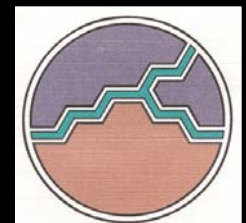


# Yuma East Wetlands Restoration Project



Restoring a Forgotten Landscape on the Lower Colorado



## **A CHALLENGED RIVER SYSTEM**

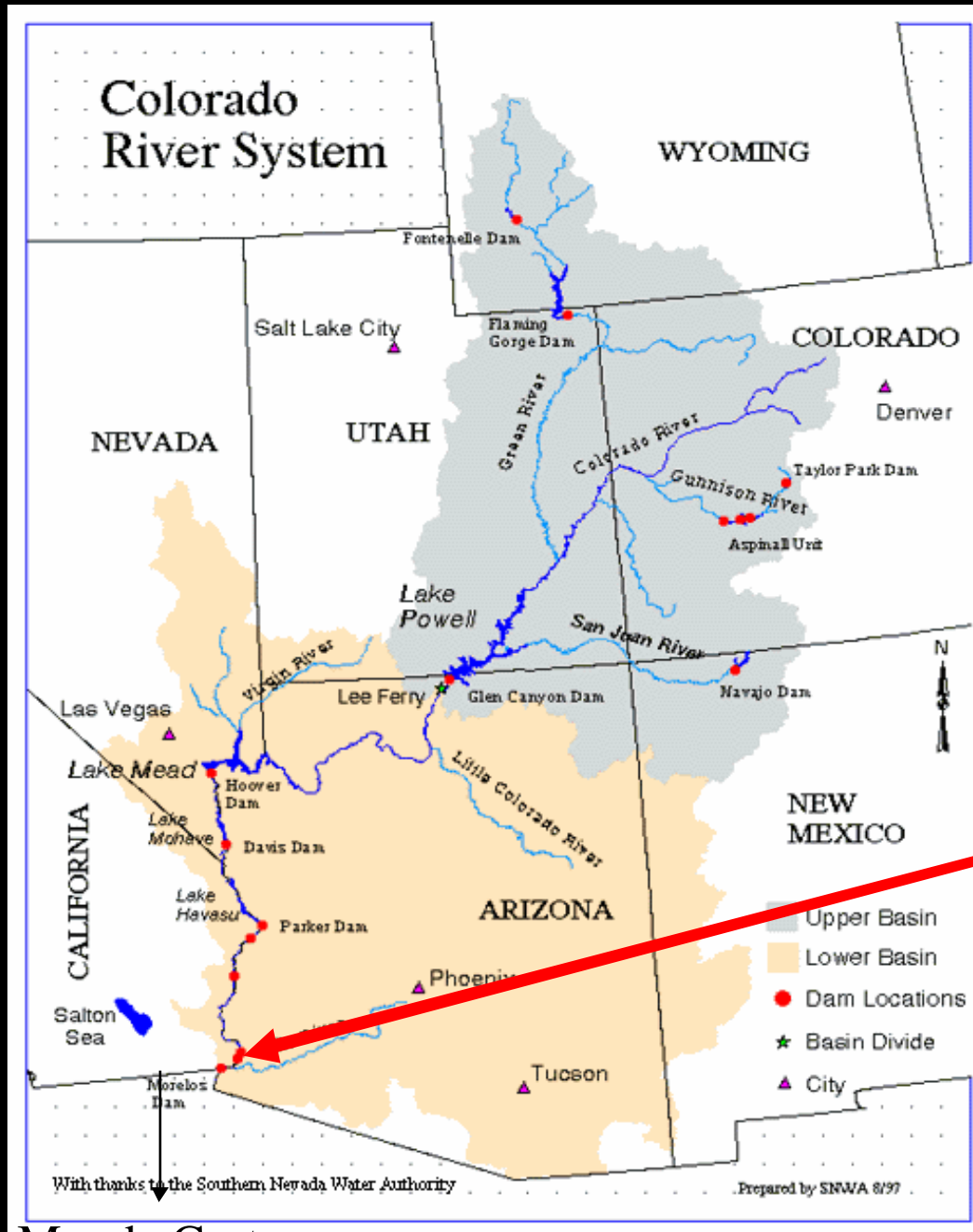
**THE LOWER COLORADO RIVER USED TO SUPPORT MORE THAN 450,000 ACRES OF NATIVE FORESTS AND WETLANDS. WITH THE DEVELOPMENT OF THE AMERICAN SOUTHWEST, HUMAN CONSUMPTION, AGRICULTURE AND FLOOD CONTROL NECESSITATED THE DAMMING AND CHANNELIZATION OF THE RIVER.**

**THE COST OF THE DAMS AND DEVELOPMENT TO THE ENVIRONMENT WAS HIGH. BY 1986 ONLY AN ESTIMATED 100,000 ACRES FOREST AND WETLANDS REMAINED. OVER 90% OF THIS REMAINING HABITAT IS COMPRISED OF EXOTIC PLANT SPECIES. LEAVING UNDER 2000 ACRES OF NATIVE FOREST ON THE ENTIRE LOWER RIVER. THE COLORADO RIVER DISAPPEARS INTO THE SAND A FEW MILES BELOW MORELOS DAM ON THE US MEXICO BORDER, IN MOST YEARS THE LAST 30 MILES OF RIVER BED THAT CONNECTS WITH THE SEA OF CORTEZ IS DRY.**

## **OASIS OF LIFE**

**RIPARIAN AREAS (FORESTS AND WETLANDS ALONG A RIVER) ARE EXTREMELY RICH ECOLOGICAL ZONES. THESE AREAS SUPPORT OVER 33% OF THE FLORA AND FAUNA (PLANTS AND ANIMALS) IN THE SOUTHWEST, BUT THEY ONLY COMPRISE 5 % OF THE LAND MASS IN THE ARID SOUTHWEST. UNFORTUNATELY OVER 90% OF THE RIPARIAN AREAS HAVE BEEN DESTROYED BY DEVELOPMENT OR REPLACED BY AGRICULTURE. THIS LOSS OF HABITAT HAS CAUSED A SERIOUS DECLINE IN MANY WILDLIFE SPECIES, ESPECIALLY BIRDS. THE YUMA CLAPPER RAIL AND SOUTHWEST WILLOW FLYCATCHER ARE NOW ENDANGERED DUE TO LOSS OF HABITAT.**

# DAMS ON THE COLORADO RIVER (RED DOTS)



Yuma

## Habitat Fragmentation

- 4 Large Dams
  - Glen Canyon
  - Hoover
  - Davis
  - Parker
- 5 Smaller Weirs
  - Headgate Rock
  - Palo Verde Weir
  - Imperial Dam
  - Laguna Dam
  - Morelos Dam
  - Colorado Weir (in delta)

**CONSTRUCTION OF LAGUNA DAM, THE FIRST DAM PROJECT ON THE  
COLORADO RIVER, JUST ABOVE YUMA ARIZONA**



# THE END OF THE SPIGOT

THE YUMA AND QUECHAN COMMUNITIES ARE LOCATED BELOW ONE OF THE LAST DAMS ON THE COLORADO RIVER. MOST COMMUNITIES UPSTREAM OF IMPERIAL DAM HAVE SUFFICIENT WATER FLOW IN THE RIVER, BUT IN MOST YEARS YUMA IS LEFT WITH VERY LITTLE WATER IN THE MAIN RIVER CORRIDOR.

Imperial Dam & Desilting Works  
C423-300-020000

COLORADO RIVER  
ABOVE IMPERIAL  
DAM

COLORADO RIVER  
BELOW DAM



COLORADO RIVER ABOVE IMPERIAL DAM



COLORADO RIVER BELOW IMPERIAL DAM



COLORADO RIVER BELOW MORELOS DAM

## REDUCTION IN RIVER FLOWS AND FLOODING

PICTURED BELOW IS THE YUMA EAST WETLANDS PICTURED FROM THE CROSSING MISSION DURING THE FLOOD OF 1905 WITH THE RIVER RUNNING IN EXCESS OF 150,000 CUBIC FEET PER SECOND (CFS)



*THE COLORADO RIVER AT YUMA*

**PICTURED BELOW IS THE SAME VIEW FROM THE CROSSING MISSION DURING THE HIGHEST FLOW FOR 2002, ABOUT 3000 CFS. COMPLETELY INFESTED WITH EXOTIC PLANTS. THE AVERAGE RIVER FLOWS ON THE COLORADO IN YUMA AVERAGE 300-600 CFS IN MOST YEARS.**





# **RECONNECTING WITH THE RIVER**

**IN THE LAST HUNDRED YEARS THE YUMA AND QUECHAN COMMUNITIES HAVE BECOME SEPARATED FROM THEIR MOST VALUABLE RESOURCE, THE COLORADO RIVER. IN 2000 THEY DECIDED IT WAS TIME TO DO SOMETHING ABOUT IT. PLEASE JOIN US IN THE STORY OF HOW THIS VISION HAS BECOME A REALITY.**





## **PROJECT LOCATION**

**THE YUMA EAST WETLANDS IS 1 400 ACRES OF RIPARIAN HABITAT ON THE COLORADO RIVER IN YUMA, ARIZONA. THE AREA IS BOUND TO THE WEST BY THE HISTORIC YUMA CROSSING AND TO EAST BY THE CONFLUENCE OF THE GILA AND COLORADO RIVERS**

# Yuma East Wetlands

## YUMA EAST WETLANDS RESTORATION PLAN

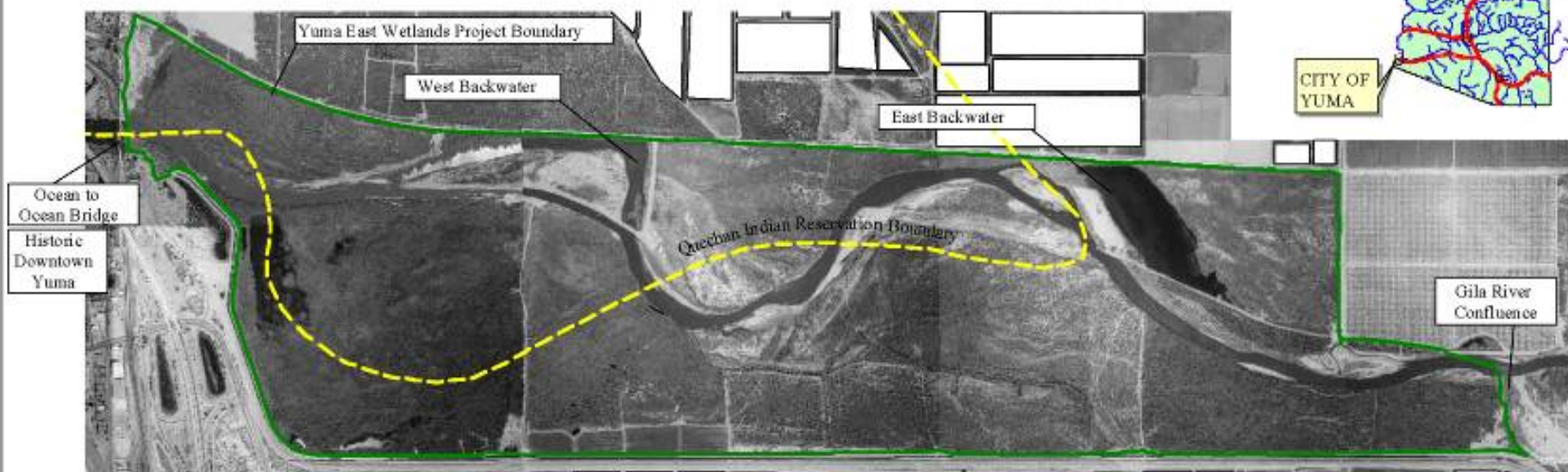
- Yuma East Wetlands Restoration Plan Boundary
- - - - Quechan Indian Reservation Boundary

Project Area: Approximately 1,392 Acres

Design: SW/FP  
 Checked:  
 Date: 4-30-01  
 Revision #:



CITY OF YUMA



0 0.5 1 Miles

SCALE=1:16,000

Prepared For: City of Yuma

Riverfront Development Office  
 200 W. 1st Street  
 Yuma, AZ. 85364



### PROJECT PARTNERS:

Quechan Indian Tribe, City of Yuma, AZ State Land Department,  
 US Army Corps of Engineers, Yuma County, Bureau of Indian Affairs,  
 Audubon Society, Bureau of Reclamation, US Bureau of Land Management,  
 Private Landholder, Arizona Department of Environmental Quality,  
 Arizona Game and Fish Department, US Fish and Wildlife Service and Arizona State Parks



Phillips Consulting

526 N. Bertrand St.  
 Flagstaff, AZ 86001  
 Phone: 520-773-1530

Email: [lyshokahc@hotmail.com](mailto:lyshokahc@hotmail.com)

### Project Location Map

Yuma East Wetlands Restoration Project  
 River Mile 38.5 to 34.2

Figure 3.1a

## **PARTNERSHIP**

**THE YEW IS OWNED BY A MULTITUDE OF LANDOWNERS. A MAJORITY OF THE LAND IS OWNED BY THE QUECHAN INDIAN TRIBE, THE CITY OF YUMA AND PRIVATE LANDOWNERS. IN UNDER ONE YEAR AN UNPRECEDENTED PARTNERSHIP JOINING THESE STAKEHOLDERS WAS FORMED TO RESTORE THE YUMA EAST WETLANDS.**



## **A FORGOTTEN WASTELAND**

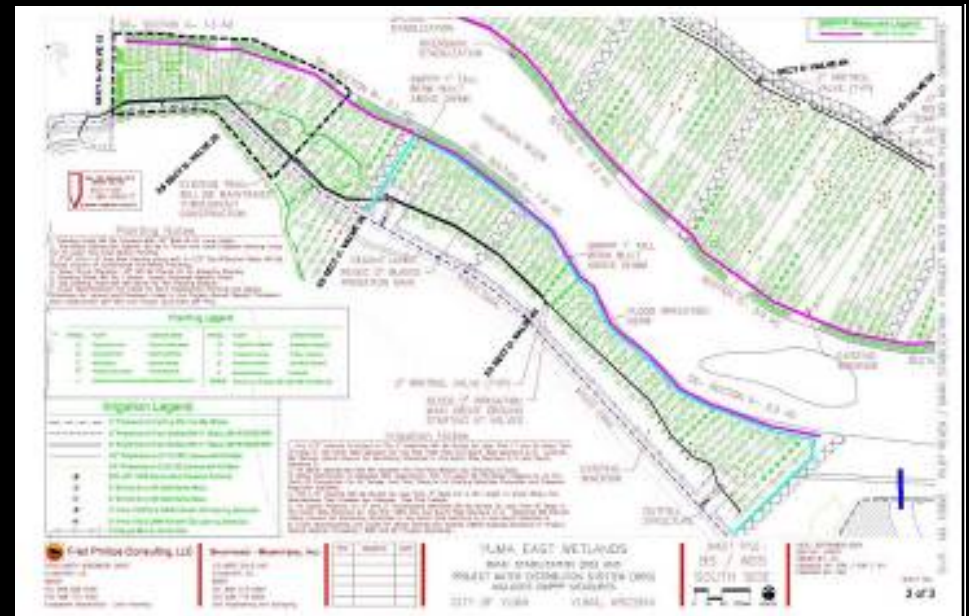
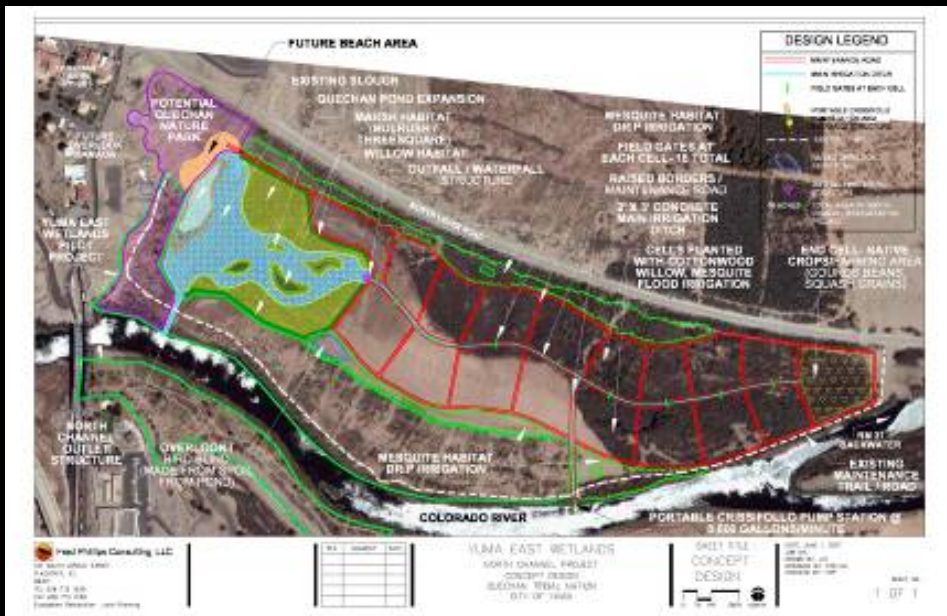
**BEFORE RESTORATION, THE YEW WAS A CRIME RIDDEN DUMP. THE FOLLOWING PICTURES GIVE YOU AN IDEA OF THE HIGHLY DEGRADED STATE OF THE YEW UP TO 2000. THE INITIAL SITE INVESTIGATIONS INVOLVED TRAVERSING THIS DENSE THICKET FOR OVER A MONTH WITH A SIX PERSON CREW, VERY DANGEROUS WORK! STUDIES AND SURVEYS COMPLETED INCLUDED WETLAND DELINEATION, ENDANGERED BIRD SURVEYS, SOIL SALINITY MAPPING, TOPOGRAPHY AND VEGETATION SURVEYS**





# PROJECT PLANNING AND DESIGN

ONCE THE MASTER PLAN, FIELD SURVEYS AND ENVIRONMENTAL PERMITTING WERE COMPLETED WE PRODUCED CONSTRUCTION DOCUMENTS FOR THE REVEGETATION AND CHANNEL REVEGETATION PROJECTS. THE COMPLETION OF THIS WHOLE PROCESS TOOK OVER TWO YEARS.



## **PROJECT FUNDRAISING**

**THE PROJECT TEAM WAS ALSO TASKED WITH RAISING FUNDS FOR THE IMPLEMENTATION OF THE YEW PROJECT. OUR FUNDRAISING EFFORTS HAVE INCLUDED WRITING GRANTS TO FEDERAL, STATE AND PRIVATE INSTITUTIONS AS WELL AS WORKING WITH OUR STATE AND FEDERAL DELEGATES. OUR EFFORTS HAVE YIELDED OVER 7 MILLION DOLLARS IN GRANT FUNDING FOR THE RESTORATION OF THE YUMA EAST WETLANDS.**



**Senator Jon Kyl, City of Yuma Mayor Larry Nelson, Quechan President Michael Jackson, Sr**



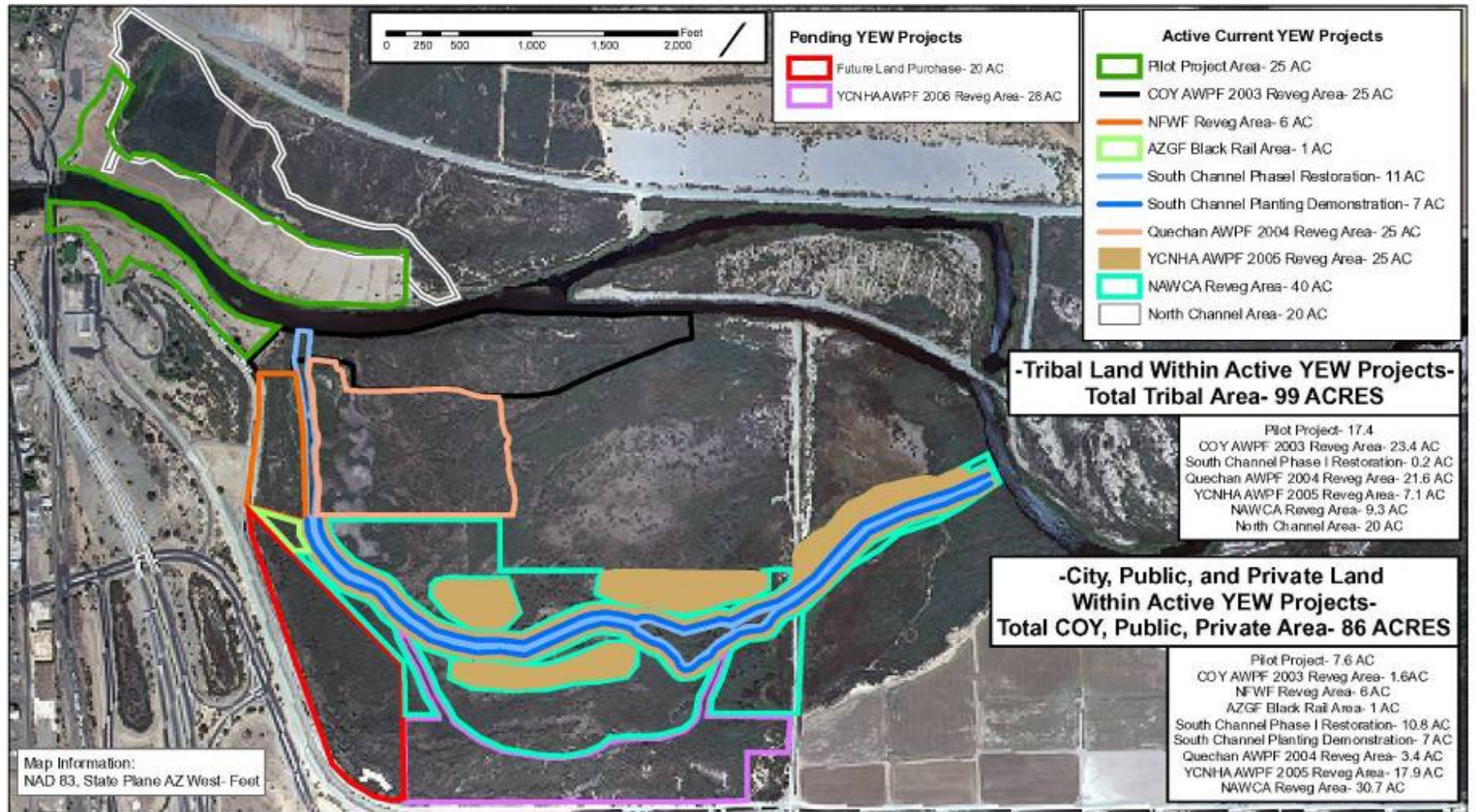
**Fred Phillips Canoeing the Yuma East Wetlands with Governor Janet Napolitano**



## **PROJECT STUDIES/FIELD WORK COMPLETED TO DATE**

- **MASTER PLAN FOR ENTIRE 1400 ACRE SITE**
- **RESTORATION DESIGN FOR OVER 300 ACRES OF REVEGETATION AND CHANNEL EXCAVATION**
- **CONCEPTUAL DESIGN OF TWO 4 ACRE PARKS**
- **BIOLOGICAL EVALUATION**
- **WETLAND DELINEATION**
- **ENDANGERED SPECIES SURVEYS (2002-2007) IN ALL EXISTING HABITAT TYPES WITHIN PROJECT**
- **HYDRO GEOMORPHOLOGY**
- **SOIL AND SALINITY MAPPING ON ALL RESTORATION AREAS**
- **TOPOGRAPHY SURVEYS**
- **PRE AND POST RESTORATION WATER QUALITY IN ALL AQUATIC AREAS**
- **PRE RESTORATION VEGETATION ANALYSIS**
- **WATER CONSUMPTIVE USE ANALYSIS**
- **GIS DATA BASE DEVELOPMENT**
- **PLANT GROWTH AND PHOTOMONITORING IN ALL RESTORATION AREAS**

# Map of Current Restoration Projects in the YEW



Prepared By:  
Fred Phillips Consulting, LLC  
928-773-1530

**PROJECT PARTNERS:**  
Quechan Tribe, City of Yuma, AZ State Land Department,  
US Army Corps of Engineers, Yuma County, Bureau of Indian Affairs,  
Audubon Society, Bureau of Reclamation, US Bureau of Land Management,  
Private Landholders

July 5, 2006

**Yuma East Wetlands  
Current Projects**

# **RIPARIAN REVEGETATION**

**VARYING SITE CONDITIONS ACROSS THE YEW MAKE RESTORING THESE EXOTIC THICKETS A CHALLENGE. CURRENTLY OVER 300 ACRES OF REVEGETATION THAT INCLUDE A VARIETY OF REVEGETATION METHODS ARE UNDERWAY.**

**THESE METHODS INCLUDE:**

- 1. DRIP, FLOOD AND TIDAL IRRIGATION METHODS**
- 2. PLANTING WITH NATIVE SEEDS, PLUGS, BARE ROOT POLES AND ROOTED PROPOGULES**
- 3. EXPERIMENTING WITH A VARIETY OF BIOENGINEERING TECHNIQUES**
- 4. PLANT, SOIL AND PHOTOMONITORING OF ALL PROJECT AREAS**

**RESTORED FOREST ON THE 'AHAKHAV**





**YEW BEFORE SITE CLEARING 2002**



**YEW AFTER CLEARING AND CHANNEL EXCAVATION 2006**



**25 ACRE PILOT REVEGETATION SITE IN ITS DEGRADED  
CONDITION, APRIL 2000**



**SAME SITE AFTER EXOTIC PLANT CLEARING,  
NOVEMBER 2002**



**25 ACRE PILOT REVEGETATION SITE TWO YEARS AFTER PLANTING**



**TWO YEAR OLD COTTONWOOD REVEGETATION IN THE RESTORED FLOODPLAIN OF THE WETLANDS**



**RESTORED SALT GRASS (*DISTICHULUS SPICATA*) FLATS. 4 MONTHS AFTER PLANTING PLUGS 2' O.C.**



**TWO YEAR OLD RESTORED SHALLOW EMERGENT MARSH**



**RESTORED MARSH COMMUNITY INCLUDING YERBA MANZA,  
A HIGHLY VALUED MEDICINAL PLANT**



**MARSH FLEABANE READILY  
GERMINATES FROM SEED IN HIGH  
SALINE AREAS**



**TWO YEAR OLD FLOOD IRRIGATED SCREWBEAN MESQUITE / ALKALAI SACATON REVEGETATION**

# Every now and then we all get Lucky



**LUCKY AT HIS HOBO CAMP  
IN THE YEW, MARCH 2000.**

**RESTORATION ISN'T ALL ABOUT WILDLIFE AND PLANTS. HUMANS ARE A BIG PART OF THE STORY. WHEN DOING THE INITIAL FIELD RESEARCH IN THE YEW WE RAN INTO A HOBO NAMED LUCKY. HE WAS GLAD THAT SOMETHING WAS BEING DONE TO CLEAN UP WHAT HE CALLED A "DUMP". LUCKY ENDED UP WORKING WITH OUR PLANTING AND MAINTENANCE CREWS AND BECAME A GREAT FRIEND TO MANY OF US.**

**LUCKY PASSED AWAY LAST YEAR BUT HIS SPIRIT LIVES ON IN HIS STORIES OF THE RAILS AND THE JOY HE SHARED IN SEEING THE YEW RESTORED.**





# Historic Channel and Marsh Restoration



## HISTORIC CHANNEL RESTORATION

**IN 1999 THE YEW HAD ONLY ONE SMALL REMAINING SHALLOW EMERGENT MARSH, OVER 3000 WHITE FACED IBIS'S ROOSTED THERE IN WINTER.**



1999



2003

**AS OF FALL 2003 ALL THE WETLANDS IN THE YEW HAD DEGRADED INTO SALT CEDAR AND PHRAGMITES THICKETS WITH NO NATIVE MARSH HABITAT LEFT. THE IBIS AND MANY OTHER BIRD SPECIES DISAPPEARED FROM THE YEW**

**A MAJORITY OF THE WETLANDS IN THE YEW HAVE BEEN A WASTELAND OF TRASH DUMPS AND ILLEGAL ACTIVITY FOR THE LAST 30 YEARS. THIS WAS THE CONDITION OF OUR CHANNEL RESTORATION PROJECT BEFORE CLEARING**



**INITIAL WORK INCLUDED SITE CLEARING AND BURNING OF EXOTIC VEGETATION, EXCAVATION OF HISTORIC CHANNELS AND THE INSTALLATION OF WATER CONTROL STRUCTURES.**



**THE SOUTH CHANNEL PROJECT RESTORED THE HISTORIC CONFLUENCE OF THE GILA AND COLORADO RIVERS. THIS CONFLUENCE HAS ALWAYS BEEN HIGHLY VALUED HISTORIC AREA BY THE QUECHAN INDIAN TRIBE AND THE CITY OF YUMA.**



**HISTORIC  
CONFLUENCE OF  
THE GILA AND  
COLORADO RIVERS**

**AERIAL VIEW OF THE YEW IN 2003 COMPLETELY OVERRUN WITH EXOTIC VEGETATION, DRIED UP AND A VERY UNPRODUCTIVE WILDLIFE HABITAT.**



**AERIAL VIEW OF THE YEW IN 2007 WITH NEWLY RESTORED CHANNELS, NATIVE MARSH AND RIPARIAN VEGETATION. WITH RESIDENT ENDANGERED SPECIES, THE YUMA CLAPPER RAIL. THE WHITE FACED IBIS AND BLACK RAIL HAVE ALSO RETURNED TO THE YEW**



**ONCE ALL OF THE DIRT WORK WAS COMPLETED THE PROJECT TEAM BEGAN PLANTING THE CHANNEL WITH NATIVE PLANTS. THE FOLLOWING PICTURES INCLUDE GATHERING LOCAL NATIVE PLANT MATERIALS INCLUDING BULRUSH, GOODING WILLOW AND OTHER NATIVE SPECIES. THE BOTTOM TWO PICTURES INCLUDE PLANTING THESE SPECIES IN THE NEW CHANNEL USING BIOENGINEERING TECHNIQUES.**



**THE FOLLOWING PICTURES INCLUDE SOAKING THE LIVE WILLOW CUTTINGS, PLANTING THEM IN THE BANKLINE AND THE CHANNEL JUST AFTER WE COMPLETED PLANTING THE SHORE WITH PLUGS, SEEDS AND LIVE CUTTINGS.**







**PICTURE OF THE BANKLINE RIGHT BEFORE PLANTING WITH POLES, SEEDS AND PLUGS  
FEBRUARY 2006.**



**SAME VIEW OF THE SAME BANKLINE, 7 MONTHS LATER  
AUGUST 2006.**



**PICTURE OF THE BANKLINE RIGHT  
AFTER PLANTING WITH POLES,  
SEEDS AND PLUGS  
FEBRUARY 2006.**



**VIEW OF THE SAME  
BANKLINE, 7 MONTHS LATER  
AUGUST 2006. 100%  
NATIVE PLANTS!**



**THIS WILLOW POST WAS PUT INTO THIS HOLE DEEP ENOUGH TO REACH THE WATER TABLE, WHICH WAS 8' DOWN.**



**THE POST THEN SPROUTED AND GREW. THIS IS THE SAME POST 9 MONTHS LATER, NO IRRIGATION WAS USED.**



**THE CHANNEL BANKLINE 2 MONTHS AFTER WE PLANTED SEED, BARE POLE WILLOWS AND PLUGS OF WETLAND PLANTS, APRIL 2006.**



**SAME PHOTO IN AUGUST 2006.**



**THE IBIS LAKE MARSH AREA DURING CHANNEL EXCAVATION, NOVEMBER 2005.**



**IBIS LAKE MARSH, APRIL 2007.**



**NATIONAL FISH AND WILDLIFE REVEGETATION AFTER CLEARING AND PLANTING, APRIL 2006.**



**SAME SITE, MAY 2007.**

**THROUGH THE USE OF THE INLET AND OUTLET WATER CONTROL STRUCTURES WE ARE ABLE TO MANAGE WATER LEVELS AND MIMIC FLOOD CONDITIONS IN THE YEW BY STORING AG DRAIN AND HIGH RIVER WATER ENTERING THE WETLANDS.**



**MARCH 18, 2007 8 AM., RIVER FLOWING AT 300 CFS**



**MARCH 19, 2007 8AM., RIVER FLOWING AT 2000 CFS FOR 12 HOURS**

# CULTURAL CONNECTIONS



**THE LATE ELMER EMERSON, ALWAYS GREETED FESTIVAL GOERS WITH OPEN ARMS AND AN OPEN DOOR TO HIS FAMILIES HOME. ELMER'S SPIRIT WILL BE MISSED BUT NOT FORGOTTEN. HE TRULY BELIEVED THAT THE RIVER WAS SOMETHING FOR EVERYBODY.**

**FOR THE LAST 6 YEARS THE EMERSON'S, A PROMINENT FAMILY ON THE QUECHAN RESERVATION, HAS HOSTED OVER 200 STUDENTS AT THEIR HOME FOR A SWEAT LODGE AND STORYTELLING AT THE ANNUAL QUECHAN YOUTH CULTURAL FESTIVAL. A FESTIVAL HOSTED BY THE QUECHAN INDIAN TRIBE, THE CITY OF YUMA AND THE YUMA CROSSING NATIONAL HERITAGE AREA. THE FESTIVAL INCLUDES CONSERVATION PROJECTS IN THE WETLANDS, EDUCATIONAL TALKS, A COMMUNITY FEAST, CULTURAL ENTERTAINMENT AND MUSIC. HOPEFULLY IT WILL CONTINUE FOR GENERATIONS!**



**STUDENTS FROM REGIONAL AND LOCAL UNIVERSITIES GATHER WITH QUECHAN AND YUMA COMMUNITY MEMBERS TO PLAN THEIR MORNING CONSERVATION PROJECTS AT THE FESTIVAL.**



# **WATER CONSERVATION**

**THE CITY OF YUMA PAID ONE MILLION DOLLARS TO CONSTRUCT A PIPELINE THAT DELIVERS ONE ACRE FOOT OF CLEAN WATER TO THE YEW EVERY DAY. THIS IS RECYCLED WATER USED TO CLEAN THE SAND FILTERS IN THE YUMA WATER TREATMENT PLANT, OTHERWISE CALLED DECANT WATER. THIS LOW SALT “SWEET WATER” IS CRITICAL TO RESTORING MARSH HABITAT IN THE YEW.**





**DECANT WATER DISCHARGE AREA, MARCH 2005.**



**DECANT WATER DISCHARGE AREA, SEPTEMBER 2007.**

**THE FOLLOWING THREE PICTURES ARE A SERIES OF RESTORATION PICTURES  
IN THE QUECHAN MARSH; NOVEMBER 2005, MARCH 2006 AND AUGUST  
2006. FROM SALT CEDAR TO BULRUSH MARSH IN UNDER A YEAR.**



# **AERIAL VIEW OF TWO YEAR OLD YEW RESTORATION, MAY 2007**



# Project Accomplishments 2000-2007

- **CONTINUED STRONG PROJECT PARTNERSHIP**
- **7 MILLION IN GRANT FUNDS SECURED**
- **OVER 150 ACRES RESTORED TO DATE**
- **OVER 150 ACRES OF ADDITIONAL RESTORATION UNDERWAY**
- **INTENSIVE BIOLOGICAL MONITORING IN PROGRESS**
- **BIRD POPULATION IN WETLANDS HAS DOUBLED IN UNDER ONE YEAR, SPORT FISHING IS EXCEPTIONAL.**
- **NEWLY DEVELOPED REVEGETATION TECHNIQUES OUT COMPETING EXOTIC PLANTS.**
- **PROJECT HAS REDUCED ILLEGAL CRIME IN THE YEW AND IS ASSISTING LAW ENFORCEMENT AND BORDER PROTECTION EFFORTS IN THE YUMA AREA**
- **ENTIRE YUMA COMMUNITY WELL ENGAGED IN PROJECT, INCLUDING VOLUNTEER EVENTS, RECREATION AND FESTIVALS.**
- **ONGOING RECREATION, EDUCATION AND CONSERVATION PROGRAMMING**
- **THE PROJECT HAS PRODUCED OVER 150 FULL AND PART TIME JOBS OVER THE LAST 7 YEARS FOR LOCAL RESIDENTS, CONTRACTORS AND CONSULTANTS. OVER 7 MILLION IN LOCAL ECONOMIC IMPACT.**
- **THE PROJECT IS SERVING AS A LIVING MODEL FOR COMMUNITY RESTORATION. TRIBES, AGENCIES, POLITICIANS AND CONCERNED CITIZENS FROM ALL OVER THE UNITED STATES AND ABROAD ARE NOW VISITING YUMA TO LEARN FROM THE PROJECT AND SHARE THEIR ADVICE AND WISDOM.**

# EDUCATION AND EVENTS

THE PROJECT TEAM ALSO ORGANIZES VOLUNTEER PLANTING DAYS, EDUCATIONAL WORKSHOPS AND SCHOOL EDUCATION IN THE YEW PROJECT.

EVERY YEAR THE PROJECT HOSTS AN INTERNATIONAL YOUTH CULTURAL FESTIVAL AND THE YUMA BIRDING FESTIVAL.



## **GROUNDBREAKING SCIENCE**

**THE YEW RESTORATION PROJECT HAS BEEN A LEADER IN DEVELOPING INNOVATIVE TECHNIQUES AND DESIGNING NOVEL EXPERIMENTS TO CONDUCT GROUND-BREAKING SCIENCE FOR THE BURGEONING FIELD OF RESTORATION ECOLOGY. THIS PROJECT INTIMATELY INTEGRATES SCIENTIFIC RIGOR IN ALL STAGES OF A RESTORATION PROJECT, INCLUDING: VEGETATION DESIGN, RESTORATION TECHNIQUES, AND PROJECT SUCCESS MONITORING. SCIENTIFIC STUDIES AND MONITORING AT THE YEW ARE DESIGNED TO COMPLIMENT REGIONAL AND NATIONAL RESTORATION EFFORTS.**



# **CURRENT RESEARCH UNDERWAY**

- **EXPERIMENTAL PLANTING WITH SALT TOLERANT WETLAND/RIPARIAN PLANTS**
- **EXPERIMENTAL PLANTINGS WITH A VARIETY OF BIOENGINEERING TECHNIQUES THAT WILL REQUIRE NO IRRIGATION. (WILLOW BUNDLES, POSTS, TRENCHES)**
- **ONGOING NATIVE SEED COLLECTION PLAN AND COLLECTION PROGRAM**
- **FUTURE FLOODING (USING WATER CONTROL STRUCTURES) OF AREAS ADJACENT CHANNEL AND MONITORING OF WATER QUALITY**
- **YEARLY BIRD SURVEYS (INCLUDING NON YCRA/WIFL SEASONS)**
- **ONGOING PLANT MONITORING, WATER QUALITY AND PHOTOMONITORING**



## **THE BIRDS RETURN!!!!**

**THE MOST COMPELLING SUCCESS STORY OF THE YUMA EAST WETLAND PROJECT IS THE RETURN OF THE BIRD LIFE TO THE AREA.**

**IN THE LAST TWO YEARS THE BIRD DENSITY IN THE YEW HAS DOUBLED AND THE DIVERSITY IS UP SEVENTY FIVE PERCENT. WE NOW HAVE RESIDENT YUMA CLAPPER RAILS (AN ENDANGERED SPECIES) . SOME OF THE MOST NOTABLE SPECIES OBSERVED FEEDING AND FINDING REFUGE AT THE SITE INCLUDE GROUPS OF RETURNING WHITE-FACED IBISES, THE SITE'S FLAGSHIP SPECIES. GREAT EGRETS, BLACK RAILS, LONG BILLED SAVANNAH SPARROWS, CORMORANTS, SNOWY EGRETS, LEAST BITTERNs, KILLDEER, BLACK NECKED STILTS, AND GREATER YELLOWLEGS HAVE ALL RETURNED AND USED THE AREA FOR NESTING, FEEDING, WINTERING AND REFUGE. THE RECOVERING BIRD COMMUNITY AT IBIS LAKE IS TELLTALE TO THE SUCCESS OF THIS MONUMENTAL RESTORATION EFFORT FOR HEALING THE WOUNDS, RESTORING BALANCE TO THE NATIVE ECOSYSTEM, AND BRINGING BACK THE WHITE-FACED IBIS. PICTURES ON THE NEXT PAGE INCLUDE JUST A FEW OF THE BIRDS WE HAVE PHOTOGRAPHED IN THE YEW IN THE LAST TWO YEARS!**





**FROM A FORGOTTEN WASTELAND**



**TO A BEAUTIFUL WETLAND!!!**



# ACKNOWLEDGEMENTS

**WITH SPECIAL THANKS TO SENATOR JON KYL AND SENATOR JOHN MCCAIN  
AND CONGRESSMAN ED PASTOR AND CONGRESSMAN RAUL GRIJALVA.  
WITHOUT THERE SUPPORT THE YUMA EAST WETLANDS WOULD NOT BE**

## **POSSIBLE**

**WITH SPECIAL THANKS TO THE YUMA EAST WETLANDS SPONSERS  
SUPPORTERS AND PARTICIPANTS**

**QUECHAN INDIAN TRIBE  
CITY OF YUMA  
YUMA CROSSING NATIONAL HERITAGE AREA  
US BUREAU OF RECLAMATION  
ARIZONA WATER PROTECTION FUND  
NATIONAL PARK SERVICE  
NATIONAL FISH AND WILDLIFE FOUNDATION  
NORTH AMERICAN WATERFOWL CONSERVATION  
ASSOCIATION  
SONORAN JOINT VENTURE  
ENVIRONMENTAL DEFENSE  
WALTON FAMILY FOUNDATION  
ARIZONA GAME AND FISH DEPARTMENT  
BUREAU OF LAND MANAGEMENT  
US FISH AND WILDLIFE SERVICE  
YUMA FARM BUREAU  
ARIZONA WESTERN COLLEGE  
CAL STATE LOS ANGELOS  
UNIVESRITY OF REDLANDS  
NORTHERN ARIZONA UNIVSERITY  
US BORDER PATROL  
JOHN MCAIN  
YUMA COUNTY  
BILL OGRAM  
HEADSTREAM FAMILY  
MCKVEY FAMILY  
YUMA CLEAN AND BEAUTIFUL COMMISSION  
BOY SCOUTS OF AMERICA**

**YUMA ROD AND GUN CLUB  
MATTHEW SPRIGGS  
KEVIN EATHERLY  
TINA CLARK  
ALI BEICHLER  
HERB GUENTHER  
THE YARD DOGS ROAD SHOW  
KEITH SECOLA AND THE WILD JAVALINS  
THUNDERBIRD  
VLA PROJECT  
696 PROJECT  
DRIFTWOOD**

## **PROJECT CONTRACTORS**

**FRED PHILLIPS CONSULTING, LLC (LEAD CONSULTANT)  
PG&E CONSTRUCTION  
TAYLORBIRD ENTERPRISES  
STEVENS ECOLOGICAL CONSULTING  
SHEPPARD WESNITZER ENGINEERING  
NATURAL CHANNEL DESIGN  
E JOE HUDSON CONSULTING  
ECOSYSTEMS MANAGEMENT INT.  
JSA Inc.  
REVEGETATION AND WILDLIFE  
MANAGEMENT CENTER  
SOUTHWEST RECYCLING  
SOUTHWEST RECYCLING  
DOWNRIVER PRODUCTIONS  
WATER TECH AG SUPPLY  
EL PATO NURSERY**