

Wildlife Research Update at the Yuma East Wetlands

By:

Heidi Trathnigg
Fred Phillips Consulting, LLC



Yuma East Wetlands Restoration

- 936 acres proposed
- Goal to restore wildlife habitat
- Evaluate wildlife recovery
 - Birds
 - Invertebrates
 - Mammals
 - Amphibians & Reptiles
 - Fish





 **Fred Phillips Consulting, LLC**
 401 SOUTH LEROUX STREET
 FLAGSTAFF, AZ
 86001
 TEL 928 773 1530
 FAX 928 774 4166
 Ecosystem Restoration Land Planning

PREPARED FOR:
 YUMA CROSSING
 NATIONAL HERITAGE
 AREA

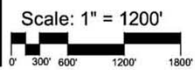
REV.	COMMENT	DATE

CITY OF YUMA

FIGURE 3
 YUMA EAST WETLANDS
 PHASE LINES & ACREAGE

YUMA, ARIZONA

SHEET TITLE :
 YEW BOUNDARY



DATE: MARCH 5th, 2010
 JOB NO.:
 DRAWN BY: JF
 DESIGNED BY: FOP/DB
 CHECKED BY: FOP



FIGURE 3

Baseline Study (2007- 2008)

Birds

- 12 points per habitat
- Surveyed 6 times for 2 years
- Fixed radius point count

Invertebrates

- 3 sampling sites per habitat
- Surveyed 3 times for 2 years
- Malaise, spot and black light

Herpetofauna

- 3 sampling sites per habitat
- Surveyed 4 times for 1 year
- Drift fence and pit trap

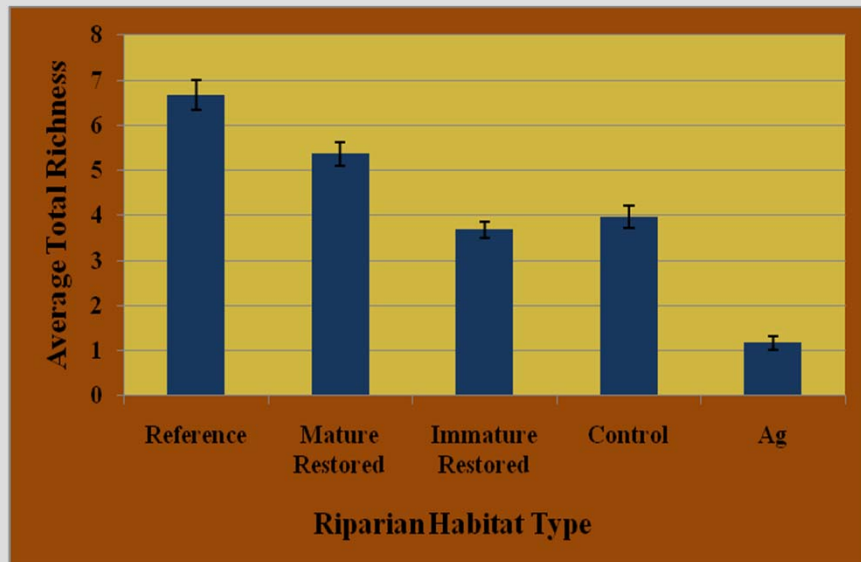
Mammals

- 3 sampling sites per habitat
- Surveyed 4 times for 1 year
- Drift fence and pit trap



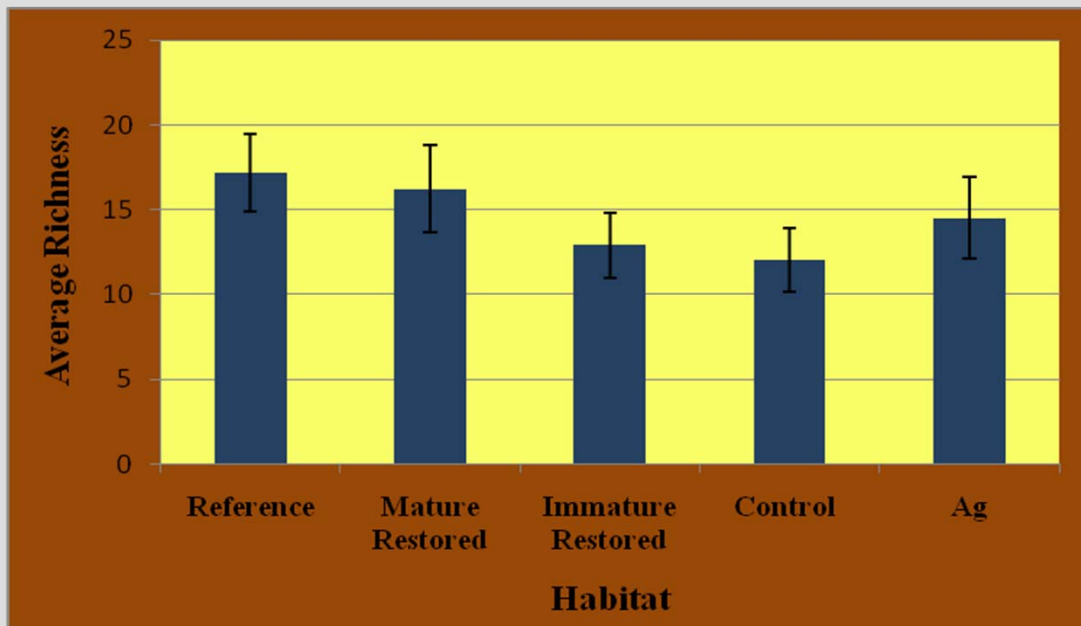
Bird Results

- Reference sites had significantly higher richness and abundance
- No difference between immature restored and control sites



Invertebrate Results

- No difference between habitats
- Some butterfly species only found in reference and mature riparian habitats
- Large scope not enough detail



Herpetofauna and Mammal Results

Herpetofauna

- Control and mature restored sites had highest abundance and richness
- Need to more time to re-colonize site



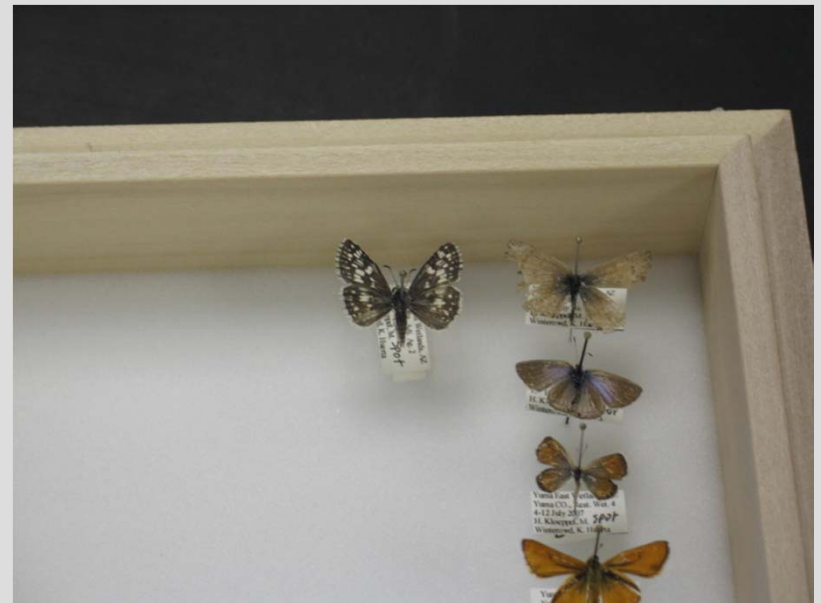
Mammals

- Small mammal abundance highest in control sites
- No difference in richness
- Need more time to re-colonize site



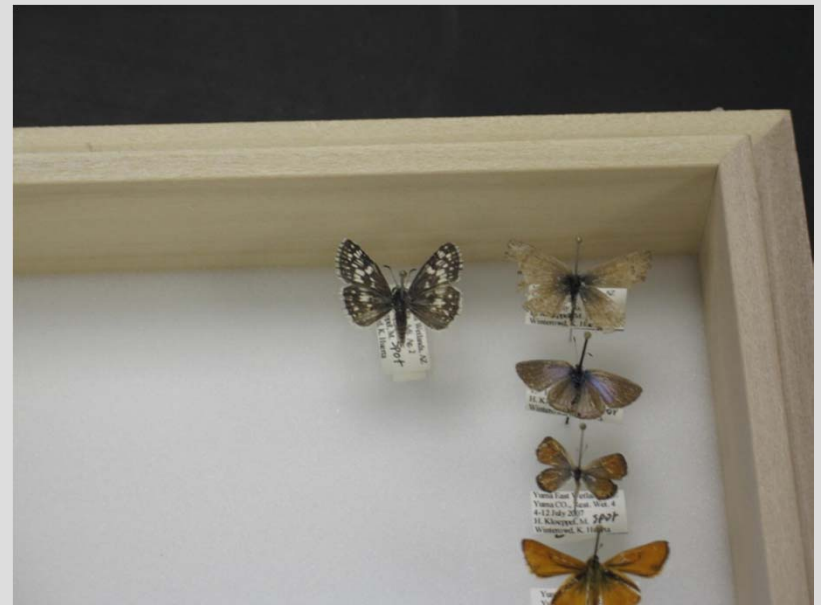
Research Need

- **Avifaunal Community**
 - Quickly re-colonize restored areas (Passell 2000, Gardali et al. 2006)
 - Habitats have matured
- **Butterfly Community**
 - Quickly re-colonize restored areas
 - Good indicators of herbaceous community health (Scoble 1992)
 - Easy to identify quickly
- **Determine beneficial habitat characteristics**
- **Control verses Restored Sites**



2011 Research

- Avifaunal Community
- Butterfly Community
- Evaluate habitat quality, nesting habitat and nectar resources
- Control verses Restored Sites



Hypothesis

We hypothesize that avifaunal and butterfly richness and abundance will be different in restored riparian and wetlands habitats than control habitats dominated by invasive species.



Objectives



- **Compare richness and abundance of avifauna and butterflies in restored versus control wetland and riparian habitats.**
- **Compare restored versus control riparian and wetland habitat quality, nesting habitat and nectar resource availability.**
- **Develop performance standards to optimize wetland and riparian restoration efforts on the lower Colorado River.**

Methods



Riparian Habitats

- Avifaunal
- Butterfly
- Habitat characteristics
- Nectar resources

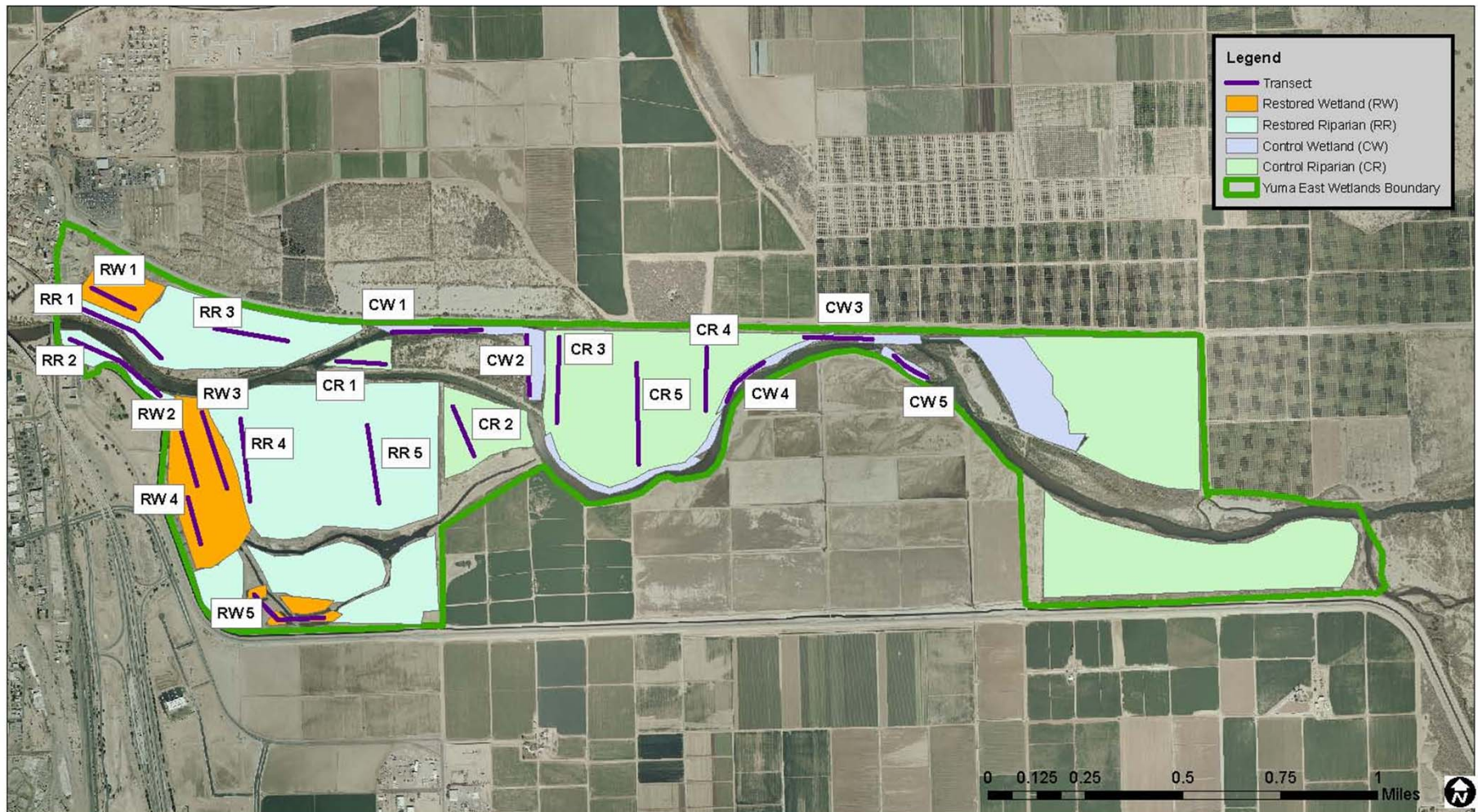


Wetland Habitats

- Avifaunal
- Habitat characteristics



Proposed Research Sites



Prepared By: Fred Phillips Consulting, LLC

401 S. Leroux Street
Flagstaff, AZ 86001
928-773-1530

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 Landholders

Prepared For: Yuma Crossing National Heritage Area

Riverfront Development Office
180 W. First Street, Suite E
Yuma, AZ 85364

Figure 2: Monitoring Locations

FY 2011 AWPf Research Proposal Avifauna and
Butterfly (Lepidoptera) Recovery in Restored
Wetland and Riparian Habitats

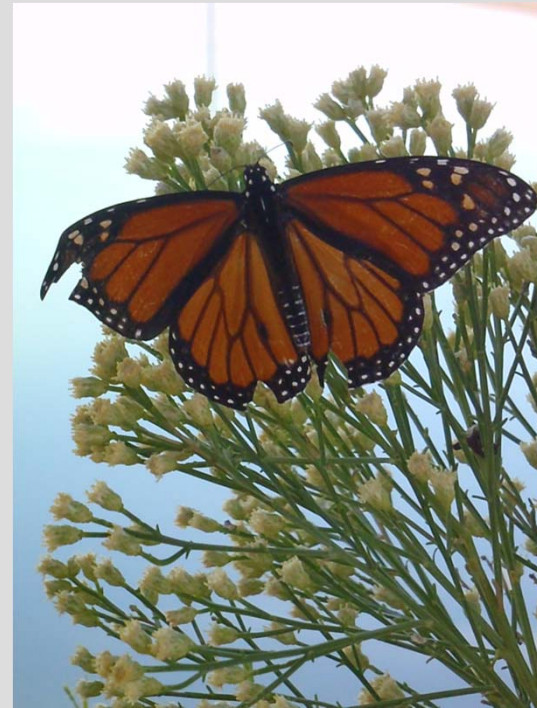
Avifaunal Sampling

- 6 times during breeding season (March-July)
- 5 plots per habitat (20 total)
- Variable circular plots and area searches (Reynolds et al. 1980)
- Comparable to past research



Butterfly Sampling

- 4 times (May-September)
- Focus on riparian habitats
- 5 transects per habitat (10 total)
- Overlap with avifaunal transects
- Timed searches



Habitat and Nectar Resource Sampling

- **Habitat Characteristics**

- 3 times (March- September)
- Butterfly host plant frequency and abundance (10 species)
- 15 randomly selected plots
- Point intercept method (every 0.5m)

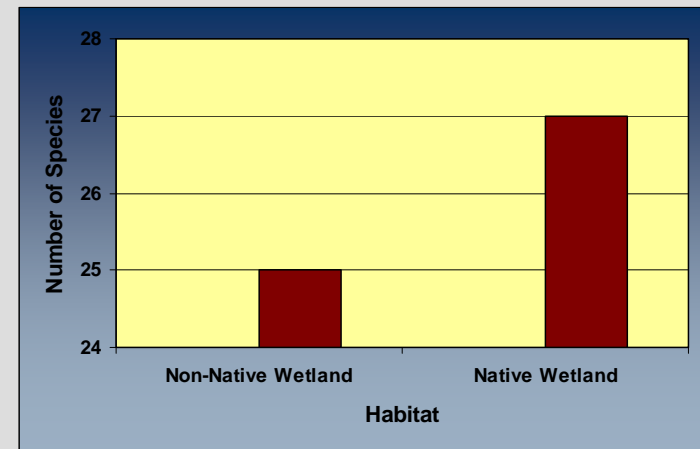
- **Nectar Resources**

- 3 times (April- September)
- 4m diameter plots every 10m along transect
- Tally blooming flowers by species



Data Analysis

- Abundance, density, composition, richness, and distribution
- Compare restored and control
 - Ordination- determine similarity
 - ANOVA and linear regression- determine site differences
 - Correlate habitat characteristics and nectar resources to richness and abundance
- Evaluate the recovery of community structure and function



Results

- Determine success of restoration activities on wildlife recovery over time.
- Provide information to evaluate and adjust restoration practices and determine if goals are being met.
- Provide YCNHA with more detailed information on their avifaunal and butterfly communities.
- Results prepared for publication and presentations.

