

# CHAPTER 2: ALTERNATIVES

## PART B: REFUGE BOUNDARY EXPANSION ALTERNATIVES

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## IV. REFUGE BOUNDARY EXPANSION ALTERNATIVE D – 104,120 ACRES

### Alternative D Concept with Map

#### *Alternative Focus*

**Please note that this alternative includes all of the lands in the preceding Refuge Boundary Expansion Alternative C.** Similar to Alternative C, this Alternative continues the four refuge’s historic focus on land acquisition primarily in the coastal marsh and adjacent agricultural uplands. Much of the acquisition would still focus on habitats of particular value to the waterfowl resource and other wetland-dependent migratory birds. The wetlands portions of this Alternative concentrate on high-value wintering waterfowl habitats near the coast which are contiguous to existing refuges. This focus supports the goal of the Gulf Coast Joint Venture: Chenier Plain Initiative which is stated as follows: “The goal of the Chenier Plain Initiative is to provide wintering and migration habitat for significant numbers of dabbling ducks, diving ducks, and geese (especially lesser snow and greater white-fronted), as well as year-round habitat for Mottled Ducks.” Priority is given to those wetland areas which have long been identified as high-priority areas for acquisition in USFWS documents such as the “Wetland Preservation Program, Category 8 – Texas Gulf Coast” and the “Emergency Wetlands Resources Act, Region 2 Wetlands, Regional Concept Plan”.

In addition to these primarily wetland areas, this Alternative includes two areas of important coastal prairie with high habitat value for resident Mottled Ducks, many species of grassland-dependent migratory birds, and a wide variety of other native wildlife species. The primary habitat type for these areas is non-saline prairie, of which a significant component is prairie/grassland which is a unique community type within the Texas Chenier Plain. One of these areas, “Middleton Prairie”, is likely the largest remnant native coastal tallgrass prairie remaining on the Upper Texas Coast.

This Alternative also includes an important near-coast bottomland hardwood area, which is an acquisition target new to this Refuge Complex. The primary habitat type in this area is forested wetlands which provide high quality wintering, migrational, and nesting habitats for waterfowl and other wetland-dependent migratory bird species. Forested wetlands are considered a unique community type within the Texas Chenier Plain region. Also, this area has been identified as an important regional “fall-out” area for neotropical migratory songbirds making trans-Gulf migrations during spring. The remainder of the area consists of inland open water or converted coastal prairie, both of which have high habitat value for resident Mottled Ducks, many species of grassland-dependent migratory birds, and a wide variety of other native wildlife species. Besides the above-described types of high biological value habitats, this Alternative contains those areas included in Refuge Boundary Expansion Alternative C which were identified by refuge management as necessary for the following reasons:

- lands that “fill in the gaps” in earlier single-ownership based expansions and complete logical biological/geographical boundaries,
- lands hydrologically linked to adjoining already-acquired refuge lands,
- lands whose acquisition would contribute to more effective management of the already acquired lands.

Expansion of the existing acquisition boundary is proposed for each of the four refuges in the Refuge Complex as follows:

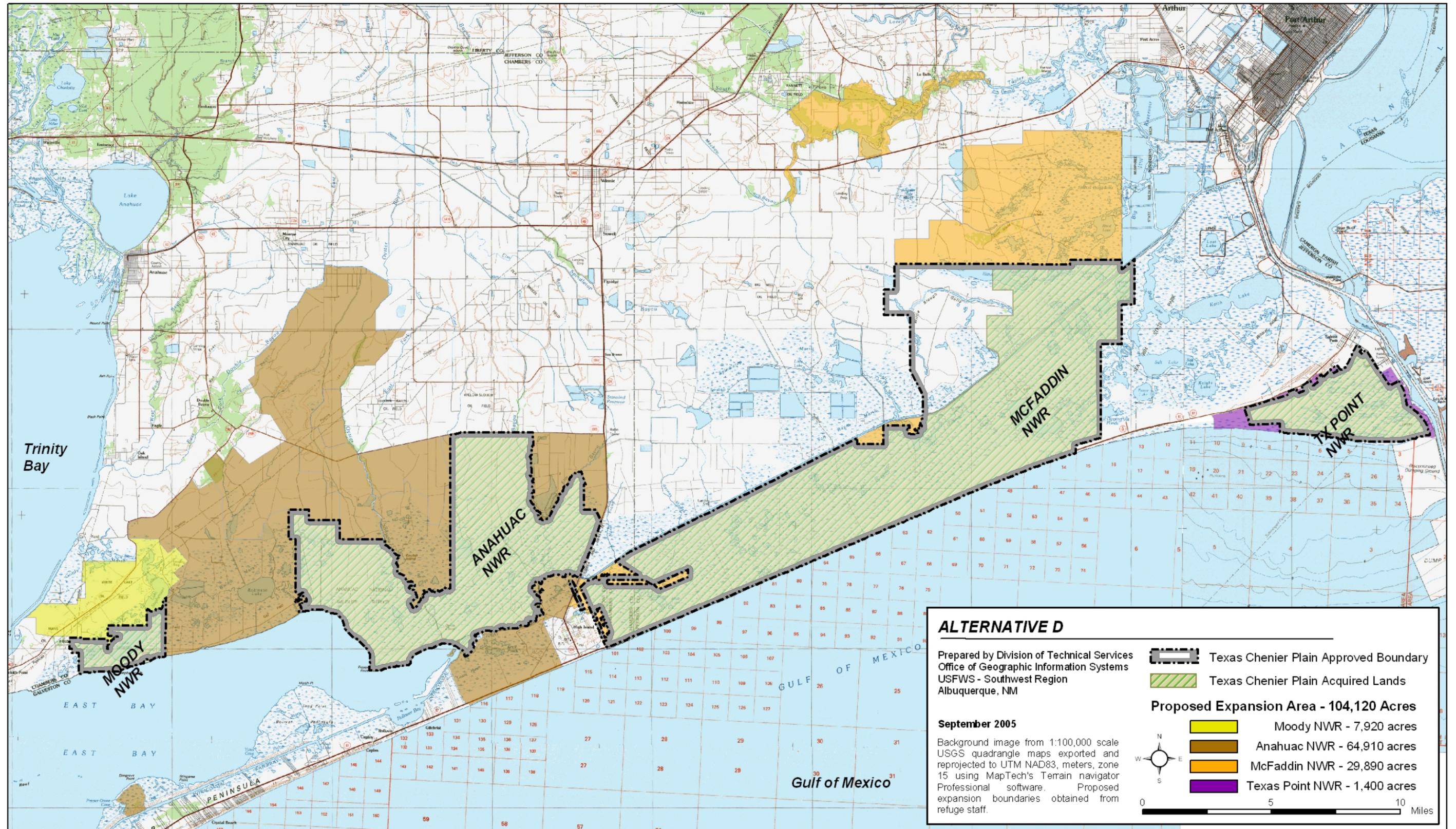
<u>Refuge</u>	<u>Size of Boundary Expansion</u>
Moody NWR	7,920 acres*
Anahuac NWR	64,910 acres*
McFaddin NWR	29,890 acres*
Texas Point NWR	1,400 acres*

*\* All acreage figures are approximate*

The 104,120 acre expansion proposal for the entire Refuge Complex is depicted the following page.



# Texas Chenier Plain Refuge Complex & Proposed Expansion Areas



## *Rationale for Alternative*

The coastal marshes, prairies and woodlots of the Chenier Plain region of southwestern Louisiana and southeast Texas comprise a hemispherically important biological area. The Texas Gulf Coast is the primary site for ducks wintering in the Central Flyway, with an average of 1.3-4.5 million birds, or 30-71% of the total flyway population (Stutzenbaker and Weller 1989). This area also winters 90% of the snow, Canada, and greater white-fronted geese in the Central Flyway (Buller 1964). Additionally, the coastal marshes, prairies and prairie wetlands of the Chenier Plain region of the Texas Gulf Coast serve as a critical staging area for Central Flyway waterfowl migrating to and from Mexico and Central and South America, including three species identified by the USFWS as Gamebirds Below Desired Condition (Northern Pintail, Lesser Scaup and Ring-necked Duck). These wetland habitats also provide year-round habitat for Mottled Ducks, an important resident waterfowl species. Hundreds of thousands shorebirds, wading birds, and other marsh and waterbirds also winter or migrate through the region, including several now identified by the USFWS as Avian Species of Conservation Concern and species listed as priorities for conservation action under the U.S. Shorebird Conservation Plan and the North American Waterbird Conservation Plan. Hundreds of thousands shorebirds, wading birds, and other marsh and waterbirds also winter or migrate through the region, including several now identified by the USFWS as Avian Species of Conservation Concern. Coastal prairie and coastal woodlots support over 150 migratory and resident landbird species, including 9 species of grassland birds and 7 species utilizing woodland habitats listed as Rare and Declining within the Coastal Prairies Region of Texas (Texas Parks and Wildlife Department 2000). Overall, wetland, prairie and woodland habitats on the Refuge Complex provide habitat for 33 Avian Species of Conservation Concern in the Gulf Prairies Bird Conservation Region (USFWS 2005).

The “Wetland Preservation Program, Category 8 – Texas Gulf Coast” was a joint effort between Federal, State, and Private participants to identify high-value wintering waterfowl habitat along the Texas coast that required little or no additional development. The USFWS had ranked the Texas Gulf coast as Number 8 out of 33 categories on a national priority scale based on its importance to the Nation’s waterfowl resource. Further, the USFWS had ranked the Texas Gulf coast Number 4 as a national “Important Resource Problem (IRP) area. In early 1977, a group of conservationists representing Ducks Unlimited, sportsmen, businessmen, Texas General Land Office, Texas Parks and Wildlife Department, and the USFWS delineated 25 key areas of habitat along the Texas Gulf coast having high value to the waterfowl resource. These 25 areas were ranked by a team of Texas Parks and Wildlife Department, Texas General Land Office, and USFWS personnel; and, acquisition of the private lands was recommended for the top 20 areas as being necessary for habitat preservation. This plan and report was “updated” in August of 1981. Within the Chenier Plain region of the upper Texas Gulf coast, the “Category 8 Plan” identified the following five high-value wintering waterfowl habitats: (#1) Oyster Bayou Marsh, (#4) Lake Surprise area, (#5) McFaddin Marsh, (#7) Sea Rim Marsh, and (#10) Robinson Bayou Marsh. (The numbers indicate that area’s “Preservation Effort Priority” ranking). All of these five high-value wintering waterfowl habitats are included in this expansion alternative.

The Emergency Wetlands Resources Act of 1986 (Public Law 99-645) was enacted by the United States Congress to: “Promote the conservation of migratory waterfowl and to offset or prevent the serious loss of wetlands by the acquisition of wetlands and other essential habitat, and for other purposes”. In compliance with this Act, the USFWS has prepared the National Wetlands Priority Conservation Plan. The National Plan provides the framework, criteria, and guidance for identifying wetlands warranting priority attention for Federal and State acquisition. Its primary purpose is to help decision-makers focus their acquisition efforts on the more important, scarce, and vulnerable wetlands in the Nation. The National Plan requires each of the seven USFWS Regions to prepare Regional Wetlands Concept Plans that address the wetlands of each State within each Region.

The USFWS’ Region 2 encompasses the States of Arizona, New Mexico, Oklahoma and Texas. In 1990, Region 2 published its Regional Wetlands Concept Plan addressing the wetland issues of each State separately. The Regional Wetlands Concept Plan steps down the National Plan to the local, site-specific level and discusses the wetland functions, values, threats and other issues on a state by state basis. The Regional Plan contains a list of priority wetlands sites that have been evaluated through the wetlands

assessment threshold criteria of the National Wetlands Priority Conservation Plan and qualify for acquisition under the Emergency Wetlands Resources Act. The wetlands in Texas were broadly grouped into six categories: 1) Gulf coast salt and freshwater marshes; 2) bottomland hardwood forests in the river valleys of East Texas; 3) playa lakes of the Panhandle region; 4) freshwater springs and their headwater streams of Central and Southwest Texas; 5) West Texas riparian areas; and 6) coastal pothole wetlands of South Texas. Each group is addressed in terms of the following three criteria used for prioritization: 1) Wetland Loss, 2) Wetland Threats, and 3) Wetland Functions and Values. Within the Chenier Plain region of the upper Texas Gulf coast, the Regional Plan identified the following four areas as “Texas Priority Wetlands for Acquisition Consideration”: 1) Middleton Marsh, 2) Horseshoe Marsh, 3) Lower Marsh, and 4) Robinson Bayou Marsh. Each of these four wetland sites meets all threshold criteria and qualifies for acquisition consideration under provisions of the National Wetlands Conservation Plan. All four of these wetlands sites are included in this expansion alternative.

This Alternative includes the Big Hill Bayou marsh west of J. D. Murphee State Wildlife Management Area. In combination with the Willow Slough Marsh to the east, this is the largest freshwater marsh remaining in Texas. This significant, high-quality palustrine wetland would provide an additional important freshwater marsh component and could be managed in connection with the adjacent Willow Slough Marsh on the North Unit of McFaddin NWR.

The USFWS defined the various wetland types in Classification of Wetlands and Deepwater Habitats of the United States (FWS/OBS-79/31, December, 1979). Further, the USFWS classified seven of these wetland types as “decreasing” in its Land Acquisition Priority System (LAPS). The “decreasing” wetland types are; 1) Palustrine Emergent, 2) Palustrine Forested, 3) Palustrine Scrub-Shrub, 4) Estuarine Intertidal Emergent, 5) Estuarine Intertidal Forested, 6) Estuarine Intertidal Scrub-Shrub, and 7) Marine Intertidal. Using National Wetlands Inventory data available at <http://nwi.fws.gov>, the USFWS’ Region 2 GIS Coordinator mapped the proposed acquisition areas identifying the wetland areas and the areas of aggregated decreasing wetland types (see Map # in Chapter 3, Affected Environment). Using the seven aggregated decreasing wetland types, he developed summary tables which compare decreasing wetland types to non-decreasing wetland types and wetlands to uplands. A summary table is presented for each Alternative as a whole and a summary table is presented for each refuge’s separate boundary expansion.

Over 9 million acres of native tallgrass prairie once occurred along the western Gulf Coast in Texas and Louisiana (Smeins *et al.* 1991). Based on remnant stands of native grasslands, prairies on the Upper

	Acres	Percentage of Boundary Expansion
<b>Boundary Expansion</b>		
Alternative D	104,120	100%
<b>Habitat Type (Upland or Wetland) of Alternative B Expansion</b>		
Uplands	29,690	29%
Wetlands	74,430	71%
Declining Wetland Types	67,640	
Non-declining Wetland Types	6,790	

Texas Coast were characterized by little bluestem, brownseed paspalum, and Indiangrass or eastern gammagrass and switchgrass associations, depending on hydrology (Diamond and Smeins 1984). It is now estimated that 99.8% and 99.6% of little bluestem prairies and eastern gamma

grass/switchgrass prairies, respectively, have been lost in Texas (McFarland 1995). The little bluestem-brownseed paspalum community has been identified as a “threatened natural community” and the eastern gammagrass-switchgrass community has been identified as an “endangered natural community” by the Texas Organization for Endangered Species (Diamond *et al.* 1992). The Texas Organization for Endangered Species (TOES) defines “threatened natural community” as any series-level natural community vulnerable to extirpation in Texas, with six to twenty occurrences in Texas and 100 or fewer occurrences globally. TOES defines “endangered natural community” as any series-level natural

community in immediate danger of extirpation in Texas, with five or fewer known occurrences in Texas and 100 or fewer occurrences globally. Both communities are assigned a Global conservation status rank of “Critically Imperiled” (G1) by The Nature Conservancy (2002).

Many animal species typical of northern prairies, such as Henslow’s Sparrows, Smooth Green Snakes, and Prairie Voles, were all found year-round in the Gulf coastal prairies. Dickcissels still nest in these coastal grasslands, and many other avian species utilize Gulf coastal prairies as wintering and/or migratory habitat. Many of the birds that would benefit from protection and management of native coastal prairie habitats under this Alternative are species that are declining in the Coastal Prairies Region of Texas (Shackelford and Lockwood 2000), and/or are among several species recently listed by the USFWS as “Avian Species of Conservation Concern” in the Gulf Prairies Bird Conservation Region (USFWS 2002). For example, Mottled Duck, White-tailed Hawk, Northern Bobwhite, Yellow and Black Rail, Buff-breasted Sandpiper, Short-eared Owl, Sedge Wren, and LeConte’s Sparrow are all Avian Species of Conservation Concern that would benefit from conservation of prairie habitats.

The Mottled Duck is a southern species that spends its whole life cycle in coastal prairies and adjacent marshes. The historical prairie-wetland continuum of the upper Texas coast provided nesting cover and brood habitat in close proximity. In a study of Mottled Duck nesting in agricultural lands in Louisiana, the habitat category that was most like native coastal prairie, permanent pasture with knolls, provided better nesting habitat than any other (Durham and Afton 2003). The dense nesting cover and mima mounds that are characteristic of coastal prairie probably provided excellent nesting habitat for resident Mottled Ducks. Stutzenbaker (1988) identified shallow depressional wetlands found in the prairie zone, known as “sennabean ponds,” as valuable brood rearing habitat. Protecting extant coastal prairie and restoring adjacent prairie and wetland habitats will increase quality nesting habitat for Mottled Ducks on the upper Texas coast.

Statewide in Texas, the coastal prairie has seen the greatest industrial development since World War II (Schmidly 2002). Most of the original coastal prairie has been lost because of direct conversion to other cover types, i.e. improved pasture, cultivated rice and other crops, and industrial, urban or suburban development. Additionally, remaining areas have been altered through a number of factors, primarily changes in fire, herbivory, and hydrology. Native prairies managed as pastures face such threats as homogenized burn regimes, overgrazing, and application of broadleaf herbicides. All these management practices are thought to reduce the floristic diversity that exemplifies coastal prairies (Allain and Johnson 1997). The introduction of non-native plant species has also impacted native coastal prairies on the Gulf Coast, and invasive exotic species such as Chinese tallow pose a significant threat to remnant prairies.

The USFWS’ proposed boundary expansions of the Moody and Anahuac NWRs under this Alternative contain important coastal prairie habitats. The Nature Conservancy’s Gulf Coast Marshes and Prairies Ecoregional Conservation Plan identified the “Middleton Prairie” and “Robinson-Oyster Bayou” areas in Chambers County as important conservation areas because they contain remnants of both “Critically Imperiled” prairie plant communities (The Nature Conservancy 2002). Both areas contain an historical topographic feature called “mima mounds”. These mounds provide the topographic and hydrological variability believed responsible for much of the floristic diversity found in high quality coastal prairies (Grace *et al.* 2000).

This Alternative also includes some additional lands north of the current Anahuac NWR north to FM Road 1985. These lands are former coastal prairie which has been converted to agricultural uses, mostly rice farming or improved pasture. Part of these croplands would be incorporated into the refuge cooperative rice farming program to provide supplemental food sources for migratory waterfowl and wetland habitat for other migratory birds, and other croplands would be managed as moist soil units. Virtually all of the improved pasture and the remainder of the cropland would be targeted for future restoration to native coastal prairie. The native coastal prairie restoration would include restoration of small emergent wetlands which, in conjunction with the prairie components, would provide much important nesting and brood-rearing habitat for Mottled Ducks.

This Alternative includes the Taylors Bayou area in Jefferson County, which is similar to the other important bottomland hardwood forests in East Texas river valleys. The primary habitat type is forested wetlands which provide high quality wintering, migrational, and nesting habitats for waterfowl and other wetland-dependent migratory bird species. It is estimated that Texas had lost 63% of its original bottomland hardwood forests by 1980 (Frye 1987) and future declines in bottomland hardwoods are expected from continued land use changes. Studies of songbird migration using radar indicate that the Taylors Bayou bottomlands area is a regionally important annual “fall out” area for neotropical migratory songbirds making trans-Gulf migrations during spring (Dr. Sidney Gauthreaux, personal communication). The palustrine forested wetlands are a nationally-recognized declining wetland type and are considered a unique community type within the Texas Chenier Plain.

## INDIVIDUAL REFUGE BOUNDARY EXPANSIONS FOR REFUGE BOUNDARY EXPANSION ALTERNATIVE D

### Expansion of Moody NWR Boundary – 7,920 Acres

	Acres	Percent of Expansion
<b>Moody NWR Boundary Expansion</b>	<b>7,920</b>	<b>100%</b>
Total Uplands	3,260	41%
Total Wetlands	4,660	59%
Declining Wetland Types	3,810	
Non-declining Wetland Types	850	

The expansion for Moody NWR is the same as proposed in Refuge Boundary Expansion Alternative C. The expansion area includes the areas immediately north of the current refuge boundary up to FM Road 562. The Lake Surprise area was identified in the “Category 8 Plan” as the #4 “Preservation Effort Priority”. The area is predominately marsh, being

largely freshwater and intermediate marsh, and includes several lakes with Lake Stephenson being the largest. FM Road 562 runs along a low ridge between the 5 and 10 foot contours and separates the drainage between Trinity Bay and East Bay. The low ridge consists of coastal prairie with many pothole wetlands and “mima” mounds. Mima mounds are a historic topographic feature in the region’s coastal prairies which provide the topographic and hydrological variability believed responsible for much of the floristic diversity found in high quality coastal prairies (Grace *et al.* 2000). This Alternative also includes an area to the west of FM Road 562 which drains into Trinity Bay. This area contains some coastal marsh but is largely coastal prairie with many pothole wetlands and “mima” mounds.

### Expansion of Anahuac NWR Boundary – 64,910 Acres

	Acres	Percent of Expansion
<b>Anahuac NWR Boundary Expansion</b>	<b>64,910</b>	<b>100%</b>
Total Uplands	22,020	34%
Total Wetlands	42,890	66%
Declining Wetland Types	39,340	
Non-declining Wetland Types	3,550	

The wetlands portion of the expansion area consists primarily of five coastal marsh areas: Robinson Bayou Marsh, Oyster Bayou Marsh, Middleton Marsh, Horseshoe Marsh, and Lower Marsh. All five of these marsh areas are high-value wintering waterfowl habitats and have been identified as high-priority acquisition areas in USFWS documents: The “Category 8

Plan” ranked Oyster Bayou Marsh as #1 and Robinson Bayou Marsh as #10 in “Preservation Effort Priority”. The Regional Wetlands Concept Plan identified Middleton Marsh, Robinson Bayou Marsh, Horseshoe Marsh, and Lower Marsh as “Texas Priority Wetlands for Acquisition Consideration”. All five of these marshes are high-value, largely intermediate marshes having some freshwater marsh components. The Robinson Bayou Marsh area, which is the largest wetland area in the expansion, extends from the current western boundary of Anahuac NWR all the way along East Bay to the boundary of Moody NWR. This is the largest remaining coastal marsh along East Bay. The Oyster Bayou Marsh area consists of both the upper and lower marshes east of Oyster Bayou which is surrounded virtually on three sides by

the current Anahuac NWR. The Middleton Marsh area consists of the rest of the upper marsh between Elm Bayou and State Hwy. 124. Horseshoe Marsh is on Bolivar Peninsula immediately north of High Island and west of State Hwy. 124. Lower Marsh is also on Bolivar Peninsula and is the large undeveloped marsh to the west of High Island. These two tidal influenced marshes are hydrologically separated by the GIWW from the existing Anahuac NWR. In addition to these five major marshes, this Alternative includes the marsh area known as Elmgrove Point north of the GIWW on Bolivar Peninsular. This is a tidal influenced marsh with a unique, large coastal woodlot.

Another portion of the expansion is in the area west of Oyster Bayou from FM Road 1985 south to the existing refuge boundary. This area includes the main entrance road to Anahuac NWR used by both visitors and staff. This area consists of primarily of coastal prairie, much of which has been converted to agricultural uses, and includes some fresh marsh and riparian woodlands. Acquisition of this area would facilitate improved management of the main refuge entrance and provide opportunities to improve and expand recreational uses including hunting, wildlife observation and photography.

The last portion of the expansion consists of two major coastal prairie components. The largest area is the "Middleton Prairie" which contains a large contiguous block of native tallgrass prairie and some converted agricultural lands between Oyster Bayou and the East Fork of Double Bayou north of FM Road 1985. The other area is the coastal prairie to the northeast of the Robinson Bayou Marsh lying on the east side of FM Road 562. Both of these prairie areas contain small freshwater marshes and a large number of natural prairie "pothole" wetlands.

### Expansion of McFaddin NWR Boundary – 29,890 Acres

	Acres	Percent of Expansion
<b>McFaddin NWR Boundary Expansion</b>	<b>29,890</b>	<b>100%</b>
Total Uplands	4,260	14%
Total Wetlands	25,630	86%
Declining Wetland Types	23,380	
Non-declining Wetland Types	2,250	

The coastal wetlands portion of this expansion consists of several coastal marshes included under different rationales. First, there are two areas which are gaps in the refuge boundary from earlier single-ownership based expansions. One area consists of a number of separated tracts in the marsh just to the east of High Island. The other area is two separate marsh

tracts on the south side of the GIWW in the vicinity of Star Lake. Both areas would be considered part of McFaddin Marsh which was identified in the "Category 8 Plan" as the #5 "Preservation Effort Priority". Second, there is the northern part of Willow Slough Marsh immediately adjacent to the current refuge boundary. This area is a very high quality freshwater marsh which is hydrologically linked to the rest of Willow Slough within the existing McFaddin NWR boundary. Third, there is the large Big Hill Bayou marsh west of J. D. Murphee State Wildlife Management Area. In combination with the Willow Slough Marsh, this is the largest freshwater marsh remaining in Texas.

The other portion of this expansion is the bottomland hardwoods along and between the two forks of Taylors Bayou downstream from the Fannet Oilfield. This area is primarily forested wetlands with some converted agricultural lands between the two forks. This is a regionally important "fall out" area for neotropical migratory songbirds making trans-Gulf migrations during spring. Current agricultural areas would be restored to forested wetlands.

## Expansion of Texas Point NWR Boundary – 1,400 Acres

	Acres	Percent of Expansion
<b>Texas Point NWR Boundary Expansion</b>	<b>1,400</b>	<b>100%</b>
Total Uplands	150	11%
Total Wetlands	1,250	89%
Declining Wetland Types	1,110	
Non-declining Wetland Types	140	

The expansion for Texas Point NWR is the same as proposed in Refuge Boundary Expansion Alternative C. Much of the expansion area consists of a number of small tracts immediately adjacent to the current refuge boundary. These tracts are coastal marsh, small coastal woodlots, or a combination of the two.

Acquisition of these tracts would

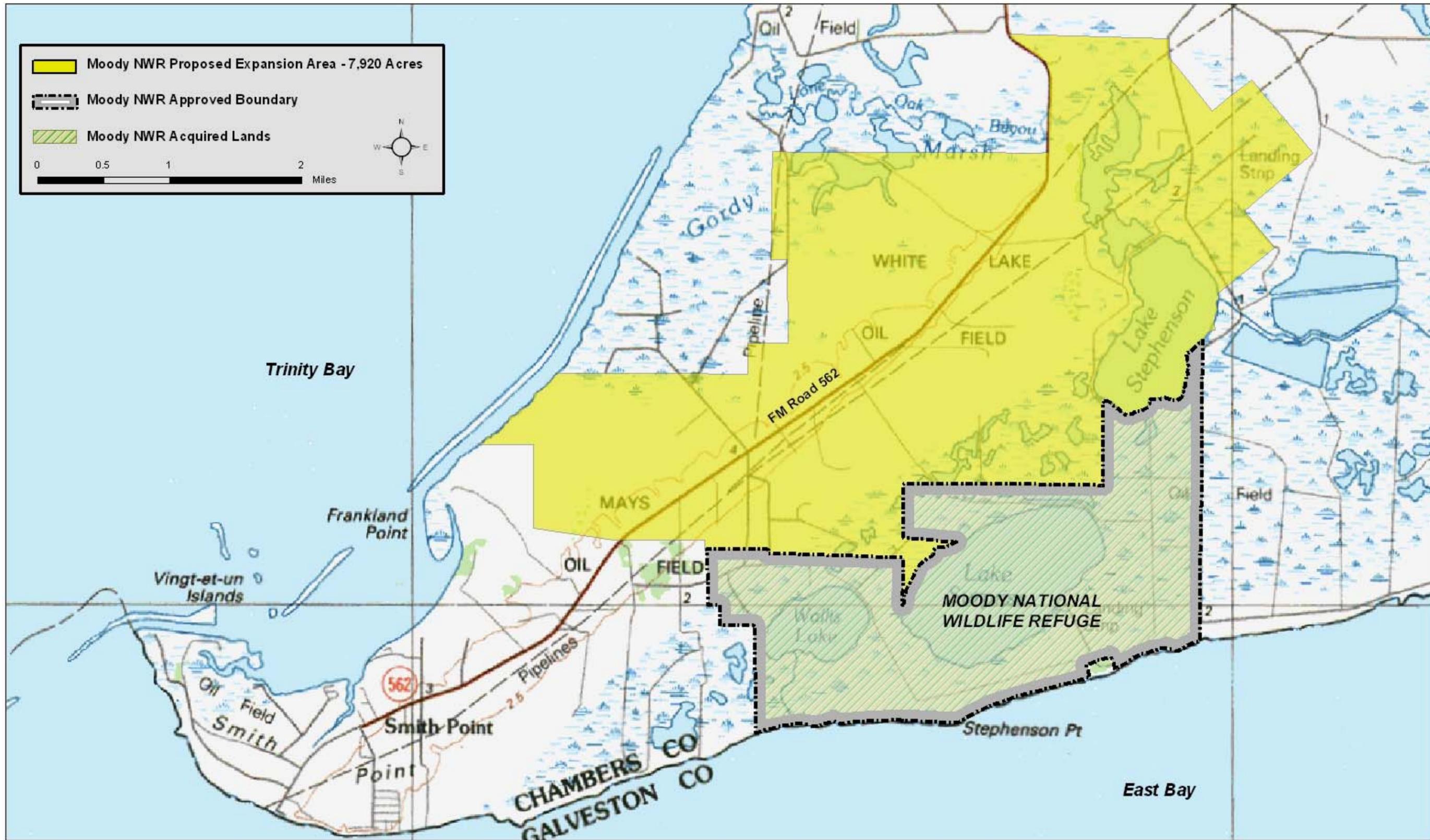
provide the refuge with a much more manageable boundary and provide more much needed visitor access. In addition, this Alternative includes all of the remaining marsh area south of State Highway 87 between the exiting refuge and Sea Rim State Park. All of this expansion area would fall within the Sea Rim Marsh which was identified in the “Category 8 Plan” as the #7 “Preservation Effort Priority”.

### **Maps for Individual Boundary Expansions for Refuge Boundary Expansion Alternative D**

Maps depicting the individual boundary expansions for Refuge Boundary Expansion Alternative D for Moody, Anahuac, McFaddin and Texas Point NWRs are on the following pages.

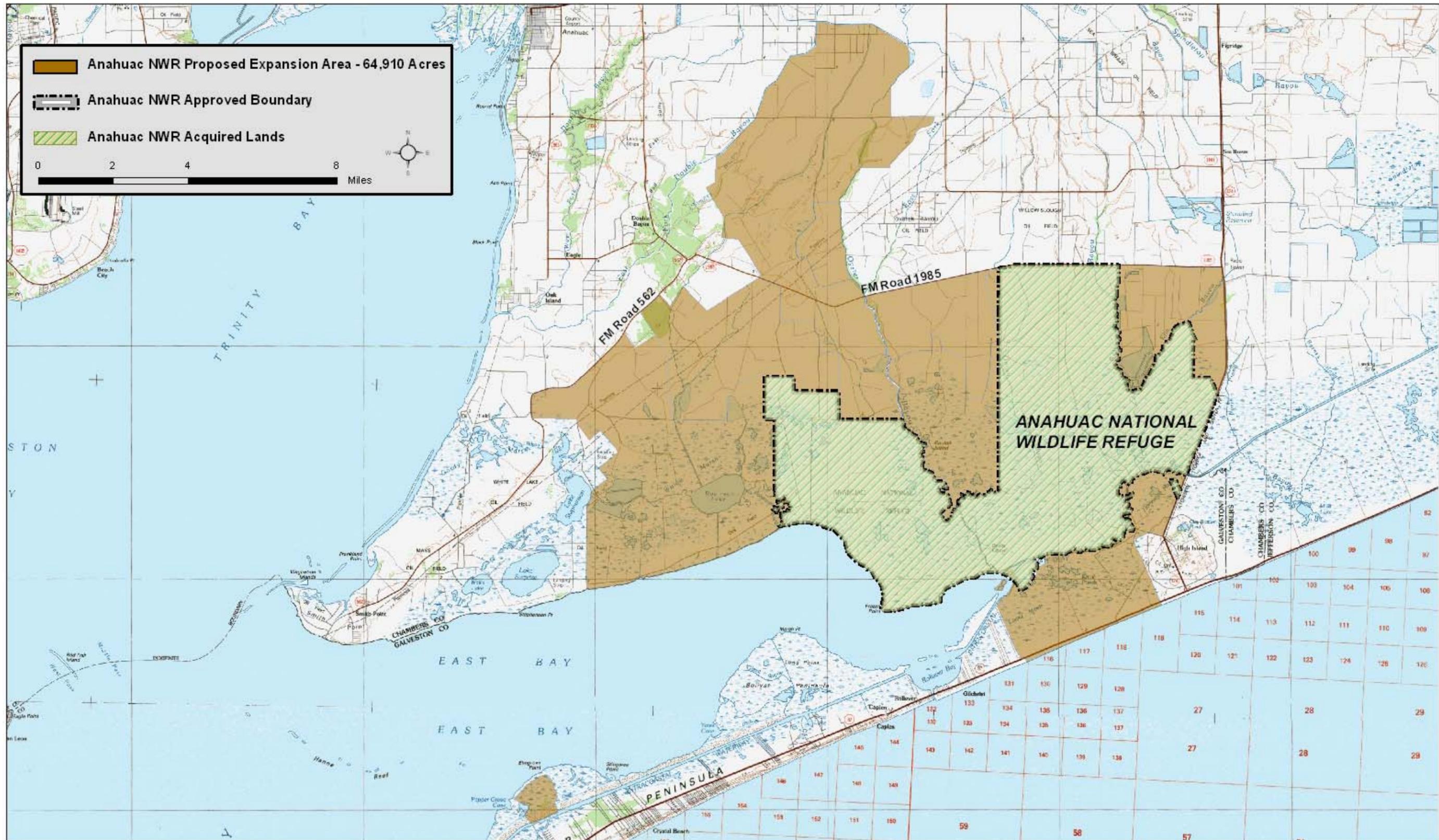


# Moody National Wildlife Refuge Expansion - Alternative D



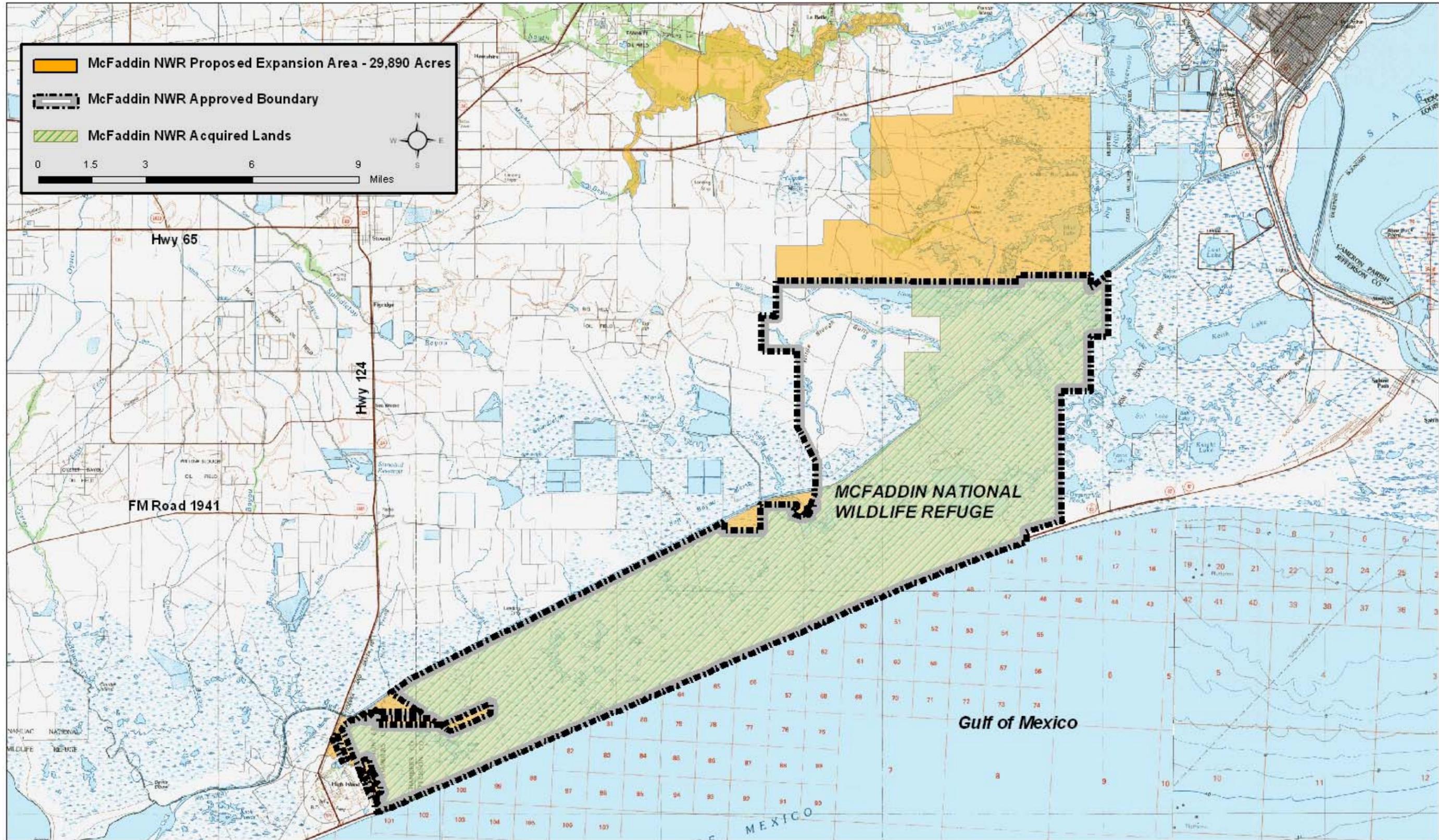


# Anahuac National Wildlife Refuge Expansion - Alternative D





# McFaddin National Wildlife Refuge Expansion - Alternative D





# Texas Point National Wildlife Refuge Expansion - Alternative D

