APPENDIX F

APPENDIX F

Correspondence with U.S. Fish and Wildlife Service and Arizona Game and Fish Department

This appendix contains copies of the following documents related to fish and wildlife resources.

?? Letter to U.S. Fish and Wildlife Service, dated February 22, 2002

?? Letter from U.S. Fish and Wildlife Service, dated March 7, 2002

?? Letter to Arizona Game and Fish Department, dated March 6, 2002

?? Letter to Bureau of Reclamation, dated March 21, 2002

?? Letter to U.S. Fish and Wildlife Service, dated March 10, 2003

?? *Biological Resources Assessment for the Transfer of Title to Federal Facilities, Work, and Lands of the Gila Project, Wellton-Mohawk Division to the Wellton-Mohawk Irrigation and Drainage District, Yuma County, Arizona*, dated September 2002

?? Letter from Stevens Ecological Consulting, dated April 11, 2003

?? Letter to U. S. Fish and Wildlife Service, dated May 30, 2003

?? Letter from U.S. Fish and Wildlife Service, dated June 9, 2003

YAO-7210
ENV-7.00

February 22, 2002

MEMORANDUM

To: Mr. David L. Harlow, Field Supervisor, U.S. Fish and Wildlife Service, 2321 West Royal Palm Road, Suite 103 Phoenix AZ 85021-4951

From: Michael P. Collins
Director, Resource Management Office

Subject: Wellton-Mohawk Title Transfer Project (Project)- Request for Species List, Yuma County, Arizona

This memorandum continues Reclamation's informal consultation with the Service under section 7 of the Endangered Species Act of 1973, as amended. On February 11, 2002, we briefed Mr. Don Metz of your staff about a proposed Reclamation action to transfer title to specific works, facilities, and lands from Federal ownership to the Wellton-Mohawk Irrigation and Drainage District (District).

At present, Reclamation is conducting a Federal National Environmental Policy Act (NEPA) review of the proposed action. As part of the NEPA review, we will evaluate the potential for impacts to ecological resources within the Project's area of effect (see Attachment 1).

To facilitate our NEPA review, with this memorandum we are requesting the most recent Federal list of threatened and endangered species and critical habitat for the Project area.

As we discussed with Mr. Metz, the facilities proposed for transfer consist of the irrigation and drainage systems of the Wellton-Mohawk Division of the Gila Project, the Gila River Flood Channel and associated mitigation facilities, and rights of way for the irrigation and drainage systems and the flood channel. In addition, the District is interested in purchasing at fair market value certain Federal lands currently administered by

Reclamation and the Bureau of Land Management (BLM). The title transfer, authorized by Congress in June 2000, is intended to reduce or eliminate duplication of costs borne by both the Federal Government and the District in administering, operating, and maintaining the system.

We would appreciate your timely response to this request. Please do not hesitate to contact Ms. Andrea Campbell, Natural Resources Specialist, at 928-343-8237, with questions or comments on this request.

Michael Collins /s/

Attachment

cc: Mr. Larry Killman
Wellton-Mohawk Irrigation
and Drainage District
30570 Wellton-Mohawk Drive
Wellton AZ 85356
(w/o att)

Mr. Russ Engel
Arizona Department of
Game and Fish
9140 East 28th Street
Yuma AZ 85365
(w/o att)

Mr. Martin Einert
Bookman-Edmonston Engineering
201 East Washington, Suite 340
Phoenix AZ 85004
(w/o att)

7001 (w/att)
7100 (w/o att)
7120 Kirkland (w/o att)
7210 DeSantiago (w/o att)

AWCampbell:ms:2/22/02
dir:7000\CAMPBELL\7210-02.004

United States Department of the Interior
U.S. Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer to: ENV- 7.00

AESO/SE
2-21-02-I-115

March 7, 2002

Memorandum

To: Director, Resource Management Office, Bureau of Reclamation, Yuma, Arizona (Attn: Michael P. Collins)

From: Field Supervisor

Subject: Wellton-Mohawk Title Transfer Project #2000723

This memorandum responds to your February 22, 2002, request for an inventory of threatened or endangered species, or those that are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may potentially occur in your project area (Yuma County). The attached list may include candidate species as well. We hope the attached county list of species will be helpful. In future communications regarding this project, please refer to consultation number 2-21-02-I-115.

The attached list of the endangered, threatened, proposed, and candidate species includes all those potentially occurring anywhere in the county, or counties, where your project occurs. Please note that your project area may not necessarily include all or any of these species. The information provided includes general descriptions, habitat requirements, and other information for each species on the list. Also on the attached lists are the Code of Federal Regulations (CFR) citation for each list and is available at most public libraries. This information should assist you in determining which species may or may not occur within your project area. Site-specific surveys could also be helpful and may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts.

Endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency must request formal consultation with the Service. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed critical habitat, the action agency must enter into a section 7 conference with the Service. Candidate species are those which are being considered for addition to the list of threatened or endangered species. Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.

If any proposed action occurs in or near areas with trees and shrubs growing along watercourses, known as riparian habitat, the Service recommends the protection of these areas. Riparian areas are critical to biological community diversity and provide linear corridors important to migratory species. In addition, if the project will result in the deposition of dredged or fill materials into waterways or excavation in waterways, we recommend you contact the Army Corps of Engineers which regulates these activities under Section 404 of the Clean Water Act.

The State of Arizona protects some plant and animal species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species in your project area.

The Service appreciates your efforts to identify and avoid impacts to listed and sensitive species in your project area. If we may be of further assistance, please feel free to contact Sherry Barrett at (520) 670-4617.

for David L. Harlow

Attachment

cc: Regional Supervisor, Arizona Game and Fish Department, Tucson, AZ
Assistant Field Supervisor, Fish and Wildlife Service, Tucson, AZ

W:\Cathy Gordon\species list letters\bor wellton mohawk title transfer.wpd cgg

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY: YUMA

1/14/2002

1) LISTED

TOTAL= 8

NAME: PEIRSON'S MILKVETCH *ASTRAGALUS MAGDALENAE var. PEIRSONII*

STATUS: THREATENED CRITICAL HAB No RECOVERY PLAN: No CFR: 63 FR 53615, 10/6/98

DESCRIPTION: STOUT PERENNIAL OF SHORT DURATION, FLOWERING AS A WINTER ANNUAL, AT LENGTH WOODY BELOW, WITH APPRESSED HAIRS; PETALS DULL PURPLE; STEMS ERECT.

ELEVATION RANGE: < 1,000 FT FT.

COUNTIES: YUMA

HABITAT: LOW DUNES OF THE YUMA DESERT

SPECIES ALSO FOUND IN ALGODONES DUNES IN CALIFORNIA. REGION 1 HAS LEAD.

NAME: SONORAN PRONGHORN *ANTILOCAPRA AMERICANA SONORIENSIS*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67

DESCRIPTION: BUFF ON BACK AND WHITE BELOW, HOOFED WITH SLIGHTLY CURVED BLACK HORNS HAVING A SINGLE PRONG. SMALLEST AND PALEST OF THE PRONGHORN SUBSPECIES.

ELEVATION RANGE: 2000-4000 FT.

COUNTIES: PIMA, YUMA, MARICOPA

HABITAT: BROAD, INTERMOUNTAIN ALLUVIAL VALLEYS WITH CREOSOTE-BURSAGE & PALO VERDE-MIXED CACTI ASSOCIATIONS

TYPICALLY, BAJADAS ARE USED AS FAWNING AREAS AND SANDY DUNE AREAS PROVIDE FOOD SEASONALLY. HISTORIC RANGE WAS PROBABLY LARGER THAN EXISTS TODAY. THIS SUBSPECIES ALSO OCCURS IN MEXICO.

NAME: RAZORBACK SUCKER *XYRAUCHEN TEXANUS*

STATUS: ENDANGERED CRITICAL HAB Yes RECOVERY PLAN: Yes CFR: 56 FR 54957 10-23-1991; 59 FR 13374, 03-21-1994

DESCRIPTION: LARGE (UP TO 3 FEET AND UP TO 6 POUNDS) LONG, HIGH SHARP-EDGED KEEL-LIKE HUMP BEHIND THE HEAD. HEAD FLATTENED ON TOP. OLIVE-BROWN ABOVE TO YELLOWISH BELOW.

ELEVATION RANGE: <6000 FT.

COUNTIES: GREENLEE, MOHAVE, PINAL, YAVAPAI, YUMA, LA PAZ, MARICOPA (REFUGIA), GILA, COCONINO, GRAHAM

HABITAT: RIVERINE & LACUSTRINE AREAS, GENERALLY NOT IN FAST MOVING WATER AND MAY USE BACKWATERS

SPECIES IS ALSO FOUND IN HORSESHOE RESERVOIR (MARICOPA COUNTY).CRITICAL HABITAT INCLUDES THE 100-YEAR FLOODPLAIN OF THE RIVER THROUGH GRAND CANYON FROM CONFLUENCE WITH PARIA RIVER TO HOOVER DAM; HOOVER DAM TO DAVIS DAM; PARKER DAM TO IMPERIAL DAM. ALSO GILA RIVER FROM AZ/NM BORDER TO COOLIDGE DAM, AND SALT RIVER FROM HWY 60/SR 77 BRIDGE TO ROOSEVELT DAM; VERDE RIVER FROM FS BOUNDARY TO HORSESHOE LAKE.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY: YUMA

1/14/2002

NAME: BALD EAGLE *HALIAEETUS LEUCOCEPHALUS*

STATUS: THREATENED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 60 FR 35999, 07-12-95

DESCRIPTION: LARGE, ADULTS HAVE WHITE HEAD AND TAIL. HEIGHT 28 - 38"; WINGSPAN 66 - 96". 1-4 YRS DARK WITH VARYING DEGREES OF MOTTLED BROWN PLUMAGE. FEET BARE OF FEATHERS.

ELEVATION RANGE: VARIES FT.

COUNTIES: YUMA, LA PAZ, MOHAVE, YAVAPAI, MARICOPA, PINAL, COCONINO, NAVAJO, APACHE, SANTA CRUZ, PIMA, GILA, GRAHAM, COCHISE

HABITAT: LARGE TREES OR CLIFFS NEAR WATER (RESERVOIRS, RIVERS AND STREAMS) WITH ABUNDANT PREY

SOME BIRDS ARE NESTING RESIDENTS WHILE A LARGER NUMBER WINTERS ALONG RIVERS AND RESERVOIRS. AN ESTIMATED 200 TO 300 BIRDS WINTER IN ARIZONA. ONCE ENDANGERED (32 FR 4001, 03-11-1967; 43 FR 6233, 02-14-78) BECAUSE OF REPRODUCTIVE FAILURES FROM PESTICIDE POISONING AND LOSS OF HABITAT, THIS SPECIES WAS DOWN LISTED TO THREATENED ON AUGUST 11, 1995. ILLEGAL SHOOTING, DISTURBANCE, LOSS OF HABITAT CONTINUES TO BE A PROBLEM. SPECIES HAS BEEN PROPOSED FOR DELISTING (64 FR 36454) BUT STILL RECEIVES FULL PROTECTION UNDER ESA.

NAME: BROWN PELICAN *PELECANUS OCCIDENTALIS CALIFORNICUS*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 35 FR 16047, 10-13-70; 35 FR 18320, 12-02-70

DESCRIPTION: LARGE DARK GRAY-BROWN WATER BIRD WITH A POUCH UNDERNEATH LONG BILL AND WEBBED FEET. ADULTS HAVE A WHITE HEAD AND NECK, BROWNISH BLACK BREAST, AND SILVER GRAY UPPER PARTS.

ELEVATION RANGE: VARIES FT.

COUNTIES: APACHE, COCHISE, COCONINO, GILA, GRAHAM, GREENLEE LA PAZ, MARICOPA, MOHAVE, NAVAJO, PIMA, PINAL, SANTA CRUZ, YAVAPAI, YUMA

HABITAT: COASTAL LAND AND ISLANDS; ARIZONA LAKES AND RIVERS

SUBSPECIES IS FOUND ON PACIFIC COAST AND IS ENDANGERED DUE TO PESTICIDES. IT IS AN UNCOMMON TRANSIENT IN ARIZONA ON MANY ARIZONA LAKES AND RIVERS. INDIVIDUALS WANDER UP FROM MEXICO IN SUMMER AND FALL. NO BREEDING RECORDS IN ARIZONA.

NAME: CACTUS FERRUGINOUS PYGMY-OWL *GLAUCIDIUM BRASILIANUM CACTORUM*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: No CFR: 62 FR 10730, 3-10-97

DESCRIPTION: SMALL (APPROX. 7"), DIURNAL OWL REDDISH BROWN OVERALL WITH CREAM-COLORED BELLY STREAKED WITH REDDISH BROWN. SOME INDIVIDUALS ARE GRAYISH BROWN

ELEVATION RANGE: <4000 FT.

COUNTIES: MARICOPA, YUMA, SANTA CRUZ, GRAHAM, GREENLEE, PIMA, PINAL, GILA, COCHISE

HABITAT: MATURE COTTONWOOD/WILLOW, MESQUITE BOSQUES, AND SONORAN DESERTSCRUB

RANGE LIMIT IN ARIZONA IS FROM NEW RIVER (NORTH) TO GILA BOX (EAST) TO CABEZA PRIETA MOUNTAINS (WEST). ONLY A FEW DOCUMENTED SITES WHERE THIS SPECIES PERSISTS ARE KNOWN, ADDITIONAL SURVEYS ARE NEEDED. CRITICAL HABITAT WAS VACATED BY THE U.S. DISTRICT COURT FOR THE DISTRICT OF ARIZONA (9/19/01) AND REMANDED TO THE SERVICE FOR FURTHER CONSIDERATION.

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY: YUMA

1/14/2002

NAME: SOUTHWESTERN WILLOW FLYCATCHER *EMPIDONAX TRAILLII EXTIMUS*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: No CFR: 60 FR 10694, 02-27-95

DESCRIPTION: SMALL PASSERINE (ABOUT 6") GRAYISH-GREEN BACK AND WINGS, WHITISH THROAT, LIGHT OLIVE-GRAY BREAST AND PALE YELLOWISH BELLY. TWO WINGBARS VISIBLE. EYE-RING FAINT OR ABSENT.

ELEVATION RANGE: <8500 FT.

COUNTIES: YAVAPAI, GILA, MARICOPA, MOHAVE, COCONINO, NAVAJO, APACHE, PINAL, LA PAZ, GREENLEE, GRAHAM, YUMA, PIMA, COCHISE, SANTA CRUZ

HABITAT: COTTONWOOD/WILLOW & TAMARISK VEGETATION COMMUNITIES ALONG RIVERS & STREAMS

MIGRATORY RIPARIAN OBLIGATE SPECIES THAT OCCUPIES BREEDING HABITAT FROM LATE APRIL TO SEPTEMBER. DISTRIBUTION WITHIN ITS RANGE IS RESTRICTED TO RIPARIAN CORRIDORS. DIFFICULT TO DISTINGUISH FROM OTHER MEMBERS OF THE EMPIDONAX COMPLEX BY SIGHT ALONE. TRAINING SEMINAR REQUIRED FOR THOSE CONDUCTING FLYCATCHER SURVEYS. CRITICAL HABITAT WAS SET ASIDE BY THE 10TH CIRCUIT COURT OF APPEALS (5/17/01).

NAME: YUMA CLAPPER RAIL *RALLUS LONGIROSTRIS YUMANENSIS*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67, 48 FR 34182, 07-27-83

DESCRIPTION: WATER BIRD WITH LONG LEGS AND SHORT TAIL. LONG SLENDER DECURVED BILL. MOTTLED BROWN ON GRAY ON ITS RUMP. FLANKS AND UNDERSIDES ARE DARK GRAY WITH NARROW VERTICAL STRIPES PRODUCING A BARRING EFFECT.

ELEVATION RANGE: <4500 FT.

COUNTIES: YUMA, LA PAZ, MARICOPA, PINAL, MOHAVE

HABITAT: FRESH WATER AND BRACKISH MARSHES

SPECIES IS ASSOCIATED WITH DENSE EMERGENT RIPARIAN VEGETATION. REQUIRES WET SUBSTRATE (MUDFLAT, SANDBAR) WITH DENSE HERBACEOUS OR WOODY VEGETATION FOR NESTING AND FORAGING. CHANNELIZATION AND MARSH DEVELOPMENT ARE PRIMARY SOURCES OF HABITAT LOSS.

2) PROPOSED

TOTAL= 2

NAME: FLAT-TAILED HORNED LIZARD *PHRYNOSOMA MCALLII*

STATUS: PROPOSED CRITICAL HAB No RECOVERY PLAN: No CFR: 66 FR 66384

DESCRIPTION: TYPICAL FLATTENED BODY SHAPE OF HORNED LIZARDS; DARK VERTEBRAL STRIPE; LACKS EXTERNAL EAR OPENINGS; COLOR IS CRYPTIC RANGING FROM PALE GRAY TO LIGHT RUST BROWN; HAS TWO ROWS OF FRINGED SCALES ON EACH SIDE OF BODY

ELEVATION RANGE: 500 FT. FT.

COUNTIES: YUMA

HABITAT: SANDY FLATS OR AREAS WITH FINE, WINDBLOWN SAND; CREOSOT-WHITE BURSAGE SERIES OF SONORAN DESERT

CONSERVATION AGREEMENT FINALIZED IN MAY 1997. PROPOSED RULE REINSTATED IN DECEMBER 2001. SPECIES ALSO FOUND IN PORTIONS OF SAN DIEGO COUNTY, CENTRAL RIVERSIDE COUNTY, AND IMPERIAL COUNTY, CALIFORNIA; ALSO SONORA AND BAJA CALIFORNIA, MEXICO

NAME: MOUNTAIN PLOVER *CHARADRIUS MONTANUS*

STATUS: PROPOSED THREATENED CRITICAL HAB No RECOVERY PLAN: No CFR: 64 FR 7587; 02-16-1999

DESCRIPTION: IN BREEDING SEASON WITH WHITE FOREHEAD AND LINE OVER THE EYE; CONTRASTING WITH DARK CROWN; NONDESCRIPT IN WINTER. VOICE IS LOW, VARIABLE WHISTLE.

ELEVATION RANGE: VARIABLE FT.

COUNTIES: YUMA, PIMA, COCHISE, PINAL, APACHE

HABITAT: OPEN ARID PLAINS, SHORT-GRASS PRAIRIES, AND CULTIVATED FORMS.

SPECIES PRIMARILY FOUND IN ROCKY MOUNTAIN STATES FROM CANADA TO MEXICO. AZ PRIMARILY PROVIDES WITNERING HABITAT. BREEDING HAS BEEN DOCUMENTED, BUT IS RARE, AND IS LIKELY RESTRICTED TO TRIBAL AND STATE LANDS IN APACHE COUNTY.

3) CANDIDATE

TOTAL= 1

NAME: YELLOW-BILLED CUCKOO *COCCYZUS AMERICANUS*

STATUS: CANDIDATE CRITICAL HAB No RECOVERY PLAN: No CFR: 66 FR 38611; 07-25-01

DESCRIPTION: MEDIUM-SIZED BIRD WITH A SLENDER, LONG-TAILED PROFILE, SLIGHTLY DOWN-CURVED BILL, WHICH IS BLUE-BLACK WITH YELLOW ON THE LOWER HALF OF THE BILL. PLUMAGE IS GRAYISH-BROWN ABOVE AND WHITE BELOW, WITH RUFOUS PRIMARY FLIGHT FEATHERS. ELEVATION RANGE: <6,500 FT.

COUNTIES: APACHE, COCHISE, COCONINO, GILA, GRAHAM, GREENLEE, LA PAZ, MARICOPA, MOHAVE, NAVAJO, PIMA, PINAL, SANTA CRUZ, YAVAPAI, YUMA

HABITAT: LARGE BLOCKS OF RIPARIAN WOODLANDS (COTTONWOOD, WILLOW, OR TAMARISK GALLERIES)

SPECIES WAS FOUND WARRANTED, BUT PRECLUDED FOR LISTING AS A DISTINCT VERTEBRATE POPULATION SEGMENT IN THE WESTERN U.S. ON JULY 25, 2001. THIS FINDING INDICATES THAT THE SERVICE HAS SUFFICIENT INFORMATION TO LIST THE BIRD, BUT OTHER, HIGHER PRIORITY LISTING ACTIONS PREVENT THE SERVICE FROM ADDRESSING THE LISTING OF THE CUCKOO AT THIS TIME.

YAO-7210
ENV-7.00

March 6, 2002

Ms. Sabra Schwartz
Arizona Game and Fish
Department
Habitat Branch-HDMS Program
2221 West Greenway Road
Phoenix AZ 85023-4399

Subject: Wellton-Mohawk Title Transfer Project (Project) - Request for Species List, Yuma County, Arizona

Dear Ms. Schwartz:

On February 11, 2002, we briefed Mr. Russ Engel of your Yuma office regarding a proposed Reclamation action to transfer title to specific works, facilities, and lands from Federal ownership to the Wellton-Mohawk Irrigation and Drainage District (District).

At present, Reclamation is conducting a Federal National Environmental Policy Act (NEPA) review of the proposed action. As part of the NEPA review, we will evaluate the potential for impacts to ecological resources within the Project's area of effect (see Enclosure).

To facilitate our NEPA review, with this letter we are requesting the most recent list of protected species in the Project area from the Arizona Heritage Data Management System database.

As we informed Mr. Engel, the facilities proposed for transfer consist of the irrigation and drainage systems of the Wellton-Mohawk Division of the Gila Project, the Gila River Flood Channel and associated mitigation facilities, and rights-of-way for the irrigation and drainage systems and the flood channel. In addition, the District is interested in purchasing, at fair market value, certain Federal lands currently administered by

Reclamation and the Bureau of Land Management. The title transfer, authorized by Congress in June 2000, is intended to reduce or eliminate duplication of costs borne by both the Federal Government and the District in administering, operating, and maintaining the system.

Please do not hesitate to contact Ms. Andrea Campbell, Natural Resources Specialist, at 928-343-8237, if you have questions or comments regarding the Project or our request for information. We look forward to your response.

Sincerely,

Michael P. Collins /s/

Michael P. Collins
Director
Resource Management Office

Enclosure

cc: Mr. Larry Killman
Wellton-Mohawk Irrigation
and Drainage District
30570 Wellton-Mohawk Drive
Wellton AZ 85356
(w/o encl)

Mr. Russ Engel
Arizona Department of
Game and Fish
9140 East 28th Street
Yuma AZ 85365
(w/o encl)

Mr. Martin Einert
Bookman-Edmonston
Engineering
201 East Washington,
Suite 340
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7001
7100 Strahan
7120 Kirkland
7210 DeSantiago

ACampbell:ms:03/05/02
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THE STATE OF ARIZONA
GAME AND FISH DEPARTMENT
2221 WEST GREENWAY ROAD, PHOENIX, AZ 85023-4399
(602) 942-3000 • WWW.AZGFD.COM

WTR-4.00-Irrigation District WMIDD

March 21, 2002

Mr. Michael Collins
Bureau of Reclamation
Yuma Area Office
7301 Calle Agua Salada
Yuma, AZ 85364

Re: Special Status Species Information for **Wellton-Mohawk Title Transfer Project.**

Dear Mr. Collins:

The Arizona Game and Fish Department (Department) has reviewed your request, dated March 6, 2002, regarding special status species information associated with the above-referenced project areas. The Department's Heritage Data Management System (HDMS) has been accessed and current records show that the special status species listed on the attachment have been documented as occurring in the project area. In addition, the project does not occur in the vicinity of any proposed or designated Critical Habitats.

The Department's HDMS data are not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity.

Making available this information does not substitute for the Department's review of project proposals, and should not decrease our opportunities to review and evaluate new project proposals and sites. The Department is also concerned about other resource values, such as other wildlife, including game species, and wildlife-related recreation. The Department would appreciate the opportunity to provide an evaluation of impacts to wildlife or wildlife habitats associated with project activities occurring in the subject area, when specific details become available.

If you have any questions regarding the attached species list, please contact me at (602) 789-3618. General status information, state-wide and county distribution lists, and abstracts for some special status species are also available on our web site at: http://www.azgfd.com/frames/fishwild/hdms_site/Home.htm.

Sincerely,

Sabra S. Schwartz
Heritage Data Management System, Coordinator

SSS:ss

Attachment

cc: Bob Broscheid, Project Evaluation Program Supervisor
Russ Engel, Habitat Program Manager, Region IV

AGFD #3-07-02(18)

Special Status Species within Wellton-Mohawk Irrigation and Drainage District

Arizona Game and Fish Department, Heritage Data Management System
March 21, 2002

Scientific Name	Common Name	ESA	USFS	BLM	WSCA	NPL
ANTILOCAPRA AMERICANA SONORIENSIS	SONORAN PRONGHORN	LE	S		WC	
COCCYZUS AMERICANUS	YELLOW-BILLED CUCKOO	C	S		WC	
EUDERMA MACULATUM	SPOTTED BAT	SC		S	WC	
RALLUS LONGIROSTRIS YUMANENSIS	YUMA CLAPPER RAIL	LE			WC	
UMA NOTATA RUFORUNCTATA	COLORADO FRINGE-TOED LIZARD	SC	S	S	WC	

No Critical Habitats in project area. AGFD #3-7-02(18), Wellton-Mohawk Title Transfer Project, Yuma Co.

STATUS DEFINITIONS
ARIZONA GAME AND FISH DEPARTMENT (AGFD)
HERITAGE DATA MANAGEMENT SYSTEM (HDMS)

FEDERAL US STATUS

ESA **Endangered Species Act** (1973 as amended)
US Department of Interior, Fish and Wildlife Service (http://arizonaes.fws.gov)

Listed

- **LE** Listed Endangered: imminent jeopardy of extinction.
- **LT** Listed Threatened: imminent jeopardy of becoming Endangered.
- **XN** Experimental Nonessential population.

Proposed for Listing

- **PE** Proposed Endangered.
- **PT** Proposed Threatened.

Candidate (Notice of Review: 1999)

- **C** Candidate. Species for which USFWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened under ESA. However, proposed rules have not yet been issued because such actions are precluded at present by other listing activity.
- **SC** Species of Concern. The terms "Species of Concern" or "Species at Risk" should be considered as terms-of-art that describe the entire realm of taxa whose conservation status may be of concern to the US Fish and Wildlife Service, but neither term has official status (currently all former C2 species).

Critical Habitat (check with state or regional USFWS office for location details)

- **Y** Yes: Critical Habitat has been designated.
- **P** Proposed: Critical Habitat has been proposed.

[\N No Status: certain populations of this taxon do not have designated status (check with state or regional USFWS office for details about which populations have designated status)].

USFS **US Forest Service** (1999 Animals, 1999 Plants: corrected 2000)
US Department of Agriculture, Forest Service, Region 3 (http://www.fs.fed.us/r3/)

- **S** Sensitive: those taxa occurring on National Forests in Arizona which are considered sensitive by the Regional Forester.

BLM **US Bureau of Land Management** (2000 Animals, 2000 Plants)
US Department of Interior, Bureau of Land Management, Arizona State Office (http://azwww.az.blm.gov)

- **S** Sensitive: those taxa occurring on BLM Field Office Lands in Arizona which are considered sensitive by the Arizona State Office.
- **P** Population: only those populations of Banded Gila monster (*Heloderma suspectum cinctum*) that occur north and west of the Colorado River, are considered sensitive by the Arizona State Office.

STATE STATUS

[illegible] Arizona Native Plant Law (1999)
Arizona Department of Agriculture [illegible]

- HS Highly Safeguarded: no collection allowed.
- SR Salvage Restricted: collection only with permit.
- ER Export Restricted: transport out of State prohibited.
- SA Salvage Assessed: permits required to remove live trees.
- HR Harvest Restricted: permits required to remove plant by-products.

WSCA Wildlife of Special Concern in Arizona (1996 in prep)
Arizona Game and Fish Department (http://www.azgfd.com)

- WC Wildlife of Special Concern in Arizona. Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Arizona Game and Fish Department's listing of Wildlife of Special Concern in Arizona (WSCA, in prep). Species indicated on printouts as WC are currently the same as those in **Threatened Native Wildlife in Arizona** (1988).

United States Department of the Interior

BUREAU OF RECLAMATION
Yuma Area Office
7301 Calle Agua Salada
Yuma, Arizona 85364

IN REPLY REFER TO

RECEIVED
MAR 13 2003
By

YAO-7210
ENV-7.00

MAR 10 2003

MEMORANDUM

To: Mr. Steven Spangle, Field Supervisor, U.S. Fish and Wildlife Service, 2321 West Royal Palm Road, Suite 103, Phoenix, AZ 85021-4951

From: Acting Cynthia Hoeft
Director, Resource Management Office

RICK STRAHAN

Subject: Wellton-Mohawk Title Transfer Project (Project) - Section 7, Endangered Species Act (ESA) (Consultation Number 2-21-02-I-115)

This memorandum continues Reclamation's informal consultation with the United States Fish and Wildlife Service (Service) under section 7 of the Endangered Species Act of 1973, as amended. On February 11, 2002, we briefed Mr. Don Metz of your staff, about a proposed Reclamation action to transfer title to specific works, facilities, and lands from Federal ownership to the Wellton-Mohawk Irrigation and Drainage District (District). This briefing was followed in March 2002 by an extensive field visit to lands proposed for transfer, in which Mr. Mike Martinez of your staff participated, and a letter from your office providing Reclamation with a list of species and habitat that may occur in the Project area.

The purpose of this memorandum is to request concurrence by the Service on our determination that the proposed Project "may affect, but is not likely to adversely affect" two listed species: the endangered Yuma Clapper Rail (*Rallus longirostris yumanensis*) (YCR) and the endangered Southwestern Willow Flycatcher (*Empidonax traillii extimus*) (SWF).

This determination is based, in part, on field surveys and literature research regarding Federal and state-listed species in the Project area. The results of surveys and research were reported in Biological Resources Assessment, Transfer of Title to Federal Facilities, Works, and Lands of the Gila Project, Wellton-Mohawk Division, to Wellton-Mohawk Irrigation and Drainage District, Yuma County, Arizona, which was prepared for Reclamation by Phillips Consulting, LLC, under contract to Navigant Consulting, Inc., and is attached to this memorandum (Attachment 1).

Project Background

Briefly, the proposed Project is the transfer to the District of Federal title to certain irrigation and drainage systems, the Gila River flood channel, mitigation areas developed and maintained as conditions of Clean Water Act permits and approvals, and rights-of-way for the flood channel and irrigation and drainage systems. In addition, the District may purchase, at fair market value, certain Federal lands currently administered by Reclamation and the Bureau of Land Management (BLM). The lands and facilities proposed for transfer are depicted on Map 1.3 of Attachment 1.

The title transfer, authorized by Congress in June 2000, is intended to reduce or eliminate duplication of costs borne by the Federal government and the District in administering, operating, and maintaining the irrigation and drainage systems, facilities, and the flood channel. For a more detailed discussion of the Project, please refer to Attachment 1.

Federally Listed Species

The following species have the potential to occur in Yuma County, Arizona.

- threatened Peirson's Milkvetch (*Astragalus magdalenae* var. *peirsonii*)
- endangered Razorback Sucker (*Xyrauchen texanus*)
- threatened Bald Eagle (*Haliaeetus leucocephalus*)
- endangered Yuma Clapper Rail (*Rallus longirostris yumanensis*)
- endangered Cactus Ferruginous Pygmy-Owl (*Glaucidium brasilianum cactorum*)
- endangered Southwestern Willow Flycatcher (*Empidonax trailii extimus*)

- endangered Sonoran Pronghorn (*Antilocapra american sonoriensis*)
- endangered Brown Pelican (*Pelicanus occidentalis californicus*)
- proposed threatened Mountain Plover (*Charadrius montanus*)
- candidate Yellow-billed Cuckoo (*Coccyzus americanus*)

In addition to the above, the Flat-tailed Horned Lizard (*Phrynosoma mcallii*) (FTHL) may also occur in Yuma County. The FTHL is a species of special concern managed and protected by a Conservation Agreement among the Service and various Federal and state agencies in California and Arizona.

Analysis of Potential Impacts

Of the 11 listed species, all but two are unlikely to occur within the Project area, either because they are uncommon transients or migrants or because no suitable habitat is available.

Both the YCR and the SWF occupy marsh habitat and riparian habitat, respectively, along reaches of the Gila River and in the vicinity of Quigley Pond within the Project area. The SWF has been reported as a migratory visitor, but no residents or nesting pairs have been observed or reported (Piest, 2003). The number of YCRs detected in the Project area were reported by the Service as declining from a high of 23 birds to 8 birds in 2001 (Fitzpatrick, 2002).

Both the marsh habitat occupied by the YCR and riparian habitat used for stopover or foraging by the SWF are located in areas developed and maintained by the District as mitigation for flood channel and other projects authorized by the United States Army Corps of Engineers and coordinated with Arizona Game and Fish Department in recent years. Use of these areas is not expected to change after title transfer. Further return flows from irrigation and the District's habitat management strategies are not proposed to change. Should the District propose a new project within marsh or riparian areas, both Federal and state resource agencies would be expected to have further review and approval actions associated with Clean Water Act permitting.

Determination

Because the SWF is but a migratory visitor in the Project area and because the District's use of riparian areas, return flows, and habitat management are not likely to change, we conclude that the project would have no adverse effects on this species. Similarly, the YCR resident population within the Project area is not likely to be subject to adverse effects because the District's use of marsh habitat along the Gila River, at mitigation sites, and at Quigley Pond is not likely to change after title transfer, and return flows and habitat management will remain the same.

Therefore, Reclamation has determined that the proposed Project "may affect, but is not likely to adversely affect" the endangered SWF and YCR. Your concurrence on this determination is requested.

Please direct questions and comments on this request to Ms. Andrea Campbell, Natural Resources Specialist, at 928-343-8237, and email, acampbell@lc.usbr.gov.

Attachment

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BIOLOGICAL RESOURCES ASSESSMENT

TRANSFER OF TITLE TO FEDERAL FACILITIES, WORKS, AND LANDS OF THE GILA PROJECT, WELLTON-MOHAWK DIVISION, TO WELLTON-MOHAWK IRRIGATION AND DRAINAGE DISTRICT, YUMA COUNTY, ARIZONA

September 2002

U.S. Bureau of Reclamation
Yuma Area Office
Yuma, Arizona

BIOLOGICAL RESOURCES ASSESSMENT

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1.0 INTRODUCTION

1.1 PURPOSE OF REPORT

The United States Bureau of Reclamation (Reclamation) proposes to transfer title to the facilities, works, and lands (Transfer lands) of the Wellton–Mohawk Division of the Gila Project (Division) from Federal ownership to the Wellton–Mohawk Irrigation and Drainage District (District). This title transfer (Project) was authorized under the Wellton–Mohawk Transfer Act, (P.L. 106-221), June 2000. As a proposed Federal Action, the title transfer is required to undergo environmental review under the National Environmental Policy Act (NEPA).

The District has contracted with Navigant Consulting to perform the environmental review for the Wellton-Mohawk Title Transfer Project on behalf of the District and Reclamation. Navigant Consulting has contracted with Phillips Consulting to conduct a biological resources assessment of lands and rights-of-way proposed for transfer to the District or purchase by the District and to evaluate the potential effects, if any, that might result from the title transfer. The following assessment concentrates on the specific Transfer lands involved in the Proposed Action, whether they lie within or outside of the District boundaries. The analysis also takes into account the relevant resources on the adjacent lands not specifically affected by the Proposed Action.

A letter requesting consultation was sent from Reclamation to the U.S. Fish and Wildlife Service (Service) on February 22, 2002 requesting an inventory of threatened or endangered species, and/or those proposed to be listed under the Endangered Species Act of 1973, which may potentially occur in the Project area. The Service replied on March 7, 2002 indicating that endangered species included Peirson's milkvetch, Sonoran pronghorn, razorback sucker, bald eagle, brown pelican, cactus ferruginous pygmy-owl, southwestern willow flycatcher, and Yuma clapper rail. Species proposed for listing include the flat-tailed horned lizard, mountain plover, and (as a candidate species) the yellow-billed cuckoo. No invertebrates are listed or are candidate species on Transfer lands (David L. Harlow, U.S. Fish and Wildlife Service, Phoenix, Arizona, written communication, March 7, 2002). The Service recommended the protection of riparian habitats because such habitats are critical to biological community diversity and provide linear corridors for migratory species.

A letter requesting consultation was sent from Reclamation to the Arizona Game and Fish Department (AGFD) on March 6, 2002, requesting an inventory of special status species that may potentially occur in the Project area. The AGFD replied on March 21, 2002 indicating that, in addition to the federally listed species, Arizona recognized the following as sensitive species: Sonoran pronghorn, yellow-billed cuckoo, spotted bat, Yuma clapper rail, and Cowles fringe-toed lizard (Sabra S. Schwartz, Heritage Data Management System coordinator, written communication). The spotted bat and the Cowles fringe-toed lizard were not listed by the

Service. No critical habitat has been designated on Transfer lands, and no invertebrates were listed as sensitive species in the area (Schwartz, op. cit.).

This report presents the results of the biological resources assessment for the proposed transfer of Federal title to describe and evaluate the potential impacts of the Project, including those species and habitats with special status under Federal and State laws, particularly the Endangered Species Act of 1973, as amended. This assessment summarizes the background information on federally listed and proposed species, and designated or proposed critical habitat on the Transfer lands and in the Project area, as well as additional species identified by the State of Arizona as sensitive. In addition, it provides an evaluation of Project alternative impacts upon those resources. This report is based on surveys of literature, discussion with federal experts on individual species, and a survey of habitat status of Transfer lands conducted by Phillips Consulting for Navigant Consulting, Inc. in March and April of 2002. This report can be used by Reclamation and the Service to determine whether formal consultation is needed for the Project. In addition, it may facilitate further discussion about potential biological impacts of the Project.

1.2 DEFINITIONS

The following terms are used in this report to refer to the various aspects of the proposed title transfer and various geographic areas discussed.

District – The Wellton-Mohawk Irrigation and Drainage District

Division – The Wellton-Mohawk Division of the Gila Project

Project – The proposed transfer of title to facilities, works, and lands of the Wellton-Mohawk Division to the District

Project area – The part of the Gila River basin that contains the District, and that lays between the U.S. Army Yuma Proving Ground and the Barry M. Goldwater Air Force Range

Proposed Action – The Proposed Action Alternative

Region – The Project Area and adjacent areas with characteristics similar to the Project area

Transfer lands - The Reclamation lands proposed for transfer to the District under the Proposed Action, directly or through purchase.

1.3 PROJECT DESCRIPTION AND ALTERNATIVES

1.3.1 Project History

The irrigation system of the Division was constructed between 1949 and 1957, and the District was established in 1952, in part to "preserve the integrity and economic viability of the prime and unique commercial agricultural resources within its jurisdiction" (WMIDD 2001). The

District administration is a state-chartered agency legally constituted to own lands and facilities and to contract with Reclamation for diversion of Colorado River water and distribution of water in the Division. Colorado River water diverted at Imperial Dam was first delivered to the District in 1952. The District has operated the facilities of the Division since it was placed into operation. The use of Colorado River water for irrigation in the District results in return flows that leave the District in two ways. Most of the return flows are pumped from the groundwater aquifer under the District and conveyed from the District in lined drainage channels. However, part of the return flow seeps from the groundwater aquifer into the channel of the Gila River and leaves the District as surface flow and underflow of the Gila River. The part of the return flow that seeps into the Gila River channel supports riparian vegetation along the river within the District, including vegetation that was established in and adjacent to the Gila River Flood Channel to mitigate riparian habitat impacts from flood channel construction in the 1990s.

In preparation for the construction of the Division facilities, Reclamation acquired various lands and rights-of-way. Most of the acquired rights-of-way and many of the lands were used for construction of facilities for the establishment of family farm units during the early 1950s and successive decades. Acquired lands that were not needed for these purposes are currently owned by Reclamation. Some of the lands involved in the Proposed Action are located outside of the District boundaries. The Project area defined for purposes of the environmental review consists of the District and adjacent areas containing the Transfer lands external to the District boundaries. The Project area is essentially a rural agricultural area, with the incorporated town of Wellton at its center.

1.3.2 Description of Alternatives

Two alternatives are considered in this assessment, the Proposed Action and No Action.

Proposed Action Alternative: Under the Proposed Action, Reclamation would transfer to the District the title to the facilities of the Division and the rights-of-way on which the facilities are located. The transfer of title to the facilities and their rights-of-way would not change the District's allocation and use of Colorado River water, operation and maintenance of the irrigation and drainage systems of the Division, or return flows from irrigation. In addition, Reclamation would transfer or sell to the District the unused lands and interests in lands that were not used for project facilities. In total, the lands and interests in lands proposed for transfer to the District comprise the categories listed below and itemized in Table 1.3-1:

?? Transfer of ownership of approximately 29,620 acres of rights-of-way and easements for Division facilities, including canals, laterals, protective dikes, floodways, and the Gila River Flood Channel and associated wetlands.

?? Transfer of ownership of approximately 10,096 acres of vacant federal land and land rights at no additional cost to the District.

?? Provide the opportunity for the District to purchase approximately 16,760 acres of vacant federal land at fair market value.

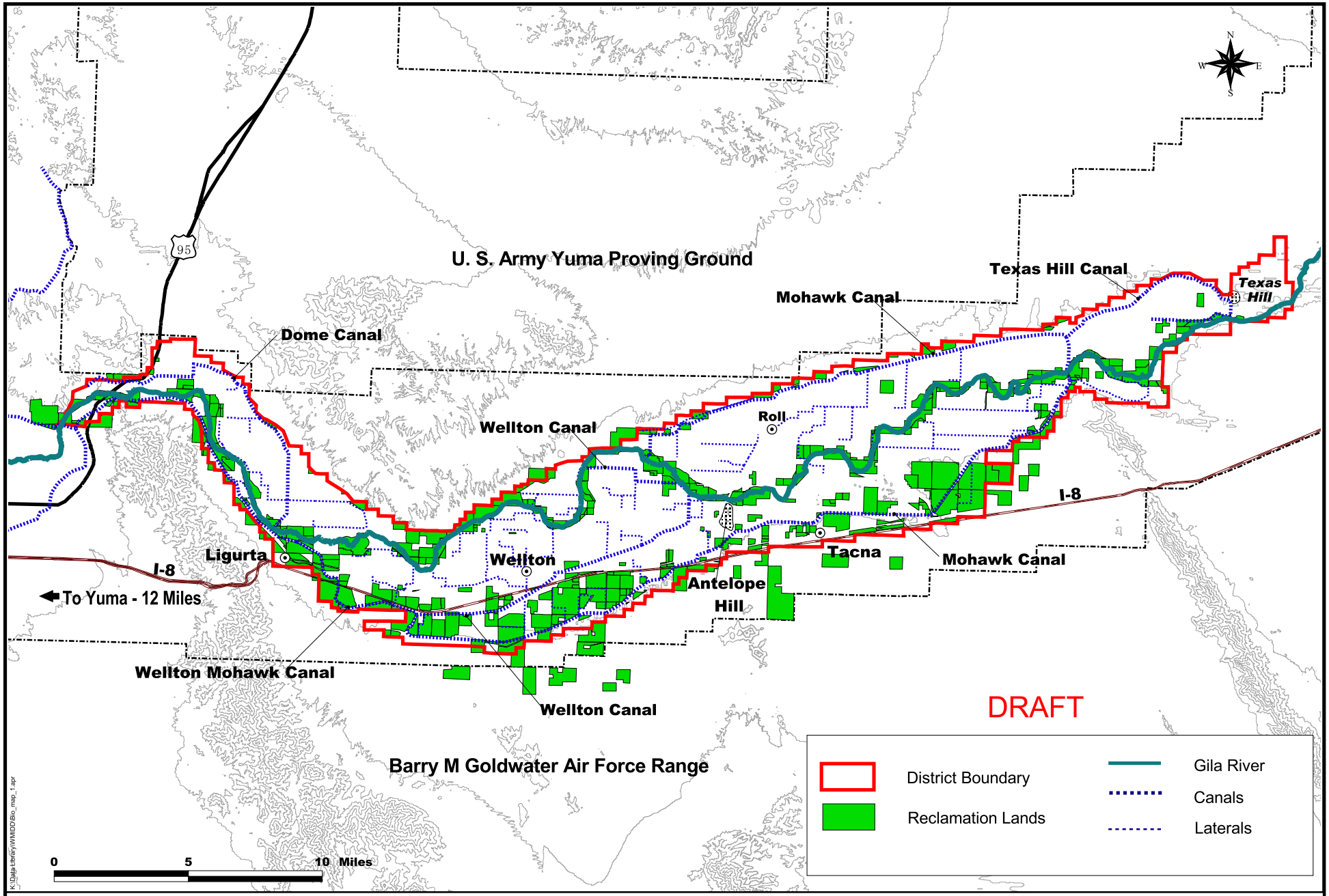
Table 1.3-1: Estimated area of Transfer lands considered under this Biological Assessment.

Land Category	Approximate Acreage
Rights-of-way - Gila River Flood Channel	10,655
Irrigation and drainage systems	18,965
Vacant lands to be transferred	10,096
Vacant lands available for purchase	16,760
Total	56,476

The rights-of-way for the Gila River Flood Channel and its adjacent wetlands consist essentially of river bottomlands. The rights-of-way for the irrigation and drainage systems, and associated protective dikes and stormwater channels consist primarily of linear strips of land running throughout the District. The vacant lands in the last two categories consist of various tracts ranging from several acres to entire sections of land. The locations of the rights-of-way for the Gila River Flood Channel and the vacant lands are shown on Map 1.3.

Under the Proposed Action, the rights-of-way for the Gila River Flood Channel and the irrigation and drainage systems would continue to be dedicated to the operation and maintenance of the facilities. There would be no change in the use and maintenance of the rights-of-way.

The uses of the vacant Transfer lands will vary depending on their location, and extent of prior human use and disturbance. As a general rule, the District intends to manage the unused land to maintain its character as primarily undeveloped desert land, with development to be minimal and in accordance with the preservation of agricultural and open space values as characterized in the county's land use plan for the project area (WMIDD 2001). As discussed in the land use report for the Project (appended to the Draft Environmental Impact Statement), it is anticipated that some of the vacant land to be transferred by Reclamation to the District or made available for purchase by the District would be developed for various purposes. Some tracts of land located in farming areas of the District could be used to enhance existing farming operations through such uses as stockyards and storage areas for hay and equipment. The amount of acreage converted to such uses is unknown and depends on the initiatives of individual farmers. Other tracts of land could be used for community development purposes, such as parks, public buildings, and businesses related to agriculture. The amount and location of acreage to be converted to such uses is unknown and would depend on such factors as population growth and the compatibility of development proposals with the land use planning by the Country and the District administration. The District administration has identified various lands as *candidate* lands on which community or commercial development might be permitted without impacting agricultural or open space values in the project area. The



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Wellton-Mohawk Title Transfer Project

Map 1.3 Lands Proposed for Transfer or Purchase

WATER POWER

identification of candidate lands was based on 1) proximity to existing development along the Interstate 8 corridor and elsewhere in the Project area; 2) prior use and disturbance, including abandoned farming operations; 3) the need to maintain a buffer zone between any new development and present farming operations; and 4) the need to maintain distance from the Gila River Flood Channel with its wetlands habitat and flooding potential.

No Action Alternative: Under the No Action Alternative, the Reclamation lands of the Wellton-Mohawk Division would not be transferred to or made available for purchase by the District. The rights-of-way for Division facilities would remain in federal ownership, with maintenance performed by the District as at present. However, it is anticipated that after an interim period of two decades or more, the ownership of the Reclamation lands not used for project facilities would ultimately be relinquished by Reclamation. Those lands originally withdrawn from the public domain would revert to BLM administration, while the rest of the vacant lands would be sold at public auction. Under this scenario, most of the lands cited above as candidate lands for development would be sold and it is assumed that a portion of them would be used for community or commercial development. The amount of land that might be developed under this alternative is uncertain. However, it is assumed to be approximately the same as that under the Proposed Action.

1.4 APPLICABLE LAWS AND REGULATIONS

Under the Endangered Species Act of 1973, as amended, federal agencies are required to confer with the Service on any Federal action that is likely to jeopardize the continued existence of any listed or proposed species or result in the destruction or adverse modification of listed or proposed critical habitat. The purpose of this requirement is to identify and resolve potential conflicts between an action and proposed species or proposed critical habitat at an early point in the decision-making process. A biological assessment, such as this, may be used in informal consultation between the agency and the Service to determine whether a formal consultation or conference is required. If through analysis of the biological assessment, the agency concludes that the action is not likely to jeopardize the continued existence of listed or proposed species or result in the destruction or adverse modification of proposed or declared critical habitat, and the Director of the Service concurs, then formal consultation is not required. If that agency's action "may affect" any listed species or its critical habitat, formal consultation is required under Section 7(a)(2) of the Act, unless the agency determines through informal consultation or biological assessment procedures, with written concurrence of the Service, that its action "is not likely to adversely affect" such species or habitats. If formal consultation is required, a Biological Opinion will be issued by the Service, stating whether or not the action is likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of critical habitat. If formal consultation results in a "jeopardy" biological opinion, reasonable and prudent alternatives, if any, will be included in the opinion.

The State of Arizona also protects certain species through the administrative oversight of the Arizona Game and Fish Commission. The mission of the AGFD is "to conserve, enhance, and restore Arizona's diverse wildlife resources and habitats through aggressive protection and management programs, and to provide wildlife resources and safe watercraft and off-highway vehicle recreation for the enjoyment, appreciation, and use by present and future generations" (AGFD 2000). The Commission and Department have management authority for the wildlife of the State, but share stewardship responsibility for wildlife habitat with many partners. The State's authority for maintenance and management of the State's wildlife resources through the Commission and the Department is derived from several laws. Arizona Revised Statutes (ARS) §17-102 states that most wildlife in Arizona is the property of the State. ARS §17-231 authorizes the AGFD to: 1) establish policies and programs for the management, preservation, and harvest of wildlife; 2) establish hunting, trapping, and fishing rules and prescribe the manner and methods which may be used in taking wildlife; 3) enforce laws for the protection of wildlife; and 4) develop and distribute information about wildlife and AGFD activities. ARS §17-454 prohibits off-road vehicle travel on state lands, and notes that various agency-specific policies apply to off-road vehicle operation on federal lands. In addition, ARS §3-901-934 establishes State jurisdiction over sensitive native plant species.

Also, Yuma County has developed a land use plan for the Wellton area and throughout the county (Yuma County 2001). This plan identifies growth trends and indicates that Wellton-Mohawk land uses are expected to remain primarily agricultural in the future.

2.0 EXISTING BIOLOGICAL RESOURCES WITHIN THE PROJECT AREA

This section discusses existing biological resources and habitat within the District. A general discussion of the regional setting is provided, followed by identification of the vegetation cover types of Project lands, and finally a discussion of general wildlife present within the District.

2.1 REGIONAL SETTING

The Project area lies within the Lower Colorado River Valley subdivision (LCRVS) of the Sonoran Desert (Turner and Brown 1994), in the center of the Sonoran Desert region (Turner et al. 1995), and immediately north of the Gran Desierto (Felger 2000). The LCRVS is the largest and most arid subdivision of the Sonoran Desert. The LCRVS is centered at the head of the Gulf of California; it extends from southern Baja California north to Needles, California, and extends east from Palm Springs, California to Tucson, Arizona. This ecoregion is characterized by hot summer temperatures and low precipitation, and a climate that supports sparse, widely spaced desert vegetation. Conspicuous desert shrubs include creosotebush *(Larrea tridentata),* white bursage (*Ambrosia dumosa*), saltbush (*Atriplex polycarpa* and *A. canescens*), brittlebush (*Encelia farinosa*), and ocotillo (*Fouquieria splendens*). Only along watercourses are taller shrubs and trees of any stature to be found, including jimmyweed (*Isocoma acradenia*), quailbush (*Atriplex lentiformis*), honey and screwbean mesquite (*Prosopis glandulosa* and *P. pubescens*, respectively),

ironwood (*Olneya tesota*), catclaw acacia (*Acacia greggii*), Fremont cottonwood (*Populus fremontii*), and Goodding willow (*Salix gooddingii*). The LCRVS is biogeographically important because it shares common boundaries with all other Sonoran Desert subdivisions.

2.2 THE PROJECT AREA

Geography: The Project area lies along the lower Gila River east of Yuma, Arizona. The area begins at Avenue 57E (approximately Texas Hill) on the east, and extends westward approximately 45 miles (56.3 river miles) to the Gila Gravity Main Canal Siphon 9 (Map 1.3). Between these two points, the land on both sides of the Gila River includes the irrigated farmlands of the District. The communities of Wellton, Tacna, and Roll are located in the Project area. Elevations in the Project area range from 190 feet above mean sea level (amsl) on the western end to 780 feet amsl on Texas Hill.

Geology/Physiology: Physiographically, the Project area is dominated by rather small, low, discontinuous Basin and Range mountain ranges that trend from southeast to northwest, with broad low bajadas and wide intervening valleys. The major drainages in the region are the Gila and Colorado rivers, and numerous small, ephemeral desert washes drain the foothills and mountains. A quarry is located on the northwest slope of Antelope Hill on the south side of the Gila River near Avenue 36-1/2E. This quarry has been used by the District as a source of levee riprap in the District's erosion protection efforts (i.e., U.S. Army Corps of Engineers 1995).

Soils: The Project area includes the lower Gila River floodplain, which is made up of Indio, Laguna, and Ripley soils (U.S. Soil Conservation Service 1980, U.S. Army Corps of Engineers 1995). These deep, silty, sandy soils range from well drained to somewhat excessively drained, with low potential for erosion, and are nearly level to gently sloping. The surface layers of these soils are typically six to eight inches thick, with underlying material up to or exceeding 60 inches in depth. The Project area includes low desert terraces, alluvial fans, and minor drainages. Soils in the Yuma-Wellton area are affected by high concentrations of calcium and magnesium salts, and by chlorides and sulfates. In this arid region, leaching is local and the salts are not transported far because of the limited rainfall. High evaporation and transpiration rates typical of the Lower Colorado River Desert reduce water availability that would otherwise contribute to leaching and transport of soluble salts.

Climate: This is a continental, low desert climate, with summertime daily high temperatures in excess of 110°F, and winter minimum temperatures rarely reaching freezing. The area is dominated by continental air masses and receives 90 percent of the total possible annual sunshine (U.S. Army Corps of Engineers 1995). Precipitation occurs as rain only, with two wet periods resulting from mid-summer monsoons and mid-winter storms. Precipitation averages 2 to 4 inches per year (Brown 1994). Relative humidity averages 38 percent, and wind speeds in Yuma average 7.8 miles per hour, with lowest values in the early fall and highest values associated with monsoon rains in mid-summer.

Flood conditions can occur during the winter and summer in the Project area. Lower Gila River flooding occurs when runoff from upstream watersheds exceeds the storage capacity of upstream reservoirs. Substantial floods have occurred in at least 7 of the 24 years since 1978. The flood of winter 1993 was the largest Gila River flow in recent history, and was estimated to have a recurrence frequency of once in 500 years (U.S. Army Corps of Engineers 1995). Painted Rock Dam, upstream from the District, protects the Project area from most of these larger floods. Also, summer rainstorms in the desert surrounding the District occasionally produce high rates of runoff into the Gila River. Such runoff is intercepted by protective dikes and conveyed to the Gila River through floodways through the District.

2.3 HISTORIC FLOODPLAIN CONDITIONS

Prior to flow regulation of the Gila River by numerous upstream dams, the Gila River floodplain was often modified by spring floods (Hastings and Turner 1965). Occasional high flows were sufficient to maintain a diverse and heterogeneous floodplain ecosystem, with a series of terraces supporting large stands of native riparian species (U.S. Army Corps of Engineers 1995).

In the decades between the development of the upstream Salt River Project reservoirs in the early 1900s and the use of Colorado River water for irrigation in the District in the 1950s, the Gila River consisted of a dry sandy bed between floods. The water table was probably located well below the riverbed, and the river channel and floodplain supported little or no riparian or wetland vegetation, and little to no wetland wildlife. As irrigation with Colorado River water expanded in the District, the water table under the river rose to the riverbed. Irrigation return flows began to produce a small flowing stream in the river channel along the downstream half of its length within the District. The irrigation-induced rise in the water table under the riverbed and flood plain has caused conditions more favorable to the growth of riparian vegetation, although much of it was non-native saltcedar. Native cottonwood and willow recruitment was observed after the 1993 flood, which inundated most of the floodplain and strongly reworked terraces. The damages from this flood were assessed through the Army Corps of Engineers Flood Channel Restoration Project (U.S. Army Corps of Engineers 1995).

2.3.1 Existing Floodplain Conditions

Nearly all of the Gila River floodplain in the Project area has been subject to intensive agricultural activity and highly altered flow regimes for the past century. The Gila River contributes little significant water to the riverside terrace habitats, and terrace ground water is largely derived from the District's importation of approximately 370,000 acre-feet per year of Colorado River water. The Gila River is usually completely dewatered downstream from Painted Rock Dam and without return flow from the District's imported irrigation water, the lower Gila River channel would severely stress, reduce, or eliminate the remaining native riparian vegetation in the Project area.

After completion of the 1995 Army Corps of Engineers Final Environmental Assessment, the District re-established flood protection for Gila River flows of up to 10,000 cubic feet per second. This action took place as a result of the 1993 flood, which destroyed 65 percent of the previously constructed flood protection works in the District. This action entailed constructing a 250-foot wide low-flow channel along 56.3 miles of the river channel, and constructing or rebuilding earthen levees on one or both sides of the channel to control flows and protect adjacent lands and structures. Wetlands were avoided during this construction effort. Under the subsequent management regime, the entire channel of the Gila River is disked twice a year during the avian non-breeding season to keep the channel clear of riparian vegetation that could force channel changes if high flows occur. These channel maintenance activities keep riparian growth in the channel in a greatly reduced condition, limiting the vegetation, where it exists, to low stature, weedy stands of wetland herbs and grasses, and seedlings of woody shrubs. Mitigation activities have added approximately 100 acres of additional wetland habitat to the District since 1993 (L. Killman, WMIDD, personal communication).

2.4 VEGETATION AND LAND COVER

Much of the Project land is composed of vegetation cover typical of Mojave and Sonoran Desert communities, and descriptions of those desert plant communities can be found in Turner et al. (1995), Phillips and Comus (2000), Felger (2000), and Hall et al. (2001). A map of the Project area was provided by the District and Navigant Consulting, Inc. that identified the proposed Transfer lands. Phillips Consulting (Phillips) conducted site visits to those parcels of land that can be considered as potential biological habitat (excluding irrigation and constructed flood control structures) in February and March 2002 to evaluate their ecological potential. Phillips identified the dominant plant species on each parcel (see Map 2.2), evaluated their native or exotic status, visually estimated the total percent cover on the parcel, and visually estimated the extent of wetted soils and the extent of human disturbance (Appendix A, and summarized in Appendix B). This survey did not include a technical wetland delineation.

Information on the candidacy of various Transfer lands for development was provided by the District (Map 1.3). Table 2.4-1 presents the area of vegetation cover types within the District and whether those lands are candidates for development. A total of 30.2 percent of the overall estimated 37,383 acres of Transfer lands, excluding rights-of-way for irrigation and flood-control works and an additional 127.8 acres identified as roadways, are candidate lands for development after the change in land ownership has occurred. However, as discussed in Section 1.3.2, the acreage and location of potential development are not presently known.

Riparian Lands: Riparian and upland areas are described here, with an analysis of vegetation plant assemblage cover types on the Project lands. The Gila River channel and its associated wetlands are highly modified by past agricultural and flood control activities, much of it pre-dating creation of the District. Riparian ecosystems are renown for their high levels of biodiversity, productivity, dynamism, and threatened status (Noss et al. 1995). Riparian and

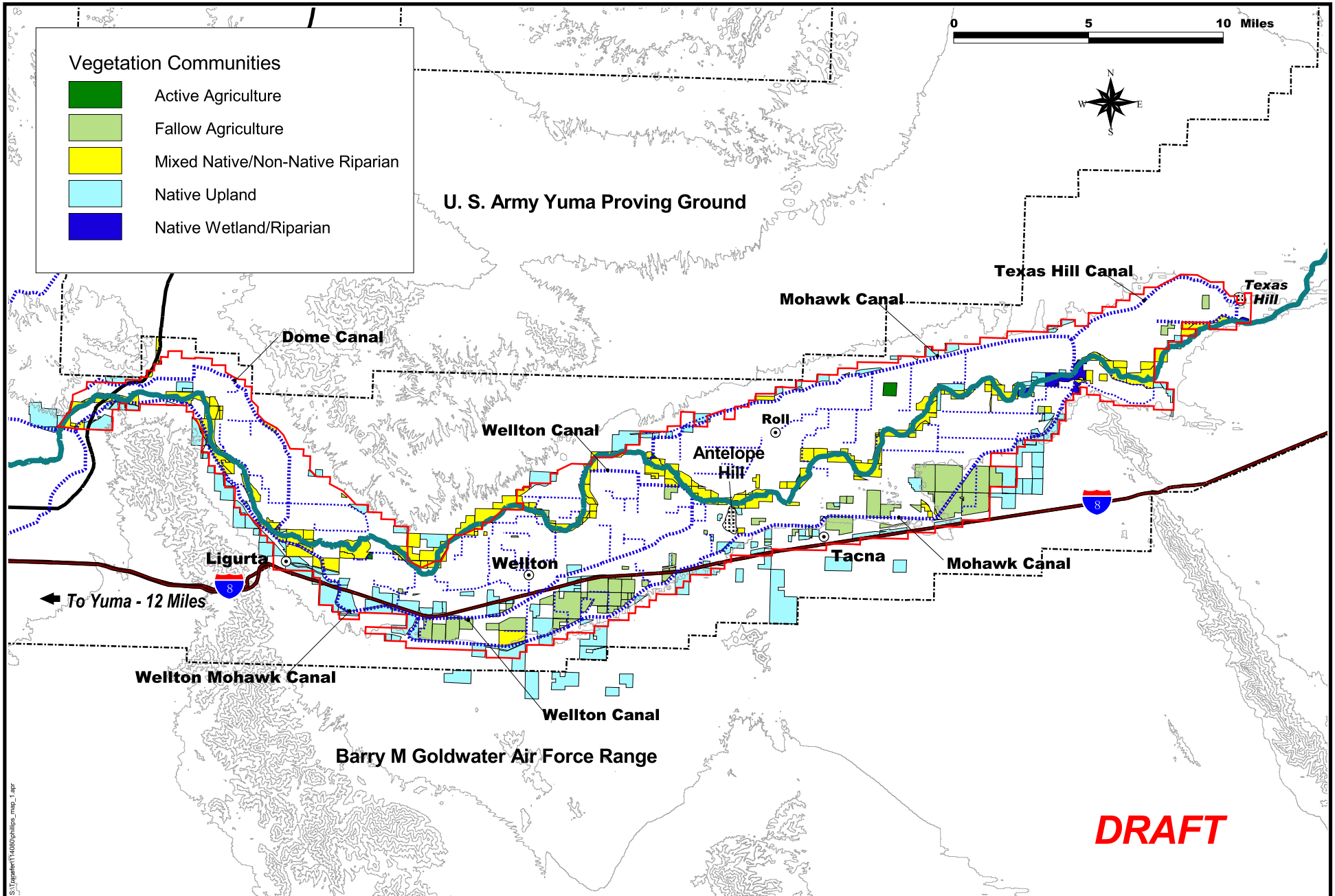
wetland vegetation assemblages are strongly affected by: 1) flow and inundation frequency (a function of stage elevation above the normal baseflow); and 2) soil texture, drainage, and other edaphic features (Malanson 1993). Both of these groups of variables have been highly modified in the lower Gila River system (Table 2.4-1, Appendices A and B). Active agricultural land strongly dominates the District riparian lands, but a few acres of agricultural land are included among Transfer lands; only approximately 0.05 percent of the total Transfer lands are presently or were recently under agricultural management. Fallow agricultural lands are more common, including farmland taken out of production, making up an estimated 8,054 acres (21.5 percent) of the Transfer land area, excluding irrigation and flood works.

Table 2.4-1: Area of various cover types

Land Cover	Area with No Development Potential (acres)	Area with Development Potential (acres)	Total Area (acres)	Percent Cover Type Area with Development Potential
Native wetland/ riparian	727.5 (195.6)	0.0	727.5	0.0
Native upland	11,212.9	4,021.0	15,233.9	26.4
Mixed native/ nonnative riparian	12,047.5 (833.7)	1,117.1	13,164.6	8.5
Active agriculture	175.2	28.1	203.4	13.8
Fallow agricultural	1,947.7	6,106.1	8,053.8	75.8
Total	**26,110.8**	**11,272.4**	**37,383.2**	**30.2**

Notes: This table lists the minimum estimated area (acres) and percent area of perennial vegetation and land use cover types on the Transfer lands on which a given cover type dominates or co-dominates, and whether those lands have been identified as candidates for development. The percent of the total Transfer land area (approximately 37,383.2 acres, excluding irrigation and flood works) that may be developed is indicated in the right column. Parentheses in Area with No Development Potential are areas (acres) of parcels containing or dominated by riparian and marsh plant species.

Riparian Vegetation: Flow reduction prior to creation of the District largely eliminated native riparian vegetation in the Project area, and subsequent floodplain management has increased native and non-native riparian vegetation stands; however, these remain in a highly fragmented condition, with low levels of plant diversity. A total of 728 acres (2 percent) of the Transfer lands (with exclusions) are presently dominated or co-dominated by native wetland/riparian species, including Fremont cottonwood (*Populus fremontii*), Goodding willow (*Salix gooddingii)* and cattail (*Typha domingensis*; Appendices A and B). None of this acreage is subject to development. Although the original habitat area is unknown, mesquites (*Prosopis glandulosa* and *P. pubescens*) and acacias (*Acacia constricta* and *A. greggii*) probably occupied relatively large bosques prior to Anglo-European settlement, but such habitat is now fragmentary on Project lands. Although native, arrowweed (*Pluchea sericea*) and saltbush (*Atriplex* spp.) are invasive species, and they dominate or co-dominate more than 14,086 acres (40 percent) of Transfer lands. Riparian zones also serve as invasion corridors for non-native plant species, and are commonly strongly influenced by exotic species (Ohmart et all 1988, Stevens and Ayers 2002): at



Proposed Wellton-Mohawk Title Transfer Project

Map 2.2 Vegetative Cover Types

least 13,164.6 acres (35.2 percent) of Transfer lands are dominated or co-dominated by saltcedar (*Tamarix pentandra*), anthel (*Tamarix aphylla*) or other non-native species. Management away from saltcedar dominance is complicated by the use of this exotic species by neotropical migrant birds, particularly the endangered southwestern willow flycatcher (see Section 2.6.10).

Dry wash riparian habitats also are abundant in the Project area, making up 7,336 acres (19.6 percent) of Transfer lands excluding irrigation and flood works; however, the ecological function and biological importance of such desert habitats are frequently overlooked. In addition to screwbean and some honey mesquite, relatively undisturbed arroyo habitats commonly support other woody desert legume shrubby trees, including ironwood (*Olneya tesota*), and palo-verdes (*Cercidium microphyllum* and *C. floridum*) These species may provide habitat to numerous bird species and this habitat can serve as important corridors for wildlife movement. As part of the 1995 U.S. Army Corps of Engineers flood channel restoration project, the mouths of the major dry washes in the District have been greatly altered to prevent flood damage to the canal network and District works.

Upland Ecosystems: Desert vegetation (native upland) occupies a relatively large proportion of the Project area: an estimated 15,234 acres (40.8 percent) of Transfer lands are dominated or co-dominated by creosotebush (*Larrea tridentata*) and mixed desert scrub vegetation. In many cases that vegetation has also reinvaded disturbed, formerly agricultural or otherwise disturbed land, but is unlikely to support much wildlife there. Approximately 26.4 percent of the Transfer lands containing desert vegetation are candidate lands for development as described in Section 1.3.2. Within the District, these Transfer lands are interspersed with developed land. South of the District, Transfer lands are interspersed with large agricultural developments on leased State trust land, with scattered urbanization and road construction on private land. These habitat modifications limit the habitat value for desert wildlife species, such as Sonoran pronghorn.

Potential Development Impacts: Table 2.4-2 presents the acreage of Transfer lands, excluding irrigation and flood works, by vegetation cover type in relation to their candidacy for development and extent of human use. The low-use native cover uplands with candidacy for development (513 acres) are primarily desert habitats. Mixed native/non-native riparian lands with development potential (1,117 acres) primarily have moderate to high human use intensity and are strongly dominated by saltcedar, with subdominant mesquite, arrowweed, and saltbush cover.

Table 2.4-2: Area and human use intensity levels of Transfer land cover types. Human use intensity is a qualitative visual estimate based on signs of human activity on a parcel.

Development Potential	Cover Type	Human Use Intensity Area (acres)			Total (acres)
		Low	Med	High	
NDP	Native Wetland/Riparian	500.1	148.8	78.6	727.5
NDP	Native Upland	4,130.0	5,328.7	1,754.1	11,212.8
NDP	Mixed native/non-native riparian	1,776.5	6,778.3	3,492.8	12,047.5
NDP	Active Agricultural	0.0	0.0	175.2	175.2
NDP	Fallow Agricultural	0.0	288.8	1,658.8	1,947.7
DP	Native Wetland/Riparian	0.0	0.0	0.0	0.0
DP	Native Upland	513.1	1,943.4	1,564.6	4,021.0
DP	Mixed native/non-native riparian	141.9	485.2	490.0	1,117.1
DP	Active Agricultural	0.0	0.0	28.1	28.1
DP	Fallow Agricultural	0.0	240.9	5,865.3	6,106.1
Total		7,061.6	15,214.1	15,107.5	37,383.2

Notes: This table lists the estimated area (acres) of Transfer land vegetation cover types in relation to candidacy for development (no development potential - NDP vs. candidate lands with development potential – DP), as well as extent of human use and disturbance on those lands.

2.5 FISH AND WILDLIFE

2.5.1 Invertebrates

Aquatic, riparian, and desert invertebrates are relatively poorly known for in the Project area, except for butterflies and skippers (Stewart et al. 2001). Riparian areas commonly support relatively high levels of invertebrate biodiversity and biomass (Malanson 1993). Persistent crop pest spraying is likely to have strongly affected invertebrate populations in the Project area over the past century, but these impacts apparently have not been described. Although Ohmart et al. (1988) concluded that saltcedar stands in the lower Colorado River basin support a relatively low invertebrate standing biomass and is of limited value as avian foraging habitat, other studies of saltcedar from northern Arizona indicate that it may be used extensively by birds (Stevens and Ayers 2002).

The Nature Conservancy (Hall et al. 2001) evaluated invertebrates as potential indicators for ecosystem conservation on the nearby Barry M. Goldwater Military Range. They considered aquatic and terrestrial Hemiptera, Coleoptera (particularly the dune-dwelling scarab beetle, *Pseudocotalpa sonorica*), and native bees, but concluded that too few data existed to allow selection of any invertebrate taxon as an indicator species.

2.5.2 Fish

The native fish fauna of the Project area declined as a result of flow regulation and non-native fish introductions in both the Gila and Colorado rivers. The native fish fauna included razorback sucker (*Xyrauchen texanus*), Colorado pikeminnow (*Ptychocheilius lucius*), roundtail

chub (*Gila robusta*), and several other species, which have been largely or wholly extirpated from the Project area. Native fish populations throughout the region are in declining condition (Minckley 1973, 1991; and see individual species descriptions, below).

Grinnell (1914) found that non-native carp (*Cyprinus carpio*) and catfish (Ictaluridae) were the dominant fish in the lower Colorado River as early as 1909, immediately before flow regulation of the Colorado and Gila rivers began. Non-native fish in the region presently include largemouth bass (*Micropterus salmoides*), flat-head catfish (*Pilodictis olivaris*), channel catfish (*Ictalurus punctatus*), smallmouth bass (*Micropterus dolomieui*), striped bass (*Morone saxatalis*), sunfish (*Lepomis* spp.), red shiner (*Cyprinella lutrensis*), other minnows (Cyprinidae), carp, salifin molly (*Poecilia latipinna*), mosquitofish (*Fundulus zebrinus*), and threadfin shad (*Dorosoma petense*); however, little fish habitat remains on the Project area. Non-native warm-water fish habitat requirements vary widely, including slow pools, cobble and gravel for spawning, snags, stumps, and aquatic vegetation. They seek cover under overhanging, vegetated riverbanks. Introduced fish species, such as largemouth and smallmouth bass, are widely sought as game fish.

2.5.3 Herpetofauna

The Region supports a relatively rich herpetofaunal assemblage, consisting of an amphibian group and two guilds within the western reptile group (Hall et al. 2001); however, few data are available on the herpetofauna of the Project area.

The amphibians in the region require water for breeding, and include: Sonoran Desert toad (*Bufo alvarius*), red-spotted toads (*Bufo punctatus*), Great Plains toad (*Bufo cognatus*), and Couch's spadefoot toad (*Scaphiopus couchii*).

The western desert reptile group occurs in two guilds: the valley bottom guild, and the rocky slope guild. Valley bottom reptiles include: western leaf-nosed snake (*Phyllorhynchus decurtatus perkin*si), Colorado Desert shovel-nosed snake (*Chionactis occipitalis*), banded sand snake (*Chilomeniscus cinctus*), glossy snake (*Arizona elegans*), Mohave rattlesnake (*Crotalus scutulatus*), sidewinder (*Crotalus cerastes*), zebra-tailed lizard (*Callisaurus draconoides*), desert iguana (*Dipsosaurus dorsalis*), Cowles fringe-toed lizard (*Uma notata rufopunctata*), southern desert horned lizard (*Phrynosoma platyrhinos calidiarum*), flat-tailed horned lizard (*Phrynosoma mcallii*), long-tailed brush lizard (*Urosaurus graciosus*), long-nosed leopard lizard (*Gambelia wizlizenii*), and western whiptail (*Cnemidophorus tigris*). The rocky slope guild is less species rich, and includes: desert tortoise (*Gopherus agassizii*), speckled rattlesnake (*Crotalus mitchellii*), chuckwalla (*Sauromalus obesus*), and side-blotched lizard (*Uta stansburiana*).

Habitat disruption from agricultural activities and urbanization in and around the Project area has undoubtedly reduced amphibian and reptile populations; however, few data on herpetofaunal populations in the region are available. Desert tortoise are not listed in the

Region. Flat-tailed horned lizard and Cowles fringe-toed lizard are not known from the Project area, but are of concern in the region. Various snakes are found in the region, but none are federally listed.

2.5.4 Birds

The Region supports a large number of wintering and summer breeding avifauna, and the Colorado River corridor is a major flyway for migratory waterfowl, shorebirds, neotropical birds, marsh birds and other waterfowl. More than 300 species of birds have been documented in the boundaries of the Yuma area, nearly 70 percent of all species in the Western Region of North America (Grimble & Associates 1997). Common species in the region include the American coot (*Fulica americana*), ladder-backed woodpecker (*Picoides scalaris*), verdin (*Auriparus flaviceps*), marsh wren (*Cistothorus palustris*), white-winged dove (*Zenaida asiatica*), mourning dove (*Zenaida macroura*), and Gambel's quail (*Callipelpa gambelii*). Raptors in the Region include osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), prairie falcon (*Falco mexicanus*), American kestrel (*Falco sparvarius*), red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter cooperi*), sharp-shined hawk (*Accipiter striatus*), great horned owl (*Bubo virginianus*) and western screech owl (*Otus kennicottii*). Canal spoil piles and agricultural fields support a relatively large population of burrowing owls (*Athene cunicularia*). Populations of double-crested cormorant (*Phalacrocorax auritus*), several heron and egret species (Ardeidae), rails (Ralidae), including the endangered Yuma clapper rail (*Rallus longirostris*), and other marsh birds occur in the Region. The Gila River area, near its confluence with the Colorado River, supports migrant or breeding white-faced ibis (*Plegadis chihi*), numerous shorebirds and ducks, white (*Pelecanus erythrorhynchos*) and (rarely) brown (*Pelecanus occidentalis*) pelicans, wood stork (*Mycteria americana*), and cattle egret (*Bulbulcus ibis*).

2.5.5 Mammals

Riparian and desert vegetation in the Project area formerly supported numerous land mammals ranging from small rodents such as mice, to large predators like mountain lions. Open riparian habitats, such as stands of honey mesquite with shrubs, are dominated mostly by burrowing species. Riparian habitats closer to the river, such as cottonwood-willow, screwbean and honey mesquites, saltcedar, and mixed saltcedar/honey mesquite harbor different assemblages of mammals. Several mammals, including bats (Chiroptera) and beavers (*Castor canadensis*) utilize both aquatic and riparian habitats. Land use prior to creation of the District probably eliminated beaver and other aquatic mammals, populations that are now maintained by return flows.

No Federal or State listed endangered mammals have been documented on the Transfer lands. However, the endangered Sonoran pronghorn (*Antilocapra americana sonoriensis*) and several bat, mustellid, and other mammal species occur in the Region, and several species are monitored by the states of Arizona and California in southwestern Arizona and southeastern California. These include the California leaf-nosed bat (*Macrotus californicus*), cave myotis

(*Myotis velifer*), spotted bat (*Euderma maculata*), and the Yuma hispid cotton rat (*Sigmodon hispidus*). Other bat species of interest include Mexican big-eared bat (*Plecotus phyllotis*), Mexican free-tailed bat (*Tadarida brasiliensis*), western big-eared bat (*Plecotus townsendi*), and the Arizona myotis (*Myotis occultus*). Because bats rely on insects as their main food source, insecticides and loss of riparian habitat adversely affect their populations.

The California leaf-nosed bat, like most bat species, forages near open water where insects are numerous. This species is particularly susceptible to human disturbance that may cause abandonment of roosts during the breeding season (MSCP 2002). Its status on Project lands is undetermined, but little available habitat exists.

The cave myotis has been reported 12 km (20 miles) north of Yuma near the Colorado River by the AGFD (cited in the MSCP 2002). It typically inhabits creosotebush, brittlebush, cactus scrub, and riparian habitats. Dense, linear stands of mesquite, salt cedar, and catclaw acacia near oxbow ponds are considered optimal foraging areas (Hoffmeister 1986). Pesticide use, mining, roost site disturbance and loss of foraging habitat are all probably contributing factors to population declines. The cave myotis is often found in association with Mexican free-tailed bats and Yuma myotis. Its status on Transfer lands is undetermined.

Rodents make up the largest group of mammals in the Project area, and extensive studies of rodent populations have been conducted in a few riparian areas. Ohmart et al. (1988) documented rodent species in the lower Colorado River basin, and reported that most of the rodent species identified showed some preference for vegetation cover. They concluded that the best management system for all rodent species would be to create an area that is horizontally diverse.

The Yuma hispid cotton rat occurs on both sides of the Colorado River from Yuma into Mexico, but the rat has not been detected in the Project area. Habitats include common reed, arrowweed, and cattail. Their diet is mainly vegetarian and consists of many grasses and forbs. Most have been found near the Colorado River and along adjacent sloughs in brushy areas. They have also been known to utilize agricultural lands.

Several riparian mammal species along the Lower Colorado River depend on aquatic habitats. The Southwestern river otter (*Lontra canadensis sonora*) inhabited the lower Colorado River until 1933, disappearing from the Lower Colorado River shortly after the construction of Hoover Dam (Spicer 1987, Stevens et al. 2002). This was probably due to loss of riparian habitat, habitat fragmentation and reduced gene flow, and possibly the extirpation of native prey species. Although they are believed to be extirpated from the Lower Colorado River, occasional unconfirmed sightings have been reported there, but none have been reported in the Project area (Hoffmeister 1986). Otters fed on fish, crayfish, frogs, turtles and other aquatic species. Their dens were located along riverbanks and they would have frequently used abandoned beaver den and other pre-existing structures.

Other aquatic and wetland mammals include beaver, muskrat (*Ondatra zibitheca*), and raccoon (*Procyon lotor*), all of which formerly occurred widely in the lower Gila and Colorado rivers (Hoffmeister 1986). Beavers and muskrats build dens in quiet backwaters and along the river, and they feed on riparian vegetation. Beavers are most common in and around large regenerating stands of willow and cottonwood, and they may cause extensive damage to these stands. Trapping and habitat modification over the past century severely reduced their populations. However, beaver and muskrat are now relatively common in Gila and Colorado River marshes and along canal systems. Approximately 100-150 beaver and many muskrat presently exist in those portions of the lower Gila River channel in the District that are watered by irrigation return flow (L. Killman, WMIDD, personal communication). Raccoons live near the water and feed on clams, crayfish, and fish, but no information was found regarding the present population size.

Badger (*Taxidea taxus*), spotted skunks (*Spilogale putorius*), striped skunks (*Mephitis mephitis*), kit fox (*Vulpes macrotis*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus auduboni*), and several desert and riparian rodent species probably occurred throughout the Project area prior to settlement (Hoffmeister 1986). Bobcats are rare or extirpated in the Project area. Coyotes are most abundant in honey and screwbean mesquite habitats. Kit fox, gray fox, and spotted skunk all may be seen rarely, and may be more abundant than records indicate. Badgers are rare and are primarily found in honey mesquite or other sparsely vegetated desert or riparian habitat, whereas striped skunks are more often found in dense habitats near water.

The Yuma mountain lion (*Felis concolor browni*) was described by C. Hart Merriam as a small-sized, pale population, but insufficient specimens are available to rigorously test these differences. It occurred in remote, hilly or mountainous areas in the Region. Its habitat requirements included open water sources, such as streams or rock pools, large foraging areas, and rocky shelters or caves for denning. Mountain lion prey included desert mule deer, bighorn sheep, wild burro, skunk, badger, raccoon, javelina, cattle, and rabbit (Hoffmeister 1986). They wandered widely, and were historically associated with dense bottomland vegetation along rivers. No lions have been detected in the Project area for many decades, and few exist in the entire southwestern quarter of Arizona.

Desert mule deer (*Odocoileus hemionus*) densities in riparian habitats may have decreased greatly over the past century (Ohmart et al. 1988). Continuing riparian habitat conversion combined with the disappearance of cottonwood-willow communities has affected deer populations by eliminating cover and forage availability. Deer commonly use mesquite, dense native riparian, and some saltcedar habitats, particularly during the warmer times of the year. They move more widely into desert uplands in winter.

The Sonoran pronghorn is described in detail in Section 2.6.11. No Sonoran pronghorn have been detected in the Project area in recent years.

2.6 FEDERALLY LISTED SPECIAL-STATUS SPECIES

A total of 11 federally endangered and candidate species are recognized as potential concerns in the Project area by the U.S. Fish and Wildlife Service, including: one plant (Peirson's milkvetch, *Astragalus magdalenae* var**.** *peirsonii*), one fish (razorback sucker, *Xyrauchen texanus*), one lizard (flat-tailed horned lizard, *Phrynosoma mcallii*), 7 bird species (Brown pelican, P*elecanus occidentalis californicus*; bald eagle, *Haliaeetus leucocephalus;* Yuma clapper rail, *Rallus longirostris yumanensis*; mountain plover, *Charadrius montanus*; and yellow-billed cuckoo, *Coccyzus americanus*); cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*); southwestern willow flycatcher (*Empidonax trailli extimus)* and 1 mammal (Sonoran pronghorn, *Antilocapra americana sonoriensis*). Each is described below including listing history, species description (taxonomy and physical description), distribution, life history, and habitat and biotic associations of each of these species. The information provided here was drawn from scientific literature and previous summaries of these species and their habitats (U.S. Army Corps of Engineers 1995, Bureau of Reclamation 1996, U.S. Fish and Wildlife Service 1998d).

2.6.1 Peirson's Milkvetch (Fabaceae: Astragalus magdalenae *var.* peirsonii*)*

Listing History: On October 6, 1998, Peirson's milkvetch was designated as Threatened in the Entire Range (U.S. Fish and Wildlife Service 1998c). Within the area covered by this listing, this species is known to occur in: California. The U.S. Fish & Wildlife Service Pacific Region (Region 1) is the lead region for this entity.

The Service determined threatened status for Peirson's milkvetch and several other southwestern dune-dwelling plant species in the genus *Astragalus*. All of these species were endemic to the Sonoran, Mojave, and Great Basin deserts. All occur in specific substrate or hydrologic conditions, and are threatened by mining, military activities, cattle grazing, urban development, off-highway vehicle (OHV) use and recreational development, pipeline maintenance, alteration of a wetland ecosystem, and/or low recruitment possibly due to rabbit herbivory. Because the only known populations of Peirson's milkvetch occur on Bureau of Land Management lands, the Service concluded that critical habitat designation would not provide additional conservation benefits over that provided by listing.

The primary threat to Peirson's milkvetch is destruction of individuals and dune habitat from OHV use and the recreational development associated with it (U.S. Fish and Wildlife Service 1998c). Approximately 75 percent of the Algodones Dune system is open to motorized vehicle use, and between 75 and 80 percent of all known colonies in 1977 were within those areas. Approximately 9,300 ha (23,000 ac), or 18 percent, of the Algodones Dunes has been closed to motorized vehicle use since 1972 (BLM 1987). In 1994, most of this closed area and an extension to the north, a total of 13,060 ha (32,240 ac) or about 25 percent of the dune system, was designated as the North Algodones Dunes Wilderness. Approximately 20-25 percent of the known colonies of Peirson's milkvetch occur in the wilderness area.

Species Description: Peirson's milkvetch was originally described as *A. peirsonii* by Munz and McBurney from two collections from sand dunes west of Yuma in Imperial County, California (U.S. Fish and Wildlife Service 1998c). One specimen was collected by Munz and Hitchcock in 1932, and another by Frank Peirson, for whom the taxon was named. *Astragalus peirsonii* was variously included with *A. crotalariae* var. *piscinus* and *A. niveus*, before its affiliation with *A. magdalenae* was clarified (Barneby 1964).

Peirson's milkvetch is a large, low statue, short-lived perennial species, attaining a height of 20 to 70 cm. Stems and leaves are finely, silkily hairy; its leaves vary from 5 to 15 cm in length, and have 3 to 13 small oblong leaflets. Peirson's milkvetch flowers are purple, sometimes white-tipped, and occur in 10 to 17-flowered racemes. The inflated seedpods are 2 to 3.5 cm in length, and have a triangular beak. The variety *peirsonii* is separated from two other varieties of *A. magdalenae* by leaflets number, peduncle, and fruit size. This species has the largest seeds of any *Astragalus* in North America (4.5 to 5.5 mm; Barneby 1964).

Distribution: Peirson's milkvetch grows in the northwestern Sonoran Desert, on the slopes and hollows of windblown sand dunes. In the United States, it occurs in the Algodones Dunes in Imperial County and the Borrego Valley in San Diego County (where it is presumed extirpated), both in California (Munz and Keck 1963, Barneby 1964). Its range extends into northeastern Baja California and into the dunes south and southeast of the Sierra Pinacate lava field in the southern Gran Desierto (Felger 2000). Peirson's milkvetch is restricted to sand dune habitats, and is not known from Arizona (Arizona Game and Fish Department 2001).

Life History: Peirson's milkvetch is an annual or perennial dune-specialist locoweed. Pollinators are poorly known, as are other biotic associations.

Management Considerations: Although Hickman (1993) and Felger (2000) both reported the range of Peirson's milkvetch to include western Arizona and the Yuma area, the only confirmed extant populations occur in the Algodones Dunes in California, and no populations are recognized in Arizona (Arizona Game and Fish Department 2001). Active sand dunes do not presently exist on Transfer lands, and the Proposed Action does not threaten any known populations of this species.

2.6.2 Razorback Sucker (Catastomidae: Xyrauchen texanus*)*

Listing History: Razorback sucker was proposed by the U.S. Fish and Wildlife Service for listing as an endangered species on April 24, 1978. This proposed rule was withdrawn on May 27, 1980 because of changes in the listing process in the 1978 amendments to the Endangered Species Act (ESA). These amendments required all listings to be completed within two years of publication of the proposed rule, a deadline that was not met. The 1978 amendments required that critical habitat be included in the listing of most species, but no critical habitat was identified for this species at that time.

In March 1989, the Service was petitioned by a consortium of environmental groups to list the razorback sucker as an endangered species. The Service made a positive finding on the petition in June 1989, which was published in the Federal Register on August 15, 1989. The finding stated that a status review was in progress and provided for submission of additional information through December 15, 1989. The proposed rule to list razorback suckers as endangered was published on May 22, 1990, with a final rule published on October 23, 1991 and an effective date of the rule on November 22, 1991.

Critical habitat is defined in the ESA to include areas whether occupied or not that are essential to the conservation of the species. Conservation is defined in the ESA as those actions needed to bring about the complete recovery of the species. The May 22, 1990, proposed rule to list the razorback sucker did not contain a proposal to designate critical habitat. The final rule listing the razorback sucker as an endangered species stated that critical habitat was not determinable at the time of listing. On December 6, 1991 the Service concluded that designation of critical habitat was both determinable and prudent. After a ruling that the Service had violated the ESA by not designating critical habitat with the listing of the species, the U.S. District Court in Denver, Colorado ordered the Service to publish a proposed rule to designate critical habitat within 90 days of the Court's order. The Service determined that since the habitats of the razorback sucker overlapped with those of the bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*) and humpback chub (*Gila cypha*), and the issues facing these species were very similar, that designating critical habitat for all four species at the same time would be appropriate. This proposed rule was published on January 29, 1993, and contained proposed critical habitat for the four listed native Colorado River fish. The final rule to designate critical habitat was published on March 21, 1994, with an effective date of April 20, 1994.

Critical habitat for the razorback sucker includes portions of the Colorado, Duchesne, Green, Gunnison, San Juan, White, and Yampa Rivers in the Upper Basin and the Colorado, Gila, Salt, and Verde Rivers in the Lower Basin. All critical habitat reaches were considered to be occupied at the time of designation. Critical habitat also includes the lower Colorado River from Pierces Ferry on upper Lake Mead to Imperial Dam, which also includes the 100-year floodplain.

The designation of critical habitat for the four big Colorado River mainstream fishes highlights two important issues for these species:

(1) Specific problems with habitat have resulted in the extirpation of these species from most of their historic range. Areas considered for designation as critical habitat are evaluated against the constituent elements deemed essential to species conservation. The conservative definition of critical habitat includes only those areas undisturbed or unmodified, and therefore possessing all the constituent elements in the correct proportion, but this definition fails to address the existing situation of the Colorado River fishes. There is little aquatic habitat in the Colorado River Basin that has not been affected in some way by

development activities. Thus the designated areas do not support all the constituent elements in the same way as an undisturbed system might.

(2) The range-wide status of these species has been greatly affected by human activities. The razorback sucker is rapidly approaching extinction. The immediate need to provide for the conservation of this species is to prevent extinction in the wild. For that reason, any location that contains even a remnant population of razorback sucker was included in critical habitat designation. The management of such areas is crucial to ensuring that activities undertaken there do not adversely affect what is left of these populations.

Large reservoirs such as Lakes Mead, Mohave, and Havasu are not natural features of the Basin and do not represent historic habitat types, even though they are within the historic ranges of the species. However, these large reservoirs are where the last large populations of razorback suckers exist. These reservoirs are now essential to the conservation of the species. Critical habitat determinations include those areas that may require special management considerations or protection. Post-designation management actions to improve the quality of the critical habitat to support the listed species are considered to be part of the survival and recovery processes.

A recovery plan has been developed that seeks to protect and expand the three existing populations, as well as establish five new populations using remnant stock or translocated fish (U.S. Fish and Wildlife Service 1998a). Delisting will be possible after the fish has been down listed to threatened and two additional populations have been established and protected, one in the upper Colorado River Basin, and one in the lower basin. Recovery efforts under the Recovery Implementation Program in the Upper Basin have begun, but significant recovery results have not been achieved for this species. In the Lower Basin, efforts to reintroduce the species in the Gila, Salt and Verde rivers have not been successful in establishing self-sustaining populations. Reintroduction efforts are currently ongoing only in the Verde River. Augmentation efforts along the lower Colorado River propose to replace the aging populations in Lakes Havasu and Mohave with young fish from protected rearing site programs. This may prevent the imminent extinction of the species in the wild, but may not ensure the long-term survival or recovery of the species. Overall, the status of the razorback sucker in the wild continues to decline. As plans to stabilize the 3 existing populations by 2000 have failed, possible delisting by as early as 2010 appears unlikely.

Species Description: The razorback sucker is the only member of the genus *Xyrauchen* and is endemic to the Colorado River basin. This species was first described from specimens taken from the "Colorado and New Rivers" (Abbott 1861) and Gila River (Kirsch 1889) in Arizona. It is a large native sucker and is distinguished from other suckers by its sharp-edged, bony keel, which arises behind the head. The body is robust with a deep, short caudal peduncle (Bestgen 1990). The razorback sucker may reach a length of one meter (m) and a mass of 5-6 kilograms (kg; Minckley 1973), although adult fish in Lake Mohave reached about half this maximum size and weight (Minckley 1983). Razorback suckers are long-lived, attaining an age of at least 40 years (McCarthy and Minckley 1987).

Distribution: The razorback sucker was abundant throughout the middle and lower elevations of the Colorado River, prior to flow regulation in the 20th Century. It ranged across 9,000 km^2 of the river basin in the United States and Mexico (USFWS 1993a). During the late 19th and early 20th centuries, it was abundant in the Gila and lower Colorado River drainages (Kirsch 1889; Gilbert and Scofield 1898; Minckley 1973, 1983, 1991; Bestgen 1990).

The razorback sucker population is now declining or extirpated throughout most of its range, but small populations remain in Lake Mohave (Arizona/Nevada), and in the Green and Yampa rivers in Utah. Causes for decline include habitat fragmentation and alteration related to flow regulation, and the introduction of non-native fish species (Minckley 1991). At present there is almost no natural recruitment in the wild, and populations are generally small and consist of aging individuals.

Life History: Adult razorback suckers occupy most riverine habitats, although their use of whitewater habitats is uncertain and may be limited. They tend to use low velocity mainstream pools, eddies, and sand or gravel-floored channels (Bestgen 1990, U.S. Bureau of Reclamation 1996). Sidechannels, oxbows, sloughs, and nearshore runs are commonly used habitats adjacent to the main channel. Flooded bottomlands appear to be important springtime and early summer habitats. Razorback suckers appear rather sedentary, but can move long distances over the course of a year (USFWS 1993a). Spawning migrations have been observed or are assumed at some locations by Jordan (1891), Minckley (1973), Osmundson and Kaeding (1989), Bestgen (1990), and Tyus and Karp (1990).

Spawning occurs in late winter to early summer, apparently in response to water temperature. Water temperatures in which spawning occurs range from 10-20° C (Bestgen 1990). Spawning areas include gravel bars or rocky runs in the main channel (Tyus and Karp 1990), and flooded bottomlands (Osmundson and Kaeding 1989). There is an increased use of higher velocity waters in spring, and the fish move into warmer, shallow backwaters and flooded bottomlands in early summer (McAda and Wydoski 1980, Tyus and Karp 1989, Osmundson and Kaeding 1989).

Larval razorback sucker rearing habitats are poorly known, but appear to include warm, shallow water in backwaters, flooded bottomlands, and mainstream shorelines (Sigler and Miller 1963, Marsh and Minckley 1989, Tyus and Karp 1989, 1990). Early in the larval stage, razorback sucker are nocturnal and hide during the day, feeding primarily on plankton (Marsh and Langhorst 1988, Papoulias 1988). Although juvenile behavior and habitat preferences are poorly known, young fish grow quickly. Growth slows when adult size is achieved (McCarthy and Minckley 1987).

Razorback suckers reach sexual maturity between 2-7 years, and fecundity ranges from 10,800 to 46,740 eggs per female (Bestgen 1990). Their longevity exceeds 45 years (Minckley 1983), and they apparently can produce viable gametes even when quite old. The razorback sucker is adapted to widely fluctuating physical environments of the historical Colorado River, and their ability to spawn in a variety of habitats, flows, and over a long season are survival adaptations. Under

natural conditions, overall population demographics were unlikely to shift even if the species was faced with several consecutive years involving limited recruitment. However, flow regulation has resulted in severe habitat modification, to which this species appears relatively poorly adapted.

In addition, clear water impoundments have provided ideal habitat for a variety of non-native fish. Impoundments and severely modified flows interrupted habitat critical for razorback sucker survival. Non-native fish have been widely introduced throughout the region, and many of these exotic species either consume or compete with razorback suckers and other native fish species.

Management Considerations: District canal water is the only perennial water source for the lower Gila River and these waters are the only source of potential habitat for this species. No restoration activities have been planned or conducted in the lower Gila River by Reclamation because the habitat is unsuitable and restoration activities in the Project area would be inappropriate. Therefore, no management or mitigation activities have been proposed.

2.6.3 *Flat-tailed Horned Lizard (Iguanidae:* Phrynosoma mcallii)

Listing History: *P. mcallii* populations have declined significantly in Arizona, California and Baja, Mexico, as human activities have reduced its habitat by 34 percent (Foreman 1997). The species is protected throughout its range from general collection. A scientific permit is required to collect any specimens. This species was proposed to be Federally listed as Threatened in November 1993, but no decision has been rendered. A lawsuit is currently underway to force the decision. In 1995, USFWS, BLM, AGFD, CFGD, Ocotillo Wells SVRA, and several military entities began to work on a Conservation Agreement that would replace the federal ruling to list the species. A Rangewide Management Strategy was developed to coordinate inter-agency habitat and population management strategies (Foreman 1997).

Species Description: The flat-tailed horned lizard is distinguished from other *Phrynosoma* by having 2-3 rows of lateral abdominal fringe scales, 2 elongate, sharp occipital horns that are 3-4 times longer than the basal horn width, 6 temporal horns, and tympana that are not externally visible, as well as an enlarged lateral row of guard scales, and an olive or brown mid-dorsal stripe.

Distribution: Flat-tailed horned lizards are found on light-colored sandy soils, most commonly on the sand sheet of the Yuma Desert and the Gran Desierto in Mexico (Stebbins 1985, CBD 2000). The historical range is extended from the Coachella, Imperial, and Borrego Valleys in Riverside, Imperial, and extreme eastern San Diego Counties, California; west of the Gila and Tinajas Altas Mountains and south of the Gila River in Yuma County, Arizona; to northeastern Baja California, east of Sierra de Juarez and north and west of Bahia de San Jorge in Sonora, Mexico. Gonzalez-Romero (1989, cited on CBD website) reported finding *P. mcallii* in Mexico's Sierra Pinacate volcanic region, and anecdotal sightings have been reported from the Pinta Sands surrounding the northern edge of the Pinacate region in Arizona. This species has not

been detected in the Project area (Foreman 1997), nor are the remaining natural habitats suitable for this species.

Life History: The diet of *P. mcallii* includes 97-98 percent ants. This species is oviparous, and has a mean clutch size of 5.4 young.

Management Considerations: The main cause for the decline of the Flat-tailed Horned Lizard is conversion of habitat to urban and agricultural uses. The various uses include crops, cities, off-highway recreational use, geothermal leases, military maneuvers, gravel pits, and highways. In 1907, flood waters broke through dams creating the Salton Sea in California, covering habitat in water. Other factors responsible for the decline of this species include the use of pesticides on crops to control beat leafhoppers. Pesticide drift is thought to affect ant populations in adjacent habitat. It is unknown what the effect of pesticides is on lizards themselves.

2.6.4 Brown Pelican (Pelicanidae: Pelecanus occidentalis californicus)

Listing Status: On June 2, 1970, the brown pelican was designated as Endangered in the entire U.S., except along the Atlantic coast, Florida, and Alabama where it was designated as a Delisted Taxon, Recovered, Being Monitored First Five Years (Federal Register, October 13, 1970; June 2, 1970; February 4, 1985). Within the area covered by the listing, this species is known to occur in California, Louisiana, Mississippi, Oregon, Puerto Rico, Texas, Virgin Islands, and Washington. The U.S. Fish & Wildlife Service Pacific Region (Region 1) is the lead region for this entity.

The decline of the eastern population was due to thin-shelled eggs and reduced reproductive success, problems caused by pesticide residues in their food fishes. The principal residues are DDT compounds and polychlorinated biphenyls. Between 1957 and 1961, pesticides drastically reduced the Texas population and completely eliminated the original Louisiana population, with lesser impacts occurring in other Southeastern states.

Species Description: The adult brown pelican is a large dark gray-brown water bird with white about the head and neck. Juveniles are gray-brown above and on the neck, with white underparts. The species is considered to be long-lived, with individuals living in the wild more than 31 years. Although Brown Pelicans were extirpated from the Louisiana coast during the 1960s, the population there has been increasing. The American Southeast population presently exceeds 25,000 pairs, and at least13 breeding sites exist in the Caribbean and in the Virgin Islands. No breeding is known to occur in Arizona.

Two subspecies of brown pelican are recognized, the eastern (*P. o. carolinensis*) and Carribean *(P. o. occidentalis*) subspecies. Although the Caribbean subspecies resembles the eastern subspecies, the Caribbean brown pelican has a darker non-breeding plumage above the surface. The Caribbean pelican usually also has a darker undersurface plumage during breeding than does the eastern brown pelican. Both subspecies can reach up to 8 pounds and larger individuals have wingspans of greater than 2 m.

Distribution: Brown pelicans are found along the coast in California and from North Carolina to Texas, Mexico, the West Indies and many Caribbean Islands, and to Guyana and Venezuela in South America. They occasionally wander into the Project area through the lower Colorado River, and rarely as far north as Grand Canyon (Brown et al. 1987). As such, they are erratic in distribution in the Project area and do not breed there.

Life History and Biotic Associations: Brown pelicans commonly feed on fish in shallow coastal and estuarine waters, and individuals rarely venture more than 65 km out to sea. Sand spits and offshore sand bars are used extensively as daily loafing and nocturnal roost areas.

Brown pelicans nest in colonies, typically on small coastal islands. Courtship is restricted to the nesting area. The nests are often constructed in mangroves, but some ground nesting occurs. Nesting provides protection from predators and flooding. The male carries nesting materials to the female and she builds the nest. Nesting materials may consist of virtually nothing to sticks, leaves and grass. The eastern subspecies nests mostly in early spring or summer, although fall and winter nesting have been recorded in some localities. The Caribbean subspecies begins nesting from May to August, with a breeding peak in the autumn. Brown pelicans normally lay three eggs per clutch, and both sexes contribute to incubation and rearing.

Management Considerations: Brown pelicans are rare, wandering coastal seabirds that erratically appear and sometimes move through the region. Factors affecting brown pelican populations include human and natural disturbance of nesting colonies and anthropogenic sources of mortality (e.g., entanglement in monofilament line, oil or chemical spills, erosion, plant succession, and naturally and anthropogenic diseases and altered food availability). Factors affecting the survivorship of wandering birds are unknown. Because of their erratic, wandering status, and because no breeding or predictable habitat use occurs in the Project area, the Project is unlikely to adversely affect this species.

2.6.5 Bald Eagle (Falconidae: Haliaeetus leucocephalus*)*

Listing History: The bald eagle was adopted as the United States national emblem in 1782. Bald eagle numbers in the lower 48 states are thought to have declined from between 25,000 - 75,000 nesting birds to fewer than 450 nesting pairs by the early 1960s. The U.S. breeding population declined due to habitat destruction and degradation, illegal shooting, contamination of its food source and reproductive impairment from pesticides (notably DDT) and heavy metals.

Several laws protect bald eagles: 1) The Federal Bald Eagle Protection Act (1940) - making it illegal to kill, harass, possess, or sell Bald Eagles; 2) the bald eagle was designated as a threatened species in the conterminous United States on March 11, 1967; 3) 1972- the use of DDT was banned in the U.S., partially in response to declines of raptorial birds, including bald eagles; 4) The Endangered Species Act of 1973 protects bald eagles in all areas of the United

States below the 40th parallel. The U.S. Fish & Wildlife Service is the lead region for this entity. No critical habitat has been established for bald eagles.

Under the Endangered Species Act of 1973, as amended, the Fish and Wildlife Service reclassified the status of the bald eagle from endangered to threatened in the lower 48 States on August 11, 1995. The bald eagle also occurs in Alaska and Canada, where it is not at risk and is not protected under the Act.

Species Description: The bald eagle is the only eagle unique to North America. Male bald eagles average 0.91 m from head to tail, have a mass of 3.2 - 4.5 kg, and a wingspan of 1.8 - 2.3 m (Sibley 2000). Females are typically larger; reaching a mass of up to 6.35 kg with wingspans of 2.3 m. Eagles are thought to live more than 30 years in the wild. Northern and southern breeding populations are distinguished, the latter being shorter in the wing and tail. The southern population typically fledges young in March, and juveniles may wander north to Canada over the summer. Arizona bald eagles are not genetically distinctive from other populations (Hunt 1998).

Life History: Bald eagles are opportunistic predators and scavengers, and 70 percent by mass of Arizona bald eagle's diet is composed of fish (primarily nonnative), 18 percent mammals, and the remainder consists of birds and carrion (Hunt 1998). Bald eagles are monogamous, and both the male and female tend the nest. The single brood per year usually produces two eggs. One to two young are produced, and are fed primarily fish. Nesting success in Arizona (57 percent) is on par with that of other populations in the coterminous U.S. Sources of nesting mortality in Arizona include heat stress, blood-sucking Mexican chicken-bug attack, great horned owl predation, and intraspecific aggression. Sources of adult mortality include a variety of accidental mechanisms, including entanglement in monofilament fishing lines.

Distribution: Bald eagles range over most of the North American continent, from as far north as Alaska and Canada, south to northern Mexico (Hunt 1998), and more than 4,000 adult bald eagle nesting pairs are estimated to exist in the coterminous United States as of 2000.

Bald eagles commonly migrate through Arizona in the fall and winter, and are an uncommon winter transient in aquatic and riparian settings at low elevations in the lower Gila and Colorado rivers. The State's resident population is greatly augmented by the arrival of several hundred birds during the winter and spring months. Northward migrating birds are sometimes gregarious in Arizona at sites with good food resources (Brown et al. 1989); however, winter or north-migrating birds are more often observed as solitary individuals, perching near, or flying over ponds, lakes or rivers. This species is a year-round resident in central Arizona and on the Bill Williams River. Approximately 40 bald eagle nesting sites have been detected in Arizona.

Habitat Requirements: Bald eagles breed along coasts, rivers, and large lakes, usually high in trees. The nest is typically a platform nest and is used perennially (Hunt 1998). Preferred

roosting sites include those where they can perch in the open, high above the water. They forage for fish within 1.6 m of the water surface, and have taken great advantage of regulated river impoundments and artificially clear water reaches for foraging (Brown et al. 1989, Hunt et al. 1992). They feed on high perches, or on land along creeks and rivers where visibility is unimpaired by shrub and brush cover.

Management Considerations: Bald eagles are rare, opportunistic migrants through the Project area, brief and erratic in their appearance, and moving quickly through the region. Because of this status, and because no breeding or predictable habitat use occurs on Transfer lands, no impacts of the Proposed Action on bald eagle are expected to occur.

2.6.6 Yuma Clapper Rail (Rallidae: Rallus longirostris yumanensis*)*

Listing Status: The Yuma clapper rail was designated as Endangered on March 11, 1967 (32 FR 4001, March 11, 1967; 48 FR 43182, July 23, 1983). Within the area covered by this listing, this species is known to occur in Arizona and California. The U.S. Fish & Wildlife Service Southwest Region (Region 2) is the lead region for this entity, and the Yuma clapper rail is also listed as a Species of Special Concern by the State of Arizona.

A recovery plan was completed in February 1983. Delisting of the Yuma clapper rail can occur when: 1) the breeding and wintering range in Mexico are determined; 2) surveys for the species and its habitat are established; 3) management plans are developed for important Federal and State controlled breeding areas; 4) written agreements are affected with agencies having control or responsibility over this species to protect sufficient wintering and breeding habitat to support a population of 700-1,000 breeding birds in both the United States and Mexico. Maintaining suitable flows in the lower Colorado River and preserving habitat on Federal and State lands are primary management concerns, as well as protecting winter habitat.

Species Description: The Yuma clapper rail is a gruiforme bird, 32-41 cm in length, with a body mass of 160-400 g (Ehrlich et al., 1988, Edelman and Conway 1998). This is one of the smaller clapper rail subspecies. It is a marsh bird with long legs and a short tail; its bill is long, slender, and slightly decurved. Males average 20 percent larger than females. Both sexes have grayish brown to cinnamon brown plumage, and they are darker dorsally than ventrally. Flanks are barred white, dusky, and black. Base and sides of bill are pinkish to bright orange in males, duller in females. A solitary ground nester, this species nests in salt, brackish, and freshwater marshes and mangrove swamps. A typical clutch includes 7-11 buff or olive-buff eggs in a basket-shaped nest of aquatic vegetation or tidal wrack, hidden on a firm bank or under a small bush. The young are precocial, and the maximum age of a clapper rail recorded in nature is 7.5 years.

Distribution: Yuma clapper rails may have occurred more widely in the marshes of the Lower Colorado River and its tributaries in Mexico and the United States; however, no records exist

north of the Fort Mohave Indian Reservation prior to the mid-1970s At present, this species occurs in bulrush and cattail marshes along the lower Colorado River from Lake Mead south to Mexico, including the lower Bill Williams River, as well as on the Gila and Salt rivers upstream to the Verde confluence. Populations also occur at and around at Picacho Reservoir in Arizona and the Salton Sea in California.

The gross trend for the Yuma clapper rail population, based on the annual tape-playback survey, was stable to slightly increasing between the late 1970s and 1983; however, extensive flooding on the lower Colorado River in 1983 degraded much of the available habitat. At least 700 birds responded to taped callback surveys in the late 1980s and early 1990s.

The 1993 flood of the lower Gila River seriously damaged the District flood control and canal facilities (U.S. Army Corps of Engineers 1995). Acting through the provisions of the Federal Emergency Management Act, the District conducted a Biological Assessment, which was approved and permitted by the Service to engage in District-wide flood protection facility restoration. As a result of this assessment, previous data were summarized by Resource Management International, Inc. (1994). Their report indicated that 39 Yuma clapper rails existed in the Project area and adjacent Colorado River in 1983. Surveys in the early 1990s indicated that more than half of the birds detected were in or around Quigley Pond, which is on State land. Presently available data suggest that this population is declining (L. Fitzpatrick, U.S. Fish and Wildlife Service, Phoenix; Table 2-4-6). However, the continuity and thoroughness of these surveys may affect interpretation of this trend.

Table 2.6-1: Number of Yuma clapper rails detected in the Wellton-Mohawk area and Quigley Pond by the State of Arizona, 1992-2001 (courtesy of L. Fitzpatrick, U.S. Fish and Wildlife Service Phoenix Field Office, 2002).

	Number of YCR detected	
Year	Wellton-Mohawk Area	Quigley Pond
1983	23	---
1992	9	6
1993	9	9
1994	7	6
1995	5	5
1996	9	5
1997	5	4
1998	0	0
1999	1	1
2000	1	0
2001	8	1

Life History: Of the three endangered West Coast sub-species of the clapper rail, the Yuma clapper rail is the only subspecies to inhabit primarily freshwater marshes along streams. Yuma clapper rails inhabit freshwater or brackish streamside and marshlands (Anderson and Ohmart 1985; Edelman and Conway 1994, 1998). They are associated with dense cover of marsh and riparian vegetation, and require wet substrata, such as mudflats, sandbars, or slough bottoms. These substrata must be rather densely covered with mostly mature herbaceous or woody vegetation that exceeds one foot in height.
Yuma clapper rails nest in freshwater wetlands along the lower Colorado River from Needles, California, to the Gulf of California, on the lower Gila River, in marshes associated with the Salton Sea, and at isolated sites in Arizona (Edelman and Braun 1994). These habitats were historically exposed to periodic flooding. Nest sites selected by this subspecies are near upland in shallow sites dominated by mature vegetation, often in the base of a shrub. This taxon exhibits strong fidelity to breeding locale for migrant individuals. Yuma clapper rails move into different cover types in winter, showing preference for denser cover than in summer, but winter site fidelity is unknown.

Yuma clapper rails are generalist and opportunistic feeders, but prefer to eat crustaceans if available. The clapper rail forages mainly by shallow probing of sediment or surface gleaning. In general, clapper rail diet includes small crustaceans, including crayfish, slugs, insects, small mammals and birds, small fish, and sometimes bird eggs (Edelman and Conway, 1998). Yuma clapper rails feed on introduced crayfish (*Orconectes virilis* and *Procambarus clarki*) as well as isopods, introduced freshwater shrimp (*Palaeomontes paludosis*), introduced freshwater clams (*Corbicula* spp.), water beetles (Coleoptera), and fish. Introduced Norway rats may be significant predators on clapper rails.

Elevated levels of some pollutants may affect the Yuma clapper rail. In 1992, mean mercury concentration was 0.22 µg/g in Yuma clapper rail eggs from the Colorado River's Topoc Gorge (Rattner et al. 2001). One carcass of a Yuma clapper rail was recovered from the Salton Sea, California, some time between 1988 and 1990. Selenium concentrations in the carcass were 4.80 µg/g dry weight, and boron concentration was 14.0 µg/g. Phillips found no references on selenium concentration in Arizona clapper rail populations.

Biotic Associations: Yuma clapper rails are intimately associated with fluvial wetlands of the lower Colorado and Gila rivers. They feed on several introduced and native aquatic invertebrates species, including crayfish and freshwater shrimp, and may be threatened by introduced rats and other carnivorous mammals.

Management Considerations: Yuma clapper rails are threatened by habitat destruction due to stream channelization and by altered drying and flooding cycles of fluvial and lacustrine marshes, as well as by the introduction of new predators. Yuma clapper rails are strongly affected by water flow management on the lower Colorado River, but Edelman and Conway (1998) indicate that this taxon responds positively to water level manipulations on diked

freshwater management units. They recommended that marshes of all ages should be maintained in managed wetland complexes to increase suitability for clapper rails.

This taxon has historically occurred in the Project area, particularly in Quigley Pond. Under present management regimes, its population appears to be declining, similar to populations along the lower Colorado River (Stevens and Shaffer 2002a). More thorough analysis of existing data and more thorough surveys may be needed to ascertain present distribution and population trends within the District. Given the listed status of this species, the marsh habitat involved in the Proposed Action should be managed so as not to detrimentally affect Yuma clapper rail population or habitat. Beyond that, monitoring and habitat management and improvement measures may be warranted to help increase populations.

2.6.7 Mountain Plover (Charadriidae: Charadrius montanus)

Listing History: The mountain plover became Proposed Threatened in the Entire Range on February 16, 1999. Within the area covered by this listing, this species is known to occur in Arizona, California, Colorado, Kansas, Montana, North Dakota, Nebraska, New Mexico, Nevada, Oklahoma, South Dakota, Texas, Utah, and Wyoming. It is also known to occur in Canada and Mexico. While there is not an immediate threat of extinction, several factors were identified that may have caused the decline, and are likely to continue in the future. Unless these problems are solved, the mountain plover is likely to disappear at some currently occupied sites, which could increase the likelihood of extinction throughout its range. The U.S. Fish & Wildlife Service Mountain-Prairie Region (Region 6) is the lead region for this entity.

By law, the Fish and Wildlife Service must, to the maximum extent prudent and determinable, designate critical habitat for a species at the time of its listing as endangered or threatened. The Service is proposing in the rule that critical habitat for the mountain plover is *not* prudent, and therefore would not be designated.

Species Description: It is about the size of a killdeer, but unlike other plovers, it is not found near water. The mountain plover is a full species, and there are no recognized sub-species.

The mountain plover is threatened by certain practices of plowing and range management; oil and gas activities; and prairie dog control. Pesticides may also affect the population of the bird.

Distribution: The mountain plover is one of only nine birds unique to the short-grass prairie environment. As a group, short-grass prairie bird populations are declining more rapidly than other birds, and mountain plovers are declining faster than other grassland birds. The current mountain plover population is less than 10,000 individuals, based on Breeding Bird Survey trends from 1966 to 1996, which document a population decline of over 50 percent.

Life History: Mountain plovers share habitat with prairie dogs at many core-breeding sites, and with kangaroo rats on winter habitat in California. However, with a great number of prairie

dogs eliminated throughout their range, mountain plover habitat has also been severely restricted. While mountain plovers are commonly found attempting to breed on plowed land in several states, surveys have found that successful nesting is interrupted by subsequent planting and crop growing before nesting is completed. This may create a "reproductive sink" for the species, where mortality on the cultivated lands is greater than the number of birds produced. In addition, livestock grazing practices that encourage taller grasses and forbs eliminate mountain plover habitat.

Breeding populations of mountain plovers are most abundant in Colorado, Montana, Wyoming, Oklahoma, New Mexico, Kansas, Utah, Nebraska, and Texas. Distribution in Colorado is primarily east of the continental divide. Historically, the Pawnee National Grassland in Colorado was considered the breeding stronghold in the state, and perhaps the entire population. New breeding sites found since 1995 suggest that the plover may be more widely distributed in Colorado than previously known. Plovers occupy breeding range from about April 1 to August 1.

Mountain plovers evolved on grasslands that were once inhabited by bison, pronghorn, and numerous burrowing rodents. Current research shows breeding habitat requirements are typically sites where the vegetation is less than 10 cm in height, has at least 30 percent bare ground, a conspicuous object such as a manure pile, clump of forbs, or rock nearby, and less that 5 percent slope. Nest sites are also usually heavily grazed by domestic livestock or prairie dogs. Vegetation commonly found at Colorado nest sites consists of blue grama grass, buffalo grass, and pricklypear cactus. Taller vegetation or other structures (e.g., fence post) may be sought by chicks for shade. Mountain plovers are rarely found near water

Approximately 90 percent of the mountain plovers winter in California, primarily at two areas: 1) the Central Valley from Sacramento south to Bakersfield and west of Highway 99, and 2) the Imperial Valley. Mountain plovers are also seen during the winter in Arizona, Texas, and Mexico. Plovers occupy winter sites in California from mid-October to mid-March. Winter habitat characteristics are very similar to those at breeding sites, i.e., mountain plovers are found on sites with short vegetation, bare ground, which are commonly heavily grazed. In California, mountain plovers may also use habitat that is commonly used by the federally listed giant kangaroo rat and blunt-nosed leopard lizard. Mountain plovers also occur on cultivated lands and sod farms. However, research in San Joaquin, California has determined that while mountain plovers are commonly seen on agricultural lands, they actually prefer the remaining natural landscapes to the agricultural lands.

Management Considerations: The implementation of the Conservation Reserve Program (CRP) currently did not provide nesting habitat for mountain plovers. The Natural Resource Conservation Service (NRCS) in Colorado has recently designated the mountain plover as a species eligible for credit in CRP programs chosen by farmers, and is alerting farmers there to mountain plover management needs. Planting native warm-season grasses (such as buffalo and

blue grama grass) may benefit mountain plovers by restoring historic vegetative characteristics. The Service continues to work with the NRCS to see if other nest site requirements can also be created on CRP lands by habitat manipulation. CRP lands planted with native grass mixtures adjacent to existing mountain plover nesting areas are likely to contribute the most to their conservation. CRP lands established with nonnative grass species have little value for the mountain plover.

At present, the mountain plover are likely to be occasional migratory or wintertime visitors on Transfer lands, but they are rare and this region is too low in elevation to support breeding populations on or off agricultural lands. Because of their migratory or rare visitor status, and because no breeding or predictable habitat use occurs on Transfer lands, no impacts are expected to occur to this species due to the Proposed Action.

2.6.8 Cactus Ferruginous Pygmy-Owl (Strigidae: Glaucidium brasilianum cactorum*)*

Listing History: The cactus ferruginous pygmy-owl was designated as an Endangered Species on March 10, 1997. This species is only known to occur in Arizona. The U.S. Fish & Wildlife Service Southwest Region (Region 2) is the lead region for this entity.

Species Description: The cactus ferruginous pygmy-owl is a small owl, 17 cm in length, with a 30 cm wingspan, and with males (62 g) smaller than females (75 g; Sibley 2000). It has a long, distinctively rusty red tail and upper primary feathers, with a broadly streaked breast, a mottled dorsum, and yellow eyes. The head is a paler brown, with white streaks, and the sides of the nape have black blots bordered in white, resembling as eye. The tail is often wagged or twitched while roosting. It is distinguished by its vocalizations, its normal call being a series of rapidly (two per second) repeated whistled notes, that may be uttered 100 times, with each note rising slightly, often a few higher, weaker notes at the beginning. The owl calls principally during dawn and dusk from September through mid-April, but may call throughout the day and throughout the year. Its flight is quick and direct, usually flying short distances. It can be found perching in the open during the day, but is more often found in desert riparian trees or shrubs.

Four subspecies of ferruginous pygmy-owls exist, of which *G. b. cactorum* is the northernmost (van Rossem 1937) and the most distinctively marked (Phillips et al. 1964).

Distribution: This species historical range included low, arid habitats from southernmost Texas and central southern Arizona in the United States south to the western Mexican states of Jalisco and Michoacan, and the eastern states of Nuevo Leon and Tamaulipas. The species was formerly rather widespread in Arizona, ranging as far north as Agua Caliente on the lower Gila River in Maricopa County, New River in northern Maricopa County and the mouth of the Verde River. The population began to decline by 1900, and was already extremely rare by 1970 (Millsap and Johnson 1988). It is now extremely rare in Arizona, known in recent years only

from Organ Pipe National Monument, near Ajo, a suburban site in Tucson, and as far west as Cabeza Prieta Tanks on the Cabeza Prieta National Wildlife Refuge (Hunt 1998).

Life History: Cactus ferruginous pygmy-owls are year-round residents in Arizona. They occur in lowland (less than 1,200 m elevation) subtropical and riparian shrublands, woodlands and forests, particularly habitats with rather dense woody thickets, and in trees and cacti sufficiently tall for nesting. These owls call primarily from September through April, but nothing is known about their courtship flight in Arizona (Hunt 1998). They apparently prefer to nest in abandoned cavity nests of Gila woodpeckers *(Melanerpes uropygialis*), but nests have also been located in saguaro cactus, mesquite, cottonwood and Goodding willow trees. Egg laying begins in mid-April, and up to six eggs may be produced (U.S. Fish and Wildlife Service 1997). Males bring food to the females on the nests, and young fledge in late July. Their diet is poorly known, but probably includes insects, lizards and small birds.

The cactus ferruginous pygmy-owl commonly co-occurs with elf owls (*Micrathene whitneyi)*, a species with similar food, habitat and other life history requirements, and which is not in apparent danger of extirpation in Arizona. Cactus ferruginous pygmy-owls are frequently harassed and mobbed by songbirds with which they coexist.

Management Considerations: The causes of decline of this species are attributed to habitat fragmentation, ground water decline that has eliminated large cottonwood stands, perhaps increased competition, and other unknown factors (Hunt 1998). Because the historic elevation and geographic range of this species does not overlap onto Transfer lands or the Project area in general, the Proposed Action is not expected to affect any populations of cactus ferruginous pygmy-owls.

2.6.9 Yellow-billed Cuckoo (Cuculidae: Coccyzus americanus*)*

Listing History: The U.S. Fish & Wildlife Service published an initial finding that ESA protection may be needed for western cuckoos, either as subspecies or a unique population, on February 17, 2000; however, this finding cast doubt on whether the extinction of the cuckoo from all of western North America would be biologically significant. The Center for Biological Diversity and other environmental groups have sued the Service over this finding and the case is on going.

Species Description: This species is 28-30.5 cm in length, with the head and back grayish brown. It has darker gray lores and auricular region, and is rufous across primaries. The throat and chest are white with gray wash, and the long tail is grayish above and black below, with outer retrices tipped with white.

Distribution: The Yellow-billed Cuckoo has declined precipitously throughout its range in southern Canada, the United States, and northern Mexico, and is nearly extinct in the Southwest, having been in decline in western North America since the 1920s. It is now rare in

the interior West with the only remaining breeding populations in California, a few scattered in Arizona and New Mexico, and an unknown population in northern Mexico. The cause of the cuckoo's demise is the same threat facing most endangered species, habitat loss. In the West, cuckoos are closely associated with broadleaf riparian forests. Logging, cattle grazing, dams, water diversions, and water pumping have decimated the West's rivers and riparian forests,

Life History: This cuckoo species is one of the last neotropical migrants to arrive in North America and has little time to nest, lay its eggs and raise young (Center for Biodiversity 2000). To do so, it has evolved a unique nesting strategy. It is able to time its egg laying with outbreaks of insects (especially caterpillars) so that it has a rich food source for itself and its young. Its incubation/nestling period is the shortest of any known bird. Its egg develops rapidly, and at hatching is one the heaviest of all North American songbirds. This is because the chick will have very little rearing time before embarking on its transcontinental migration. It must complete much of its development while still in the egg. The nestling are fledged from the nest six to seven days after hatching, and are off to South America at three or four weeks of age.

Biotic Associations: This species is intimately associated with gallery cottonwood-willow riparian forests.

Management Considerations: The yellow-billed cuckoo requires gallery cottonwood forests with substantial area as breeding habitat. Such forests no longer exist in the Project area; however, gallery forest restoration is being attempted at the mouth of the Gila River near Yuma, and on Transfer lands by the Arizona Game and Fish Department. Such activities may provide needed habitat for this species, and should be encouraged.

2.6.10 Southwestern Willow Flycatcher (Tyrannidae: Empidonax trailii extimus*)*

Listing History: Southwestern willow flycatcher populations have experienced such sharp reductions since 1950 that it was proposed for listing with critical habitat, under the Endangered Species Act, on July 23, 1993 (U.S. Fish and Wildlife Service 1993c). On February 27, 1995, the southwestern willow flycatcher was designated as Endangered in the Entire Range, including Arizona, California, Colorado, New Mexico, Texas, and Utah, as well as Mexico. The U.S. Fish & Wildlife Service Southwest Region (Region 2) is the lead region for this taxon. It is considered as a species of special concern in Arizona (Arizona Game and Fish Department 1996), and as a state endangered species in New Mexico and California.

Species Description: The southwestern willow flycatcher is a small (13-15 cm) passerine bird with grayish/greenish upper parts, a whitish throat, an olive gray breast and yellowish belly. Two pale wingbars are visible, but the eye ring is lacking or indistinct (New Mexico Department of Game and Fish 1986; U.S. Fish and Wildlife Service 1993c). Females tend to be somewhat smaller (Phillips 1948), but as is typical of the Tyrannidae, there is no sexual dimorphism (Seutin 1987). Willow flycatchers are neotropical migrants with a broad breeding

range, extending from Nova Scotia to British Columbia and south to Baja California. It is an insectivorous riparian obligate bird (Hunter et al. 1987), preferring habitat near open water (Gorski 1969; Sogge 1994; Sogge et al. 1997).

The taxonomy of the ten North American *Empidonax* species has undergone several revisions (Browning 1993). Willow flycatchers and the more northern alder flycatcher (*E. alnorum*) were once considered to be a single species, the Traill's flycatcher (*E. traillii*), and some authors have lumped both into a superspecies, the "*traillii* complex" (U.S. Fish and Wildlife Service 1993c). However, genetic and behavioral studies have supported the designation of two reproductively isolated species (Seutin and Simon 1988).

Although there is much individual variation (Phillips 1948), the southwestern willow flycatcher is distinguished from the other *E. traillii* subspecies by distribution, morphology and color, nesting ecology, and song dialect (Aldrich 1953; King 1955; Sogge 1994). First described by Phillips (1948), *E.t. extimus* is one of at least four commonly recognized willow flycatcher subspecies (U.S. Fish and Wildlife Service 1993c). Although there is undoubtedly overlap, *E.t. traillii* (perhaps *E.t. campestris*) breed east of the Rocky Mountains; *E.t. brewsteri* breeds on the west coast of North America from British Columbia to south Central California; and *E.t. adastus* breeds from the Cascades and Sierras in California, east to the Rocky Mountains. *E.t. extimus* is the southernmost subspecies, breeding from southern California to west Texas (Unitt 1987; U.S. Fish and Wildlife Service 1993c; Browning 1993).

The characteristic territorial call of *E.t. extimus* is a "fitz-bew," most frequently heard in the morning before 10 a.m. (Tibbitts et al. 1994; Sedgwick 2001). The four subspecies possibly may be differentiated by characteristics of this call. Reclamation is currently funding the National Biological Survey to evaluate this hypothesis (Sedgwick 1994). Another vocalization, the "whitt," an alarm or contact call, is less frequently heard.

Distribution: *E.t extimus* is rare in the southwestern United States. Its historic breeding range includes Arizona, New Mexico, southern California, and southern portions of Nevada, Utah, and perhaps southwestern Colorado; the eastern edge extends into western Texas (U.S. Fish and Wildlife Service 1993). It winters from Mexico to Panama, with historical accounts from Colombia (Phillips 1948). Southwestern willow flycatchers probably return to their wintering grounds in August and September. Neither migration routes nor wintering areas are well known. Winter movement may be tied to water availability (Gorski 1969). Birds call and perhaps defend foraging territories in Central America during this season (Gorski 1969). Threats to this species on the wintering grounds are undocumented, but habitat losses in Latin and South American are likely.

The southwestern willow flycatcher has been apparently extirpated from much of its former range (Hunter et al. 1987), and it is now less common than most other currently listed species (Unitt 1987). Although probably never common, *E.t. extimus* population declines have been

noted for nearly 50 years, corresponding with loss and modification of riparian habitats (Phillips 1948). Southwestern riparian ecosystems support a rich avian fauna (Johnson and Haight 1987) and habitat changes have resulted in reduction or extirpation of many species (Hunter et al. 1987). Modification and fragmentation of these systems through development and intensive livestock grazing have resulted in devastating ecological changes to the southwestern willow flycatcher and its habitat. Groundwater withdrawal, flow regulation, and destruction of native willow and cottonwood vegetation have provided opportunity for invasion by exotic species, notably saltcedar (*Tamarix* spp.). Habitat fragmentation and modification has benefited other bird species, especially cowbirds (*Molothrus* spp.), which parasitize willow flycatcher nests, contributing to the precipitous population declines (Sedgwick and Iko 1999). Habitat loss in Central and South America may also be a contributing factor to this population decline.

The U.S. Fish and Wildlife Service estimates only 300-500 breeding pairs remain in the United States. This includes the largest colonies in California (115 pairs) and approximately 100 pairs in New Mexico (Sogge 1994). Limited information exists for Colorado, Utah, Nevada, and Texas.

Arizona has probably experienced the sharpest decline in *E.t. extimus* numbers. It formerly bred throughout the state at high and low elevations. For example, a 1931 record exists from the south rim of the Grand Canyon (Brown et al. 1987). By 1987, the population was estimated at less than 25 pairs in the state (Unitt 1987). The former range included the lower Colorado River, from which it had been extirpated but is now apparently recolonizing (Robert McKernan, San Bernardino County Museum, personal communication). McKernan (op. cit.) reported numerous territories downstream from Hoover Dam in 1996. In 1995, the Arizona Partners in Flight Program reported 83-87 territories, 62 pairs, 56 nesting attempts and 27 successful nests which produced at least 57 fledged young (Spencer et al. 1996). Recent surveys in Arizona have documented more than 110 pairs, on approximately 160 occupied territories. It has been considered to be a rare migrant in the Region (Resource Management International, Inc. 1994). Surveys of the lower Gila River from 1993-2001 revealed a single nest at Fortuna Wash in 1996 (Paradzick et al. 2001); however, no nests were detected before or after that time. Surveys near Yuma in 2002 reveal its presence as a relatively common migrant but not a nesting species (Stevens and Shaffer 2002b,c).

Life History: Southwestern willow flycatchers pass through the Project area in spring, but may be confused with another subspecies, the more common *E.t. brewsteri*, which migrates through to more northern breeding grounds (Aldrich 1951; Unitt 1987; Sogge et al. 1994). *E.t. brewsteri* sings during migration, making sub-specific distinctions difficult until mid-June. Males arrive earlier in spring than do females, and the males establish territories.

E.t. extimus nests along rivers, streams and wetlands in dense vegetation (Arizona Game and Fish Department 1996). These areas provide both nesting and foraging habitat. Dense, multistoried vegetation near surface water or moist soil is consistently selected by breeding birds. In Utah, *E.t. extimus* was confined to areas of 70-100 percent shrub density, with few large

trees (Whitmore 1977). Structural complexity of riparian vegetation is important and highly correlated with habitat use (Whitmore 1975). Nesting often occurs in thickets of vegetation approximately 4-7 m tall, with a dense volume of foliage 0-4 m from the ground (Tibbitts et al. 1994).

Breeding extends through July and may conclude in August, and parent bird singing ceases at the end of the breeding season. Population surveys authorized by the Service begin in late May/early June and include a repeat visit later in June to early July to distinguish migrants from residents, as well as to determine breeding status and success (Tibbitts et al. 1994).

Willow flycatchers are highly territorial. Nest building begins after breeding territories are established. The nest is an open cup of bark and grass, often lined with feathers (Johnson 1989). The outside diameter of the nest is approximately 7.7 cm wide and placed in a fork or horizontal branch one to five meters above ground (Tibbitts et al. 1994). A clutch of three or four eggs is laid from late May through July (Unitt 1987). The beige eggs are lightly mottled with brown flecks at the larger end, and clutches usually contain two to three eggs (Sogge 1994).

Following a 12 to 14 day incubation, nestlings spend 12 or 13 days in the nest before fledging (Brown 1988; Tibbitts et al. 1994). The breeding season (eggs or young in nest) along the Colorado River extends from early June to mid-July, but may extend into August. One clutch is typical; however, renesting has been known to occur if the initial nest is destroyed (Brown 1988).

Vegetative composition of nest sites is variable. Shrubs, such as willows (*Salix* spp.) are common, with or without a cottonwood overstory. Russian olive and saltcedar are also suitable. Southwestern willow flycatchers nest preferentially in saltcedar, with greater than 80 percent of all nests detected in Arizona occurring in this dominant non-native preatophytic shrubby tree (Brown 1988, Spencer et al. 1996). *E.t. extimus* also used saltcedar before completion of the Glen Canyon Dam (Behle and Higgins 1959). These stands are mixed saltcedar-willow or monotypic. Along the Colorado River, the southwestern willow flycatcher could be termed a habitat generalist, occupying sites of average height and density (Brown and Trossett 1989).

Structural complexity may be correlated with temperature regulation (Hunter et al. 1987). Heat stress can affect egg survival. Apparently saltcedar stands may afford some thermal protection, although probably not to the same extent as do broad-leafed plants. Monotypic saltcedar stands, which lack structural complexity, may have limited appeal as nesting habitat (L.E. Stevens, personal communication 2002). Predation also may be a factor as saltcedar may offer less visual protection than broad-leafed vegetation. However, there are no data to support these suppositions.

Although habitat may not be limiting along the Colorado River (e.g., Brown and Trossett 1989), patch size is not well known. From 2.8 to 3.1 hectares (ha) are typical, but territory sizes as low

as 0.5 ha have been noted in Grand Canyon (Brown 1988, Sogge et al. 1997), and *E.t. extimus* have been observed defending territories as small as 0.11 ha in both breeding and wintering ranges (Gorski 1969). The importance of habitat fragmentation cannot be underestimated; larger patches are more likely to support willow flycatchers (Sedgwick and Knopf 1992). The width of the riparian zone cannot be extremely narrow; *E. t. extimus* is not found along high gradient streams (Sogge et al.1997). Patch width may be correlated to quality, i.e., narrower in high quality habitats. However, there is no correlation between stream width and flycatchers (Sedgwick and Knopf 1992).

Nests are located in close proximity to water; a trait possibly correlated with edge effects and food supplies. Although saltcedar has been claimed to support low invertebrate and bird biomass in some southwestern settings (e.g., Hunter et al. 1988), it supports more than twice the invertebrate biomass of native plant species in other settings (Stevens 1989, Stevens and Ayers in press); therefore, saltcedar can provide both important nesting and foraging habitat for southwestern willow flycatcher and other neotropical migrant bird species. Overall, it appears unlikely that food is a limiting resource to birds in saltcedar, but this issue requires more rigorous testing.

Although little is known of southwestern willow flycatcher food preferences, the birds are probably generalists and opportunistic feeders. *Empidonax* flycatchers hover and glean insects from foliage (King 1955). On the wing, northern willow flycatchers forage more in the open and less in trees than the closely related alder flycatcher (Barlow and McGillivray 1983). Southwestern willow flycatchers also forage on sandbars, backwaters, and at waters edge (Tibbitts et al. 1994).

Riparian modification, destruction and fragmentation accompanying western expansion provided new foraging habitat for brown-headed cowbirds (*Molothrus ater*) and populations of this species continue to expand (Hanka 1985; Harris 1991; U.S. Fish and Wildlife Service 1993c). Brood parasitism is currently a substantial threat to southwestern willow flycatchers in the United States, and probably to many other neotropical migrants as well (Bohning-Gaese et al. 1993, Brown 1994). The open-cupped nest of the willow flycatcher is a readily visible target for brood parasites. Over one half of the nests in Brown's study (1988) contained brown-headed cowbird eggs. Cowbirds may remove prey eggs, their eggs hatch earlier, and the larger nestlings are more competitive in the nest.

Willow flycatchers may remove cowbird eggs, or more commonly may abandon the nest if the parasite's eggs are deposited. The second nesting attempt is energetically expensive because a new nest may be constructed (Sogge 1994), although Brown (1988) noted a pair covered a cowbird egg with fresh nesting material and laid a new clutch. The second nest, already at a temporal disadvantage, often is parasitized as well. Cowbird parasitism could be largely responsible for the absence of southwestern willow flycatchers in otherwise suitable habitat in

the Grand Canyon (Unitt 1987). Bronze cowbirds (*Molothrus aenus*), also brood parasites, recently have also been reported as potential brood parasite threats (Sogge 1994).

The use of wetland habitats by nesting southwestern willow flycatchers remains poorly documented. This subspecies evolved along a river that was naturally highly flood-prone and supported relatively little marsh habitat (Grinnell 1914) and flow regulation that reduces flood disturbance intensity and permits the expansion of riparian marshes may improve habitat for species such as southwestern willow flycatcher (Johnson 1991, Stevens et al. 1995); however, such fluvial marshes have not been demonstrated to be necessary for nesting success.

Management Considerations: While the lower Colorado River was historically occupied by this species, (U.S. Fish and Wildlife Service 1993c), it is considered to be primarily migratory through the Project area in lower Gila River region (Resource Management International, Inc. 1994), only very rarely nesting in the area. Existing data indicate that suitable stopover migration habitat and nesting habitat occurs on Project lands, but the area is not much used by this species.

2.6.11 Sonoran Pronghorn (Antilocapridae: Antilocapra americana sonoriensis*)*

Listing History: The Sonoran pronghorn was designated as Endangered in the Entire Range on March 11, 1967. This species occurs in Arizona and northern Mexico. The U.S. Fish & Wildlife Service Southwest Region (Region 2) is the lead region for this entity. The Sonoran pronghorn was listed as State Endangered in Arizona in 1988, along with the extirpated Chihuahuan pronghorn (Antilocapra americana mexicana).

A revised recovery plan was developed for Sonoran pronghorn that allows for downlisting when 300 adult animals in one self-sustaining population are maintained in the United States for a minimum of five years, and when assistance with recovery efforts for this species in Mexico has been undertaken (U.S. Fish and Wildlife Service 1998b). Downlisting requires: 1) enhancement of present populations of Sonoran pronghorn by providing supplemental forage and/or water; 2) determination of habitat needs and protection of the present range; 3) investigation of potential barriers to expansion of the present range, and prioritization of present and potential future reintroduction sites within the historic range; 4) establishment and monitoring of a new, separate herd(s) to guard against catastrophic decimation of the core population, and investigate captive breeding; 5) scientifically credible population monitoring; and 6) refine the present taxonomy. Delisting was to be a short-term because critical survival information was not available, and the cost estimated for delisting was estimated in 1998 to be $9.03 million.

Species Description: The gestation period is 200-240 days. Fawning takes place usually in May and June, and litter size increases from one to three as the pronghorn matures. Water

consumption varies inversely with the quantity and succulence of the plants consumed (Beale and Smith, 1970) and territory size is approximately 100 square miles per animal.

Distribution: Pronghorns of two subspecies were formerly found throughout much of the state in meadows and fields up to the pinyon-juniper zone, sometimes into ponderosa pine. Presently the Sonoran subspecies is uncommon in the southwestern quarter. Pronghorn habitat exists in the Project area only in a small area south of Interstate 8; however, the outlying lands south of that area are undergoing rapid settlement and are no longer likely to support any Sonoran pronghorn.

Nelson (1925) reported about 30,000 pronghorn of all subspecies remained in the United States in 1925, and Hoover et al. (1959) concluded that only 13,000 remained in 1918. A small, remnant population of Sonoran pronghorn persists in the extremely arid flatlands of southwestern Arizona and adjacent Mexico. This population was estimated to be about 300 animals in 1998 (U.S. Fish and Wildlife Service 1998b), and has apparently declined from 179 in 1992 to 99 in 2000 (Bright et al. 2001). The Arizona Game and Fish Department detected 69 animals during their December 2001 aerial surveys and radio telemetry studies south of the Project area in the United States (Bright et al. 2001). They predicted that 99 animals remained. A total of 99 animals were detected in 2001 surveys by the Arizona Game and Fish Department, and a total population was estimated to be 140 animals in southwestern Arizona (J. Hervert, Arizona Game and Fish Department, Yuma Office, personal communication).

Historical population declines seem to have been the result of unregulated or unlawful subsistence hunting, the loss of habitat to livestock grazing, agricultural development, predation by natural and introduced predators, and human habitation. Poaching remains a significant threat, especially in Sonora, Mexico. Introductions of other subspecies may pose threats to the genetic integrity and range expansion of native subspecies. Pronghorn may have undergone a population bottleneck that resulted in reduced mitochondrial DNA variation.

Life History: Pronghorn are inhabitants of the plains and meadows of shortgrass from the deserts of the south to the grasslands of the high plateaus of the north (up to the pinyon-juniper zone). They prefer areas of grasses and scattered shrubs with rolling or dissected hills or mesas. Those in the southwestern portion of the state occupy areas with stable sand dunes that have internal or adjacent meadows (Russell 1964, Hoffmeister, 1986). Pronghorns are most abundant in shortgrass or midgrass prairies, and least common in xeric habitats.

Pronghorn occupy land typified by low, rolling, wide-open, expansive terrain, often around prairie dog (*Cynomys* spp.) towns. Temperatures (high or low) are not a limiting factor (Yoakum 1980). It is postulated that pronghorns thrive best on ranges in a subclimax vegetative condition (Yoakum 1980). Such conditions were brought about in historic time through wildfires and seasonal grazing by herbivores, which creates a vegetative community in constant change and which produces mixed stands of grass, forbs and browse (Yoakum 1980).

In Arizona, pronghorns are found in short grass prairie and in semi-desert grassland mesa country, preferring areas of grasses and scattered shrubs with rolling or dissected hills or mesas. Those in the southwestern portion of the state occupy areas with stable sand dunes that have meadow-like conditions within or adjacent to them.

Pronghorns feed on shrubs, including sagebrush, rabbitbrush, and greasewood. Pronghorn consume mesa dropseed, alkali sacaton, plains bristlegrass, *Opuntia*, *Juncus*, and *Plantago* spp. and soaptree yucca. In a study of a small herd of pronghorn contained in a 10,000-acre area at the Desert Experimental Range, 50 miles west of Milford, Utah, pronghorn preferred the succulent grasses in early spring as well as in late summer and fall if there was succulent, new growth. In the late fall and winter they turn to browsing, especially on black sagebrush, desert almond, and *Brickellia.* Although pronghorn are frequently observed in wheat fields they do not appear to cause much damage to plantings (Fitzgerald et al., 1994).

Management Considerations: The Sonoran pronghorn in the region is limited to a small population in the southwestern corner of the state. Population losses have resulted from unregulated hunting and poaching, habitat fragmentation and loss, agricultural land conversion, and urbanization. Characteristic habitat only exists south of Interstate 8. The Transfer lands containing native upland vegetation are not used by Sonoran pronghorn. While some of the transfer lands in that area typify pronghorn habitat, they are interspersed with lands in other ownerships that are becoming increasingly developed for agricultural use and scattered housing areas. Such development deters Sonoran pronghorn use of vacant Transfer lands, and no population exists on Transfer lands. Therefore, the Proposed Action is unlikely to affect Sonoran pronghorn.

2.7 STATE LISTED SPECIAL-STATUS SPECIES

In addition to the federally listed species (above), the State of Arizona recognizes one lizard, two bird, and two mammal species as special status species in the Region, but not necessarily occurring in the Project area (Sabra Schwartz, Heritage Data Management System Coordinator, Arizona Game and Fish Department, Phoenix, AZ, letter to Reclamation, March 21, 2002). These species are described below.

2.7.1 Cowles Fringe-toed Lizard (Iguanidae: Uma notata rufopunctata*)*

The Arizona Game and Fish Department considers the Cowles fringe-toed lizard as a special status species in the District Project area. This species occurs mainly in and near the Mohawk and Yuma dunes (New Mexico Natural Heritage Database). It lives in underground burrow and dens, and its habitat is largely dunes of loose sand. Threats to this species include agriculture (cropland conversion and wind-drift of pesticides), urbanization, and off-highway vehicles. A potential threat is posed by a non-native annual mustard (*Brassica* sp.) that recently invaded southwestern Arizona and forms thick carpets that may seasonally impede lizard movement.

No known populations exist in the study area, which does not have extensive loose sand habitats.

2.7.2 Yuma Clapper Rail

See Section 2.6.6 (above).

2.7.3 Yellow-billed Cuckoo

See Section 2.6.9 (above).

2.7.4 Spotted Bat (Vespertilionidae: Euderma maculata; *Hussein 1999)*

Total length, 126 mm; tail, 51 mm; hind foot, 12 mm; ear, 47 mm; forearm 48.51 mm. The Spotted bat is so named for its three white spots located over each shoulder and on the rump. The surrounding dorsal fur is black while the ventral fur is light with dark underfur. The face is black and the ears and wings are pale.

The spotted bat has a patchy distribution, occurring from northern Mexico to British Columbia. They are seldom abundant. Recorded observations extend from the Pacific coast to the Rocky Mountains inland.

Like most bats, the spotted bat is an echolocator, but uses very low frequencies to locate prey (9-12kHz). These frequencies limit the Spotted bat to catching large flying insects, apparently specializing on large moths that cannot detect echolocation calls of such low frequencies. Insects seem to be caught in the air at a rate of about one every 45 seconds, and most recorded foraging behavior occurred from 11 p.m. to 3 a.m.

The female gives birth to one young, usually around June, weighing 20 percent of her body weight. Young do not have the spots of the adults, nor fully developed ears at birth. Juveniles have been caught in mist nets in July. Lactating females have been caught as late as August.

Very little is known about this species. It was once thought to be rare. In the 100 years from the time of its discovery to 1990 only 14 individuals were collected in California. Since then the number of locations where spotted bats have been found in that state has tripled, and their range is now known to extend from Montana south to central Mexico, including arid parts of Nevada, Wyoming, Colorado, and Utah that were previously unrecognized. While the distribution is very patchy over this range, the species may be locally common. Typically at a given site usually only one is caught per night, and individuals are well dispersed, separated by distances of 750-1,000 m of each other. They use vocalizations to communicate with neighbors. There is at least one recorded account of an apparent territorial dispute involving vocalization and direct contact. Only in one study has this species been seen foraging in groups.

Foraging behavior does not seem affected by amount of moonlight at night, in contrast to the foraging behavior of other bat species. In addition to the nightly migration to foraging sites, these bats might have a seasonal elevation migration from Ponderosa pine high elevation habitats in June and July to lower elevations in August (Rabe et al.1998).

The distribution of this species is poorly known, and few data indicate its presence, even during migration, on Transfer lands or in the Project area.

2.7.5 Sonoran Pronghorn

See Section 2.6.11 (above).

3.0 POTENTIAL IMPACTS ON BIOLOGICAL RESOURCES IN THE PROJECT AREA

This section discusses potential impacts of the Proposed Action and No Action Alternatives on the biological resources identified in Section 2. The results of this section are summarized in Appendix C.

3.1 VEGETATION IMPACTS

A total of 11,272 acres (30.2 percent of Project land, excluding irrigation and flood control works, has been identified as having potential for development after the ownership changes proposed under the Proposed Action Alternative (Table 2.4-1, Map 1.3). However, the amount of such land that is actually developed is uncertain, and depends on future growth in the project area and the land development polices of Yuma County and the District. Also, under the No Action Alternative an unknown but presumably similar amount of these lands is likely to be developed several decades in the future.

Lands covered by native vegetation have the most potential to support native wildlife. To address the impact of potential land development on lands with native and other vegetation covers, a model is presented that estimates the area of lands by major cover type (excluding rights-of-way for irrigation and flood control works) as a function of increasing development, with data derived from Appendix A and Tables 2.2-1 and 2.2-2 (Figure 3.1).

This model assumes that development is equivalent to habitat elimination. This analysis assumes that none of the native riparian and wetland Transfer lands, excluding irrigation and flood control works, are candidates for development. Of the lands dominated by native upland vegetation, 4,021 acres (26.4 percent) are candidates for development, amounting to 10.8 percent of the total Transfer lands considered here. Slightly more than 1,117 acres (8.5 percent) of the 13,165 acres of Transfer lands are occupied by non-native or mixed native and non-native phreatophytes, and may be developed; this represents 3 percent of the overall Transfer land considered here. An estimated 6,134.2 acres (74.3 percent) of the 8,257.2 acres of fallow and

active agricultural lands in the Project area considered here may be developed, representing 16.4 percent of the total Transfer land, excluding irrigation and flood control works. The model presented in Figure 3.1 shows the proportion of the total acreage of given cover types to be developed, and the proportion of the total Transfer area, excluding irrigation and flood control works.

No Action Alternative: The No Action Alternative will not have any impact on existing or potential riparian, desert or other vegetation cover or plant populations because no change is proposed in the District's irrigation operation and resulting return flow that seeps into the Gila River channel. The Transfer lands with substantial cover by native phreatophytes, such as Fremont cottonwood, Goodding willow, and mesquites, would continue to provide bird or wildlife habitat. Ultimately some of the Transfer lands, generally those with disturbed habitat, may become available for development.

Proposed Action Alternative: The Proposed Action Alternative will not have any impact on existing riparian vegetation because no change is proposed in the District's irrigation operation and resulting return flow that seeps into the Gila River channel. The Proposed Action will not change management practices related to the U.S. Army Corps of Engineers (1995) Gila River Flood Channel restoration project operations. Flood channel right-of-way lands with substantial cover by native phreatophytes, such as Fremont cottonwood, Goodding willow, and mesquites, are likely to provide some bird or wildlife habitat. The Proposed Action will not have a direct impact on desert or other vegetation or plant populations. However, land development changes will take place to an unknown degree on some Transfer lands, generally vacant lands with prior disturbance. Such development would typically result in the loss of mixed non-native vegetation and emerging vegetation on fallow agricultural land.

3.2 FISH AND WILDLIFE AND HABITAT

No Action Alternative: The No Action Alternative will not have any detectable impact on listed or sensitive fish or wildlife habitat because no changes in management have been proposed to alter, restore, or improve fish and wildlife habitat. Mitigation activities have added approximately 100 acres of additional wetland habitat to the District since 1993 (L. Killman, WMIDD, personal communication). On-going maintenance, construction and development activities will continue, and impacts to fish and wildlife habitat will continue in response to those activities.

Proposed Action Alternative: The Proposed Action Alternative will not have any detectable impact on sensitive fish habitat because it will not alter the flow regimes or operations associated with the Gila River Flood Channel. Existing wetlands management will remain under Federal guidance, and both ESA and NEPA processes will continue to apply to that habitat. Therefore, no detectable impacts of the Proposed Action on fish and wildlife habitat are expected.

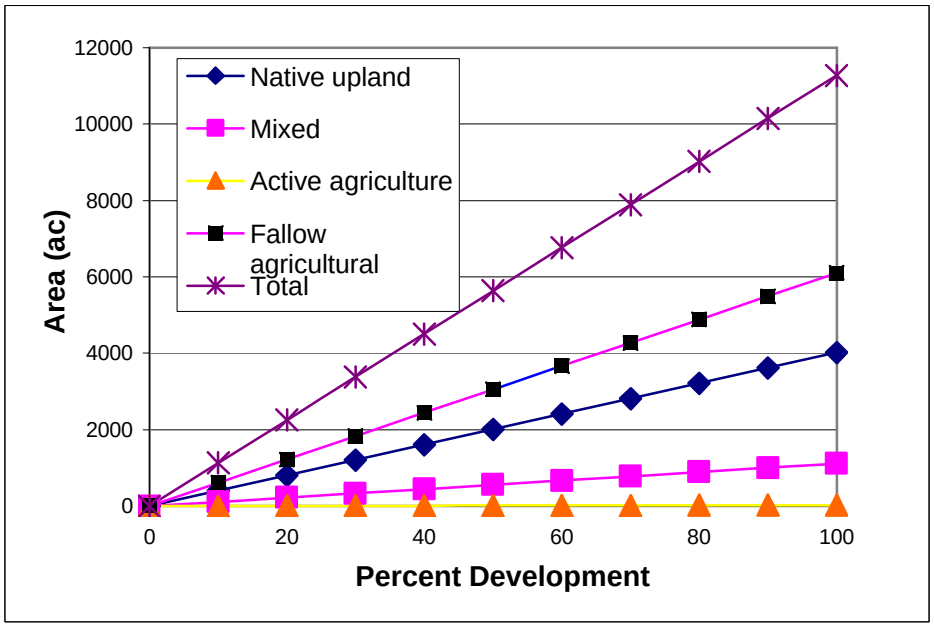


Figure 3.1: Potential habitat types on candidate Transfer lands under the Proposed Action. Habitat area as a function of percentage of development.

3.2.1 Invertebrates

No Action Alternative: Insufficient information exists on the populations of any invertebrates in the Project area to determine whether the No Action Alternative will have detectable effects. However, inasmuch as water supply, operations, and maintenance will continue at the present levels, no negative impacts on invertebrates resulting from the No Action Alternative are foreseeable.

Proposed Action Alternative: Although insufficient information exists on the populations of any invertebrates in the Project area, impacts of the Proposed Action Alternative are unlikely to be detectable because water supply, operations, and maintenance will continue at the present levels. Therefore, no negative impacts on invertebrates resulting from the Proposed Action are foreseeable.

3.2.2 Fish

No Action Alternative: No native fish populations exist in the Project area, and irrigation return flows are the only perennial water source for the lower Gila River. These waters are the only source of potential habitat for fish. No restoration activities have been planned or conducted in the lower Gila River by Reclamation, because native fish habitat is unsuitable and restoration activities would be inappropriate. Population restoration of native fish would involve large-scale restoration of the lower Gila River, including baseflow releases from Painted Rock Dam, but such

management changes are beyond the scope of the Proposed Action. Therefore, no impacts from the No Action Alternative are anticipated on native fish and no mitigation activities are recommended.

Proposed Action Alternative: No native fish populations exist in the Project area, and irrigation return flows are the only perennial water source for the lower Gila River. These waters are the only source of potential habitat for native fish. No restoration activities have been planned or conducted in the lower Gila River by Reclamation, because the habitat is unsuitable and restoration activities would be inappropriate. Therefore, no impacts from the Proposed Action Alternative are anticipated on native fish and no mitigation activities are recommended.

3.2.3 Herpetofauna

No Action Alternative: Insufficient information exists on the herpetofauna in the Project area to determine whether the No Action Alternative will have detectable effects on populations. However, inasmuch as water supply, operations, and maintenance will continue at the present levels. No negative impacts on the herpetofauna resulting from the No Action Alternative are foreseeable.

Proposed Action Alternative: Although insufficient information exists on the populations of any herpetofauna in the Project area, impacts of the Proposed Action Alternative are unlikely to be detectable. The two sensitive species are not known to occur on Transfer lands. The water supply, operations, and maintenance of the District will continue at the present levels, and much of the Transfer land will not change in use. Potential land development on Transfer land could reduce habitat for certain desert species. However, no significant negative impacts on herpetofauna resulting from the Proposed Action are foreseeable.

3.2.4 Birds

No Action Alternative: Insufficient information exists on the populations of birds in the Project area except perhaps the Yuma clapper rail, southwestern willow flycatcher, and yellow-billed cuckoo, to determine whether the No Action Alternative will have detectable effects. Inasmuch as water supply, operation, and maintenance will continue at the present levels, no negative impacts on the bird assemblage in the Project area resulting from the No Action Alternative are foreseeable, unless otherwise noted below in the description of Proposed Action impacts on these three listed species.

Proposed Action Alternative: Although insufficient information exists on the populations of most bird species in the Project area except the Yuma clapper rail, southwestern willow flycatcher, and yellow-billed cuckoo, the impacts of the Proposed Action Alternative are unlikely to be detectable. Inasmuch as water supply, operation, and maintenance will continue at the present levels, no negative impacts on the bird assemblage resulting from the Proposed Action are foreseeable, unless otherwise noted below in the description of Proposed Action impacts on these three listed species.

3.2.5 Mammals

No Action Alternative: Insufficient information exists on the populations of mammals in the Project area, except the Sonoran pronghorn, to determine whether the No Action Alternative will have detectable effects. No information on spotted bat population dynamics exist for the Project area. Inasmuch as water supply, operations, and maintenance will continue at the present levels, no negative impacts on the mammal assemblage in the Project area resulting from the No Action Alternative are foreseeable, unless otherwise noted below in the description of Proposed Action impacts on these two listed or sensitive species.

Proposed Action Alternative: Although insufficient information exists on the populations of most mammal species in the Project area, except the Sonoran pronghorn, the impacts of the Proposed Action Alternative are unlikely to be detectable. No information on spotted bat population dynamics exist for the Project area. Inasmuch as water supply, operations, and maintenance will continue at the present levels, no negative impacts on the mammal assemblage resulting from the Proposed Action are foreseeable, unless otherwise noted below in the description of Proposed Action impacts on the two listed or sensitive species.

3.3 FEDERALLY LISTED SPECIAL-STATUS SPECIES

3.3.1 Peirson's Milkvetch

No Action Alternative: The only confirmed extant populations of Peirson's milkvetch occur in the Algodones Dunes in southeastern California, and no populations are recognized in Arizona (Arizona Game and Fish Department 2001). No impacts resulting from the No Action Alternative are expected on the Peirson's milkvetch.

Proposed Action Alternative: No populations of this species are known in Arizona (Arizona Game and Fish Department 2001). Large active sand dunes, which do not exist in the Project area, are a habitat requirement for this species. Therefore, no impacts are expected resulting from the Proposed Action Alternative on Peirson's milkvetch.

3.3.2 Razorback Sucker

No Action Alternative: Wellton-Mohawk Canal water is the only perennial water source for the lower Gila River, and no razorback sucker population exists in these waters. . No restoration activities have been planned or conducted in the lower Gila River by Reclamation, because the habitat is unsuitable and restoration activities would be inappropriate. No impacts resulting from the No Action Alternative are anticipated on the razorback sucker and no mitigation activities are recommended.

Proposed Action Alternative: No razorback sucker population exists in the Project area. No restoration activities have been planned or conducted in the lower Gila River by Reclamation,

because the habitat is unsuitable and restoration activities would be inappropriate. Population restoration of this species would involve large-scale restoration of the lower Gila River, including baseflow releases from Painted Rock Dam. These management changes are beyond the Proposed Action scope. Therefore, no impacts resulting from the Proposed Action Alternative are anticipated on the razorback sucker, and no mitigation activities are recommended.

3.3.3 Flat-tailed Horned Lizard

No Action Alternative: This species' range does not include the Project area, and therefore, no impacts of the No Action Alternative are anticipated on this species.

Proposed Action Alternative: This species' range does not include the Project area, and therefore, no impacts resulting from the Proposed Action Alternative are anticipated on this species.

3.3.4 Brown Pelican

No Action Alternative: Brown pelicans are rare transients in the Project area, and little suitable habitat exists there. Therefore, no impacts resulting from the No Action Alternative are anticipated on this species.

Proposed Action Alternative: Brown pelicans are rare transients in the Project area, and little suitable habitat exists there. No changes in irrigation, return flow, or habitat management are foreseen under this alternative, and therefore, no impacts resulting from the Proposed Action Alternative are anticipated on this species.

3.3.5 Bald Eagle

No Action Alternative: Bald eagles are rare transients in the Project area, and little suitable habitat exists there. Therefore, no impacts resulting from the No Action Alternative are anticipated on this species.

Proposed Action Alternative: Bald eagles are, at most, rare transients in the Project area, and little suitable habitat exists there. No changes in flow or habitat management are foreseen under this alternative, and therefore, no impacts resulting from the Proposed Action Alternative are anticipated on this species.

3.3.6 Yuma Clapper Rail

No Action Alternative: The return flows and habitat management strategies are not projected to change under No Action Alternative, and no foreseeable impact is expected on Yuma clapper rails. In the interest of promoting population increases, further study is recommended to determine whether the causes for decline are related to local or regional stressors, and potential habitat enhancement activities should be investigated.

Proposed Action Alternative: The Proposed Action will not change return flows or habitat management strategies, and no foreseeable impact resulting from the Proposed Action is expected on Yuma clapper rails. However, because of the listed status of this species, the title transfer should be accompanied with a commitment to preserve Yuma clapper rail habitat. As under the No Action alternative, monitoring and habitat management and improvement measures may be warranted, particularly the enhancement of existing habitats.

3.3.7 Mountain Plover

No Action Alternative: Mountain plovers are rare in the Project area; however, they may use it as wintering or stopover habitat during migration. Because insufficient data exist on Project area habitat use, no impact resulting from the No Action Alternative will be detectable.

Proposed Action Alternative: Mountain plovers are rare in the Project area; however, they may use it at as wintering or stopover habitat during migration. Because insufficient data exist on Project area habitat use, no impact resulting from the Proposed Action Alternative on mountain plover is detectable.

3.3.8 Cactus Ferruginous Pygmy-Owl

No Action Alternative: The historic elevational and geographic range of this species does not overlap into the Project area. Therefore, the No Action Alternative is not expected to affect any populations of cactus ferruginous pygmy-owls.

Proposed Action Alternative: The historic range of this species does not overlap into the Project area. Therefore, the Proposed Action Alternative is not expected to affect any populations of cactus ferruginous pygmy-owls in the Project area.

3.3.9 Yellow-billed Cuckoo

No Action Alternative: The yellow-billed cuckoo requires gallery cottonwood forests of substantial area as breeding habitat. Such forests no longer exist in the Project area; however, gallery forest restoration is being attempted at the mouth of the Gila River by the City of Yuma and on Transfer lands by the Arizona Game and Fish Department. Such activities may provide needed habitat for this species, and should be encouraged. Because of the absence of suitable habitat, the No Action Alternative is not expected to affect this species.

Proposed Action Alternative: No change in the Gila River flow regime or potential Yellow-billed cuckoo habitat will arise from the Proposed Action; however, restoration of gallery riparian forests, such as that being attempted at the mouth of the Gila River by the City of Yuma, and on transfer lands by the Arizona Game and Fish Department, should continue. Such activities may provide needed habitat for this species. No impact resulting from the Proposed Action on the yellow-billed cuckoo is anticipated.

3.3.10 Southwestern Willow Flycatcher

No Action Alternative: Southwestern willow flycatchers are primarily migratory through the Project area. The No Action Alternative is unlikely to affect the population or habitat of this species, and therefore, no impact resulting from this Alternative is anticipated on this species.

Proposed Action Alternative: Southwestern willow flycatchers are primarily migratory through the Project area. No impacts resulting from the Proposed Alternative are anticipated on southwestern willow flycatcher population or habitat.

3.3.11 Sonoran Pronghorn

No Action Alternative: The Sonoran pronghorn is limited to a small population in the southwestern corner of the State. Characteristic habitat presently exists on Transfer Lands south of Interstate 8, but lands in other ownerships in that area are being settled and converted to agricultural land, which acts as a deterrent to Sonoran pronghorn use. Under the No Action Alternative, habitat on Transfer lands will continue to remain unsuitable for Sonoran pronghorn. Therefore, no impacts resulting from the No Action Alternative are anticipated on this species.

Proposed Action Alternative: The Proposed Action Alternative will not result in any habitat changes that will affect the already unsuitable habitat on the Transfer lands, nor will it influence development on other ownerships south of Interstate 8. Therefore, the Proposed Action Alternative will not have a detectable impact on Sonoran pronghorn population or habitat.

3.4 STATE LISTED SPECIAL-STATUS SPECIES

3.4.1 Cowles Fringe-toed Lizard

No Action Alternative: No known populations exist in the Project area. Therefore, the No Action Alternative will not have any impact on this species.

Proposed Action Alternative: No known populations exist in the Project area, and the Project area does not have extensive loose sand habitats that are necessary for the survival of this lizard. Therefore, the Proposed Action Alternative will not have any impact on this species.

3.4.2 Yuma Clapper Rail

No Action Alternative: See Section 3.3.6 (above)

Proposed Action Alternative: See Section 3.3.6 (above).

3.4.3 Yellow-billed Cuckoo

No Action Alternative: See Section 3.3.9 (above).

Proposed Action Alternative: See Section 3.3.9 (above).

3.4.4 Spotted Bat

No Action Alternative: The distribution of this species is poorly known, and few data indicate its presence in the Project area. The No Action Alternative is unlikely to change the distribution or population of this species, and therefore, cannot be demonstrated to have an effect on this species.

Proposed Action Alternative: The Proposed Action Alternative will not change habitat conditions for the spotted bat relative to those presently existing. Therefore, the Proposed Action Alternative is unlikely to have any effect on this species.

3.4.5 Sonoran Pronghorn

No Action Alternative: See Section 3.3.11 (above).

Proposed Action Alternative: See Section 3.3.11 (above).

4.0 CONCLUSIONS

The Proposed Action Alternative will not alter present flows, operations, or maintenance activities of the District, and a limited but presently unknown amount of development is likely to occur on some Transfer lands under both alternatives during the next several decades. Although more development may be undertaken sooner under the Proposed Action Alternative, it appears that this alternative is unlikely to negatively affect any federally listed or state sensitive species, or important habitat. The Yuma clapper rail population on Transfer lands and elsewhere in the Region appears to be declining, and improved efforts to assess and monitor population and habitat status, and mitigate or restore its population and habitat may be warranted.

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4.2 CONVERSIONS

1 inch = 0.0254 m

1 foot = 0.3048 m

1000 ft^3/s = 28.317 m^3/s

1 acre = 0.405 ha

4.3 REFERENCES CITED

Abbott, C.C. 1861. Descriptions of four new species of North American Cyprinidae. Proceedings of the Philadelphia Academy of Natural Sciences 12(1860):473-474.

Aldrich, J.W. 1951. A review of the races of the Traill's flycatcher. Wilson Bull. 63(3):192-197.

Aldrich, J.W. 1953. Habitats and habitat differences in two races of Traill's flycatcher. Wilson Bull. 65(1):8-11.

Anderson, B.W. and R.D. Ohmart. 1985. Habitat use by clapper rails in the lower Colorado River valley. The Condor 87:116-126.

Arizona Game and Fish Department. 1996. Wildlife of Special Concern in Arizona: Public Review Draft. Arizona Game and Fish Department, Phoenix.

Arizona Game and Fish Department. 2001. Arizona rare plant field guide. Arizona Game and Fish Department, Phoenix.

Arizona Game and Fish Department. Arizona breeding bird atlas. Arizona Game and Fish Department, Phoenix, *in press.*

Barneby, R.C. 1964. Atlas of North American *Astragalus*. Memoirs of the New York Botanical Garden 13:1-1188.

Barlow, J.C. and W.B. McGillivray. 1983. Foraging and habitat relationships of the sibling species Willow Flycatcher (*Empidonax traillii*) and Alder Flycatcher (*E. alnorum*) in southern Ontario. Canadian Journal of Zoology 61:1510-1516.

Behle, W.H. and H.G. Higgins. 1959. The birds of Glen Canyon. Pp 107-133 *in* Ecological Studies of Flora and Fauna in Glen Canyon (A.M. Woodbury, ed.) Univ. Utah Anthropol. Pap. 40 (Glen Canyon Series No. 7).

Bohning-Gaese, K., M.L. Taper, and J.H. Brown. 1993. Are declines in North American insectivorous songbirds due to causes on the breeding range? Conservation Biology 7(1): 76-86.

Bright, J.L., J.J. Hervert, and M.T. Brown. 2001. Sonoran pronghorn 2000 aerial survey summary. Arizona Game and Fish Department Technical Report 180, Phoenix.

Brown, B. T. 1988. Breeding ecology of a willow flycatcher population in Grand Canyon, Arizona. Western Birds 19:25-33.

Brown, B.T. 1994. Rates of brood parasitism by brown-headed cowbirds on riparian passerines in Arizona. Journal of Field Ornithology 65:160-168

Brown, B.T. and M.W. Trosset. 1989. Nesting-habitat relationships of riparian birds along the Colorado River in Grand Canyon, Arizona. The Southwestern Naturalist 34(2):260-270.

Brown, B.T., S.W. Carothers and R.R. Johnson. 1987. Grand Canyon birds. University of Arizona Press, Tucson.

Brown, B.T., R. Mesta, L.E. Stevens and J. Weisheit. 1989. Changes in winter distribution of bald eagles along the Colorado River in Grand Canyon, Arizona. Journal of Raptor Research 23:110-113.

Brown, D.E., editor. 1982. Biotic communities of the American Southwest - United States and Mexico. Volume 4, Numbers 1-4. The University of Arizona, Superior.

Browning, M. Ralph. 1993. Comments on the taxonomy of *Empidonax trailii* (Willow Flycatcher). Western Birds 24:241-257.

Center for Biological Diversity. 2000. Yellow-billed cuckoo (*Coccyzus americanus*). Center for Biological Diversity website, Tucson.

Edelman, W.R and C.J. Conway. 1994. Clapper rail. Chapter 12 *in* Tacha, T.C. and C. E. Braun, editors. Migratory Shore and Upland Game Bird Management In North America.

Edelman, W.R., and C.J. Conway. 1998. Clapper rail. *In* A. Poole and F. Gill editors. *The Birds of North America*. No. 340. 32 pp.

Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. The birder's handbook. Simon & Schuster, New York.

Fitzgerald, James P., C.A. Meaney, and D.M Armstrong. 1994. Mammals of Colorado. Denver Museum of Natural History.

Foreman, L.D. 1997. Flat-tailed horned lizard rangewide management strategy. Flat-tailed Horned Lizard Working Group of Interagency Coordinating Committee. U.S. Bureau of Land Management, Riverside.

Gilbert, C.H., and N.B. Scofield. 1898. Notes on a collection of fishes from the Colorado basin in Arizona. Proceedings of the U.S. National Museum 20:1131.

Glinski 1998. The raptors of Arizona. University of Arizona Press, Tucson.

Grimble & Associates. 1997. Birds of the Yuma area: Ecotourism, business and developmental opportunities. City of Yuma.

Grinnell, J. 1914. An account of the mammals and birds of the lower Colorado Valley with especial reference to the distributional problems presented. University of California Publications in Zoology 12(4):51-294.

Gorski, L.J. 1969. Traill's flycatchers of the "fitz-bew" songform wintering in Panama. Auk 86:745-747.

Hanka, L.R. 1985. Recent altitudinal range expansion by the Brown-headed Cowbird in Colorado. Western Birds 16:183-184.

Harris, J.H. 1991. Effects of brood parasitism by brown-headed cowbirds on willow flycatcher nesting success along the Kern River, California. Western Birds 22:13-26.

Hastings, J.R., and R.M. Turner. 1965. The changing mile: an ecological study of vegetation change with time in the lower mile of an arid and semiarid region. Fourth printing, 1980. University of Arizona Press, Tucson.

Hickman, J.C., editor. 1993. The Jepson manual: higher plants of California. University of California Press, Berkeley.

Hoffmeister, D.F. 1986. Mammals of Arizona. The University of Arizona Press and the Arizona Game and Fish Dept.

Hunt, W.G. 1998. Bald eagle, *Haliaeetus leucocephalus.* Pp. 50-54 *in* Glinski, R.L., editor. The raptors of Arizona. University of Arizona Press, Tucson.

Hunt, W.G., J.M. Jenkins, R.E. Jackman, C.G. Thelander, and A.T. Gerstell. 1992. Foraging ecology of bald eagles on a regulated river. Journal of Raptor Research 26:245-256.

Hunter, W. C., R.D. Ohmart, and B.W. Anderson. 1987. Status of breeding riparian-obligate birds in southwestern riverine systems. Western Birds 18:10-18.

Hunter, W.C., R.D. Ohmart, and B.W. Anderson. 1988. Use of exotic saltcedar (*Tamarix chinensis*) in arid riparian systems. The Condor 90:113-123.

Hussain, S. 1999. Species description: *Euderma maculata*, spotted bat. University of Michigan Museum of Zoology Website.

Johnson, R.R. 1991. Historic changes in vegetation along the Colorado River in the Grand Canyon. Pages 178-206 *in* National Resources Council. Colorado River ecology and dam management. National Academy Press, Washington.

Johnson, R.R. and L.T. Haight. 1987. Endangered habitats versus endangered species: a management challenge. Western Birds 18:89-96.

Jordan, D.S. 1891. Report of explorations in Colorado and Utah during the summer of 1889 with an account of the fishes found in each of the river basins examined. Bulletin of the United States Fish Commission 9:24.

Kennedy, D.M. 1979. Ecological investigations of backwaters along the lower Colorado River. Ph.D dissertation. University of Arizona, Tucson

King, J.R. 1955. Notes on the life history of Traill's flycatcher (*Empidonax traillii*) in Southeastern Washington. Auk 72:148-173.

Kirsch, P.H. 1889. Notes on a collection of fishes obtained in the Gila River at Fort Thomas, Arizona. Proceedings of the U.S. National Museum 11:555-558.

Malanson, G.P. 1993. Riparian landscapes. Cambridge University Press, Cambridge.

Marsh, P.C. and D.R. Langhorst. 1988. Feeding and fate of wild larval razorback sucker. Environmental Biology of Fishes 21:59-67.

Marsh, P.C. and W.L. Minckley. 1985. Aquatic resources of the Yuma Division, lower Colorado River--Phase 1. Final Report. Bureau of Reclamation, Lower Colorado Region, Yuma Projects Office, Yuma, Arizona.

Marsh, P.C. and W.L. Minckley. 1989. Observations on recruitment and ecology of razorback sucker: Lower Colorado River, Arizona-California-Nevada. Great Basin Naturalist 49:71-78.

McAda, C.W., and R.S. Wydoski. 1980. The razorback sucker, *Xyrauchen texanus*, in the upper Colorado River basin, 1974-76. U.S. Fish and Wildlife Service Technical Paper 99.

McCarthy, C.W., and W.L. Minckley. 1987. Age estimation for razorback sucker (Pisces: Catostomidae) from Lake Mohave, Arizona and Nevada. Journal of the Arizona-Nevada Academy of Science 21:87-97.

Millsap, B.A. and R.R. Johnson. 1988. Ferruginous pygmy-owl. Pp. 37-47 in Glinski, R.L, B.G. Pendleton, M.B. Moss, M.N LeFranc Jr., B.A. Millsap, and S.W. Hoffman, editors. Proceedings of the Southwest Raptor Management Symposium and Workshop, National Wildlife Federation Science and Technology Series 11, Washington.

Minckley, W.O. 1973. Fishes of Arizona. Arizona Game and Fish Department, Phoenix.

Minckley, W.O. 1983. Status of the razorback sucker, *Xyrauchen texanus* (Abbott), in the lower Colorado River Basin. The Southwestern Naturalist 28:165-187.

Minckley 1991. Obituary paper.

Minckley, W.O. and J.E. Deacon, editors. 1991. Battle against extinction: native fish management in the American West. University of Arizona Press, Tucson.

Monson, G. 1998. Ferruginous pygmy-owl, *Glaucidium brasilianum*. Pp. 159-161 *in* Glinski, R.L., editor. The raptors of Arizona. University of Arizona Press, Tucson.

Munz, P.A. and D.D. Keck. 1963. A California flora. University of California Press, Berkeley.

Navajo Endangered Species List (NESL): including Endangered Species Act: Status, Migratory Bird Treaty Act Status, and Bald Eagle Act Status, revised 27 February 1995. NESL statuses revised 14 February 1994.

New Mexico Department of Game and Fish. 1986. Handbook of species endangered in New Mexico, Santa Fe, New Mexico.

New Mexico Department of Game and Fish. 2000. Biota Information System of New Mexico (BISON). New Mexico Department of Game and Fish, Albuquerque.

Noss, Reed F. and Cooperrider, Allen Y. 1994. Saving nature's legacy: protecting and restoring biodiversity. Washington, D.C.; Covelo, CA: Island Press.

Ohmart, R.D., B.W. Anderson, and W.C. Hunter. 1988. The ecology of the lower Colorado River from Davis Dam to the Mexico-United States International Boundary: A community profile. U.S. Fish and Wildlife Service Biological Report 85 (7.19).

Osmundson, D.B., and L.R. Kaeding. 1989. Studies of Colorado squawfish and razorback sucker use of the "15-mile reach" of the Upper Colorado River as part of conservation measures for the Green Mountain and Ruedi Reservoir water sales. Final Report, U.S. Fish and Wildlife Service, Region 6. Grand Junction.

Paradzick, C.E., T.D. McCarthy, R.F. Davidson, J.W. Rourke, M.W. Sumner, and A.B. Smith. 2001. Southwestern willow flycatcher survey and nest monitoring report. Arizona Game and Fish Department Nongame and Endangered Wildlife Program Technical Report 175, Phoenix.

Phillips, A.R. 1948. Geographic variation in *Empidonax traillii*. Auk 65:507-514.

Phillips, A.R., J.T. Marshall, Jr. and G. Monson. 1964. The birds of Arizona. University of Arizona Press, Tucson.

Phillips, S.J. and P.W. Comus, editors. 2000. A natural history of the Sonoran Desert. Arizona-Sonora Desert Museum Press, Tucson.

Rabe, Michael, J. and others. 1998. Long foraging distance for a Spotted Bat, (Euderma maculatum) in Northern Arizona. The Southwestern Naturalist 43:266-269.

Rattner, B.A., N.H. Golden, J.L. Pearson, J.B. Cohen, L.J. Garrett, M.A. Ottinger, and R.M. Erwin. 2001. Biological and ecotoxicological characteristics of terrestrial vertebrate species residing in estuaries. U.S. Geological Survey Biological Resources Division, Patuxent Wildlife Research Center, MD.

Resource Management International, Inc. 1994. Biological Assessment: Gila River Flood Channel Restoration Project, Yuma County, Arizona. Sacramento, CA, unpublished.

Sedgwick, J.A. 2001. Geographic variation in the song of willow flycatchers: differentiation between *Empidonax trailli adastus* and *E.t. extimus*. The Auk 118.

Sedgwick, J.A. and F.L. Knopf. 1992. Describing willow flycatcher habitats: scale perspectives and gender differences. Condor 94:720-733.

Sedgwick, J.A. and W.M. Iko, 1999. Costs of brown-headed cowbird parasitism to willow flycatchers. Studies in Avian Biology 18:167-181.

Seutin, G. 1987. Female song in willow flycatchers (*Empidonax traillii*). Auk 104:329-330.

Seutin, G. and J.P. Simon. 1988. Genetic variation in sympatric willow flycatchers (*Empidonax traillii*) and alder flycatchers (*E. alnorum*). Auk 105(2): 235-243.

Sibley, D.A. 2000. The National Audubon Society Sibley guide to birds. Alfred A. Knopf, New York.

Sigler, W.F., and R.R. Miller. 1963. Fishes of Utah. Utah Department of Fish and Game, Salt Lake City.

Sogge, M.K. 1994. Southwestern willow flycatcher workshop, May 23-24, 1994. Grand Junction, Colorado.

Sogge, M.K., R.M. Marshall, S.J. Sferra, and T.J. Tibbitts. 1997. A southwestern willow flycatcher natural history summary and survey protocol. U.S. National Park Service Colorado Plateau Research Station at Northern Arizona University Technical Report NPS/NAUCPRS/NRTR-97-12, Flagstaff.

Sogge, M.K., T.J. Tibbitts, and J.R. Petterson. 1997. Status and breeding ecology of the southwestern willow flycatcher in the Grand Canyon. Western Birds 28:142-157.

Spencer, J.A., S. J. Sferra, T.E. Corman, J.W. Rourke and M.W. Sumner. 1996. Arizona Partners in Flight 1995 southwestern willow flycatcher survey. Arizona Game and Fish Department Final Technical Report 97, Phoenix.

Spicer, Robert. B. 1987. Status of the Arizona river otter, *Lutra canadensis sonora* (Rhoads), along the Colorado River in Arizona. Arizona Game and Fish Department Report, Phoenix.

Stahlmaster, M.V. 1987. The bald eagle. Universe Books, New York.

Stewart, B., P. Brodkin, and H. Brodkin. 2001. Butterflies of Arizona: a photographic guide. West Coast Lady Press, Arcata.

Stebbins, R.C. 1985. Western reptiles and amphibians. Houghton Mifflin, New York.

Stevens, L.E. 1989b. The status of ecological research on tamarisk (Tamaricaceae: *Tamarix pentandra*) in Arizona. Pp. 99-105 in Kunzman, M.R., R.R. Johnson and P.S. Bennett (eds.). Tamarisk control in southwestern United States. Cooperative National Park Resources Study Unit Special Report Number 9, Tucson.

Stevens, L.E. and T.J. Ayers. 2002. The biodiversity and distribution of alien vascular plant and animals in the Grand Canyon region. In Tellman, B., editor. Exotic invasive species in the Sonoran Desert region. University of Arizona Press, Tucson.

Stevens, L.E. and T. Shaffer. 2002a. 2002 Yuma clapper rail survey results in Yuma East Wetlands, Yuma, Arizona. Report to the U.S. Fish and Wildlife Service, Phillips Consulting, Flagstaff.

Stevens, L.E. and T. Shaffer. 2002b. 2002 southwestern willow flycatcher survey results in Yuma East Wetlands, Yuma, Arizona. Report to the U.S. Fish and Wildlife Service, Phillips Consulting, Flagstaff.

Stevens, L.E. and T. Shaffer. 2002c. 2002 southwestern willow flycatcher survey results in Yuma West Wetlands, Yuma, Arizona. Report to the U.S. Fish and Wildlife Service, Phillips Consulting, Flagstaff.

Stevens, L.E., J.C. Schmidt, T.J. Ayers, and B.T. Brown. 1995. Flow regulation, geomorphology, and Colorado River marsh development in the Grand Canyon, Arizona. Ecological Applications 5:1025-1039.

Stevens, L.E., L. Compton, and E. Leslie. 2002. Restoration of river otters into the Colorado River ecosystem in Grand Canyon: a synopsis of background information and issues. Grand Canyon Wildlands Council Report, Flagstaff, Unpublished.

Tibbitts, T.J., M.K. Sogge, and S.J. Sferra. 1994. A survey protocol for the southwestern willow flycatcher (*Empidonax traillii extimus*). U.S. Department of the Interior, National Park Service. Technical Report NPS/NAUCPRS/NRTR-94/04. Colorado Plateau Research Station, Northern Arizona University, Flagstaff, AZ.

Turner, R.M. and D.E. Brown. 1994. Sonoran Desertscrub. Pp. 180-222 in Brown, D.E., editor. Biotic communities: southwestern United States and northwestern Mexico. University of Utah Press, Salt Lake City.

Turner, R.M., J. E. Bowers, and T.L. Burgess. 1995. Sonoran Desert plants: an ecological atlas. The University of Arizona Press, Tucson.

Tyus, H.M. 1991. Ecology and Management of Colorado Squawfish. In Battle Against Extinction: Native fish management in the American West. eds. W.L. Minckley and J.E. Deacon. Pp 379-402. University of Arizona Press, Tucson.

Tyus, H.M. and C.A. Karp. 1989. Habitat use and streamflow needs of rare and endangered fishes, Yampa River, Colorado. U.S. Fish and Wildlife Service, Vernal, Utah.

Tyus, H.M. and C.A. Karp. 1990. Spawning and movements of razorback sucker, *Xyrauchen texanus*, in the Green River basin of Colorado and Utah. The Southwestern Naturalist 35:427-433.

U.S. Army Corps of Engineers. 1995. Wellton-Mohawk Gila River flood channel restoration project: final Environmental Assessment. U.S. Army Corps of Engineers, Phoenix.

U.S. Bureau of Reclamation. 1996. Description and assessment of operations, maintenance, and sensitive species of the lower Colorado River. Boulder City, NV.

U.S. Fish and Wildlife Service. 1966. Rare and Endangered fish and wildlife of the U.S. Bureau of Sport Fisheries and Wildlife Resources, Publication 34. July 1966.

U.S. Fish and Wildlife Service. 1980a. Aquatic study-Colorado River from Lees Ferry to Southern International Boundary and selected tributaries, Arizona, California, Nevada (BR): Special report of distribution and abundance of fishes of the lower Colorado River. Prepared by Fish and Wildlife Service for Bureau of Reclamation under contract 9-07-03-X0066.

U.S. Fish and Wildlife Service. 1980b. Recovery Plan for the Eastern Brown Pelican (*Pelecanus occidentalis carolinensis)*. Prepared by the Eastern Brown Pelican Recovery Team. U.S. Fish and Wildlife Service.

U.S. Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants: Removal of the Brown Pelican in the Southeastern United States From the List of Endangered and Threatened Wildlife. Federal Register 50(23):4938-4945.

U.S. Fish and Wildlife Service. 1986a. Recovery Plan for the Brown Pelican, *Pelicanus occidentalis* in Puerto Rico and the U.S. Virgin Islands. Prepared by Jaime Collazo and Erwin E. Klaas for U.S. Fish and Wildlife Service, Atlanta, Georgia.

U.S. Fish and Wildlife Service. 1986b. The ecology of the lower Colorado River from Davis Dam to the Mexico-United States international boundary: A community profile. Biological Report 85(7.19). U.S. Fish and Wildlife Service, Washington, DC.

U.S. Fish and Wildlife Service. 1989. Notice of review: Animal candidate review for listing as endangered or threatened species. Federal Register 54:554.

U.S. Fish and Wildlife Service. 1990. Bonytail chub Recovery Plan. Prepared by Colorado Fishes Recovery Team for the U.S. Fish and Wildlife Service, Region 6, Denver, Colorado. 35 pp.

U.S. Fish and Wildlife Service. 1991. Colorado Squawfish Recovery Plan. Prepared by Colorado Fishes Recovery Team for the U.S. Fish and Wildlife Service, Denver, Colorado. 43 pp.

U.S. Fish and Wildlife Service. 1993a. Colorado River Endangered Fishes Critical Habitat, Draft Biological Support Document. Salt Lake City, Utah. 225 pp.

U.S. Fish and Wildlife Service. 1993b. Endangered and threatened wildlife and plants: Proposed rule to list the flat-tailed horned lizard as threatened. Federal Register 58(227):62624-62629.

U.S. Fish and Wildlife Service. 1993c. Notice of 12-month petition finding/proposal to list *Empidonax traillii extimus* as an endangered species, and to designate critical habitat. Federal Register 58:39495-39522.

U.S. Fish and Wildlife Service. 1995. Final rule determining endangered status for the southwestern willow flycatcher. Federal Register 60:10694-10715.

U.S. Fish and Wildlife Service. 1996. Biological opinion and conference opinion for existing and proposed activities by the Marine Corps Air Station - Yuma in the Arizona Portion of the

Yuma Training Range Complex. Arizona Ecological Services Field Office, Phoenix, Arizona.

U.S. Fish and Wildlife Service. 1997a. Endangered and threatened wildlife and plants: determination of endangered status for the cactus ferruginous pygmy-owl in Arizona: final rule. Federal Register 62(46):10730-10747.

U.S. Fish and Wildlife Service. 1997b. Endangered and threatened wildlife and plants: final determination of critical habitat for the southwestern willow flycatcher: correction. Federal Register 62:44228.

U.S. Fish and Wildlife Service. 1998a. Razorback sucker (*Xyrauchen texanus*) Recovery Plan. Denver.

U.S. Fish and Wildlife Service. 1998b. Final Revised Sonoran Pronghorn Recovery Plan. Albuquerque.

U.S. Fish and Wildlife Service. 1998c. Endangered and Threatened wildlife and plants determination of Endangered or Threatened status for five desert milk-vetch taxa from California: Final rule. Federal Register: October 6, 1998 63 (193): 53596-53615.

U.S. Fish and Wildlife Service. 1998d. Endangered and threatened wildlife and plants: 50 CFR 17.11 and 17.12 (The Red Book). U.S. Fish and Wildlife Service, Washington, DC.

Unitt, Philip. 1987. *Empidonax traillii extimus*: An endangered subspecies. Western Birds 18:137-162.

van Rossem, A.J. 1937. The ferruginous pygmy owl of northwestern Mexico and Arizona. Proceedings of the Biological Society of Washington 51:99-100.

Wellton-Mohawk Irrigation and Drainage District. 2001. Resolution No. 690-01: Project Title Transfer Federal Land Acquisition – Statement of Purpose. Wellton-Mohawk Irrigation and Drainage District, Wellton.

Whitmore, R.C. 1975. Habitat ordination of passerine birds of the Virgin River valley, Southwestern Utah. Wilson Bull. 87(1):65-74.

Whitmore, R.C. 1977. Habitat partitioning in a community of passerine birds. Wilson Bull. 89(2):253-265.

Yoakum, J. 1980. Habitat guidelines for the American pronghorn. U.S. Department of the Interior Bureau of Land Management, Denver Service Center Technical Note No. 6611.

Yuma County. 2001. Yuma County 2010 Comprehensive Plan. Yuma County Planning and Zoning Division, Yuma. http://www.co.yuma.az.us/dds/regs12010/main.htm.

APPENDIX A:
DATABASE OF TRANSFER LAND PARCELS BY DOMINANT VEGETATION, OR LAND COVER TYPE, LOCATION AND PERCENT COVER IN THE WMIDD

This appendix is presented as an Excel spreadsheet in electronic format only, and is summarized in Appendix B (below).

APPENDIX B:
SUMMARY OF ESTIMATED AREAS (AC) OF DOMINANT VEGETATION OR LAND COVER TYPE

Native status in Appendix B (below) refers to whether the parcel is dominated by exotic species (1), a mixture of exotic and native species (2), or native species (3). Development potential represents the estimated area (ac) of land by cover type that may be developed, and was provided by the District. The Percent of Cover Type represents the percentage of the land occupied by that cover type that may be developed. Percent of Total Transfer Land is the percent of land of that cover type on the Project, excluding irrigation and flood control works, that may be developed.

Dominant Cover	Native Status	Development Potential (ac)			Percent of Cover Type	Percent of Total Project Land
		No	Yes	Total		
Agricultural	Non-native	175.2	28.1	203.4	13.8	0.1
Ambrosia dumosa-Hilaria sp.	Native upland	142.1	0	142.1	0.0	0.0
Atriplex spp.	Native upland	18.1	0	18.1	0.0	0.0
Atriplex spp./Larrea tridentata	Native upland	28.8	0.0	28.8	0.0	0.0
Atriplex spp./Tamarix pentandra	Mixed native/non-native riparian	254.3	60.2	314.5	19.1	0.2
Atriplex spp./Pluchea sericea	Native upland	49.6	19.5	69.1	28.2	0.1
Atriplex spp./Prosopis glandulosa	Native riparian	62.4	18.7	81.1	23.1	0.1
Atriplex spp./Prosopis pubescens	Native upland	0.0	10.6	10.6	100.0	0.0
Cercidium spp./desertscrub	Native upland	85.2	0.0	85.2	0.0	0.0
Cercidium spp./Larrea tridentata	Native upland	377.2	33.5	410.7	8.2	0.1
Cercidium spp./Prosopis glandulosa	Native upland	43.0	36.8	79.8	46.1	0.1
Cercidium spp./Prosopis pubescens	Native upland	0.0	95.7	95.7	100.0	0.3
Desertscrub	Native upland	374.4	63.2	437.6	14.4	0.2
Desertscrub/Cercidium spp.	Native upland	0.0	209.7	209.7	100.0	0.6
Desertscrub/Larrea tridentata	Native upland	974.8	202.1	1177.0	17.2	0.5
Desertscrub/Prosopis pubescens	Native upland	393.7	191.0	584.7	32.7	0.5
Desertscrub/Tamarix spp.	Mixed native/non-native	125.1	0.0	125.1	0.0	0.0
Desertscrub/Tamarix aphylla	Mixed native/non-native	31.0	0.0	31.0	0.0	0.0
Fallow agricultural	Non-native	161.7927	973.9	1135.7	85.8	2.6
Fallow/Atriplex spp.	Mixed native/non-native	467.8	2447.4	2915.2	84.0	6.5
Fallow/Cercidium spp.	Mixed native/non-native	89.1	211.9	300.9	70.4	0.6
Fallow/desertscrub	Mixed native/non-native	1157.5	1807.1	2964.6	61.0	4.8

Dominant Cover	Native Status	Development Potential (ac)			Percent of Cover Type	Percent of Total Project Land
		No	Yes	Total		
Fallow/Larrea tridentata	Mixed native/non-native	71.5	610.4	681.8	89.5	1.6
Fallow/Prosopis glandulosa	Mixed native/non-native	0.0	55.5	55.5	100.0	0.1
Larrea tridentata	Native upland	0.0	17.7	17.7	100.0	0.0
Larrea tridentata/Ambrosia dumosa	Native upland	2131.9	180.5	2312.4	7.8	0.5
Larrea tridentata/Atriplex spp.	Native upland	9.3	51.6	60.9	84.8	0.1
Larrea tridentata/Cercidium spp.	Native upland	322.8	817.5	1140.3	71.7	2.2
Larrea tridentata/Desertscrub	Native upland	2674.7	1335.9	4010.6	33.3	3.6
Larrea tridentata/Foquieria splendens	Native upland	61.4	0.0	61.4	0.0	0.0
Larrea tridentata/Olneya tesota	Native upland	81.2	0.0	81.2	0.0	0.0
Larrea tridentata/Prosopis pubescens	Native upland	1271.9	329.7	1601.6	20.6	0.9
Larrea tridentata/Pluchea sericea	Native upland	495.6	0.0	495.6	0.0	0.0
Prosopis pubescens/Atriplex spp.	Native upland	41.1	0.0	41.1	0.0	0.0
Prosopis pubescens/ Cercidium spp.	Native upland	220.1	0.0	220.1	0.0	0.0
Prosopis pubescens/Desertscrub	Native upland	97.4	49.3	146.7	33.6	0.1
Prosopis pubescens/Larrea tridentata	Native upland	359.3	358.1	717.4	49.9	1.0
Prosopis pubescens/Olneya tesota	Native upland	0.0	299.7	299.7	100.0	0.8
Salsola iberica/Pluchea sericea	Mixed native/nonnative riparian	188.7	0.0	188.7	0.0	0.0
Sueda moquinii/Atriplex spp.	Native riparian	5.8	0.0	5.8	0.0	0.0
Sueda moquinii/Olneya tesota	Native riparian	46.2	0.0	46.2	0.0	0.0
Sueda moquinii/Prosopis pubescens	Native riparian	22.8	0.0	22.8	0.0	0.0
Sueda moquinii/Tamarix pentandra	Mixed native/nonnative riparian	9.2	0.0	9.2	0.0	0.0
Tamarix spp.	Non-native riparian	2.8	0.0	2.8	0.0	0.0
Tamarix aphylla/Atriplex lentiformis	Mixed native/nonnative riparian	0.0	84.4	84.4	100.0	0.2
Tamarix aphylla/Atriplex spp.	Mixed native/nonnative riparian	0.0	10.0	10.0	100.0	0.0
Tamarix aphylla/Larrea tridentata	Mixed native/nonnative riparian	9.9		9.9	0.0	0.0
Tamarix aphylla/Tamarix pentandra	Non-native riparian	70.3	0.0	70.3	0.0	0.0
Tamarix pentandra	Non-native riparian	13.3	0.0	13.3	0.0	0.0
Tamarix pentandra/Atriplex lentiformis	Mixed native/nonnative riparian	430.0	0.0	430.0	0.0	0.0
Tamarix pentandra/Cercidium spp.	Mixed native/nonnative riparian	0.0	66.7	66.7	100.0	0.2
Tamarix pentandra/Poaceae spp.	Mixed native/nonnative riparian	252.9	0.0	252.9	0.0	0.0
Tamarix pentandra/Populus fremontii	Mixed native/nonnative riparian	37.7	0.0	37.7	0.0	0.0
Tamarix pentandra/Prosopis pubescens	Mixed native/nonnative riparian	1873.6	243.9	2117.5	11.5	0.7

Dominant Cover	Native Status	Development Potential (ac)			Percent of Cover Type	Percent of Total Project Land
		No	Yes	Total		
Tamarix pentandra/Prospis glandulosa	Mixed native/nonnative riparian	444.8	10.0	454.9	2.2	0.0
Tamarix pentandra/Sueda moquinii	Mixed native/nonnative riparian	80.4	0.0	80.4	0.0	0.0
Tamarix pentandra/ Tamarix aphylla	Non-native riparian	13.4	0.0	13.4	0.0	0.0
Tamarix pentandra/Pluchea sericea	Mixed native/nonnative riparian	5580.3	322.1	5902.4	5.5	0.9
Tamarix pentandra /Typha domingensis	Mixed native/nonnative riparian	612.2	0.0	612.2	0.0	0.0
Pluchea sericea/Prosopis pubescens	Native upland	633.5	0.0	633.5	0.0	0.0
Pluchea sericea/Prosopis glandulosa	Native wetland/riparian	143.4	0.0	143.4	0.0	0.0
Pluchea sericea/Salix gooddingii	Native wetland/riparian	304.5	0.0	304.5	0.0	0.0
Pluchjea sericea/Tamarix aphylla	Mixed native/nonnative riparian	12.2	0.0	12.2	0.0	0.0
Pluchea sericea/ Tamarix pentandra	Mixed native/nonnative riparian	2126.5	20.2	2146.7	0.9	0.1
Typha domingensis/ Tamarix pentandra	Mixed native/nonnative riparian	13.1	0.0	13.1	0.0	0.0
Typha domingensis/Pluchea sericea	Native wetland/riparian	195.6	0.0	195.6	0.0	0.0
Undetermined/Larrea tridenata	Native upland	82.9	0.0	82.9	0.0	0.0
Undetermined/Plucea sericea	Native upland	55.4	0.0	55.4	0.0	0.0
Total	All	26110.7	11272.4	37383.2	30.2	30.2

APPENDIX C:
SYNOPSIS OF PROPOSED ACTION IMPACTS ON FEDERALLY LISTED AND SPECIAL-STATUS SPECIES

FEDERALLY LISTED SPECIES

Peirson's Milkvetch (Fabaceae: *Astragalus magdalenae* var. *peirsonii*)

Listed as threatened on October 6, 1998, but with no critical habitat designated, Peirson's milk-vetch is a low statue, short-lived herbaceous perennial species, endemic to sand dunes in the Sonoran, Mojave, and Great Basin deserts. It is not known from Arizona and therefore will not be affected by the Project.

Razorback Sucker (Catastomidae: *Xyrauchen texanus*)

Listing History: Razorback sucker was listed as endangered on 15 August 1989. Critical habitat is defined in the ESA to include areas whether occupied or not that are essential to the conservation of the species. Within the Project area, critical habitat includes the lower Colorado River from Pierces Ferry on upper Lake Mead to Imperial Dam, and including the 100-year floodplain. The recovery plan for this species seeks to protect and expand the three existing populations, as well as establish 5 new populations using remnant stock or translocated fish (U.S. Fish and Wildlife Service 1998a). Overall, the status of the razorback sucker in the wild continues to decline. As plans to stabilize the 3 existing populations by 2000 have failed, possible delisting by as early as 2010 appears unlikely.

It was abundant throughout the middle and lower elevations of the Colorado River, prior to flow regulation in the 20th Century (Kirsch 1889; Gilbert and Scofield 1898; Minckley 1973, 1983, 1991; Bestgen 1990). The razorback sucker population is declining or extirpated throughout most of its range because of flow regulation and introduction of non-native fish species. Small populations remain in Lake Mohave (AZ/NV), and in the Green and Yampa rivers in Utah. Wellton-Mohawk canal water is the only perennial water source for the lower Gila River and these waters are the only source of potential habitat for this species. No restoration activities have been planned or conducted in the lower Gila River by the U.S. Bureau of Reclamation because the habitat is unsuitable and restoration activities in the Project area would be inappropriate, and therefore no management or mitigation activities have been proposed. Consequently, the Proposed Action is not likely to adversely affect this species.

Flat-tailed Horned Lizard (Iguanidae: *Phrynosoma mcallii)*

This species was proposed to be Federally listed as Threatened in November 1993, but no decision has been rendered. A Rangewide Management Strategy was developed to coordinate inter-agency habitat and population management strategies (Foreman 1997). Flat-tailed horned

lizards are found on light-colored sandy soils, most commonly on the sand sheet of the Yuma Desert and the Gran Desierto in Mexico (Stebbins 1985, CBD 2000). This species has not been detected in the Project area (Foreman 1997), nor are the remaining natural habitats suitable for this species.

Brown Pelican (Pelicanidae: *Pelecanus occidentalis californicus*)
Listing Status: The brown pelican was designated as Endangered in the Entire, except U.S. Atlantic coast, Florida and Alabama on 2 June 1970. Brown pelicans are rare, wandering coastal seabirds in the Project area, erratically appearing and moving through the region. Factors affecting brown pelican populations include human and natural disturbance of nesting colonies and anthropogenic sources of mortality (e.g., entanglement in monofilament line, oil or chemical spills, erosion, plant succession, and naturally and anthropogenic diseases and altered food availability). Because of their erratic, wandering status, and because no breeding or predictable habitat use occurs in the Project area, and the Proposed Action is not likely to adversely affect this species.

Bald Eagle (Buteonidae: *Haliaeetus leucocephalus*)

Two laws protect bald eagles: 1) The Federal Bald Eagle Protection Act (1940) - making it illegal to kill, harass, possess, or sell Bald Eagles; and 2) the bald eagle was designated as a threatened species in the conterminous (lower 48) United States on 11 March 1967, including the states of Arizona, California, and Nevada. Bald Eagles commonly migrate through or across Arizona in the fall and winter (thorough March), and are an uncommon winter transient in the lower Gila and Colorado rivers. Approximately 40 bald eagle nesting sites have been detected in Arizona. Bald eagles are rare, opportunistic migrants through the Project area, and move quickly through the region. No breeding or predictable habitat use occurs in the Project area. The Proposed Action is not likely to adversely affect this species.

Yuma Clapper Rail (Rallidae: *Rallus longirostris yumanensis*)
The Yuma clapper rail was designated as Endangered in the U.S.A. on 11 March 1967 (32 FR 4001, 11 March 1967; 48 FR 43182, 27 July 1983). A recovery plan was completed in February 1983. Delisting of the Yuma clapper rail can occur when: 1) the breeding and wintering range in Mexico are determined; 2) surveys for the species and its habitat are established; 3) management plans are developed for important Federal and State controlled breeding areas; 4) written agreements are effected with agencies having control or responsibility over this species to protect sufficient wintering and breeding habitat to support a population of 700-1000 breeding birds in both the United States and Mexico. This species occurs in bulrush and cattail marshes along the lower Colorado River from Lake Mead south to Mexico, including the lower Bill Williams River, as well as on the Gila and Salt rivers upstream to the Verde confluence. Maintaining suitable flows in the lower Colorado River and preserving habitat on Federal and State lands are primary management concerns, as well as protecting winter habitat.

Thirty-nine Yuma clapper rails existed in the Project area and adjacent Colorado River in 1983. Surveys in the early 1990s indicated that many of the birds detected were in or around Quigley Pond, which lies on State land. Recent trends indicate that the population is declining (L. Fitzpatrick, U.S. Fish and Wildlife Service, Phoenix); however, the continuity of monitoring and thoroughness of these survey data require additional study. Given the listed status of this species, the Proposed Action should be managed so as not to further detrimentally affect Yuma clapper rail population or habitat.

Mountain Plover (Charadriidae: *Charadrius montanus)*

The mountain plover became Proposed Threatened in the Entire Range on 16 February 1999, but no critical habitat has been designated. The mountain plover is threatened by certain practices of plowing and range management; oil and gas activities; and prairie dog control. This species habitat is grasslands, and mountain plovers are rarely found near water. At present, mountain plover are likely to be occasional winter visitors in the Project area, but this region is too low in elevation to support breeding populations on or off agricultural lands. Therefore, the Proposed Action is not likely to adversely affect this species.

Cactus Ferruginous Pygmy-Owl (Strigidae: *Glaucidium brasilianum cactorum*)
The cactus ferruginous pygmy-owl was designated as an Endangered Species in the U.S.A. on 10 March 1997. This species is only known to occur in Arizona. This species historical range includes low, arid habitats from southernmost Texas and central southern Arizona in the United States south to the western Mexican states. It is now extremely rare in Arizona, known in recent years only from Organ Pipe National Monument, near Ajo, a suburban site in Tucson, and as far west as Cabeza Prieta Tanks on the Cabeza Prieta National Wildlife Refuge (Hunt 1998). Because the historic elevational and geographic range of this species does not overlap into the Project area, the Proposed Action will not affect any populations of cactus ferruginous pygmy-owls.

Yellow-billed Cuckoo (Cucujidae: *Coccyzus americanus*)

The U.S. Fish & Wildlife Service published an initial finding that ESA protection may be needed for western cuckoos, either as subspecies or a unique population, on 17 February 2000. This species is intimately associated with gallery cottonwood-willow riparian forests. Such forests no longer exist in the Project area, and no populations have been detected in recent decades in the Project area. Therefore the Proposed Action is unlikely to adversely affect this species.

Southwestern Willow Flycatcher (Tyrannidae: *Empidonax trailii extimus*)

The southwestern willow flycatcher was designated as Endangered on 27 February 1995, and it is a species of special concern in Arizona (Arizona Game and Fish Department 1996). *E.t extimus* is rare in the southwestern United States, and its former range included the lower Colorado River, from which it had been extirpated but is now apparently recolonizing (Robert McKernan,

San Bernardino County Museum, personal communication). Surveys of the lower Gila River from 1993-2001 revealed a single nest at Fortuna Wash in 1996 (Paradzick et al. 2001). While the lower Colorado River was historically occupied by this species, (U.S. Fish and Wildlife Service 1993c), it is considered to be primarily migratory through the lower Gila River basin (Resource Management International, Inc. 1994), only very rarely nesting in the area. Existing vegetative conditions indicates that suitable stopover migration habitat and nesting habitat occurs in the Project area, but the area is not much used by this species. Therefore, the Proposed Action is unlikely to adversely affect this species.

Sonoran Pronghorn (Antilocapridae: ***Antilocapra americana sonoriensis*****)**
The Sonoran pronghorn was designated as Endangered in the Entire Range on March 11, 1967. This species occurs in Arizona and northern Mexico. A revised recovery plan was developed for Sonoran pronghorn that allows for downlisting when 300 adult animals in one self-sustaining population are maintained in the United States for a minimum of 5 years, and when assistance with recovery efforts for this species in Mexico has been undertaken (U.S. Fish and Wildlife Service 1998b). A total of 99 animals were detected in 2001 during surveys by the Arizona Game and Fish Department, and the total estimated population was 140 animals in southwestern Arizona (J. Hervert, Arizona Game and Fish Department, Yuma Office, personal communication). Characteristic habitat among Transfer lands only exists south of Interstate 8, but adjacent lands in other ownerships are becoming settled and converted to agricultural use. Sonoran pronghorn do not presently exist on Transfer lands, and habitat alteration by other parties south of the District further limit the possibility of Sonoran pronghorn use of Transfer lands. Therefore, the Proposed Action is unlikely to adversely affect this species.

ADDITIONAL STATE LISTED SPECIAL-STATUS SPECIES

Cowles Fringe-toed Lizard (Iguanidae: *Uma notata rufopunctata*)

This species occurs mainly in and near the Mohawk and Yuma dunes (New Mexico Natural Heritage Database). No known populations exist in the study area, which does not have extensive loose sand habitats.

Spotted Bat (Vespertilionidae: *Euderma maculata*)

The distribution of this species is poorly known, and few data indicate its presence in the Project area.

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11 April 2003

Ms Logan:

This letter is in response to your inquiry regarding our classification of 1117 ac of land in the lower Gila River drainage as "mixed native-non-native riparian land, with development potential" that have been proposed for transfer in the Wellton-Mohawk Irrigation and Drainage District (WMIDD) Title Transfer. We have re-evaluated the habitat suitability of those parcels to support endangered southwestern willow flycatcher (WIFL) and Yuma clapper rail (YUCR), and describe that re-evaluation here.

As we repeatedly mention in the text of our Biological Resources Assessment for the WMIDD Title Transfer, the intent of WMIDD is to manage the Project lands for agricultural purposes, but the manner in which lands may be developed in the future is not presently known. The WMIDD has distinguished lands with lower and higher development potential, but has not defined how individual parcels may be developed in the future. The riparian lands brought into question by the U.S. Fish and Wildlife Service (Service), and re-assessed here, are those that have been identified by WMIDD as having development potential, but we cannot state how they will be developed.

To determine the potential status of endangered species on the WMIDD Title Transfer lands, we visited these parcels in February and March 2002 and documented their ecological condition. We also used pre-existing information in government and published reports. However, we were not hired to conduct endangered species monitoring, and such work has not been done specifically on the parcels questioned by the Service. Therefore, our evaluation (below) is based on the best available information, but not on site visit-derived monitoring data.

The 1117 ac considered here are composed of 21 parcels, ranging in size from 5-300 ac, and distributed widely across the WMIDD project area (see Table 1; attached photos). We re-analyzed their suitability to support these two endangered species on the basis of: 1) the level of present human disturbance (much of the land has been profoundly altered for agriculture, roadways, and irrigation works); 2) the extent of vegetation cover; 3) plant species composition; and 4) the proximity of the parcel to flowing or standing water. While non-native saltcedar has been identified as providing nesting habitat for WIFL, we have only seen WIFL in saltcedar with

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nearby standing or flowing water. We have not observed WIFL using saltcedar stands that are poorly covered or are codominated by facultative riparian plant species, such as mesquite (*Prosopis* spp), ironwood (*Olneya tesota*), saltbush (*Atriplex* spp.), paloverde (*Cercidium* spp.), and other plant species. Based on the assumption that such compositional combinations are unlikely to support nesting WIFL, particularly on sites without nearby water, we rated each of the 21 parcels as to vegetation suitability (including human disturbance and percent cover), and soil moisture availability. For a parcel to be considered as a site with potential to support endangered WIFL or YUCR, it should be suitable from vegetation (cover and composition) and soil moisture factors, with low to moderate human disturbance.

Based on the above criteria and our best professional judgment, only a single 9.8 ac parcel appears to contain habitat that may potentially support WIFL, and none appear to have the potential to support YUCR. Given that there has been only a single nesting WIFL detected in the entire lower Gila River drainage in the past decade, we consider it highly unlikely that this 9.8 ac parcel, or any of the other parcels in question here, support nesting WIFL. Field surveys obviously would clarify whether endangered birds use this, or the other 20 parcels.

I have attached in electronic form the database so that your staff may provide the map of parcel distribution requested by the Service. Please let me know if you have any questions regarding this re-assessment.

Sincerely,

Lawrence E. Stevens, Principal Investigator

Attachments: Data set in Excel format for mapping the distribution of the 21 parcels.

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STEVENS ECOLOGICAL CONSULTING
Lawrence E. Stevens, PhD

Table 1: Suitabilty of Wellton-Mohawk Irrigation and Drainage District mixednNative-non-native riparian parcels with development potential for endangered southwestern willow flycatcher and Yuma clapper rail.

ID No	Land Class	Level of Distrbnc	Percent Cover	Area (ac)	Vegetation Type	Two-Dom Plants	Ecological Criteria	
							ES Vegetation Suitability	ES Soil Moisture Suitability
14	Acquired (PL93-320)	mod	100	45.6	Mixed native/nonnative riparian	Atca/Tara	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
54	Acquired (PL100-512)	mod	85	51.0	Mixed native/nonnative riparian	Tara/Atle	Unlikely for WIFL & YUCR	Possible for WIFL
159	Acquired (GVPD	mod	60-70	299.7	Mixed native/nonnative riparian	Pr spp/Olte	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
187	Withdrawn	mod	95	9.8	Mixed native/nonnative riparian	Tara/Plse	Possible WIFL habitat	Possible for WIFL
198	Withdrawn	high	60	22.1	Mixed native/nonnative riparian	Taap/Atle	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
222	Withdrawn	high	100	198.6	Mixed native/nonnative riparian	Tara/Pr spp	Unlikely for WIFL & YUCR	Possible for WIFL
223	Withdrawn	high	3	10.0	Mixed native/nonnative riparian	Tara/Acco	Unlikely for WIFL & YUCR	Possible for WIFL
269	Acquired (GVPD	low	95	42.9	Mixed native/nonnative riparian	Tara/Plse	Unlikely for WIFL & YUCR	Possible for WIFL
291	Withdrawn	low	100	9.7	Mixed native/nonnative riparian	Plse/Tara	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
292	Withdrawn - GRC	low	98	10.4	Mixed native/nonnative riparian	Plse/Tara	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
293	Withdrawn	mod	80	5.1	Mixed native/nonnative riparian	Tara/Prgl	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
294	Acquired (PL93-320)	mod	80	5.0	Mixed native/nonnative riparian	Tara/Prgl	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
298	Withdrawn	mod	60	21.3	Mixed native/nonnative riparian	Tara/Pr spp	Unlikely for WIFL & YUCR	Possible for WIFL
299	Acquired (PL93-320)	mod	75	11.7	Mixed native/nonnative riparian	Tara/Pr spp	Unlikely for WIFL & YUCR	Possible for WIFL
324	Acquired (PL93-320)	mod	85	10.3	Mixed native/nonnative riparian	Tara/Plse	Unlikely for WIFL & YUCR	Possible for WIFL
331	Acquired (PL93-320)	high	90	12.2	Mixed native/nonnative riparian	Tara/Pr spp	Unlikely for WIFL & YUCR	Possible for WIFL
338	Acquired (PL93-320)	mod	85	11.2	Mixed native/nonnative riparian	Tara/Atle	Unlikely for WIFL & YUCR	Possible for WIFL
361	Withdrawn	low	100	78.8	Mixed native/nonnative riparian	Tara/Plse	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
422	Withdrawn	high	50	180.3	Mixed native/nonnative riparian	Tara/Plse	Unlikely for WIFL & YUCR	Possible for WIFL
423	Withdrawn	high	---	66.7	Mixed native/nonnative riparian	Tara/Cemi	Unlikely for WIFL & YUCR	Possible for WIFL
277	Acquired (PL93-320)	mod	---	14.5	Mixed native/nonnative riparian	Atle/Tara	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR

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Table 1: Suitabilty of Wellton-Mohawk Irrigation and Drainage District mixednNative-non-native riparian parcels with development potential for endangered southwestern willow flycatcher and Yuma clapper rail.

ID No	Land Class	Level of Distrbnc	Percent Cover	Area (ac)	Vegetation Type	Two-Dom Plants	Ecological Criteria	
							ES Vegetation Suitability	ES Soil Moisture Suitability
14	Acquired (PL93-320)	mod	100	45.6	Mixed native/nonnative riparian	Atca/Tara	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
54	Acquired (PL100-512)	mod	85	51.0	Mixed native/nonnative riparian	Tara/Atle	Unlikely for WIFL & YUCR	Possible for WIFL
159	Acquired (GVPD	mod	60-70	299.7	Mixed native/nonnative riparian	Pr spp/Olte	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
187	Withdrawn	mod	95	9.8	Mixed native/nonnative riparian	Tara/Plse	Possible WIFL habitat	Possible for WIFL
198	Withdrawn	high	60	22.1	Mixed native/nonnative riparian	Taap/Atle	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
222	Withdrawn	high	100	198.6	Mixed native/nonnative riparian	Tara/Pr spp	Unlikely for WIFL & YUCR	Possible for WIFL
223	Withdrawn	high	3	10.0	Mixed native/nonnative riparian	Tara/Acco	Unlikely for WIFL & YUCR	Possible for WIFL
269	Acquired (GVPD	low	95	42.9	Mixed native/nonnative riparian	Tara/Plse	Unlikely for WIFL & YUCR	Possible for WIFL
291	Withdrawn	low	100	9.7	Mixed native/nonnative riparian	Plse/Tara	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
292	Withdrawn - GRC	low	98	10.4	Mixed native/nonnative riparian	Plse/Tara	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
293	Withdrawn	mod	80	5.1	Mixed native/nonnative riparian	Tara/Prgl	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
294	Acquired (PL93-320)	mod	80	5.0	Mixed native/nonnative riparian	Tara/Prgl	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
298	Withdrawn	mod	60	21.3	Mixed native/nonnative riparian	Tara/Pr spp	Unlikely for WIFL & YUCR	Possible for WIFL
299	Acquired (PL93-320)	mod	75	11.7	Mixed native/nonnative riparian	Tara/Pr spp	Unlikely for WIFL & YUCR	Possible for WIFL
324	Acquired (PL93-320)	mod	85	10.3	Mixed native/nonnative riparian	Tara/Plse	Unlikely for WIFL & YUCR	Possible for WIFL
331	Acquired (PL93-320)	high	90	12.2	Mixed native/nonnative riparian	Tara/Pr spp	Unlikely for WIFL & YUCR	Possible for WIFL
338	Acquired (PL93-320)	mod	85	11.2	Mixed native/nonnative riparian	Tara/Atle	Unlikely for WIFL & YUCR	Possible for WIFL
361	Withdrawn	low	100	78.8	Mixed native/nonnative riparian	Tara/Plse	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
422	Withdrawn	high	50	180.3	Mixed native/nonnative riparian	Tara/Plse	Unlikely for WIFL & YUCR	Possible for WIFL
423	Withdrawn	high	---	66.7	Mixed native/nonnative riparian	Tara/Cemi	Unlikely for WIFL & YUCR	Possible for WIFL
277	Acquired (PL93-320)	mod	---	14.5	Mixed native/nonnative riparian	Atle/Tara	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR

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WMIDD Mixed Native-Non-native Riparian Parcels with Development Potential

ID No	Land Class	Class	Tnshp	Rnge	Sectn	Quad	Qrtr Sctn	Photo	Visit DATE	Level of Distrbnc	Plant Cover Dom 1	Dom 2	Dom 3	Dom 4	Dom 5	Dom 6	Percent Cover
14	Acquired (PL93-320)	4	7S	15W	26 +	Growler	sw		3/4/2002	mod	Atca	Tara	Pr spp				100%
54	Acquired (PL100-512)	4a	8S	17W	15	Tacna/We	sw		3/5/2002	mod	Tara	Atle	Sago				85%
159	Acquired (GVPD	2	9S	19W	13 +	Ligurta	s 1/2		2/7/2002	mod	Pr spp	Olte	Cemi	Latr			60-70%
187	Withdrawn	6	8S	16W	23	Tacna	sw		3/5/2002	mod	Tara	Plse	Pr spp				95%
198	Withdrawn	6	7S	21W	35	Laguna Da	sw	444-445	2/5/2002	high	Taap	Atle	Plse	Latr			60%
222	Withdrawn	6	8S	20W	36 +	Ligurta	s 1/2		2/5/2002	high	Tara	Pr spp					100%
223	Withdrawn	6	8S	20W	27	Ligurta	se		3/4/2002	high	Tara	Acco	Plse	Latr	Atle		3%
269	Acquired (GVPD	2	8S	17W	14	Tacna	sw		3/5/2002	low	Tara	Plse	Prgl	Acco			95%
291	Withdrawn	6	8S	16W	4 +	Roll	se		3/6/2002	low	Plse	Tara	Sago				100%
292	Withdrawn - GRC	3	8S	16W	4 +	Roll	se		3/5/2002	low	Plse	Tara	Sago				98%
293	Withdrawn	6	8S	16W	5	Roll	se		3/5/2002	mod	Tara	Prgl	Atle				80%
294	Acquired (PL93-320)	4	8S	16W	5	Roll	se		3/5/2002	mod	Tara	Prgl	Atle				80%
298	Withdrawn	6	8S	20W	5	Dome	sw		2/4/2002	mod	Tara	Pr spp	Plse				60%
299	Acquired (PL93-320)	4	8S	20W	5	Dome	sw		2/4/2002	mod	Tara	Pr spp	Plse				75%
324	Acquired (PL93-320)	4	8S	19W	33	Ligurta	sw		2/5/2002	mod	Tara	Plse					85%
331	Acquired (PL93-320)	4	8S	19W	25	Ligurta	sw		2/6/2002	high	Tara	Pr spp	Plse				90%
338	Acquired (PL93-320)	4	8S	19W	25	Ligurta	sw		2/6/2002	mod	Tara	Atle					85%
361	Withdrawn	6	8S	17W	18 +	Wellton Me	sw		3/5/2002	low	Tara	Plse	Sago				100%
422	Withdrawn	6	9S	20W	1	Ligurta	nw,ne	449	2/5/2002	high	Tara	Plse	Pr spp	desert scru	Latr	Cagi	50%
423	Withdrawn	6	9S	20W	1 +	Ligurta	nw		2/5/2002	high	Tara	Cemi	desert scrub				---
277	Acquired (PL93-320)	4	8S	21W	8	Fortuna	se		2/4/2002	mod	Atle	Tara	Pr spp	Plse			---

Plant Cover Key:

Abbreviation	Scientific Name
Atca	Atriplex canescens
Acco	Atriplex confertifolia
Atle	Atriplex lentiformis
Cagi	Carnegia gigantea
Cemi	Cercidium microphyllum
Latr	Larrea tridentat
Pofr	Populus fremontii
Prgl	Prosopis glandulosa
Pr sp	Prosopis spp.
Sago	Salix gooddingii
Taap	Tamarix aphylla
Tara	Tamarix ramosissima
Plse	Pluchea sericea

WMIDD Mixed Native-Non-native Riparian Parcels with Development Potential

ID No	Land Class	Class	Tnshp	Rnge	Sectn	Quad	Qrtr Sctn	Comments	Area (ac)	Two-Dom Plants	Mapping Categories	ES Vegetation Suitability	ES Soil Moisture Suitability
14	Acquired (PL93-320)	4	7S	15W	26 +	Growler	sw		45.6	Atca/Tara	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
54	Acquired (PL100-512)	4a	8S	17W	15	Tacna/We	sw	building in tara groves	51.0	Tara/Atle	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
159	Acquired (GVPD	2	9S	19W	13 +	Ligurta	s 1/2	mature tall trees	299.7	Pr spp/Olte	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
187	Withdrawn	6	8S	16W	23	Tacna	sw		9.8	Tara/Plse	Mixed native/nonnative riparian	Possible WIFL habitat	Possible for WIFL
198	Withdrawn	6	7S	21W	35	Laguna Da	sw	exotic shrubs	22.1	Taap/Atle	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
222	Withdrawn	6	8S	20W	36 +	Ligurta	s 1/2	structures, trucks, etc	198.6	Tara/Pr spp	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
223	Withdrawn	6	8S	20W	27	Ligurta	se		10.0	Tara/Acco	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
269	Acquired (GVPD	2	8S	17W	14	Tacna	sw		42.9	Tara/Plse	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
291	Withdrawn	6	8S	16W	4 +	Roll	se		9.7	Plse/Tara	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
292	Withdrawn - GRC	3	8S	16W	4 +	Roll	se		10.4	Plse/Tara	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
293	Withdrawn	6	8S	16W	5	Roll	se		5.1	Tara/Prgl	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
294	Acquired (PL93-320)	4	8S	16W	5	Roll	se		5.0	Tara/Prgl	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
298	Withdrawn	6	8S	20W	5	Dome	sw		21.3	Tara/Pr spp	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
299	Acquired (PL93-320)	4	8S	20W	5	Dome	sw		11.7	Tara/Pr spp	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
324	Acquired (PL93-320)	4	8S	19W	33	Ligurta	sw		10.3	Tara/Plse	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
331	Acquired (PL93-320)	4	8S	19W	25	Ligurta	sw		12.2	Tara/Pr spp	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
338	Acquired (PL93-320)	4	8S	19W	25	Ligurta	sw		11.2	Tara/Atle	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
361	Withdrawn	6	8S	17W	18 +	Wellton Mo	sw		78.8	Tara/Plse	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR
422	Withdrawn	6	9S	20W	1	Ligurta	nw,ne	half thick tara, half spa	180.3	Tara/Plse	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
423	Withdrawn	6	9S	20W	1 +	Ligurta	nw		66.7	Tara/Cemi	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Possible for WIFL
277	Acquired (PL93-320)	4	8S	21W	8	Fortuna	se		14.5	Atle/Tara	Mixed native/nonnative riparian	Unlikely for WIFL & YUCR	Unlikely for WIFL & YUCR

Plant Cover Key:

Abbreviation	Scientific Name
Atca	Atriplex canescens
Acco	Atriplex confertifolia
Atle	Atriplex lentiformis
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Latr	Larrea tridentat
Pofr	Populus fremontii
Prgl	Prosopis glandulosa
Pr sp	Prosopis spp.
Sago	Salix gooddingii
Taap	Tamarix aphylla
Tara	Tamarix ramosissima
Plse	Pluchea sericea

United States Department of the Interior

BUREAU OF RECLAMATION
Yuma Area Office
7301 Calle Agua Salada
Yuma, Arizona 85364

IN REPLY REFER TO:

YAO-7210
ENV-7.00

MAY 30 2003

MEMORANDUM

To: Mr. Stephen L. Spangle, Field Supervisor, U.S. Fish and Wildlife Service, Arizona Ecological Services Field Office, 2321 West Royal Palm Road, Suite 103, Phoenix, Arizona 85021-4957

From: Cynthia Hoeft, Director
Resource Management Office
Acting
THAYER BROILI

Subject: Wellton-Mohawk Title Transfer Project (Project) - Section 7, Endangered Species Act Consultation (Consultation No. 2-21-02-I-115)

This memorandum responds to a question raised by Mr. Mike Martinez of your staff in a recent telephone conversation with Ms. Andrea Campbell, Reclamation, as part of our ongoing consultation with the Fish and Wildlife Service (Service) under Consultation No. 2-21-02-I-115.

Specifically, Mr. Martinez expressed uncertainty about the quality of potential habitat for the endangered Southwestern Willow Flycatcher (*Empidonax traillii extimus*) (SWF) on approximately 1,117 acres of Project lands that could be developed following their transfer from Federal ownership to ownership by the Wellton-Mohawk Irrigation and Drainage District (District). Mr. Martinez indicated that the information presented in a *Biological Resources Assessment* submitted by Reclamation in support of its request for concurrence did not contain sufficient detail for the Service to concur on a finding of "may affect, not likely to adversely affect" the SWF. He suggested that breeding season surveys for the SWF may be necessary before concurrence could be granted. In addition, Mr. Martinez recommended that Reclamation explore the utility of applying a recently developed habitat-indicator model to assess the extent of SWF habitat on Project lands.

Prior to undertaking breeding season bird counts and field surveys, Reclamation discussed the applicability of the model with Mr. Chuck Paradzick of Arizona Game and Fish Department, Phoenix, one of the scientists who participated in its development. Mr. Paradzick advised that the model was in draft form, but that it may have value in identifying general areas of potential SWF habitat, which could then be validated by field inspection. Reclamation applied the model to the Project area, and results identified lands within the Gila River Flood Channel as having potentially suitable SWF habitat along with 2.8 acres among other parcels identified for future development.

In addition to the areas of potential habitat indicated by the model, 10.8 acres of the 1,117 acres identified in the *Biological Resources Assessment* as being "mixed native/non-native riparian" vegetation were determined by Reclamation's contracted field biologist (Dr. Larry Stevens, Phillips Consulting) to have potential as SWF habitat. Subsequently, these 10.8 acres and the areas identified by the model were field inspected on May 7, 2003, by Mr. Linden Piest, Biologist, Arizona Game and Fish Department, Yuma, and Mr. Larry Killman, representing the District.

Although the flood channel lands were confirmed to be potentially suitable SWF habitat, they are not among the transfer parcels having the potential for future development because they comprise mitigation areas required by the District's Clean Water Act, Section 404, permit for the flood channel project and must be preserved in perpetuity. Because of this, there would be no need for breeding season surveys in these areas. Field surveys of the other areas of mixed native/non-native riparian vegetation confirmed that they lacked sufficient moisture or proximity to water, understory, and/or density to be considered suitable as SWF habitat. Consequently, breeding season surveys would not be necessary in these areas either.

With this memorandum, Reclamation requests concurrence from the Service that SWF breeding season surveys shall not be necessary on lands to be transferred as part of the Project and that the informal consultation process for the Project may proceed to completion, with the Service providing a written response to Reclamation's request for concurrence on its determination that the Project "may affect, but is not likely to adversely affect" the SWF and the Yuma Clapper Rail (*Rallus longirostris yumanensis*).

Thank you for your consideration of this request. You may direct questions on this subject to Ms Andrea Campbell at 928-343-8237 and email, acampbell@lc.usbr.gov.

WTR-400-Irrigation Districts & WM100

United States Department of the Interior
U.S. Fish and Wildlife Service
Arizona Ecological Services Field Office
2321 West Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
Telephone: (602) 242-0210 Fax: (602) 242-2513

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In Reply Refer to:
AESO/SE
02-21-02-I-0115

June 9, 2003

Memorandum

To: Cynthia Hoeft, Director, Resource Management Office, Bureau of Recl
Yuma Area Office

From: Field Supervisor, Arizona Ecological Services Field Office

Subject: Section 7 Endangered Species Act Consultation for the Wellton-Mohawk Title Transfer Project

3000567

Thank you for your memoranda of March 10 and May 30, 2003, continuing informal section 7 consultation under the Endangered Species Act (ESA) for the subject project. You have requested Fish and Wildlife Service (FWS) concurrence that the proposed transfer of title to specific works, facilities, and lands from Federal ownership to the Wellton-Mohawk Irrigation and Drainage District "may affect, but is not likely to adversely affect" the Yuma clapper rail (*Rallus longirostris yumanensis*) and the southwestern willow flycatcher (*Empidonax traillii extimus*). You also provided us a copy of the September 2002, Biological Resources Assessment, Transfer of Title to Federal Facilities, Works, and Lands of the Gila Project, Wellton-Mohawk Division, to Wellton-Mohawk Irrigation and Drainage District, Yuma County, Arizona (BA).

ENV-100

The Bureau of Reclamation (Reclamation) proposes to transfer up to 56,476 acres of land to the District along the Gila River in Yuma County (depicted in Map 1.3 of the BA). The transfer would not change the District's allocation and use of Colorado River water, operation and maintenance of the irrigation and drainage system, or irrigation return flows. The BA states that some land to be transferred would be developed for various purposes including stockyards, storage areas, parks, public buildings, and other business related to agriculture. Approximately 11,272 acres of transfer lands are classified in the BA as area with development potential. The majority of this is either upland vegetation communities or agricultural land. Approximately 1,117 acres of mixed native and non-native riparian vegetation communities have been classified as area with development potential.

Riparian vegetation along the Gila River within the project area contains suitable habitat for the Yuma clapper rail where cienega conditions support dense stands of cattail (*Typha* sp.) and bulrush (*Scirpus* sp.) vegetation. Yuma Clapper rails are known to nest along this portion of the river, particularly within the Quigley Wildlife Area near Tacna. However, no areas known to be occupied by, or contain suitable habitat for, clapper rails have been classified as having future development potential.

Although flycatchers are not known to nest in the action area, they have been documented as migrants. As discussed in your May 30 memorandum, we have had in-depth discussions with the District and Arizona Game and Fish Department (AGFD) regarding the suitability for flycatchers of the mixed native/non-native riparian vegetation classified as an area with development potential. Consistent with our requests, your staff coordinated with the AGFD in application of a draft flycatcher habitat-indicator model to the project area. Furthermore, staff from the District and the AGFD conducted cooperative field investigations to validate the model's output as well as information provided by Reclamation's contractor regarding other potentially suitable flycatcher habitat. A total of 13.6 acres of riparian vegetation, considered the most potentially suitable, was inspected and deemed unsuitable for flycatchers due to lack of soil moisture and proper vegetative structure.

Considering information presented in the BA and subsequent information provided by Reclamation, the FWS concurs with the determination that the proposed transfer of title to specific works, facilities, and lands from Federal ownership to the Wellton-Mohawk Irrigation and Drainage District "may affect, but is not likely to adversely affect" the Yuma clapper rail and the southwestern willow flycatcher. We do, however, suggest that the District continue to consider these species in future operation and management of these lands.

Riverine ecosystems such as the Gila River are extremely dynamic and the status of both the Yuma clapper rail and the southwestern willow flycatcher on the subject lands could easily change after transfer. Non-Federal landowners are restricted from "taking" threatened and endangered species under section 9 of the ESA. Additionally, the lands proposed for transfer were specifically included in the Lower Colorado Recovery Unit for the southwestern willow flycatcher in response to input provided by Reclamation, AGFD, and other stakeholders of the implementation subgroup of the species' recovery team in order to expand recovery options. Furthermore, we understand that the District, AGFD, and the Corps of Engineers (Corps) have completed a reconnaissance-level planning effort for environmental restoration in the project area.

Therefore, we recommend that the District continue to work with the FWS and other appropriate entities to explore opportunities that would allow this area to realize its full potential to contribute to flycatcher recovery while protecting the District's ability to conduct routine operation and maintenance activities. In addition to AGFD and Corps mandates, various regulatory vehicles are available for this effort, including Habitat Conservation Plans, Safe Harbor Agreements, and Partners for Fish and Wildlife Agreements.

This concludes section 7 consultation for the proposed Wellton-Mohawk Title Transfer Project. We appreciate the opportunity to work with your staff. If you have any questions or concerns, please contact Mike Martinez (x224).

Steven L. Spangle

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