about 12,000 feet, as well as along rivers and coastlines or in cities, where the local Rock Pigeon populations offer a reliable food supply. In migration and winter you can find Peregrine Falcons in nearly any open habitat, but with a greater likelihood along barrier islands, mudflats, coastlines, lake edges, and mountain chains.

Current Distribution: The American Peregrine is a resident of the Trans-Pecos region, including the Chisos, Davis, and Guadalupe mountain ranges.

Interior Least Tern

Habitat: Terns live along large rivers and may sometimes be found hunting fish in shallow wetlands and the margins of ponds and lakes. Least Terns require bare sand and gravel for nesting and typically nest in small colonies consisting of two to 20 pairs along large rivers on sand bars and scoured bends.

Current Distribution: In Texas, Interior Least Terns are found at three reservoirs along the Rio Grande River, on the Canadian River in the northern Panhandle, on the Prairie Dog Town Fork of the Red River in the eastern Panhandle, and along the Red River (Texas/Oklahoma boundary) into Arkansas.

Peregrine falcon

Habitat: They can be found nesting at elevations up to about 12,000 feet, as well as along rivers and coastlines or in cities, where the local Rock Pigeon populations offer a reliable food supply. In migration and winter you can find Peregrine Falcons in nearly any open habitat, but with a greater likelihood along barrier islands, mudflats, coastlines, lake edges, and mountain chains.

Current Distribution: Migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south.

White-faced ibis

Habitat: Marshes, swamps, ponds and rivers.

Current Distribution: In Texas, they breed and winter along the Gulf Coast and may occur as migrants in the Panhandle and West Texas.

Reticulate collared lizard

Habitat: This lizard inhabits thorn-scrub vegetation, usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils.

Current Distribution: This lizard occurs in relatively small areas in southern Texas. The range extends from Eagle Pass, Texas, on the north to Mission, Texas, on the southeast.

Texas horned lizard

Habitat: They can be found in arid and semiarid habitats in open areas with sparse plant cover. Because horned lizards dig for hibernation, nesting and insulation purposes, they commonly are found in loose sand or loamy soils.

Current Distribution: Texas horned lizards range from the south-central United States to northern Mexico, throughout much of Texas, Oklahoma, Kansas and New Mexico.

Texas indigo snake

Habitat: The Texas Indigo snake is found in grassland, coastal sand dunes, lightly vegetated areas near permanent water, Shelters in burrows.

Current Distribution: Southern Texas.

Texas tortoise

Habitat: Open scrub woods, arid brush, lomas, grass-cactus association; often in areas with sandy well-drained soils.

Current Distribution: Its range extends from South-Central Texas in the United States southward into the Mexican states of Coahuila, Nuevo Leon, and Tamaulipas.

White tailed hawk

Habitat: Open country, primarily savanna, prairie, and arid habitats of mesquite, cacti, and bushes, very rarely in open forest.

Current Distribution: Central and southeastern Texas.

Wood stork

Habitat: Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water.

Current Distribution: Breeds in Mexico and then moves into the Gulf States in search of mud flats and other wetlands, and forested areas. No breeding record in Texas since 1960.

Red wolf

Habitat: Brushy and forested areas, as well as coastal prairies.

Current Distribution: Extirpated; formerly known throughout eastern half of Texas.

According to above information all or portions of these leases could contain Federal and/or state listed threatened or endangered species or/and their habitats. Any proposed surface disturbing activity may require an inventory and consultation with the USFWS and/or the state wildlife agency. The consultation could take up to 180 days to complete. Surface occupancy could be restricted or not allowed as a result of the consultation. Appropriate modifications to the imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

Wildlife

Wildlife includes all non-domesticated plants, animals and other organisms. Several species of interest inhabit the lease parcel areas. Sabine County is located in the Pineywoods ecoregion of Texas; some common wildlife seen in this ecoregion are bobcats, eastern cottontails, Bald Eagles, striped skunks and the eastern flying squirrel. Live Oak County is located in the south Texas plains ecoregion; common wildlife seen in this ecoregion includes the road runner, coati and elf owls.

Bobcats

Habitat: Bobcats live in a variety of habitats, but they favor rocky canyons or outcrops when they are available. Otherwise, they choose thickets for protection and den sites. These cats are highly adaptable, and in most places have been able to thrive in spite of increasing habitat loss due to human settlement.

Current Distribution: Bobcats are distributed throughout Texas.

Eastern cottontails

Habitat: Typically eastern cottontails occupy habitats in and around farms including fields, pastures, open woods, thickets associated with fencerows, wooded thickets, forest edges, and suburban areas with adequate food and cover. They are also found in swamps and marshes and usually avoid dense woods. They are seldom found in deep woods.

Current Distribution: The eastern cottontail can be found in meadows and shrubby areas in the eastern and south-central United States.

Striped skunks

Habitat: The skunk is found in wooded or brushy areas and farmlands. They prefer taking shelter in rocky outcrops or under large boulders, but when these are unavailable, skunks choose to den in the abandoned burrows of other animals.

Current Distribution: They are distributed statewide in Texas.

Eastern flying squirrel

Habitat: Inhabit forested areas where suitable trees are present to afford den sites.

Current Distribution: Known from wooded areas in eastern one-third of Texas.

Road runner

Habitat: Inhabit desert and shrubby country in the southwestern United States and northern Mexico.

Current Distribution: The Greater Roadrunner is a resident of Texas, recorded in all counties, but is most common in the Chihuahuan Desert of West Texas and the South Texas brushlands.

Coati

Habitat: Inhabit wooded areas and in some of the rocky canyons that enter the mountains from the lowlands.

Current Distribution: Coatis inhabit woodland areas of the warmer parts of Central America, Mexico, and the extreme southern United States including southern Texas. In Texas, they are only rarely known from Brownsville to the Big Bend region of the Trans-Pecos.

Elf owl

Habitat: In Texas, elf owls are found in the arid Big Bend and Trans-Pecos areas of the lower Chihuahuan desert.

Current Distribution: Elf owls are neotropical migrants. They winter in central Mexico and return to West Texas and other parts of the southwest to nest and raise their young.

Migratory Birds

Executive Order (EO) 13186, 66 Fed. Reg. 3853, (January 17, 2001) identifies the responsibility of federal agencies to protect migratory birds and their habitats, and directs executive departments and agencies to undertake actions that will further implement the Migratory Bird Treaty Act (MBTA). Under the MBTA, incidental, unintentional, and accidental take, killing, or possession of a migratory bird or its parts, nests, eggs or products, manufactured or not, without a permit is unlawful. EO 13186 includes a directive for federal agencies to develop a memorandum of understanding (MOU) with the USFWS to promote the conservation of migratory bird populations, including their habitats, when their actions have, or are likely to have, a measurable negative effect on migratory bird populations.

For the purpose of this BE, the term “migratory birds” applies generally to native bird species protected by the Migratory Bird Treaty Act (MBTA). This includes native passerines (flycatchers and songbirds) as well as birds of prey, migratory waterbirds (waterfowl, wading birds, and shorebirds), and other species such as doves, hummingbirds, swifts, and woodpeckers. The term “migratory” is a misnomer and should be interpreted broadly to include native species that remain in the same area throughout the year as well as species that exhibit patterns of latitudinal or elevational migration to avoid winter conditions of cold or a shortage of food. For most migrant and native resident species, nesting habitat is of special importance because it is critical for supporting reproduction in terms of both nesting sites and food. Also, because birds are generally territorial during the nesting season, their ability to access and utilize sufficient food is limited by the quality of the territory occupied. During non-breeding seasons, birds are generally non-territorial and able to feed across a larger area and wider range of habitats.

Among the wide variety of species protected by the MBTA, special concern is usually given to the following groups:

- Species that migrate across long distances, particularly Neotropical migrant passerines that winter in tropical or Southern Hemisphere temperate zones.
- Birds of prey, which require large areas of suitable habitat for finding sufficient prey.

- Species that have narrow habitat tolerances and hence are vulnerable to extirpation from an area as a result of a relatively minor habitat loss.
- Species that nest colonially and hence are vulnerable to extirpation from an area and hence are vulnerable to extirpation from an area as a result of minor habitat loss.

Because of the many species that fall within one or more of these groups, BLM focuses on species identified by the U.S. Fish and Wildlife Service (USFWS) as Birds of Conservation Concern (BCC).

The NM-201307-133, NM-201307-136, NM-201307-138, NM-201307-139, NM-201307-140, NM-201307-141, and NM-201307-143, in Sabine County, Texas are located within the Bird Conservation Region 25, West Gulf Coastal Plain/Ouachitas. Twenty-eight birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found ten species from the (Burr Ferry Route) survey list, the little blue heron, red-headed woodpecker, loggerhead shrike, brown-headed nuthatch, prairie warbler, prothonotary warbler, Louisiana waterthrush, Kentucky warbler, painted bunting and the orchard oriole.

The NM-201307-144 in Live Oak County, Texas is located within the Bird Conservation Region 21, Oaks and Prairies. Nineteen birds of conservation concern have been identified in this region. Breeding bird surveys conducted near the site found five species from the (George West Route) survey list, the little blue heron, scissor-tld flycatcher, loggerhead shrike, Bell's vireo and the orchard oriole.

Birds of Conservation Concern Known to Breed and/or Nest in or near Proposed Lease Parcels		
Wetland Associated	Grasslands	Woodland or Scrub
Little blue heron		Scissor-tailed flycatcher
Louisiana waterthrush		Bell's vireo
		Orchard oriole
		Loggerhead shrike
		Red-headed woodpecker
		Brown-headed nuthatch
		Prairie warbler
		Prothonotary warbler
		Kentucky warbler
		Painted bunting

Environmental Consequences

Wetland and Riparian Habitat

While the act of leasing Federal minerals would produce no direct impacts to wetlands or riparian areas; no adverse impacts are expected for wetlands or riparian areas if exploration/development occurred on this lease parcel in the future.

Mitigation

Potential mitigation is deferred to site-specific development at the APD stage. Protective stipulation ORA-2 would be attached to the lease of a tract which falls within a wetland/riparian habitat. ORA-2 states that, “All or portions of the lands under this lease contain wetland and/or riparian areas. Surface occupancy of these areas will not be allowed without the specific approval, in writing, of the Bureau of Land Management. Impacts or disturbance to wetlands and riparian habitats which occur on this lease must be avoided or mitigated. The mitigation shall be developed during the application for permit to drill.”

NM-201307-133 (109.72 acres), 136 (All), 138 (177.96 acres), 139 (266.00 acres), 140 (110.34 acres), 141 (123.80 acres) and 143 (2.91 acres) in Sabine County, Texas would have stipulation ORA-2: Wetland/Riparian Protection attached to the lease.

NM-201307-133 (47.28 acres), 138 (164.04 acres), 139 (40 acres), 140 (89.66 acres), 141 (160.20 acres) and 143 (23.09 acres) in Sabine County, Texas would have U.S. Forest Service stipulations attached to the lease.

NM-201307-144 will have Bureau of Reclamation General Stipulations (Nueces River) attached to the lease.

Threatened and Endangered Species

While the act of leasing Federal minerals produces no impacts to Threatened and Endangered Species, subsequent exploration/development of the proposed parcel may produce impacts. Surface disturbance from the development of well pads, access roads, pipelines, and utility lines can result in removal of wildlife habitat.

Special Status Species

While the act of leasing Federal minerals would produce no direct impacts to special status species, subsequent development of a lease may produce impacts. Impacts could result from increased habitat fragmentation, noise, or other disturbance during development.

Wildlife

The types and extent of impacts expected from oil and gas development to wildlife species and habitats from development are similar to those described in the 4.9 Special Status Species Section. Although reclamation and restoration efforts for surface disturbance could provide for the integrity of other resources, these efforts may not always provide the same habitat values (e.g. structure, composition, cover, etc.) in the short or in some instance, the long-term in complex vegetative community types (e.g., shrub oak communities). The short-term negative impact to wildlife would occur during the construction phase of the operation due to noise and habitat destruction.

In general, most wildlife species would become habituated to the new facilities. For other wildlife species with a low tolerance to activities, the operations on the well pad would continue to displace wildlife from the area due to ongoing disturbances such as vehicle traffic, noise and equipment maintenance. The conditions of approval would alleviate most losses of wildlife species, such as; fencing the reserve pits, netting storage tanks, installation or other modifications of cones on separator stacks, and timing stipulations. The magnitude of above effects would be

dependent on the rate and location of the oil and gas development, but populations could likely not recover to pre-disturbance levels until the activity was completed and the vegetative community restored.

Migratory Birds

While the act of leasing Federal minerals produces no impacts to migratory birds, subsequent exploration/development of the proposed parcel may produce impacts. Surface disturbance from the development of well pads, access roads, pipelines, and utility lines can result in an impact to migratory birds and their habitat.

The USFWS estimates that many migratory birds are killed annually throughout the United States in oil field production skim pits, reserve pits, and centralized oilfield wastewater disposal facilities. Numerous grasshoppers, moths, June bugs, and the like become trapped on the surface in tanks and on pits, and become bait for many species of migratory birds. Open tanks and pits then become traps to many species of birds protected under the MBTA. Properly covered tanks and pits (and regularly inspected covered tanks and pits) is imperative to continued protection of migratory birds in the well pad area.

Mitigation Common to All Species

The Wildlife Resource General Conditions of Approval (WRGCOAs) included in the approved APD and use of standard Best Management Practices (BMPs) should provide extra measures of protection to general wildlife populations and habitats in the area. Impacts to the wildlife resource component of the environment can be avoided or minimized by adopting the WRGCOAs and BMPs. WRGCOA #4 (Burying Transmission Lines) and Notice to Lessees (NTL) 96-01-TDO (Modification of Oil and Gas Facilities to Minimize Bird and Bat Mortality) address measures designed to protect migratory birds from accidental deaths associated with power line collisions/electrocutions, open-vent exhaust stacks and open pits and tanks.

NM-201307-133 (109.72 acres), 136 (All), 138 (177.96 acres), 139 (266.00 acres), 140 (110.34 acres), 141 (123.80 acres) and 143 (2.91 acres) in Sabine County, Texas would have stipulation WO-ESA-7-Consultation Stipulation attached to the lease.

NM-201307-133 (47.28 acres), 138 (164.04 acres), 139 (40 acres), 140 (89.66 acres), 141 (160.20 acres) and 143 (23.09 acres) in Sabine County, Texas would have U.S. Forest Service stipulations attached to the lease.

NM-201307-144 will have Bureau of Reclamation General Stipulations (Nueces River) attached to the lease.

Determination

The proposed lease sale parcels and all subsequent activities resulting from it are subject to all state and federal regulations and proposed lease stipulations designed to reduce environmental risks. Lease stipulations are legally binding restrictions and operating requirements that become part of lease contracts.

This lease sale, in and of itself, has no impact on threatened or endangered species, wetland or migratory birds to analyze or consult on. Additionally, site-specific analysis and mitigation will occur once the parcels are leased and an Application for Permit to Drill is submitted.

Based on all the information discussed above the biological determination of effect for federally listed species regarding leasing of these parcels is “**NO EFFECT**”.

Becky Peters Wildlife Biologist

01/23/2013 .
Date

APPENDIX 4. CULTURAL RESOURCES REPORT.
