2003 AMENDED BIOLOGICAL OPINION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
c/o TAMU-CC, Campus Box 338
6300 Ocean Drive
Corpus Christi, Texas 78412

May 23, 2003

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International Boundary and Water Commission
The Commons, Building C, Suite 310
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El Paso, TX 79902

Consultation No. 2-11-91-F-144

Dear Ms. Waggoner:

This document transmits the U.S. Fish and Wildlife Service's (Service) reinitiated Final Biological Opinion based on our review of the United States Section, International Boundary and Water Commission's (USIBWC) ongoing implementation of vegetation management practices for the Lower Rio Grande Flood Control Project (LRGFCP) in Cameron, Hidalgo, and Willacy Counties, Texas. We have analyzed the proposed action and its effects on the endangered ocelot Leopardus (Felis) pardalis, listed throughout its entire range that includes Texas, Arizona, Mexico to Central and South America, and the Gulf Coast jaguarundi Herpailurus yagouaroundi cacomitli that ranges from Texas to Mexico, in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). USIBWC's request and information provided for reinitiation of the 1993 formal consultation and Biological Opinion was considered complete by the Corpus Christi, Texas Ecological Services Field Office (CCESFO) on December 11, 2002.

This biological opinion is based on information provided in the April 2002 "Threatened and Endangered Species Report in Support of the Environmental Impact Statement for the Maintenance Program of the Lower Rio Grande Flood Control Project", Volume III of the Preliminary Draft Environmental Impact Statement (PDEIS) entitled Alternative Vegetation Management Practices for the LRGFCP Cameron, Hildago, and Willacy Counties, Texas, as well as telephone conversations, field investigations, and other relevant sources of information. A complete record of this consultation is on file at the CCESFO.

Consultation History

The currently proposed project is sponsored by USIBWC. The vegetation maintenance program was established to fulfill the United States' obligation to protect life and properties in the United States and Mexico from Rio Grande flooding events, as directed by Congress under International Boundary and Water Commission (IBWC) Minutes No. 212 and No. 238. The history of consultation for the currently proposed project (2-11-91-F-144) is as follows:

May 6, 1993	The Service issued a Biological Opinion (BO) for the USIBWC vegetation maintenance program along the lower Rio Grande.
June 1, 1993	The Service responded to a March 26, 1993, USIBWC letter requesting approval for the proposed locations of the vegetation corridor, approximate time schedules for possible revegetation efforts to be conducted by the USIBWC and the location of the proposed six-foot wide Riverview Municipal Golf Course golf cart paths in and around the vegetation corridors. The Service approved the location of the 10-meter wide proposed vegetation corridor and determined Federally listed species were not likely to be impacted by the proposed construction of the six foot wide golf cart path.
July 13, 1993	The Service and the USIBWC met to discuss components of the BO, such as the Walker's manioc survey results, current and proposed work on the vegetation maintenance program, maps, Service river properties along the river and compatibility reports, conservation easement incentives and interior floodway wildlife corridor plan.
August 9, 1993	USIBWC requested permission to mow a strip on the following three units of the LRGV NWR: Boscaje de la Palma Unit, Jeronimo Bend Unit, and Champion Bend Unit. USIBWC sent a letter to the Service reporting the results of the Walker's manioc (Manihot walkerae) surveys conducted jointly by the Service and USIBWC in early June 1993 in accordance to the 1993 BO. Windshield and ground surveys were conducted to identify potential habitat subject to USIBWC vegetation management activities and to determine the presence of the plant species in those areas initially identified as potential habitat. Seven areas, all located within the off-river levee system, were identified as needing ground or pedestrian surveys. These were in the Main Floodway, Arroyo Colorado and North Floodway. No Walker's manioc were located in six of the seven sites. The seventh site, in the North Floodway, east of FM 1015, was not surveyed because vegetation

management activities were not scheduled for that year. The area would be surveyed at the next favorable time or prior to any USIBWC scheduled vegetation management in the area.

August 26, 1993	The LRGV NWR response to USIBWC's August 19 request stated that bulldozing and mowing would not be a "compatible" activity because wildlife habitats that would have been undisturbed for as long as 8 years would be altered or lost. However, they had determined that hand trimming of vegetation on vertical banks and mowing of access routes could be accomplished without "materially interfering with or detracting from the purpose(s) for which the refuge was established. The LRGV NWR was prepared to issue USIBWC a Special Use Permit to conduct those activities as specified and stated they were willing to continue to work with USIBWC.
October 14, 1993	The USIBWC provided the LRGV NWR a hydraulic analysis and clarification of the BO to resolve the refuge's concerns of compatibility.
April 13, 1994	The USIBWC submitted the proposed LRGFCP Off-River Wildlife Travel Corridor Plan in compliance with the 1993 BO.
January 4, 1995	The Service provided a letter to the USIBWC stating the proposed LRGFCP Off-River Wildlife Travel Corridor Plan will meet the requirements as outlined in the Services May 6, 1993 BO. The Service, with the assistance of the recently established Student Conservation Association/Americorps Program would be providing technical advice to the USIBWC for the identification and establishment of the Plan for designation of a minimum 33-ft wide (10 meter) vegetated travel corridor immediately outside of the Off-River Flood way System levees, within the USIBWC right-of-way, in those areas where such corridors can provide linkages to cat habitat.
February 9, 1995	The Service received a copy of a memorandum from the LRGV NWR Project Leader to the Deputy Project Leader at the LRGV NWR Complex to re-contact the City of Brownsville and The Nature Conservancy (TNC) to assist in completing the municipal golf course habitat planting.
March 3, 1995	LRGV NWR received letter from Cameron County Commissioner regarding planting habitat corridors on the Brownsville golf course. He recommended the USIBWC could facilitate the plan by working through the City of Brownsville lease for the golf course to ensure the wildlife travel corridors were planned and protected from mowing and clearing by both the City and the USIBWC since the County did not have funds for

revegetating the areas. USIBWC could also provide "in kind" assistance in the breaching of the golf course levee in appropriate locations to accommodate the planned corridor.

October 18, 1995	The Service provides USIBWC information about the presence of habitat along the outside of the Off-River Floodway System levees, LRGV NWR tracts and Texas Parks and Wildlife Department (TPWD) managed areas, and proposed location of the wildlife corridor based on connectability to existing and potentially suitable cat habitat.
April 4, 1996	The USIBWC and the LRGV NWR project leader discussed several programs available through the Natural Resources Conservation Service (NRCS) (formerly the Soil Conservation Service) that may be available for resolving USIBWC's dilemma of acquiring wildlife corridor easements along the Rio Grande floodway.
April 4, 1996	The LRGV NWR reports to the National Fish and Wildlife Foundation (NFWF) that the USIBWC would be interested in seeking help from the Wetlands Reserve Program Proposal to help them meet their habitat restoration and flood control obligations in the valley.
May 10, 1996	The USIBWC issued a press release announcing that the USIBWC and the Service had signed a Memorandum of Agreement (MOA). The MOA specifically stated that the USIBWC would have the responsibility of modifying its vegetation control program on its LRGFCP to avoid jeopardizing the existence of the ocelot, jaguarundi, and Walker's manioc.
May 20, 1996	The Service's Project Leader at the Lower Rio Grande Valley National Wildlife Refuge Complex contacted the USIBWC concerning a partnering opportunity to acquire the riparian easements as required by the 1993 BO.
June 11, 1996	The Service signs and provides an executed copy of the Memorandum of Understanding No. 1448-00002-96-0816 with the USIBWC for carrying out respective duties and responsibility along the lower Rio Grande.
June 12, 1996	The USIBWC responded to the May 20, 1996 Service letter stating they were interested in working with the Service, NRCS, and NFWF to establish wetlands conservation easements along portions of the lower Rio Grande to help USIBWC in their efforts to acquire the wildlife travel corridor and maintenance easements that had been problematic since the issuance of the 1993 BO.

November 19, 1996	The USIBWC, NRCS, NFWF and Santa Ana NWR met to discuss easement acquisitions and additional information needs such as critical widths upstream for maintenance purposes and the maximum width of the maintenance zone.
November 25, 1996	The USIBWC provided NFWF a copy of the executed Memorandum of Understanding IBM 96-53, Rio Grande Wetland Reserve Program Partnership.
October 14, 1997	The Service requested assistance of USIBWC in finding ways to enhance resource protection and find alternatives for the 33-foot wide mature/climax vegetated wildlife corridor adjacent to the Rio Grande or mowed areas as agreed to in the1993 BO, in context of the United States Border Patrol's (USBP) illumination practices and patrol needs along the Rio Grande.
February 10, 1998	The Service received a response from the USIBWC indicating that although they were not willing to relocate the wildlife corridor, they were willing to participate in the selection of suitable vegetation for planting within the corridor designated by the 1993 BO.
February 19, 1998	The Service discussed development of an Environmental Impact Statement (EIS) for Lower Rio Grande Valley Flood Control Area with Linda Ash of the United Sates Army Corps of Engineers (USCOE).
February 26, 1998	The Service participated in a meeting with USIBWC and the USCOE to discuss development of a maintenance EIS for the Lower Rio Grande Flood Control Area. USIBWC indicated that they would mow 75 ft from the water's edge and establish the wildlife corridor behind the mowed area. The USIBWC indicated the need to mow on the Boscaje de la Palma Tract and other tracts (Champion Bend, Phillips Banco, Jeronimo Banco) of the wildlife refuge. The USIBWC's goal is to maintain 85% flows in the channel of the river, and have maximum flow of 20,000 ft^3/sec. USIBWC indicated that mowing season was from June to November, which was noted by Service personnel to be in conflict with migratory bird nesting season. The Service indicated that USIBWC and USCOE would be provided available survey information on threatened and endangered plants in the area, habitat descriptions, recommended survey methods, and recommended survey seasons.
April 14, 1998	USIBWC provided a copy of an internal memorandum canceling license agreement LSF/G-175 with the Brownsville City Manager regarding the Fort Brown Memorial Golf Course. Also enclosed was a draft License

No. LSF/G-1547 prepared to be issued to Southmost Union Junior College to operate, and maintain the Fort Brown Memorial Golf Course, located on USIBWC owned land in the City of Brownsville, Cameron County, Texas.

September 9, 1998 — The Service participated in an USIBWC Scoping Meeting for development of an EIS. Agencies and private organizations in attendance included the USCOE, Sierra Club and the USBP. The USCOE indicated they would assist the USIBWC in development of the EIS. USIBWC stated that the comments for the notice of intent were due on October 26, 1998 as the official notice was published on August 26, 1998. The Sierra Club voiced concern over the loss of important habitat to maintain biodiversity of the river's ecosystem. They also indicated the river flow values quoted by USIBWC were established only after a hurricane and may be excessive. The USBP indicated they had received additional employees and equipment and would be impacting the same general area. The USIBWC and USCOE indicated that habitat analysis for key species and water quality (as removing brush could increase sedimentation and transportation effects)would be considered in the development of the EIS.

October 16, 1998 — The Service completed an Informal Consultation (2-11-98-I-379) with USIBWC concerning the effects of the proposed action covered in the EIS. The Service indicated that the proposed action would have negative impacts to native vegetation, Federal and State-listed Endangered Species and would contribute significantly to the cumulative impacts in the area due to increased activity of the USBP and the proposed USIBWC actions.

November 12, 1998 — The Service participated in a meeting with USBP and USIBWC describing what mowing activities had occurred recently and what was the anticipated mowing needs in the immediate future.

March 18, 1999 — The Service participated in a USIBWC meeting to discuss the EIS. The Habitat Evaluation Procedure (HEP) was discussed, explained and a copy for review was supplied to the Service.

May 25, 1999 — The USIBWC submitted a Draft Action Plan for the LRGFCP Environmental Commitments prepared in coordination with Design, Operations and Maintenance and General Services Divisions of the USIBWC. The plan was submitted to Team Members, including the Service for review.

July 29, 1999 — The Service completed an Informal Consultation (2-11-99-ALI-132) for the City of Harlingen concerning the proposed construction of a Hike and Bike trail that follows the Arroyo Colorado and may impact similar habitats near the proposed action by USIBWC.

September 21, 1999	The Service participated in an USIBWC meeting to discuss the wildlife corridor. The USIBWC proposed to establish a 10-meter wide wildlife corridor at the toe of the river levee. USIBWC only had the right-of-way to the levee and not beyond. The LRGV NWR completed a compatibility determination in 1996 for mowing 75 ft of the Rio Grande's edge on any refuge tract within River Mile (RM) 28.00 and RM 62.50 and plant surveys of the same area were completed by a Service botanist. The potential for Safe Harbor agreements with landowners in the wildlife corridor was discussed. The Service reiterated USIBWC 's responsibility under Section 7 (a) (1) requirements for the recovery of the ocelot and jaguarundi.
December 8, 1999	The Service provided comments on the draft EIS for the USIBWC LRGFCP to Wendy Lopez and Associates, agents for USIBWC . The Service indicated a preference for Alternative 2, the modification of the project levee system.
January 4, 2000	The Service provided corrections for typographical errors in its comments on December 8, 1999 to Wendy Lopez and Associates.
July 24, 2000	The USIBWC and the Service met in El Paso, TX to provide their respective project briefings and to discuss USIBWC Environmental Commitments on the LRGFCP. Topics included flora and fauna protected by the Service on the LRGV NWR, physical features of the LRGFCP, status of the draft EIS, history of the 1993 section 7 consultation, an overview of Service funding sources for land acquisitions, revegetation materials and efforts.
June 27, 2001	The Service was provided a copy of a letter from the USIBWC Realty Officer sent to the Judge of Cameron County formally requesting his assistance in obtaining additional rights-of-way easements for the LRGFCP, to fulfill environmental commitments.
July 12, 2000	The Service and USIBWC met to establish a joint approach to fulfill environmental commitments on the LRGFCP.
April 29, 2002	The Service received a copy of USIBWC's PDEIS for Alternative Vegetation Management Practices for the LRGFCP .
June 4, 2002	The Service participated in a meeting with USIBWC to discuss the specifics of the hydraulic modeling report contained in the draft EIS, the need for a Memorandum of Understanding (MOU) for USIBWC activities

	on refuge property, Compatibility Determination for USIBWC activities on refuge property and section 7 consultation with a Biological Assessment (BA) and BO for the vegetation management Environmental Impact Statement.
June 16, 2002	USCOE emailed the Service with a notice they were extending the comment period on the PDEIS to June 28, 2002.
June 17, 2002	The USCOE and consultants emailed the Service and other attendees minutes of the June 4, 2002 meeting,
June 27, 2002	The Service received a copy of a handout entitled "Development of Property Ownership Maps for Real Estate Tracts in Cameron County, Texas Along the Rio Grande & USIBWC Levees from River Mile 28.0 to River Mile 62.5, Scope of Work" at the meeting held on this date.
July 2, 2002	The Service provided USIBWC and USCOE with a summary of comments concerning the draft EIS. The Service suggested that formal consultation be re-initiated by USIBWC as the Service could not concur with the finding by the USIBWC and USCOE that the proposed action would "not likely adversely affect" Federally-listed endangered species. The Service requested a summary report of accomplishments be submitted to assist the Service in determining the appropriate course of action by either, amending the current BO or issuing a new one.
August 23, 2002	USIBWC submitted a summary report of accomplishments for review by the Service as a result of the July 2, 2002 meeting and requested re-initiation of formal consultation with the Service concerning the LRGFCP. A meeting was set to discuss the report and other information needed to begin the section 7 process.
October 2, 2002	Service personnel met with USIBWC to discuss the draft EIS, summary report of accomplishments, reasons why various components were not accomplished, the outline of USIBWC's actions to fulfill those commitments and additional information on the coordination workgroup and meaning of bed and banks. Also discussed were the Brownsville Public Utility Board's (PUB) proposed Brownsville Weir project and its effects on flooding, the acquisition of conservation easements, and availability of funding for same.
October 17, 2002	Service receives USIBWC's decision to declare the current maintenance practices as the preferred alternative in the draft EIS. USIBWC also submitted a list of proposed members for the coordination workgroup to

be assembled to assure specific milestones are met and to resolve any problems that may have developed during the previous year. They proposed representatives from USIBWC, the Service, Cameron, Hidalgo, and Willacy counties, TPWD, and the Lower Rio Grande Water Committee be included. They suggested that USIBWC's Program and Project Management Division serve as coach to ensure that the BO and annual reports adhere to agreed upon time lines. The letter also served as notification to the Service that USIBWC had informed PUB that they agreed with the results of the PUB study indicating that the Brownsville Weir will not cause a significant increase on flood stages. USIBWC defined the bed and banks of the Rio Grande. The bed of the river is the channel bottom. The lower bank is the intermittently submerged portion of the bank from the normal water line down to the channel bottom (the river's bed). The bank or upper bank extends from the break in the normal slope of the surrounding land to the normal high water line. Since this area is normally inundated by river flow, there would be no maintenance or wildlife travel corridor easements within these areas. USIBWC also stated that it had received limited funding for environmental commitments which included such things as ongoing ownership mapping, surveying, appraisals and eventual acquisition of easements.

November 25 , 2002 — Service personnel had a telephone conversation with agents for USIBWC and discussed a preliminary time table for an amendment of the BO and additional funding alternatives for wildlife corridor easements.

December 11, 2002 — An internal Service meeting was held to discuss whether all information was present to begin the amendment or issuance of a new BO. Because of the cumulative impacts of other proposed actions within the same action area and new information, it was decided USIBWC would be better served by the issuance of a new BO. On that same date, the Service contacted USIBWC per telephone to inform them of the decision and that the Service would be issuing a new BO. According to the timeline a Final BO should be issued before or on April 25, 2003.

January 13, 2003 — In a telephone conversation between the USIBWC and the Service, two priority actions were discussed which would delay work on the USIBWC BO, but it was the intent of the Service to provide a Draft BO within six weeks for review and comment. USIBWC and the Service continued to work towards completing a draft for review and comment as time permitted.

March 19, 2003 — In an update to the USIBWC, the Service informed USIBWC that the Draft BO was undergoing staff review.

April 1, 2003	The Service informed USIBWC that the Draft BO was under review by the CCESFO Field Supervisor.
April 9, 2003	The Service informed the USIBWC that the CCESFO Field Supervisor's review of the Draft BO was completed.
April 10, 2003	The Service requested the definition of "normal water line" from the USIBWC.
April 16, 2003	USIBWC provided a definition of the use of "normal flow" or "normal water line" terminology.
April 18, 2003	The Draft BO was submitted to USIBWC for review and comment. The USIBWC and the Service agreed to continue coordinating on the Draft BO through its review and comment. Because review and comment may extend beyond the April 25, 2003 date for issuance of the Final BO the Service and USIBWC agreed that USIBWC could proceed with its review as necessary and issuance of the Final BO would occur no later than May 23, 2003. This date would allow USIBWC sufficient time to incorporate a copy of the BO into their Draft EIS.
May 7, 2003	USIBWC provided comments to the Draft BO.
May 19, 2003	The Service contacted USIBWC for clarification of some of the comments.
May 23, 2003	The Service issued the Final BO to USIBWC.

BIOLOGICAL OPINION

I. Description of Proposed Action

Purpose and Need

The IBWC is the international organization responsible for overseeing boundary and water treaties along the 2,000-mile border between the United States and Mexico. It operates within a set of international flood control goals, which have provided the framework for the purpose of and need for the LRGFCP. The goals are:

> Legal Goal - Provide a flood control project that fulfills international treaty requirements, preserves the river channel to define the international boundary, and provides for delivery of irrigation, municipal, and industrial waters.

Management Goal - Provide a flood control project that ensures flood readiness and distributes floodwaters equitably.

Safety Goal - Provide a flood control project that protects against design flow floods and preserves life and property.

Furthermore, USIBWC must fulfill commitments arising from the 1990 Consent Decree and 1993 BO. The pertinent elements of the LRGFCP vegetation maintenance program are based on the need to:

Maintain channel banks to provide adequate flood coveyance.

Equitably divert flood flows into interior floodways.

Remove brush and other obstructions within floodways.

Maintain "The Wildlife Corridor" per the 1993 Service BO and the 1994 LRGFCP Off-River Travel Corridor Plan.

Proposed Project

Under the PDEIS, dated April 2002, four project alternatives are proposed for continuation of a vegetation maintenance program along the Lower Rio Grande. They are as listed:

1) *Prior Maintenance Alternative* - Under this alternative, vegetation maintenance practices as conducted prior to the 1993 BO would occur within the 328 feet (ft) of the river between RM 28.00 and RM 169.14, covering approximately 1,022 acres of land .

2) *No-Action Alternative* - This alternative is a continuation of the current vegetation maintenance practices developed under the 1993 BA and BO and would be maintained within approximately 75 ft of the river between RM 28.00 and RM 62.50, and would cover an estimated 291 acres.

3) *Suspended Maintenance Alternative* - This alternative involved the termination of all vegetation maintenance activities from RM 28.00 and RM 186.00.

4) *Expanded Maintenance Alternative* - This alternative called for an expansion of the current vegetation maintenance practices into additional areas upstream of the segment outlined in the 1993 BO. Vegetation maintenance would occur within approximately 75 ft. of the Rio Grande, covering 874 acres between RM 28.00 and RM 186.00.

All of the alternatives fell between RM 28.00 and RM 186.00 (Figure 1) and assumed a 20 year project life based on estimates of the required time to reach full climax vegetation. Originally, under the PDEIS, the Expanded Maintenance Alternative was considered as the proposed preferred alternative, however, after review and coordination with the Service and LRGV NWR, USIBWC designated the No-Action alternative as the proposed preferred alternative by the USIBWC. This decision was designated as the preferred alternative, in part, due to the USIBWC's inability to accomplish the requirements of the 1993 BO that included consent decree requirements. A wildlife corridor, covering approximately 57 acres would be established under this alternative.

The Current Maintenance practices as conducted in the reach RM 28.00 to RM 62.50 (Figure 2) will be considered the action area for the purposes of this consultation. The action area is divided into eight segments and each segment has specific maintenance practices and conservation measures. They are:

Segment A - Lower End, RM 28.00 to RM 40.00

Segment A includes approximately 12 river miles, from the lower end of the LRGFCP to the downstream end of the National Audubon's Society's (NAS's) Sabal Palm Sanctuary.

1. USIBWC reserves the right to annually mow vegetation in a 75-foot wide strip from the water's edge at the low banks.

2. USIBWC will limit any vegetation clearing along the high bank to trimming the vertical bank vegetation no more than every five years by hand, cutting the branches overhanging the river that may capture flood debris.

3. USIBWC will ensure, in perpetuity, both the safe passage of the design flood flow and the establishment of a minimum 33-foot wide mature/climax vegetated wildlife corridor adjacent to the Rio Grande or mowed areas.

Segment B - Audubon and Vaughan Properties, RM 40.00 to RM 42.40

Segment B includes approximately 2.4 river miles, from the downstream end of the NAS's Sabal Palm Sanctuary to the downstream end of the Service's Boscaje de la Palma Tract.

1. USIBWC reserves the right to annually mow vegetation in a 75-foot wide strip from the water's edge at the low banks.

2. USIBWC will limit any vegetation clearing along the high bank to trimming the vertical bank vegetation no more often than every five years by hand, cutting the branches overhanging the river that may capture flood debris.

3. USIBWC will ensure, in perpetuity, both the safe passage of the design flood flow and the establishment of a minimum 33-foot wide mature/climax vegetated wildlife corridor adjacent to the Rio Grande or mowed areas.

Segment C - Service Property, RM 42.40 to RM 43.50

Segment C includes approximately 1.1 river miles, from the downstream to the upstream end of the Service's Boscaje de la Palma Tract.

1. USIBWC reserves the right to annually mow vegetation in a 75-foot wide strip from the water's edge at the low banks. If mowing is to occur on wildlife refuge property USIBWC will obtain approval from the Refuge Manager at the Lower Rio Grande Valley National Wildlife Refuge.

2. USIBWC will limit any vegetation clearing along the high bank to trimming the vertical bank vegetation no more often than every five years by hand, cutting the branches overhanging the river that may capture flood debris.

3. In consultation with the Service, consider breaching or removing non-project levees or farm levees or other similar structures within the LRGFCP levees. However, in discussions with the Service subsequent to the 1993 BO, both agencies agreed that the farm levees on the Service refuge land in this segment (Boscaje de la Palma) would eventually deteriorate or erode away and breaching or removing were unnecessary actions that could needlessly impact upon the refuge.

4. USIBWC will ensure, in perpetuity, both the safe passage of the design flood flow and the establishment of a minimum 33-foot wide mature/climax vegetated wildlife corridor adjacent to the Rio Grande or mowed areas.

Segment D - Canasta Banco area, RM 43.50 to RM 45.00

Segment D includes approximately 1.5 river miles, from the upstream end of the Service's Boscaje de la Palma Tract to the downstream end of the Restricted Use Zone (RUZ) established by the United States and Mexico in IBWC Minute No. 285.

1. USIBWC reserves the right to annually mow vegetation in a 75-foot wide strip from the water's edge at the low banks.

2. USIBWC will limit any vegetation clearing along the high bank to trimming the vertical bank vegetation no more often than every five years by hand, cutting the branches overhanging the river that may capture flood debris.

3. USIBWC will ensure, in perpetuity, both the safe passage of the design flood flow and the establishment of a minimum 33-foot wide mature/climax vegetated wildlife corridor adjacent to the Rio Grande or mowed areas.

Segment E - Los Tomates area, RM 45.00 to RM 54.00

Segment E includes approximately 9.0 river miles, from the downstream end of the RUZ to the upstream end of the Fort Brown Golf Course levee.

1. USIBWC reserves the right to annually mow vegetation in a 75-foot wide strip from the water's edge at the low banks.

2. USIBWC will limit any vegetation clearing along the high bank to trimming the vertical bank vegetation no more often than every five years by hand, cutting the branches overhanging the river that may capture flood debris.

3. USIBWC reserves the right to annually mow vegetation in the area adjacent to the Fort Brown Golf course levee from the water's edge at the low bank to the high bank, ranging from 75 ft. to 200 ft.

4. From RM 45.00 to RM 50.60, USIBWC will ensure, in perpetuity, both the safe passage of the design flood flow and the establishment of a minimum 33-foot wide mature/climax vegetated wildlife corridor. This vegetated wildlife corridor will connect the 33-foot wide/climax vegetated wildlife corridor from Segment D to the 33-foot wide vegetated wildlife corridor described in bullet E.5.b.below.

5. From RM 50.60 to RM 52.60, USIBWC is implementing the mitigation plan set forth in the Cameron County, Texas Supplemental Environmental Assessment, Los Tomates/Matamoros Bridge III, Brownsville, Texas prepared by Traffic Engineers, Inc., August 1992, revised June 4, 1993. Components implemented by the plan include:

    a. A 200-foot wide right-of-way for relocation of the LRGFCP levee was established north of the United States boundary of the RUZ with the southern right-of-way line the same as the RUZ northern boundary line defined in IBWC Minute No. 285. The existing LRGFCP levee, which was located farther north of the RUZ, was removed and that levee easement was transferred to Cameron County. The new LRGFCP levee was constructed closer to the river within the new right-of-way.

    b. Within the new 200-foot right-of-way, USIBWC ensures the establishment of a 33-foot wide mature/climax vegetated wildlife corridor, a minimum 15-foot wide strip adjacent to the relocated levee both landward and on the

riverside to be mowed by USIBWC for levee maintenance, and a 137-foot wide zone for levee construction. The wildlife corridor is located along the southern edge of the new right-of-way, and the new levee is constructed along the northern edge of the new right-of-way.

c. Within the RUZ on the northern portion of the United States floodplain, the Service established an area for mature/climax vegetation to grow. The area is not wider than one-third the width of the RUZ floodplain. The remaining southern two-thirds of the floodplain may be selectively mowed by USIBWC during the period of June through August so that vegetation is maintained at heights no lower than three feet above ground surface.

d. Cameron County constructed the new international bridge over the Rio Grande, and maintains an access road under the new bridge for surveillance by public safety agencies and for levee maintenance by USIBWC.

e. Cameron County has the responsibility of removing non-LRGFCP (farm) levees within the RUZ.

6. From RM 52.60 to RM 54.00, USIBWC, with technical assistance from the Service, will provide for planting a series of mature/climax vegetated wildlife corridors throughout the Fort Brown Golf Course (the Fort Brown Golf Course levee was removed as part of the construction of the Los Tomates/Matamoros III International Bridge).

Segment F - Gateway and B&M Bridges, RM 54.00 to RM 55.20

Segment F includes approximately 1.2 river miles, from the upstream end of the Fort Brown Golf Course levee to the B&M Bridge.

1. USIBWC reserves the right to annually mow vegetation in a 75-foot wide strip from the water's edge at the low banks.

2. USIBWC, with technical guidance from the Service, will ensure the establishment of a minimum 33-foot wide limited vegetated wildlife corridor adjacent to the 75-foot mowed strip. The limited vegetated wildlife corridor may be selectively mowed by USIBWC during the period between June through August so that vegetation is maintained at heights no lower than three feet above ground surface.

Segment G - Amigoland Area, RM 55.20 to RM 58.70

Segment G includes approximately 3.5 river miles, from the B&M Bridge to the upstream end of the Amigoland levee.

1. USIBWC reserves the right to annually mow vegetation in a 75-foot wide strip from the water's edge at the low banks.

2. USIBWC, with technical guidance from the Service, will ensure the establishment of a minimum 33-foot wide limited vegetated wildlife corridor adjacent to the 75-foot mowed strip. The limited vegetated wildlife corridor may be selectively mowed by USIBWC during the period between June through August so that vegetation is maintained at heights no lower than three feet above the ground surface.

3. USIBWC will ensure, in perpetuity, both the safe passage of the design flood flow and the establishment of a minimum 33-foot wide mature/climax vegetated wildlife corridor with upstream and downstream connections from the limited vegetated wildlife corridor near the river to the "Matamoros Banco No. 121."

4. USIBWC will ensure, in perpetuity, a minimum 33-foot wide mature/climax vegetated wildlife corridor from the upstream and downstream connections from the limited vegetated wildlife corridor near the river to the "Matamoros BancoNo. 121" to the riverside toe of the LRGFCP levee.

Segment H - Upper End, RM 58.70 to RM 62.50

Segment H includes approximately 3.8 river miles, from the upstream end of Amigoland levee to the upper end of the 34.5 mile reach, including the Service's Champion Bend Tract.

1. USIBWC reserves the right to annually mow vegetation in a 75-foot wide strip from the water's edge at the low banks.

2. USIBWC will limit any vegetation clearing along the high bank to trimming the vertical bank vegetation no more often than every five years by hand, cutting the branches overhanging the river that may capture flood debris.

3. USIBWC will ensure, in perpetuity, both the safe passage of the design flood flow and the establishment of a minimum 33-foot wide mature/climax vegetated wildlife corridor adjacent to the Rio Grande or mowed areas.

Although, no change will occur in the maintenance activities under this alternative, a review of the reasonable and prudent measures, terms and conditions of the 1993 BO and a summary report of accomplishments was undertaken jointly by USIBWC and the Service. The summary report was broken down into six commitment areas: 1) Maintenance and Wildlife Corridors; 2) Los Tomates Mitigation Plan and Fort Brown Memorial Golf Course License; 3) Develop Off-River Floodway System Corridor Plan: 4) Botanical Surveys; 5) Discussions with Mexico about the importance of the Wildlife Travel Corridor on both sides of the Rio Grande and 6) USIBWC Budget Requests and Department of State Advice of Allotments.

The Service and USIBWC met on October 2, 2002 to discuss the summary report and USIBWC's reasons for not completing various terms and conditions under the 1993 BO and identify efforts so far to fulfill their commitments. They were as follows:

1) Maintenance and Wildlife Corridors

a. A history was provided of their efforts to work with Cameron County in identifying landowners and acquire easements along the 34-mile stretch of the action area and incorporate the easements into the 33-foot-wide wildlife corridor. USIBWC hired an engineer to assist Cameron County in their pursuit of easements, however, the County had not been successful in the acquisition of additional easements. USIBWC stated that because of the bed and banks, the area between the bottom of the river channel to the line of vegetation that forms immediately above the normal water line, USIBWC may already have some areas under easement that could be used to establish parts of the wildlife corridor. These may not be currently protected and further investigation is needed.

b. USIBWC survey crews partnered with the NFWF and with the Service State Certified Surveyor in the Rio Grande City area to help establish a right-of-way for Service acquisitions for the LRGV NWR. It is not known if future partnering will occur, however, USIBWC is ready to continue in accordance with the MOU between USIBWC and NFWF to serve as a partner to provide "in-kind" services assisting in researching, describing and surveying easement areas proposed for acquisition by the United States along the Rio Grande. At this time no survey work has been rescheduled.

c. USIBWC was able to successfully established the 33-ft-wide wildlife corridor on Service refuge tracts through the original 1996 MOU with the refuges.

d. Since the June 4, 2002 meeting, USIBWC had re-established the MOU with the LRGV NWR. The MOU was signed on September 17, 2002. The MOU is now in effect for one year without a renewal clause. This one year extension was originally intended to allow USIBWC time to finalize the EIS, continue mowing activities and acquire additional easements to establish the 33-ft-wide wildlife corridor agreed upon in the 1993 BO.

e. Since June 4, 2002, a USIBWC consultant has been developing ownership maps and data for eventual acquisition, in coordination with the Service, of maintenance and wildlife travel corridor easements.

2. Los Tomates Mitigation Plan and Fort Brown Memorial Golf Course License

a. Wildlife travel corridors and habitat were established in accordance with the Los Tomates Bridge Environmental Assessment mitigation plan as agreed by all

parties and the conveyance of the Fort Brown Memorial Golf Course to Southmost Union Junior College District by license in 1998 included a provision requiring compliance with the 1993 BO.

3. Development of Off-River Floodway System Corridor Plan

a. A de facto wildlife corridor exists along some of the USIBWC land side levee right-of-way in the off-river floodway system. Brush had been established and USIBWC needs at least twenty (20) feet at the base or toe of the levee to provide proper mowing of the levee slope and toe. Adjacent farmers and landowners have not encroached upon the easement by their activities. Other segments of the off-river corridors have not been established because existing USIBWC easements were established and conveyed to the United States by the counties for the express purpose of constructing, operating, and maintaining the levees.

b. Since June 4, 2002 USIBWC has committed to moving forward on environmental documents for levee rehabilitation. USIBWC has stated they would be willing to ground truth easements and post signs to protect the habitat along levee rights-of-way. The posting of the signs started in March 2003 and is now a continuing activity for the USIBWC operations and maintenance crews.

4) Botanical Surveys

a. Surveys for Walker's manioc were performed jointly by USIBWC and Service Staff. No plants were located.

b. Currently, mowing is performed from June through August of each year because of the heavy growth period during the June through October Rio Grande flood period and prior to hurricane season. On October 2, 2002 the USIBWC agreed to avoid the migratory bird peak nesting season (March through August) if possible. If this is not possible, surveys would be performed to locate active nests prior to mowing activities. A report would be submitted recording survey dates, number of nests and type. If an active nest is located, the nest will be left undisturbed, a vegetative buffer of 25-50 feet will be left in place to offer protection from predators.

5) Discussions of the importance of wildlife corridors with Mexico

a. IBWC held discussions in 1993. At that time Mexico's emphasis was on flood protection, vegetation preservation was not a priority and further discussions had not been pursued.

b. USIBWC has agreed to work with the Lower Rio Grande Binational Ecosystem Team to improve communications and investigate options with Mexico on the importance of the wildlife corridor being established on both sides of the Rio Grande.

6) USIBWC Budget requests and department of State Advice of Allotments

a. USIBWC submitted funding requests from 1993 to 2003. Congressional approval was needed, but not forthcoming until 2002; however, none was received in 2003, but there is a request in USIBWC's 2004 budget.

b. USIBWC met with a Valley citizen's group interested in USIBWC maintaining a viable flood control project and were willing to help identify additional sources of funding for easements and water trusts. USIBWC and the LRGV NWR will also look at options to increase funding in the Land and Water Conservation Fund that could be used for the acquisition of easements. Congressional allocations will still be needed, but USIBWC believes if USIBWC and the Service work more closely together progress will occur.

c. Other options will be explored to acquire easements and incorporate deed restrictions from willing landowners.

d. As of June 4, 2002 and as outlined in the October 17, 2002 letter, review by the USIBWC Budget Officer indicated that funds are limited and at this time there may only be enough funds available for ownership mapping, surveying , and appraisals.

7) USIBWC October 17, 2002 letter.

a. USIBWC agreed the DEIS preferred alternative will be the No-Action Alternative instead of the Expanded Maintenance Alternative once considered.

b. The USIBWC stated a joint decision whether the weir is an obstruction to flow had not been made by the United States and Mexico through the IBWC. This joint decision is required by the Treaty of November 23, 1970, to resolve pending boundary differences and maintain the Rio Grande and the Colorado River as the International Boundary (TIAS 7313; 23UST 371). USIBWC also informed the project proponents that the weir would not cause a significant increase on flood stages.

c. The 1993 BO would be amended to include stipulations to ensure that environmental commitments are implemented in a timely manner.

d. To assist in the formation of a Coordination workgroup that would include representatives from USIBWC, the Service, Cameron, Hidalgo, and Willacy County, TPWD, LRGV Water Committee and Program to ensure that specific milestones outlined in this BO are met and problems that have developed during the previous year are resolved and submit an annual report for the life of the project (20 years).

The actions outlined above will provide a needed link in the wildlife corridor effort in areas where very little vegetation currently occurs and will ensure compliance with this and the 1993 BO while allowing the needs of the USIBWC mission to be met.

II. Status of the Species/Critical Habitat

Ocelot

In 1982, the ocelot was designated as an endangered species under the Endangered Species Act, a status which extended U.S. protections to the species throughout its range, including Mexico, South America, and Central America (Figure 3). Ocelot populations gained greater protections in 1989, when the species was upgraded to Appendix I of the Convention on International Trade in Endangered Species of Flora and Fauna (CITES), a protection that prohibits CITES signatories from permitting any trade in species or its parts.

The ocelot includes 11 subspecies occurring in Central and South America, Texas and Northern Mexico (Table 1). The ocelot in Texas Leopardus (Felis) pardalis albescens once ranged over most of southern Texas, but is now restricted to the border regions of extreme southern Texas. Less than 1,000 individuals of this subspecies are thought to survive in its range, and less than 100 of these are known to exist in Texas. The clearing of brush country reduced their range and highways keep them restricted (Tewes and Everett, 1987; Laack 2001).

A. Species/critical habitat description

The ocelot (Figure 4) is a medium-sized cat, measuring up to three feet in body length and weighs twice as much as a large domestic cat. It is slender and covered with attractive irregular-shaped rosettes and spots that run the length of its body. The ocelot's ground coloration can range from light yellow, to reddish grey, to gold, to a greyish gold color. They have a white underside and face and their black ears have large white spots on the back. Though they resemble the margay, the ocelot is twice their size.

Central and South America

The ocelot occupies a variety of habitats throughout its neotropical range including tropical and subtropical forests, riverine forests, swampy savannahs, estuarine mangroves, rocky areas, and upland forests (NFWL 1980a; Tewes and Schmidly 1987; Murray and Gardner 1997). In Bolivia a wide distribution is seen with the cat occurring from the tropical valleys of the Andes at 3,800 meters, to lower areas in the east. Communities include dense forest, secondary forest, swamp forest, mangrove, scrub, pasture, subalpine paramo and occasionally, though rarely, coffee plantations. In Venezuela, ocelot habitat includes "lowland tropical humid evergreen forest, premontane humid evergreen forest, lowland tropical semideciduous forest, premontane semideciduous forest and tropical, dry, thorny forest. Mondolfi (1985) believes, that although ocelots prefer riverine forest, they also use mangroves, pasture lands, upland savannas and

swamp savannas. Ocelots occupy the mountainous areas of Columbia, Ecuador and Northern Peru, but not the high plateaus of southern Peru and Bolivia. In Central Mexico, ocelot habitat varied from heavy rain forest to sparse tropical deciduous forest. Hall and Dalquest (1963) stated ocelots utilized the forests and jungles of the tropical parts of Veracruz.

Northern Mexico and Texas

In Texas, however, ocelots inhabit dense, often thorny and impenetrable brush, mesquite-oak and oak forests, and partially cleared land (NFWL 1980a; Navarro 1985). Shindle and Tewes (1998) found granjeno (Celtis pallida), crucita (Eupatorium odoratum), Berlandier fiddlewood (Citharexylum berlandieri), honey mesquite (Prosopis glandulosa), desert olive (Forestiera angustifolia), snake-eyes (Phavlothamnus spinescens), colima (Zanthoxylum fagara), whitebrush (Aloysia gratissima), brasil (Condalia hookeri), and lotebush (Ziziphus obtusifolia) to be dominant brush species of ocelot habitat in the Tamaulipan biotic community.

Tamaulipan brushland is a unique ecosystem, found only in south Texas and northeastern Mexico. Characteristic vegetation of Tamaulipan brushland is dense and thorny. The most luxuriant brush is found on alluvial soil of the Rio Grande floodplain (Blair 1950). Since the early 1900's, 95% of native Tamaulipan brushland has been cleared for agriculture, urban development, road developments and expansions, and recreation. In riparian areas, 99% of native brush has been destroyed.

The ocelot and jaguarundi require dense brushy cover, especially that occurring as a thick understory between ground level and a height of approximately 1.5 meters (Tewes 1987). Both cats are reported from such habitat where it occurs along watercourses, and both will readily enter the water (Goodwyn 1970; Tewes 1987), but it is unclear if this proximity to water is a habitat requisite or simply an indication of where dense cover is most likely to occur. In Mexico, ocelot habitat use was 97.6% mature forest and 2.4% pasture-grassland (Caso 1994). Tewes (1987) states such vegetation is most likely to occur on clay soils in the Lower Rio Grande Valley, but also in the sandy soils to the north. Tewes and Everett (1987) classified ocelot habitat in Texas according to the amount of foliar canopy. Class A or optimal habitat was 95% canopy cover, Class B or suboptimal habitat was 75% to 95% canopy cover, and Class C, with 75% or less canopy cover, was considered inadequate. The most critical habitat component is probably dense cover near the ground (<3 ft. in height) (Tewes 1986). He adds the optimal habitat (that having a shrub layer canopy cover of 95 percent or greater) is now very scarce in south Texas.

Tewes and Everett (1987) estimated only 25,936 acres (10,496 hectares) of optimal cat habitat remained in the State's southernmost 13 counties. Including suboptimal habitat, the Service (USFWS 1990) believes less than 50,000 acres (20,000 hectares) of total habitat are still available, and at least 100,000 acres (40,000 hectares) of brush must be properly managed along the Rio Grande Valley to salvage this important resource. Approximately 1.6% of the land area in south Texas now supports this type of habitat (Tewes and Everett 1987).

B. Life history

Central and South America
The mating season varies from region to region. In the Yucatan mating occurs in October and October-January peaks are also reported from Paraguay and northeastern Argentina.

Texas and Northeastern Mexico
A reproductive season is year round, with spring or autumn breeding peaks noted in Texas and Mexico.

Ocelots can produce young year round and have a gestation period of about 80 days (Eaton 1977; Laack 1991). Litters contain 1, 2, and rarely 3 kittens (Eaton 1977, Mondolfi 1986, Laack 1991, Bragin 1999). Den sites are usually well hidden and include dense, thorny scrub, caves, hollows in trees or logs, and grass tussocks (Petrides et al. 1951; Navarro 1985; Tewes 1986; Laack 1991; Tewes and Schmidly 1987). The mother provides extended parental care to the young because of the time it takes for them to become proficient at capturing prey. Males are believed to contribute little to direct parental care (Tewes 1986, Laack 1991). Ocelots are solitary or live as pairs. They disperse from the natal range at approximately two years of age.

Central and South America
Home range varies:

Lowland rainforest:

Manu National Park (Peru) - 5.9 and 8.1 km^2 for males; 1.6 and 2.5 km^2 for females (Emmons 1988)

Iguacu National Park (Brazil) - 2 adult males and 4 adult females - 11.3 km^2 (P. Crawshaw in litt. 1993)

Cockscomb Basin Wildlife Sanctuary (Belize)31.2 km^2 for male; 14.3 km^2 for female (Konecny 1989)

Seasonally flooded savanna woodland

Venezuelan llanos - 9.3 and 11.1 km^2 for 2 males; 3.4 km^2 mean home range for six adult females (Ludlow and Sunquist 1987)

Brazilian Pantanal - 0.8 and 1.5 km^2 home range for two adult females for six months (Crawshaw and Quigley 1989)

The mean density of 0.38 adult ocelots per km^2, as found for the Venezuelan llanos, was used to derive a figure of 3,510 km^2 required to support a population of a size sufficient to minimize loss of genetic diversity (Sunquist et al. 1989).

Texas and Northeastern Mexico
A number of studies have looked at the home range size of ocelots in Texas and Mexico, with home range size generally varying from 2-18 km^2. Mean home range sizes for different Texas and Mexico ocelot studies:

Caso (1994)- 8.12 km^2 for males, 9.60 km^2 for females
Laack (1991)- 6.25 km^2 for males, 2.87 km^2 for females
Navarro-Lopez (1985)- 2.52 km^2 for males, 2.07 km^2 for females
Tewes (1986)- 17.67 km^2 for males, 11.04 km^2 for females

Adults of both sexes tend to have home ranges exclusive of other adult individuals of the same sex, but there is considerable home range overlap between the sexes (Emmons 1988, Laack 1991). Adult males have larger home ranges than adult females. The home ranges of subadult males and females tend to be similar in size to the home ranges of adult females until dispersal (Laack 1991).

Dispersing individuals are common within the Texas population. Laack (1991) found that nine ocelots dispersed from their natal ranges between the ages of 14 to 39 months. Ocelots dispersed an average of 6.4 km from their natal ranges (Laack 1991). The record dispersal for an ocelot in Texas is a young adult male who moved 27 miles before being killed by a vehicle (Tewes and Laack unpubl. data). Young males always disperse from their natal areas, while young females may or may not leave their natal area (Laack 1991).

The ocelot is primarily nocturnal, although some diurnal activity has been recorded (Navarro 1985; Tewes 1986; Tewes and Schmidly 1987; Laack 1991 Caso 1994). Navarro (1985) found ocelots in Texas to have two peaks of activity, one at about midnight and the other at daybreak.

Ocelots are solitary hunters and eat a wide variety of prey, but mammals, especially rodents, make up the bulk of their diet (Bisbal 1986, Emmons 1987, Tewes et al. 1998). Other items include birds, armadillo, marsupials, monkeys, rabbits, bats, feral hogs, reptiles, fish and crabs (Emmons 1987, Ludlow and Sunquist 1987, de Villa Meza et al. 1997, Tewes et al. 1998).

C. Population dynamics

Central and South America
Emmons (1988) noted that even at the lowest density estimates (one animal per 5 km^2), there would be approximately 800,000 ocelots in forested South America alone, and suggested that true numbers are probably 1.5 to 3 million.

Texas and Northeastern Mexico
Tewes and Everett (1986) based a "crude estimate" of the total ocelot population size in south Texas of 80 to 120 individuals upon an aerial survey of brush habitat and knowledge gained from following the movements of radio-collared ocelots trapped in or near Laguna Atascosa NWR.

Tewes and Laack (1989) believed that the Laguna Atascosa NWR population contained about 35 ocelots, but his crude estimate of the total population remains unchanged for lack of sufficient vegetational surveys and trapping programs outside the heavily studied Laguna Atascosa NWR area (Tewes 1992). Laack (2001) currently estimates the south Texas population to be 50 to 100 individuals. A population of approximately 30 to 40 ocelots occurs on and near the Laguna Atascosa NWR in Cameron County (Laack 2001).

D. Status and distribution

Historical, Texas and Central and South America
Historically, the ocelot occurred in Arkansas, Arizona, southern California, Texas, Mexico and southward through Central and South America to Peru, Uruguay, and northern Argentina (Navarro 1985). Today it ranges from Arizona and Texas through Central and South America to northern Argentina, but in reduced numbers (Tewes and Everett 1987; Emmons 1990; Murray and Gardner 1997).

Texas and Northeastern Mexico
Ocelots occupy various parts of northeast Mexico, including Tamaulipas and Coahuila (Leopold 1959). In Texas, populations are known to occur in Willacy and Kenedy counties (Navarro-Lopez 1985). This segment of the population occurs on private-land with limited access, so its actual size is unknown. The ocelot once occurred in the eastern, central and southern portions of Texas but currently only exists in the extreme southern areas of the State (Davis and Schmidly 1994). As a first step to determining the status of the ocelot in Texas, a clearinghouse for ocelot (and jaguarundi) sightings were established in October 1981 to coordinate reception and filing of reports. A total of 1,572 questionnaires were mailed to trappers to obtain additional information; of these, 472 (30%) were returned and 87 (6%) contained positive responses (Tewes and Everett 1987). In the past 20 years, ocelots have only been documented in Cameron, Hidalgo, Willacy and Kenedy counties. Six or seven smaller populations may also occur. Ocelots still occur on the Gonzales Ranch near Port Mansfield in Willacy County (Tewes 2001). One or two ocelots are believed to occur at the Santa Ana NWR (Benn 1997; Laack 1998) and one pair of ocelots had territories near the Arroyo Colorado in Cameron County (Laack 1998). Ocelots have been sighted at the NAS's Sabal Palm Grove Sanctuary (Homerstad 1986); and at the Loma de Grulla complex north of Laguna Vista, at Moranco Blanco, and at Redhead Ridge (Tewes 1987). Ocelot sightings have also been reported from the Lower Rio Grande Valley NWR. An ocelot was sighted at TPWD's Resaca de la Palma, also in Cameron County, in September 2000 (Benn 2001). In addition, Laack and Rappole (1986, 1987), Tewes (1987, 1992) and Homerstad (1987) have documented several other ocelot sightings in Cameron County. The closest known ocelot population in Mexico is near San Fernando, approximately 100 miles south of the U.S.-Mexico border (Laack 2001).

Figure 5 depicts both the northern known boundary of the ocelot's range in Texas (Tewes and Everett 1986, USFWS 1987) and those areas that are known to contain occupied ocelot habitat (Tewes and Laack 1989, USFWS 1990). Of course, if only 120 or fewer ocelots exist in the

present range, most of that range is unoccupied permanently. The actual area of known ocelot occupancy though is more accurately described by Tewes and Laack (1989) who show occupied habitat, suspected travel corridors, and areas within 10 miles of known territories and confirmed sightings.

If an occasional ocelot (2 or 3 per year) are observed on a property within 10 miles, then the possibility of an ocelot occupying that particular property are good if there are dense tracts of brush available (Tewes 1986; Mondolfi 1986). However, it is difficult to document the presence of the endangered cat in south Texas. This circumstance is true even in areas where experts consider the ocelot's presence likely. Live-trapping efforts at Laguna Atascosa NWR, with the greatest known concentration of ocelots in south Texas, produced over the period 1982-1984, 44 captures from a total of 7,180 nights of trapping (Rappole 1985), for an average of 163 nights of trapping per capture. In this same study area from 1985-1987, there were 54 captures in 4,701 trap-nights, averaging 1 ocelot/87 trap nights (Laack 1991). In Mexico, the ocelot capture rate is 1 cat per 656 trap-nights (Caso 1994).

Reasons for Decline

Central and South America
Throughout Latin America, the ocelot continues to be exposed to excessive mortality due to the illegal fur trade. Hunting ocelots is prohibited in Argentina, Brazil, Bolivia, Columbia, Costa Rica, French Guiana, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Suriname, Trinidad, Uruguay and Venezuela. Only Peru still allows hunting, while in Ecuador, El Salvador, and Guyana offer no protection (Fuller et al. 1987). In addition poaching for the pet trade is still a concern in Latin American countries, along with the destruction of large tracts of ocelot habitat. In Central and South America, exploitation for the fur and pet trade is primarily responsible for population declines (NFWL 1980a; USFWS 1995).

Texas and Northern Mexico
Fragmentation of habitat and habitat loss due to brush clearing are primary reasons for their decline. Ocelots rely upon thick vegetation along the Lower Rio Grande for foraging, resting, and establishing dens. They require corridors, such as rivers, shorelines, and natural drainages to travel between optimal habitat areas. Destruction and fragmentation of optimal habitat and travel corridors increases threats to the ocelot, such as incidental trapping, competition from feral dogs and cats, and mortality from vehicles.

In Mexico, particularly in the northeast, ocelots suffer from habitat loss as areas are destroyed primarily for charcoal production and as land is converted for agriculture and ranches.

Never abundant and seldom trapped or killed intentionally in south Texas, these cats were historically taken incidentally during the activity of hunting, trapping, and poisoning of coyotes, bobcats, and other predators (Tewes and Everett 1986, USFWS 1990). An ocelot found dead in December 1991 was the victim of poisoning (Laack 1992). In 1999, an ocelot was shot by an archery hunter who misidentified it as a bobcat.

Human population increases and associated urban expansion in LRGV have resulted in brush clearing and increased pollution (USFWS 1986). Industrialization has degraded water quality (USFWS 1986; Edwards and Contreras-Balderas). Brushland habitats have been converted to rangeland with herbicides (Bontrager et al. 1979), root plowing and fire (Hanselka 1980).

Brush clearing is an ongoing activity in south Texas. Tewes (1987) claims that only a fraction of the less than five percent of original native vegetation remaining in the Lower Rio Grande Valley is optimal habitat for the cats. Rappole (1986) states only 4,942 acres (2,000 hectares) of the dense thickets preferred by ocelots remain in Texas. The average home range of ocelots, as determined from monitoring radio-collared individuals, is 4,366 acres (1,767 hectares) for adult males and 2,728 acres (1,104 hectares) for adult females (USFWS 1990).

Optimum ocelot habitat outside Laguna Atascosa NWR occurs in widely separated tracts that are frequently smaller than 247 acres (100 hectares) each. Likely, most ocelot use occurs in suboptimal habitat. Most of these less than optimal habitats are utilized as travel corridors between "islands" of optimal habitat, and are becoming increasingly important as routes for dispersal and genetic exchange among the population centers in south Texas and across the Rio Grande in Mexico (Tewes 1987, USFWS 1988). Monitoring of collared individuals has shown that only dispersal ocelots will move as much as 10 miles outside their home ranges temporarily (Tewes 1990). Non-dispersing individuals seldom stray more than 3 miles from their home ranges (Tewes 1992, Laack 1992). Ocelots will seldom cross an open field, even at night, and thus in the heavily agriculturalized parts of the Lower Rio Grande Valley its travel corridors are often along fence lines (Tewes 1990) and other narrow corridors of vegetation (Navarro 1985, Tewes 1986). Tewes and Miller (1987) suggested that several factors, including habitat islands saturated with resident ocelots, frustrated dispersal, and offspring that fail to leave parental home ranges, may indicate the possibility of inbreeding. Walker (1997) found that the level of genetic variation seen in ocelots in Texas was considerably less than the variation in northern Mexico.

More than 100 pesticides are used on agriculture crops. These substances can be incorporated into the food chain and are potentially harmful or fatal to terrestrial and aquatic organisms. Agriculture pesticides are used year-round in LRGV, and drift and overspray from aerial applications occur periodically on National Wildlife Refuge lands. In the LRGV, runoff from cultivated fields may concentrate pesticides and herbicides in permanent bodies of water. The types of pesticide chemical compounds and application rates, have been extensive and heavy throughout the LRGV. Despite some legislative controls, present use continues to threaten native flora and fauna. As a result, pesticide accumulation in the biota remains a major concern in management of Tamaulipan brushland. DDE, PCB's and Hg have been detected in ocelot blood and hair samples at low concentrations (Mora 2000).

Although habitat loss in south Texas is mainly attributable to agricultural and urban expansion (Tewes 1987), other contributing factors include human modifications of the Rio Grande which include: dams and reservoirs for flood control and hydroelectric power, floodway systems that remove water from the stream channel during peak flows; water diversions for irrigation, municipal, and industrial usage; and channel restriction and canalization (Shideler 1985; Judd

1985). Before flood control works were undertaken from 1900 to 1923, the Rio Grande overflowed 23 times (Ramirez 1986). Drainage projects, because they frequently follow watercourses, often remove the dense brush associated with the watercourses. Flood control projects affect riparian brush by clearing it from drainage ditches because it impedes flood flows. Dams have been another major cause of riparian destruction. Water development, both for flood control and municipal use, has resulted in extensive clearing of brush, alteration of riparian habitats, and changes in water flow on the Rio Grande (Ramirez 1986).

As a result of increasing economic integration between the United States and Mexico, and with the passage of the North American Free Trade Agreement (NAFTA), there is increasing pressure on border crossing highways and bridge infrastructure in the Texas/Mexico border region. Local population growth, rapid industrialization on the Mexican side of the border and increased economic integration between the U.S. and Mexico has placed strains on road and bridge infrastructure in the LRGV. At several locations new and proposed bridges and approach roads pose potential adverse effects on efforts to protect the scarce remaining riparian wildlife habitat and on efforts to maintain an adequate flood protection system.

Since the ocelot's listing in 1982, the Service and other organizations have become and continue to be increasingly concerned about the number and location of proposed new international bridge and rail crossings and the direct adverse effects these crossings might have on parcels of the LRGV NWR and the wildlife corridor project. A related concern is the effect of locating approach roads and other bridge-related facilities within the Rio Grande floodplain. Frontera Audubon Society and others are concerned that this practice could lead to increased pressure on the USIBWC to clear habitat from other portions of the floodplain in order to maintain adequate levels of flood protection.

In Hidalgo County, there are three (3) existing bridges within a 20-mile span along the river (Progreso, Pharr and Hidalgo). Four (4) more crossings are proposed to be built between Los Ebanos and Progreso (Los Ebanos, Anzalduas, Mission and Donna). The Anzalduas Bridge Presidential Permit has been approved and construction is scheduled to start within a year or two. Its location is only about 4 miles west of the existing Hidalgo Bridge and 8 miles west of the Pharr/Reynosa Bridge. Similarly, in Cameron County, there are 4 bridges (Los Indios, B&M, Gateway and Los Tomates) within a 27-mile span, with two new crossings proposed in the Brownsville area (Port of Brownsville and Flor de Mayo).

There are nine existing and six proposed international bridges along the Rio Grande between Falcon International Reservoir and the Gulf of Mexico. It is important to note that, although most of the adverse impacts to the fish and wildlife resources result from the construction of the bridge, approach road, and related facilities (General Services Administration/Customs/Border Patrol inspection booths, parking lots, and buildings); additional impacts to important fish and wildlife resources also result from secondary and indirect construction activities. Unfortunately, any international bridge or other development proposed for construction along the river in this area disrupts the continuity of the "wildlife corridor" because of the associated clearing of native thornbrush, and increased intensity of human activity which tends to impede the movement of wildlife, such as the endangered ocelot. Because the ocelot's survival is likely dependent upon

genetic exchange between U.S. and Mexico populations, adverse impacts from bridge crossings occur not only in the immediate area of the bridge, but also to the species as a whole. The Service believes that lack of vegetation and narrowness of the "wildlife corridor" under bridges like the B&M, Gateway and Los Tomates Bridges, as an example, may impede the movements of cats under the bridges.

Road construction and associated improvements destroy brush through right-of way clearing and the borrowing of fill material. Due to an increase in use and transportation needs, roads are improved and often followed by increased developmental pressure (Jahrsdoerfer and Leslie 1988). Ocelot roadkills are an indirect effect of habitat loss and motor vehicle traffic increases in south Texas. Tewes (1987) reported an annual average ocelot mortality in south Texas of 29 percent, or 31 cats per year, with automobile collisions causing three out of four mortalities. Currently the south Texas population is estimated between 50 -100 ocelots (Laack 2001); therefore, the Tewes (1987) mortality rate was overestimated or the Tewes and Everett (1986) crude population estimate of 80-120 was underestimated. During 1986-2001, twenty six ocelots and one jaguarundi have been recovered as roadkills in south Texas. This number is believed to represent the minimum number of endangered cats actually killed because most are probably never found and go undetected. In Cameron and Willacy counties, where the largest concentration of ocelots in the United States is found, approximately half of the adult mortality is from cats being struck by vehicles crossing roads (Laack 2001). Between 1986-2001 the minimum total mortality can be estimated at 52 cats (27 cats recovered as roadkills X 2)/ 15 years or 3.5 cats per year. An annual mortality rate of 3.5 cats per year represents 3.5 - 7 % of the current estimated population.

Very little is known about the incidence of diseases in wild populations of ocelots and jaguarundis. The USFWS (1990) and Tewes (undated) both cite the potential for catastrophic impact to the endangered cat population from highly contagious and frequently fatal diseases such as feline panleucopenia (distemper). Bobcats, raccoons, and feral housecats carry the disease and could pass it on to ocelots and jaguarundis (USFWS 1990).

Vulnerability to Extinction

The Service believes the fragmentation of habitat is likely reducing the ability of ocelots to interact freely, which will reduce the genetic integrity of the species, and, because ocelots have to cross areas of little or no habitat to interact, may also be increasing the risk of harm to individual ocelots. Some habitat is managed for the ocelot, but in general the quality and quantity of Texas habitat is on a downward trend and most likely supports a smaller population than that of the 1980's.

The Service's recovery plan (USFWS 1990) provides the following information:

> Habitat loss and fragmentation in Texas, especially along the Rio Grande, threaten the long-term survival of the ocelot and jaguarundi in this area.

Hesitation in recovery efforts may result in loss of key habitat and biological corridors necessary for survival of the entire ocelot population (Tewes and Schmidly 1987).

Thorough and continued field investigation must continue for many years to approach a complete understanding of the biology of the species.

The survival of this species in Texas will depend on the intense and multifaceted cooperation of Federal, state, and private organizations, and private land owners. Early emphasis of this concept will aid implementation of a recovery effort for the ocelot.

The current, although incomplete, understanding of habitat requirements, suggests that full recovery and delisting may not be a practical objective, although downlisting to threatened may be attainable.

The continued existence of the ocelot in its northernmost range in the United States is dependent on research, effective monitoring, and the responsible management of the biological travel corridors that connect optimal ocelot habitats. Protecting optimal areas and corridors must continue to be integrated into management decisions if the ocelot is to survive in the southwestern United States. Reforestation projects that reconvert disturbed areas to brush communities, efforts to reduce road kills by monitoring road construction and designing more effective wildlife crossings under existing roads, establishing conservation agreements with private landowners and working with State, local government entities and Mexico to establish the wildlife corridor on both sides of the Rio Grande are critical in stabilizing and reversing its decline in Texas.

Jaguarundi

A. Species/critical habitat description

The jaguarundi was listed as endangered by USFWS on June 14, 1976 (41FR24064) and includes a total of eight subspecies (Table 2). The jaguarundi is also listed in the CITES Appendix I of the convention which bans international commerce. CITES offers some protection over much of its range. Hunting is prohibited in Argentina, Belize, Bolivia, Columbia, Cosa Rica, French Guiana, Guatemala, Honduras, Mexico, Panama, Paraguay, Suriname, Uruguay, United States, Venezuela. Hunting is regulated in Peru, while no legal protection is offered in Brazil, Nicaragua, Ecuador, El Salvador, and Guyana.

Description

The jaguarundi (Figure 6) has a long slender body, short legs, and sleek unpatterned fur, and looks more like a weasel than a cat. They are roughly twice the size of a domestic cat, weighing about six to 20 lbs, standing 10-14 inches at the shoulder, and can be up to four feet long from nose to tail tip, with the tail taking up about a third of its length. It has a long and flat head

instead of a round one. The ears are short and rounded, and this is one of the few cat species that does not have a contrasting colour on the backs of the ears. Their eyes are small and set closely together. Jaguarundis have two distinct color phases, red and gray, although the latter phase has also been called blue. The phases are so distinct that at one time they were thought to be separate species, the red one being called Herpailurus yagouaroundi eyra. A third color phase, black, has also been reported, but apparently does not occur in Texas (Goodwyn 1970). These cats are not thought to be closely related to the other small South American cats. Instead of having 36 chromosomes, like the South American cats, it has 38 like the cougar and Puma, and believed to possibly share an ancestor that entered North America across the Bering Strait.

While both the ocelot and the jaguarundi use mature forest (i.e., brush), jaguarundis also use pasture-grassland (Caso 1994). Jaguarundi habitat use was 53.0% mature forest and 47% pasture-grassland. Jaguarundis use open areas for hunting and sometimes resting, but if threatened with a potential danger they will seek cover in brush areas.

Central and South America
In South America, habitat includes high mountain forests, tropical forests, swamp forests, savannahs, overgrown pastures, and thickets (NFWL 1980b; Tewes and Schmidly 1987).

In Venezuela, it has been most frequently found to occur in tropical dry forest relative to other habitat types. They are more rare and thinly distributed in moist forest types, especially deep rain forest. They have been reported to prefer forest edges and secondary brush communities, but this is where they are most frequently seen. In Belize's Cockscomb Basin Wildlife Sanctuary, jaguarundis are most frequently associated with water and old field habitats. It appears to be the most flexible cat in its ability to occupy different habitats and having access to dense ground vegetation appears to determine habitat suitability (Nowell and Jackson 1996).

Texas and Northeastern Mexico
Habitat requirements in Texas are similar to those for the ocelot: thick, dense thorny brushlands or chaparral. Approximately 1.6% of the land area in south Texas is this type of habitat (Tewes and Everett, 1987). The thickets do not have to be continuous but may be interspersed with cleared areas. Jaguarundis possibly show a preference for habitat near streams (Goodwyn 1970; Davis and Schmidly 1994).

The most common plants occurring in habitats in the Rio Grande Valley where the jaguarundi is known to occur are huisache (Acacia farnesiana), blackbrush acacia (Acacia rigidula), prairie baccharis (Baccharis texana), chilipiquin (Capsicum annuum), lotebush,allthorn goatbush (Castela texana), Texas persimmon (Diospyros texana), coyotillo (Karwinskia humboldtiana), common lantana (Lantana horrida), berlandier wolfberry (Lycium berlandier), javelinabrush (Microrhammus ericoides), Texas pricklypear (Opuntia lindheimeri), retama (Parkinsonia aculeata), honey mesquite (Prospis glandulosa), cedar elm (Ulmus crassifolia), and lime pricklyash (Zanthoxylum fagara)(Goodwyn 1970).

B. Life History

Little is known of jaguarundi reproduction in the wild. Den sites include dense thickets, hollow trees, spaces under fallen logs overgrown with vegetation, and ditches overgrown with shrubs (Tewes and Schmidly 1987; Davis and Schmidly 1994). Young have been born in March and August with possibly two litters per year. Usually two to four young comprise a litter, with litters being either all of one color phase or containing both the red and grey phases. Jaguarundi kittens are spotted at birth, and lose their markings as they mature, similar to lions. Gestation (for captive jaguarundis) varies from 63 to 75 days (Goodwyn 1970; Tewes and Schmidly 1987; Davis and Schmidly 1994). Jaguarundis communicate by calls, of which 13 have been identified in captive animals. The largest repertoire occurs during the mating season (Hulley 1976).

The jaguarundi is primarily diurnal, although some nocturnal activity has been recorded (Konecny 1989, Caso 1994). They are excellent climbers although they spend most of the time on the ground. Prey is largely birds, but bird eggs, rats, mice, rabbits, reptiles and fish are also taken (Goodwyn 1970; Tewes and Schmidly 1987; Davis and Schmidly 1994). In Venezuela, Bisbal (1986) found the diet of jaguarundi to be 46% mammals, 26% birds, and 29% reptiles.

C. Populations dynamics

Central and South America
Little information is available on jaguarundi population dynamics. In Belize, it is seen quite often and Konecny (1989) found the home range sizes of an adult male jaguarundi to be 94.1 km^2 and 29.1 km^2 for an adult female jaguarundi.

Texas and Northeastern Mexico
Home range sizes were smaller for three jaguarundis radio collared in northern Mexico. Caso (1994) found home range sizes to be 8.5 km^2 for an adult male jaguarundi, 8.8 km^2 for an adult female, and 14.3 km^2 for a subadult male.

D. Status and distribution

Historical Texas and Central and South America
The jaguarundi historically occurred in southeast Arizona, south Texas, Mexico and Central and South America as far south as northern Argentina (Figure 7). Today this cat has a similar distribution, but in much reduced numbers, although it probably no longer occurs in Arizona (Tewes and Schmidly 1987). It may also be extinct in Uruguay. They are reported to occur at Masaya National Park in Nicaragua, Soberania National Park in Panama and El Imposible National Park in El Salvador (Nowell and Jackson 1996). The presence of jaguarundis in Florida is likely the result of human introduction (Nowak and Paradiso 1983).

Texas and Northeastern Mexico
Four North American subspecies are recognized, of which two occur in the U.S.: (H.y. cacomitli) from southern Texas to central Vera Cruz, Mexico, and (H.y. tolteca) from southern Arizona,

along the Pacific coast of Mexico, and inland to the Mexican Plateau (Goodwyn 1970; NFWL 1980b). Arturo Caso has studied several ocelots and jaguarundis on different ranches in Tamaulipas, Mexico.

In 1969, one jaguarundi was killed near Raymondville, Willacy County (Goodwyn 1979), and two jaguarundis were trapped and photographed elsewhere in that county (USFWS 1987). A fourth was killed by a vehicle on S.H. 4 in Cameron County in 1986 (Earnest 1987). A fifth was photographed not far from the roadkill location at the NAS's Sabal Palm Grove Sanctuary in 1989 (Perez 1992).

Tewes and Everett (1987) analyzed the records of a clearinghouse established in 1981 to coordinate reception and filing of reports of jaguarundis (and ocelots) in Texas. Many of the reports were solicited by sending out questionnaires to trappers. Jaguarundis were reported from central Texas and the upper Gulf Coast as well as from south Texas. However, due to lack of any tangible evidence, such as road kills, most of the sightings in the first two areas are believed to have been of black feral house cats. Tewes and Everett (1986) and Tewes and Laack (1989) could make no estimate of the jaguarundi population in south Texas, although its population is presumably smaller than that of the ocelot, because confirmed sightings are rare. Goodwyn (1970) reported from interviews he conducted in 1969 that jaguarundis were thought to occur in seven specific areas: Santa Ana NWR; LANWR; "Paso Real," an area along the lower Arroyo Colorado on the border between Cameron and Willacy Counties; the southern part of the El Sauz Ranch in northeast Willacy County; a small area west of Olmito in southern Cameron County; an area east of Villa Nueva; and an area near the Port Isabel airport in Cameron County. Tewes (1987) concludes that historically, as well as presently, the jaguarundi's actual distribution was in Hidalgo, Willacy, and Cameron Counties.

Two dead jaguarundis were reported in Cameron County and one each in Willacy and Webb counties. Tewes (1987) and Tewes and Everett (1987) documented several other credible reports of jaguarundis in these three counties. One of these was a road-killed male jaguarundi found near the junction of State Highway 4 and Farm-to-Market Road (FM)511 (Kellers Corner) in Cameron County on April 21, 1986 (Tewes 1987; Laack and Rappole 1987). While this was the last confirmed record of a jaguarundi in Texas (Laack 2001), unconfirmed jaguarundi sightings in Hidalgo County include Bentsen Rio Grande State Park, Santa Ana NWR, Lower Rio Grande Valley NWR, Laguna Atascosa NWR, Cimarron Country Club, Wimberley Ranch, and the Anacua Unit of the TPWD Las Palomas Wildlife Management Area, and other areas (Prieto 1990; Tewes 1992; Benn 1997). Unconfirmed sightings of a jaguarundi occurred at the NAS's Sabal Palm Grove Sanctuary in Cameron County in 1988 (Anonymous 1989) and at the Santa Ana NWR in March 1998 (Santa Ana NWR data). Based upon sighting reports, personnel of the Santa Ana NWR suspect the presence of jaguarundis on the refuge (Benn 1997).

The jaguarundi is notoriously hard to trap (Goodwyn 1970) and has not been confirmed as having been trapped in south Texas in decades. In Mexico, jaguarundi capture rate has been one cat per 7,552 trap nights (Caso 1994).

Reasons for Decline

The coat of the jaguarundi is not highly sought after by the skin trade because of its poor quality and lack of spotting. Generally it is not exploited for commercial trade. They are difficult to trap but may be caught in traps set for commercially valuable species and may be subject to low intensity hunting pressure around settled areas. Habitat loss and alteration due to brush-clearing activities, human encroachment, and human persecution are the main cause for the decline in jaguarundi populations (USFWS 1995).

III. Environmental Baseline

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat, and ecosystem, within the action area.

A. Status of the Species Within the Action Area

The ocelot and jaguarundi are treated together here, as in many publications (e.g., USFWS 1987; USFWS 1990), because, although very little is known about the ocelot, and even less about the jaguarundi, the two are thought to exhibit similar habitat preferences in south Texas. They suffer from similar causes of population decline, and benefit from similar recovery efforts.

It is currently estimated that there are approximately 50 to 100 ocelots in south Texas. The actual number of jaguarundis is unknown, but certainly less than that of ocelots. Due to their elusive nature, the number that may occur within the action area is unknown. Ocelots and jaguarundis have been reported from the NAS's Sabal Palm Grove Sanctuary in Cameron County, Bentsen-Rio Grande Valley State Park, and from the Santa Ana NWR in Hidalgo County (Benn, 1997; Laack, 1998) and in portions of the LRGV NWR which are all within the action area. The cats are believed to utilize tracts of brush habitat within the action area, particularly along the river, as travel or dispersal corridors. Some ocelots are known to have territories that include habitat on both sides of the Rio Grande. An ocelot swimming across the Rio Grande near La Grulla, Texas was documented by a biologist from Texas A&I University in 1981. Sightings such as these documented at various locations and the presence of ocelots on established refuges indicate that habitat is available in the action area to support ocelots and jaguarundis, which have fairly sizeable home ranges.

An ocelot's home range in the action area could consist of several small areas of suitable habitat. Male and female home ranges are known to overlap considerably (Navarro, 1985; Tewes, 1986). Thus, a breeding pair of ocelots could require less habitat than two independent males. Lack of suitable unoccupied habitat cause individual ocelots and/or jaguarundis to keep moving, even retracing their steps, thus exposing them to an increased risk of mortality from vehicle strikes.

Tewes (1987 and 1990) and the Service (USFWS 1990) believe it is highly likely that the continued existence of the isolated ocelot and jaguarundi populations along the Rio Grande make

it necessary to protect a travel corridor connecting these populations along the river. The habitat corridor paralleling the Rio Grande serves an important role in connecting the main coastal population of ocelots to the interior subpopulations. Many researchers (Ideker 1984, Tewes and Everett 1986, Tewes and Laack 1989) and the Service (1990) place great importance on the travel corridors which connect existing populations of both cat species, as well as suitable habitat that may be occupied in the future.

In summary, the ocelot and jaguarundi are very scarce and their limited habitat is severely fragmented (Tewes and Schmidly 1987). Having to utilize habitat fragments makes them highly vulnerable to vehicle strikes, reduces genetic viability, and minimizes the likelihood of their survival and recovery in the wild. Ideker (1984) concluded the only hope for the continued survival of both cats in Texas lay in the preservation of its rapidly vanishing brush habitat and conversion of cleared connecting habitat back to dense brush.

B. Factors Affecting Species Environment Within the Action Area

Habitat Aquisition and Management

The South Texas Refuges Complex is situated in southernmost Texas, and is made up of three NWRs, Santa Ana, Laguna Atascosa, and Lower Rio Grande Valley. The LRGV NWR is a vital part of the wildlife corridor system in south Texas and in the action area. The LRGV NWR was begun in 1979 and today it has more than 100 individual units stretched along 275 miles of the Rio Grande Delta. With an eventual goal of 132,500 acres, the Service has committed $78 million over the last 20 years to acquisition and easement protection of 83,000 acres of land which now comprise the LRGV NWR.

The Service is continuing to acquire and enhance native Tamaulipan brushland along the LRGV NWR to promote movements of these endangered cats between known and suspected areas of occupation. Since the 1993 BO and 1996 MOU with the USIBWC, the LRGV NWR has purchased 16,281 acres along the river and 23,765 acres off river. Consequently, much of the land acquired by the Service has been, and continues to be, actively cultivated. To address this, the NWR has developed an extensive cooperative farming and revegetation program and is restoring between 750 and 1000 acres of farmland a year to native brush. Since 1993, the NWR has revegetated 8,355 acres with their restoration program. However, this has not been enough to keep up with wildlife habitat needs. In 2000, the LRGV NWR managed 30,000 acres of land in need of revegetation.

The resource protection and management strategy for the LRGV NWR consists of five integrated approaches to address complex resource needs. They include: concentration of biotic community needs; maintenance of a wildlife habitat corridor; safeguarding of anchor units of large size; protection of strategically placed management units of smaller size; and the incorporation of about 20 habitat islands into the protection plan. The LRGV NWR is protecting and connecting blocks of rare habitat that will undoubtedly serve as a model for future habitat conservation networks. Individual tracts of the LRGV NWR serve as both core habitat blocks and corridor links.

Directly to the south are ecologically valuable areas such as the Laguna Madre of Tamaulipas, Mexico, and the Sierra de los Picachos (in Nuevo Leon, Mexico) which are receiving focused conservation attention from the Mexican Government and a number of interested Mexican and U.S. conservation organizations. The Service's Lower Rio Grande/Rio Bravo Binational Ecosystem Team have been working with Mexico to establish a "wildlife corridor" along the river within the action area and in Tamaulipas to connect these important ecologically valuable areas. To the north lies the Laguna Atascosa NWR and the great South Texas ranch country with their large blocks of intact habitat.

Brush clearing continues to be the major limiting factor for feline populations in LRGV (Collins 1984; Rappole 1986). The ocelot and jaguarundi also depend on densely vegetated travel corridors along resacas, ramaderos, and between brush tracts (Rappole 1988). Such corridors facilitate dispersal through an otherwise cleared landscape. Vegetation removal associated with "clean farming" and water storage, delivery, and drainage has negatively affected felid populations by preventing travel between remnant brush tracts.

Use of corridors is becoming prevalent in reserve design (Noss 1987). The original landscape in many reserve areas, as in LRGV, was once a series of interconnected natural habitats. Thus, corridors are an attempt to maintain or restore natural landscape connectivity. Increased connectivity, along with increased effective habitat area, counteract habitat fragmentation (Noss 1987). Corridors facilitate gene flow and dispersal of individual animals (Soule and Simberoff 1986). Life histories of wide-ranging animals suggest that maintenance or restoration of landscape connectivity is a good management strategy (Noss 1987). Corridors alleviate threats from inbreeding depressions, and a network of refuges connected by corridors may allow persistence of species that need more resources than are found in one refuge site.

Potential disadvantages of corridors can be avoided by enlarging corridor width (Noss 1987). Because of probable human and associated disturbances, the best corridors are as wide as possible. Necessary width depends on habitat structure and quality within the corridor, the mature surrounding habitat, human use patterns, and particular species that are expected to use it (Noss 1987). The ideal corridor width along the Rio Grande would be wide enough for target species to access sufficient food, water, and cover. In this way, genetic exchange could occur along the corridor, and populations could be maintained even though density at any particular place in the corridor might be low.

U.S. Border Patrol USBP) Activities

Current and past USBP activities have affected the species habitat. Portable and permanent lighting incorrectly positioned illuminates brush vegetation and causes the species to avoid such areas. Clearing of brushland for patrol roads, drag roads, and construction of Ports of Entry (POEs) has resulted in fragmentation and loss of habitat. Multiple roads between the flood levee and the river further fragment the habitat. There are a number of roads traversing the LRGV NWR tracts. Brush habitat along the toe of the levee is fragmented due to USBP vehicles going

down the south side of the levee toward the river and cutting through the wildlife corridor. Encroachment of development around the POEs also resulted in loss, avoidance or fragmentation of habitat. An incidental take statement has been issued by the Service for one ocelot and one jaguarundi for the life of the project (20 years) in the 2003 BO prepared for the USBP Operation Rio Grande Operations.

Joint Task Force-6 (JTF-6) is a Department of Defense group that works with USBP along the entire U.S.-Mexico border. This group, like the USCOE, assists the USBP with its efforts to keep drugs out of border areas. A detailed plan of all JTF-6 activities expected to occur during the next five years across the border region has been completed. Activities are expected to take place in habitats suitable for ocelots and jaguarundis.

The Brownsville Weir

The Service concluded section 7 formal consultation and issued a Final Biological Opinion on May 14, 2003 to the USCOE on the issuance of a Section 404 permit for PUB's proposed Brownsville Weir and Reservoir Project (Weir) in Cameron County, TX. The Weir project includes the construction of a gated weir across the channel of the lower Rio Grande at river mile (RM) 48.7 approximately eight river miles downstream of the Gateway Bridge in Brownsville, Texas and 4 miles southeast of Brownsville (Figure 1). The weir structure will contain low-flow outlets and six 35 foot wide radial gates to allow passage of non-project water and flood flows to be released downstream. The weir gates will open from the bottom of the structure near the existing river bottom and will allow for passage of aquatic organisms when open.

An in-channel reservoir would be operated, and confine any impounded water within the existing banks of the Rio Grande. The in-channel reservoir would extend for 42 river miles along the Rio Grande from RM 48.7 to RM 90, with an average width of 110 feet and a maximum water elevation of 26 feet above mean sea-level. The total surface area would be approximately 600 surface acres, inundating approximately 130 acres of the US and Mexico at least 50% of the time. The inundated area would fall within the 75-foot zone between the existing river's edge and the beginning of the 33-foot wide endangered cat corridor defined by the Service and the USIBWC. The reservoir will be able to hold 6,000 acre-feet of water (two billion gallons), resulting in an increase in 40,000 acre feet of water per year or 35.7 million gallons per day above the existing rights to water held by PUB in the upstream Falcon and Amistad Reservoirs.

A total of 69 acres of river habitat on the US side will be inundated and/or impacted by the construction of the Weir and associated structures. Construction of the Weir and associated structures will impact 30 acres of US land (uplands, river channel, and river banks). Of that, 24 acres will constitute a temporary easement and will be re-vegetated after use. Approximately 6 acres of US land (4 acres of river habitat and 2 acres of uplands) will be permanently modified by the Weir and associated structures. Permanently impacted acreage on the Mexican side will be 7 acres. The footprint of the Weir and associated structures will encompass a total of 9 acres of normal channel and river bank in the US and Mexico.

The USIBWC informed the project proponents that the weir would not cause a significant increase in flood stages. PUB has been successful in compiling a set of properties for purchase or dedication to the Service, that will provide a wildlife corridor connection from the Service's Laguna Atascosa NWR to the Service's refuge property at Bahia Grande. The corridor will comprise of 280 acres of brush habitat and will be a minimum of 40 meters (131 ft) in width. The PUB will transfer title to the corridor lands by whatever mechanism the Service recommends. PUB will be revegetate 24 acres of habitat temporarily impacted by construction activities with native grasses, brush and trees species. As mitigation for impacts to 65 acres of low-quality wetlands and riparian-edge habitat, the PUB will acquire Rincon Banco and adjacent properties totaling 130 acres to use for wetland creation, wetland enhancement and enhancement of upland buffer areas. It is hoped the corridor, once established, will protect and benefit both cat species by helping to avoid genetic isolation of population segments and promoting dispersal into suitable habitat. In addition it will provide a vegetated corridor in which to increase dispersal and reduce mortality from vehicle strikes.

IV. Effects of the Action

Past and Present Mowing for Flood Control

The USIBWC has implemented a vegetation mowing program since 1961 along a 34-mile reach of the Rio Grande between River Miles 28 and 62 and anticipates continuing that activity. The mowing occurs along the levee, river channel, and the interior floodway system. The purpose of the program is to maintain flood flows, ensure the river channel capacity and integrity of the levee. The vegetation is mowed once a year between June and August using tractors equipped with rotary mowers. These practices, and similar ones conducted in the LRGV, north of the Rio Grande, in what are referred to as the interior floodway system, were the subject of a formal consultation in the early 1990s which culminated in the issuance of a non-jeopardy biological opinion dated May 6, 1993 (Consultation number 2-11-91-F-144).

As part of that 1993 biological opinion and a Memorandum of Understanding (MOU) between the Service and USIBWC dated May 10, 1996, the USIBWC agreed to provide a 33-ft (10-meter) wide wildlife corridor and at the same time provide for the required flood control in the 34.5-mile (55.5-kilometer) segment of the Rio Grande Floodway and the Off-River Floodway System. On the Rio Grande Floodway, the 75-foot mowed areas are adjacent to the river and the wildlife corridor is located adjacent to the 75-foot wide maintenance strip on the landward side away from the river. The mowed areas can contain segments of less-than-mature/climax vegetation not less than 3-feet in height (e.g., native grasses, sunflower, some cactus species), only if these segments were not so long as to prevent the cats from utilizing the mature/climax vegetation corridor or the larger dense brush habitat "islands".

The USIBWC developed the LRGFCP Off-River Floodway System Wildlife Travel Corridor Plan dated April 1994 in conformance with the 1993 BO. A de facto wildlife travel corridor

exists along much of the USIBWC land side levee right of way in the off-river floodway system. Brushy vegetation has become established over the many years since the project was first constructed. These brushy areas are located within the land side levee right of way as a result of both the USIBWC's need to only mow the levee slope and toe and the fact that adjacent farmers and landowners have not encroached upon the easement by their activities. USIBWC is willing to ground truth easements and post signs to protect the habitat along levee rights-of-way. The posting of the signs started in March 2003 and is now an ongoing activity for the USIBWC operations and maintenance crews. The off-river corridors have not been established otherwise because the existing easements were established and conveyed to the United States by the counties for the express purpose to construct, operate, and maintain the levees. Additional easements for the wildlife travel corridor purposes must be acquired by the counties and conveyed to the USIBWC.

The significance of these corridors is further enhanced by their connectivity to other narrow corridors of vegetation associated with waterways such as irrigation canals and drainage ditches. However, in places along the river, the 33-foot-wide corridor contains only sparse vegetation less than 3 ft tall, and in some areas, such as near and beneath the Gateway Bridge at Brownsville, is completely devoid of vegetation. This is in part because the corridor is largely in private ownership, and, while the USIBWC possesses easements allowing it to mow the vegetation in the corridor and the surrounding floodway, it has not acquired permission from the landowners to plant vegetation in that corridor. In other areas, such as the Gateway Bridge, there is insufficient space between the flood levees and the river to encompass the 75-foot-wide strip which the USIBWC must mow to maintain treaty-mandated minimum flood flow capacity, an access road for mowing machinery and crews (and others, such as bridge maintenance crews and INS patrols), and the 33-ft-wide wildlife corridor. The only areas, at this time, where the 33-foot wide corridor has been established, is on NWR lands.

It is important to note the 33-foot-wide wildlife corridor is not the sole avenue for ocelot/jaguarundi movement in the action area. In many places along the river there are much wider, moderately to densely-vegetated patches of habitat on both public and private lands which augment the nominal cat corridor. These patches provide potential home range habitat, as well as travel routes. Even where the floodway narrows and the cat corridor is poorly vegetated to provide cover for the species' movements, several areas contain additional good cover from the river's normal edge to the top of the adjacent river channel banks. Although USIBWC is allowed to mow the area within 75 feet of the river once a year, because it obstructs flood flows, this riparian zone is covered by a nearly continuous patch of carrizo, a combination of common and giant (Phragmites communis and Arundo donax, respectively), which regrows after mowing and fires from extensive rhizomes at a phenomenal rate, returning within weeks to the density associated with optimal ocelot habitat. Owing to its density and resilience, as well as its remoteness from the flood levee where most of the roads, human activity, and floodlights are located, this carrizo zone, is considered by the Service an important travel corridor complementing the corridor established in consultation with the USIBWC.

In a report to the USIBWC, entitled "Potential Effects of Mowing on Three Endangered Species Along Rio Grande River", Tewes (1987) determined that if resident ocelots or jaguarundi occur in the river corridor, then mowing may have a significant impact on their home range and movement patterns. These resident cats may be forced either into adjacent suboptimal or optimal habitat islands which are often already saturated with cats (Navarro 1985, Tewes 1986) or into extremely marginal habitat with a high risk of mortality (Tewes 1987).

The recovery plan for the cats (USFWS 1990) identifies the need to protect habitat and travel corridors adjacent to occupied habitat, including the river corridor. Mowing could inhibit the enhancement of a connecting river corridor for use by the cats in areas of heavy cultivation where the only protective cover is along the river. Indirectly, precluding the enhancement of a travel corridor that is located adjacent to the 75-ft-wide maintenance strip on the landward side away from the Rio Grande may contribute to preventing the recovery of both cat species by genetically isolating populations, increasing the cats risk to road mortality and/or by preventing the dispersal of cats into otherwise suitable habitat. Mowing could also increase the risk of a cat, more likely a kitten, being directly killed by mowing equipment.

Efforts made since June 4, 2002, by the USIBWC to resume and complete their commitments under the 1993 BO by receiving appropriations to complete the purchase of the corridor, resuming work with Cameron County, re-establishing the MOU with the Service's refuge, coordinating a workgroup to assure milestones are met, moving forward on levee rehabilitation, coordinating their mowing activities with the Service and incorporating other measures outlined in the proposed project will help improve conditions for ocelot and jaguarundi and provide better vegetated corridors for dispersal.

Ocelots and jaguarundis occur in both countries and are known to cross the Rio Grande. It is unknown to what extent similar activities occur along the Mexico side of the river and whether the USIBWC proposed activities will impact cats in Mexico. Dispersal of cats to the U.S. side may be temporarily impacted by the proposed actions of the USIBWC, if disturbance is such that cats would return to Mexico, and then return at a later time or seek a new corridor to successfully cross the Rio Grande.

V. Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Growth of agriculture, cities, and industries, across the LRGV, with all their associated infrastructures, will continue to diminish the range of alternatives available to recover the ocelot and the jaguarundi as the remaining small islands of suitable habitat and the corridor to connect them are turned into fields, buildings, and pavement.

The rapid economic expansion of the large metropolitan areas with the influx of immigrants, retirees, and increased tourism will continue to result in the loss of brushland, and therefore, ocelot and jaguarundi habitat. Road expansions to accommodate the NAFTA and border crossings will increase loss and fragmentation of habitat corridors and increase road mortality. Encroachment from urban development and colonias that bring increased noise, light, fencing, and human disturbance will also result in the loss of habitat and avoidance of areas or travel corridors by the endangered ocelot or jaguarundi.

The Service is continually working with private and state entities to review proposed projects, offer technical assistance and provide recommendations on avoidance/minimization measures and restoration measures to protect the ocelot and jaguarundi, and their habitat. By continued cooperative efforts to replace, secure and improve such habitat and connect optimal habitats that exist on NWR lands and private lands, the Service does not believe that the cumulative effects of which we are aware are likely to jeopardize the continued existence of the ocelot or jaguarundi.

VI. Conclusion

After reviewing the current status of the ocelot and jaguarundi, the environmental baseline for the action area, the effects of Vegetation Management Practices for the LRGFCP, and the cumulative effects, it is the Service's biological opinion that the Vegetation Management Practices for the LRGFCP, as proposed, is not likely to jeopardize the continued existence of the ocelot and jaguarundi. No critical habitat has been designated for these species, therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of Section 7(a)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental statement.

The measures described below are non-discretionary, and must be undertaken by the USIBWC so that they become binding conditions of any grant or permit issued by the USIBWC, as appropriate, for the exemption in section 7(o)(2) to apply. The USIBWC has a continuing duty

to regulate the activity covered by this incidental take statement. If the USIBWC (1) fails to assume and implement the terms and conditions or (2) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the USIBWC must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

Amount or Extent of Take Anticipated

The Service anticipates incidental take of an ocelot or jaguarundi in the form of harm and harassment will be difficult to detect because 1) the species is wide-ranging, 2) elusive, 3) nocturnal and 4) finding a dead or impaired specimen that has resulted from impairing essential behavioral patterns like breeding, feeding or sheltering is unlikely. The take of an ocelot or jaguarundi, however, can be reasonably anticipated by the loss of habitat throughout a 34-mile stretch along the Rio Grande because 1) mowing protective cover along the river could hinder free movements of both cats along the Rio Grande and may contribute to isolated populations and slow recovery, and 2) increasing the cats risk to road mortality and/or by preventing the dispersal of cats into otherwise suitable habitat. Therefore, the Service anticipates one ocelot or jaguarundi could be taken in the form of harm and harassment and/or injury or mortality due to vehicular or mowing equipment collision within the project area for the life of the project (20 years).

Effect of the take

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

As part of this reinitiation the USIBWC was able to identify problems that resulted in their inability to complete certain actions outlined in the 1993 BO and have since adopted a plan to resume those actions and fulfill commitments. The actions have been summarized in the proposed project description. The Service believes the following additional reasonable and prudent measures(s) are necessary and appropriate to minimize impacts of incidental take of the ocelot or jaguarundi:

1. Preserve and maintain ocelot and jaguarundi habitat; avoid and minimize loss and fragmentation of ocelot and jaguarundi habitat.

2. Avoid and minimize road mortality of ocelots and jaguarundis.

3. Assist the Service in documenting cat movement and success of establishing vegetative corridors.

4. Develop and implement an educational program for USIBWC personnel.

Terms and conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the USIBWC must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

1. The following terms and conditions are necessary to implement Reasonable and Prudent Measure 1.

   A. Only existing roads will be used to move mowing equipment and mowing will only occur within the 75 ft wide strip from the Rio Grande's water's edge at the low banks. No mowing will take place in the 33 ft wide wildlife corridor, within its river and interior floodways.

   B. According to the February 3, 2003 BO issued to the USBP for Operation Rio Grande, the USBP will implement one mowing per year in addition to June/July mowing customarily performed by the USIBWC. That additional mowing activity must be done between October and February of each year. If USIBWC does not conduct its annual mowing, the USBP may undertake the action with close coordination and concurrence with the USIBWC. USBP will request USIBWC's permission to undertake the mowing in writing and USIBWC must provide written approval to USBP permitting such mowing with a copy of same to the Service. Both agencies have agreed to coordinate mowing efforts.

2. The following term and condition is necessary to implement Reasonable and Prudent Measure 2.

   A. Vehicular speeds by USIBWC vehicles and mowing equipment should be reduced at the project site whenever possible, to avoid adult and kitten mortality.

3. The following terms and conditions are necessary to implement Reasonable and Prudent Measure 3.

   A. If USIBWC locates a dead, injured, or sick ocelot or jaguarundi, initial notification must be made to the Service's Law Enforcement Office in McAllen, Texas (telephone: 956-686-8591) or Ecological Service Office at the Santa Ana NWR (956-784-7560). To the extent practicable, the finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

B. Annual reports will be submitted to the Ernesto Reyes, USFWS Field Supervisor, at Rt. 2 Box 202-A, Alamo, Texas on September 30th of each year. Reports should include the progress on implementation of conservation recommendations and reasonable and prudent measures that have been accomplished for the life of the project.

4. The following term and condition is necessary to implement Reasonable and Prudent Measure 4.

   A. Design and implement an instruction program to instruct any current and new USIBWC current and new field personnel in the project area on their duties and obligations under the ESA not to take federally listed species, including ocelot and jaguarundi. The Service will be consulted in the preparation and implementation of this program.

The Service believes that no more than one ocelot or one jaguarundi will be incidentally taken as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the cause of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. Purchase or dedicate tracts and help ensure management of land in large or continuous blocks of ocelot habitat to help achieve the recommended recovery goal to acquire and protect 20,000 ha of ocelot habitat as outlined in the recovery plan. (Tasks 131, 132)

2. Fund further surveys to help locate additional endangered cats. (Tasks 112, 312)

3. Fund further restoration research or restoration of cat habitat. (Tasks 343)

4. Partner with the Service and other entities to design and assist in the funding of an ocelot and jaguarundi population assessment study.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

Reinitiation

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operation causing such take must cease pending reinitiation.

Sincerely,

Allan M. Strand
Field Supervisor

cc:
Janelle Stokes, USCOE, Galveston, TX
Doug Echlin, USIBWC, El Paso, TX
Ernesto Reyes, USFWS, Alamo, TX

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Figures

Figure 1	Project Area USIBWC Rio Grande Flood Control Project
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Table 1.	Ocelot subspecies
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