

The Effects of Restoration on Wildlife Community Recovery

By:

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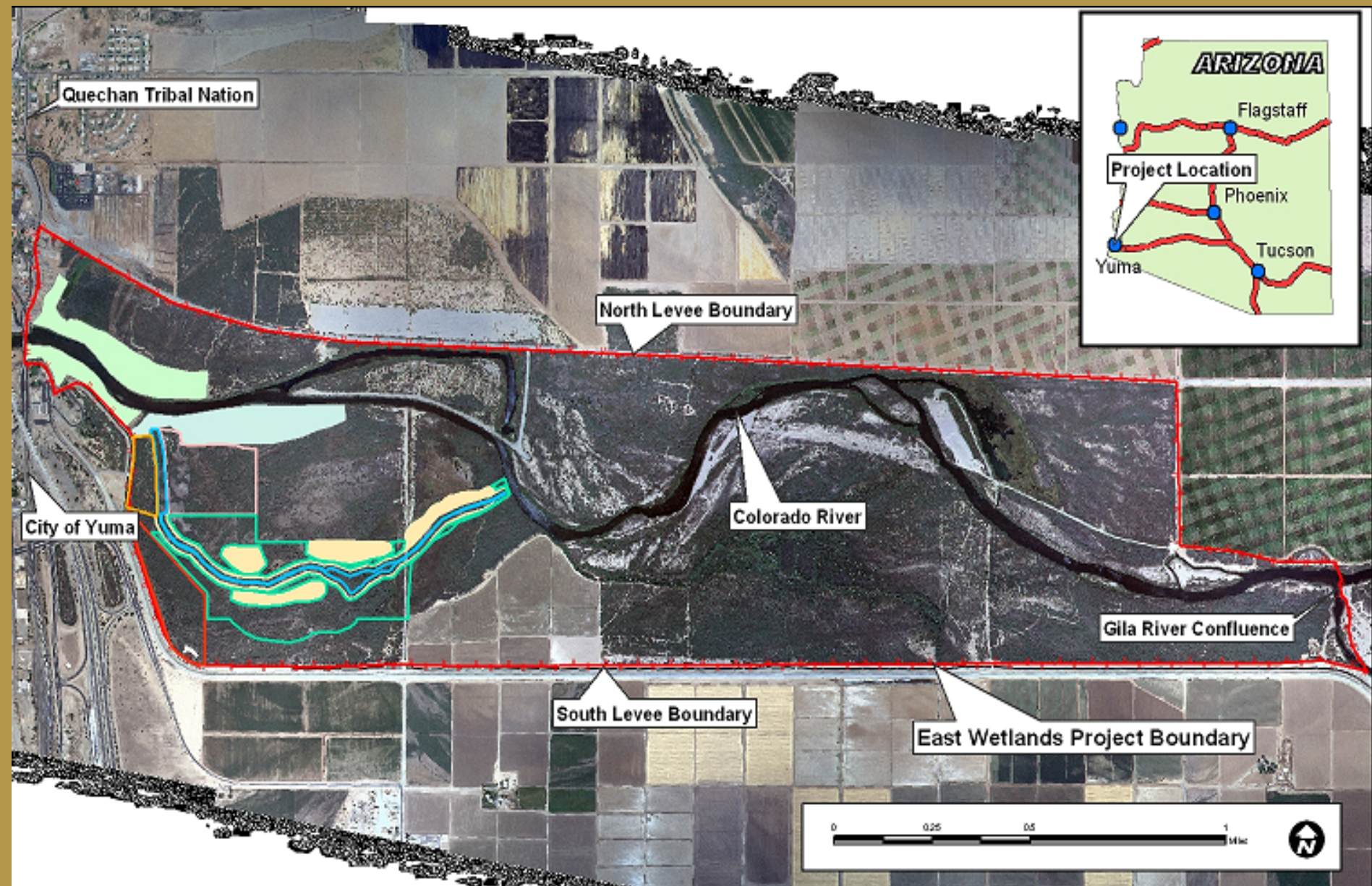
Fred Phillips Consulting, LLC



Yuma East Wetlands Restoration

- **YEW Restoration Plan 2001**
- **18 stakeholders**
- **1,418 acres proposed**
- **Primary goal to recover wildlife**
- **Currently, over 350 acres of restoration**







Research Need

- Restoration is relatively new management approach
- Determine if the current restoration methods are obtaining the goals
- Urgent need to provide information to evaluate and adjust restoration practices
- Need for community studies



Hypothesis

We hypothesize that as riparian and wetland areas are restored to their historical native condition, wildlife diversity, community structure, including the presence of species of concern, will recover to mimic those found in target reference habitats.



Objectives

- Evaluate the response of wildlife community structure and diversity to different stages of riparian and wetland restoration.

Compare and contrast the wildlife community in restored wetland and riparian habitats to control sites, reference sites, and agricultural lands.

- Propose modifications to restoration techniques to optimize wetland and riparian restoration efforts for wildlife species on the lower Colorado River.



Methods



Riparian Habitats



Wetland Habitats



Adjacent Agricultural Land



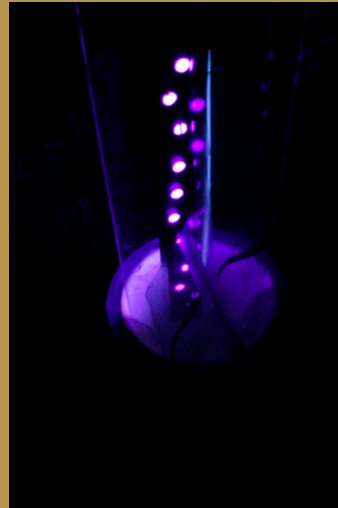
Avifaunal Monitoring

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



Invertebrate Research

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



Herpetofaunal Research

- 3 stations per each habitats
- 4 times per year for one year
- Drift fence and pit trap



Mammalian Research

- Sampled 4 times a year for one year
- 3 transects, 25 traps per transect
- Mammal signs and observation



Vegetation Mapping

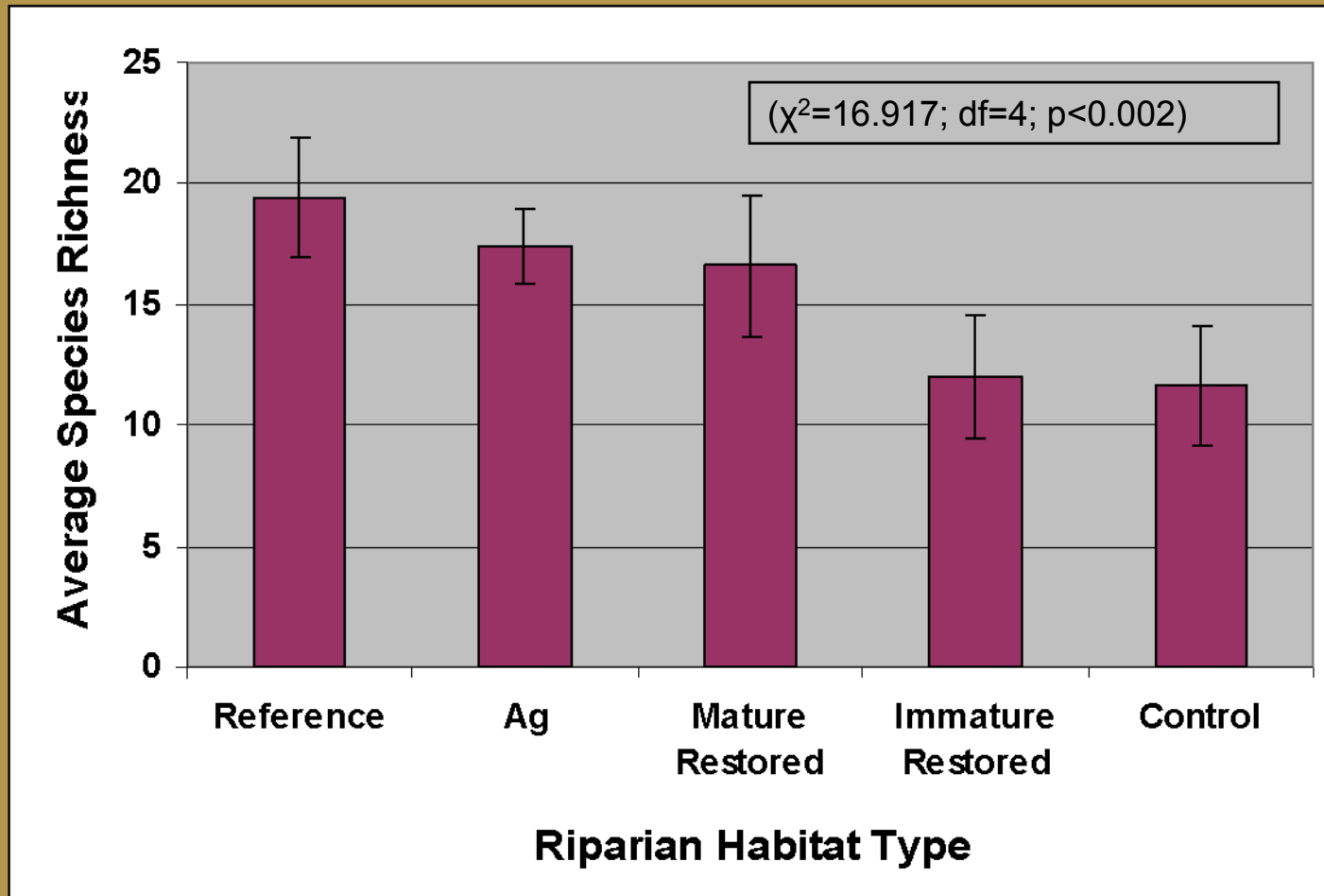
- Conducted at wildlife research stations (24)
- 15 random locations
- Habitat area
- Total vegetation volume, foliar height diversity, species richness, habitat diversity



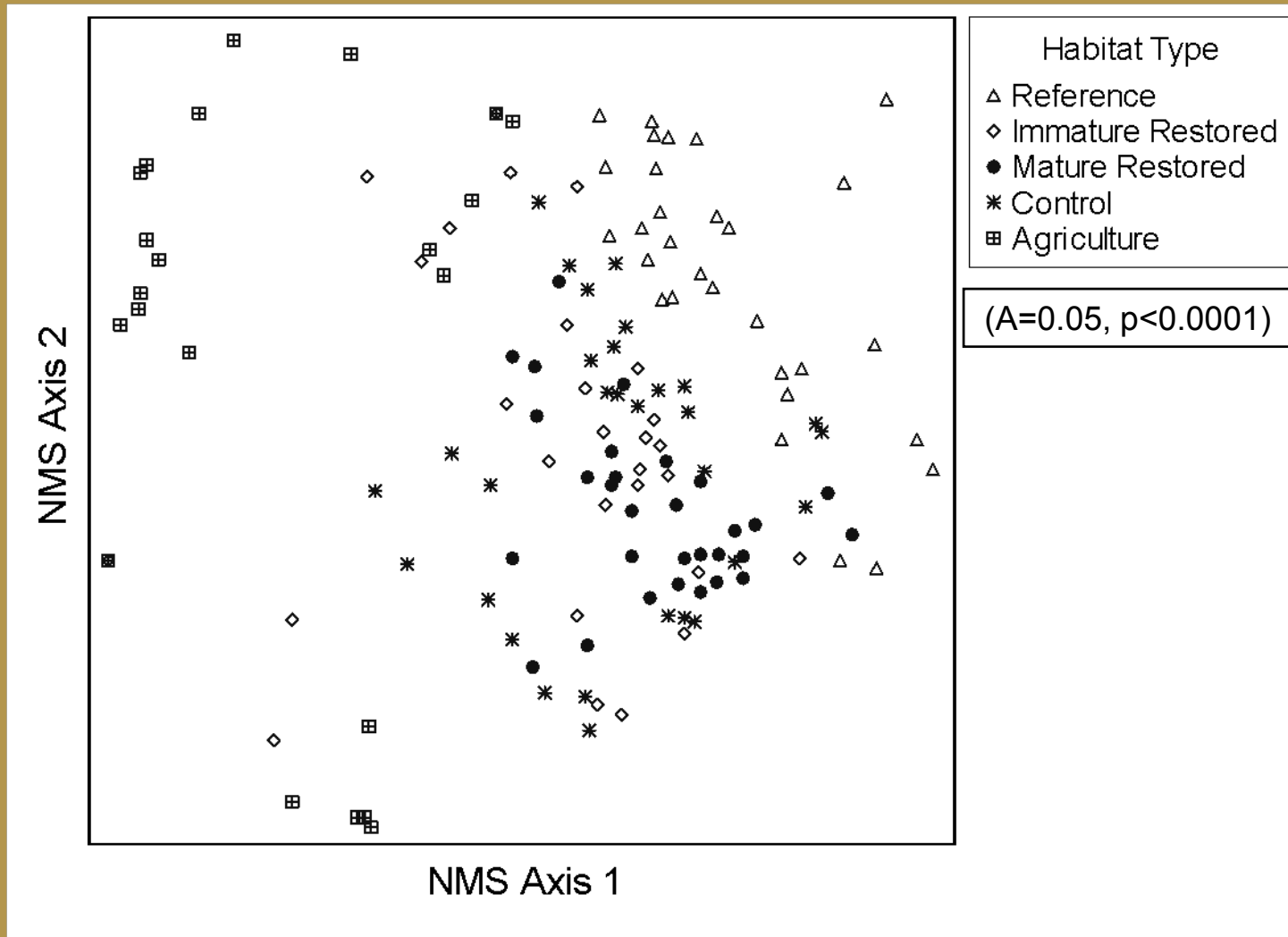
Data Analysis

- Non-parametric Multi-response Permutation Procedure (MRPP)
 - Sørensen Distance
 - NMS Ordination
- Indicator Analysis
 - Monte Carlo Randomization
- Kruskal-Wallis non-parametric analysis of variance
 - Nemenyi test
- Linear Regression

Invertebrate Richness



Avian Species Composition



Preliminary Results

- Invertebrate richness similar in Restored and Reference Riparian
- Avifaunal species composition similar in Restored and Reference Riparian
- Avifaunal species of concern using restored habitats



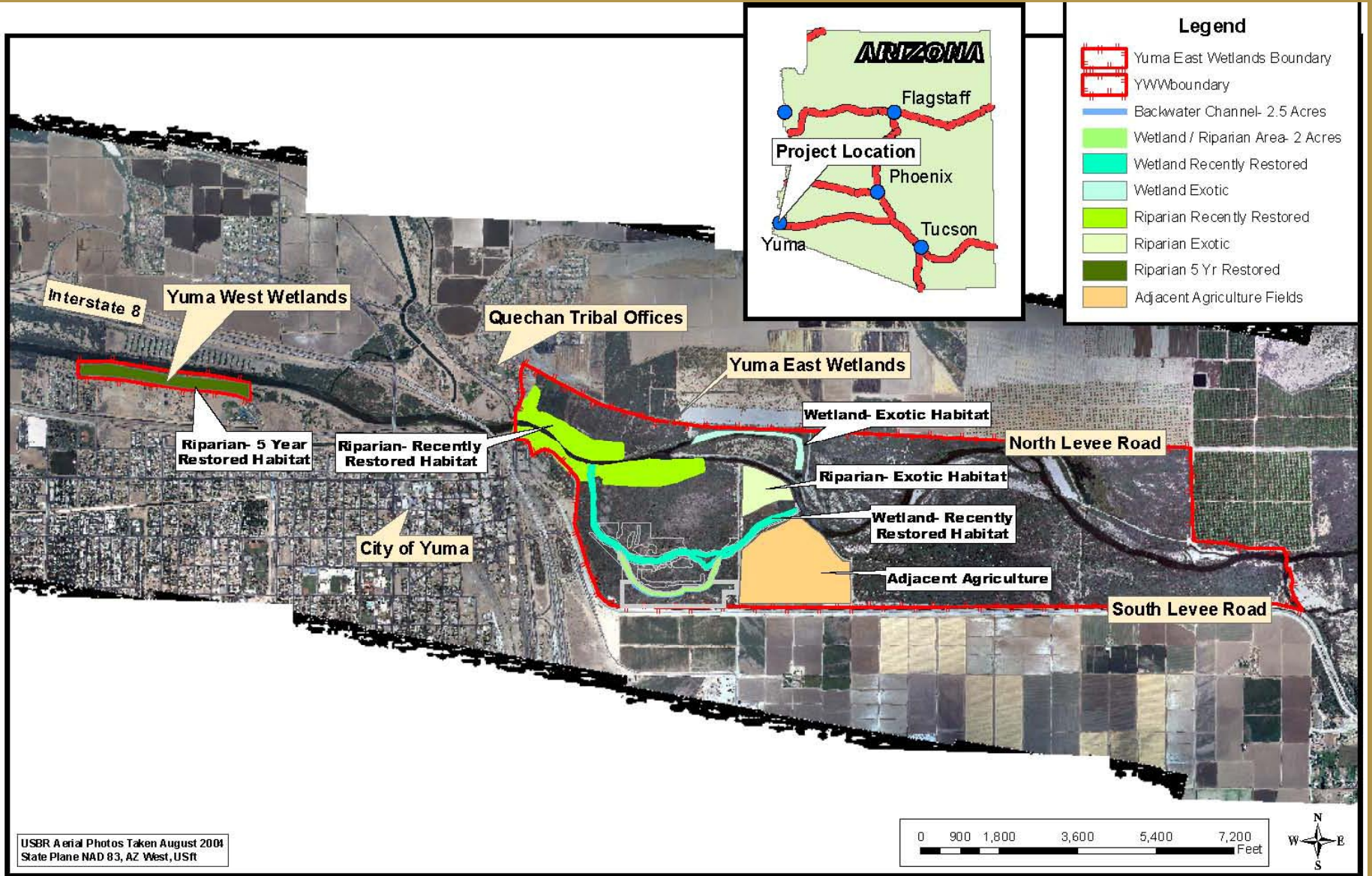
Further Analyses

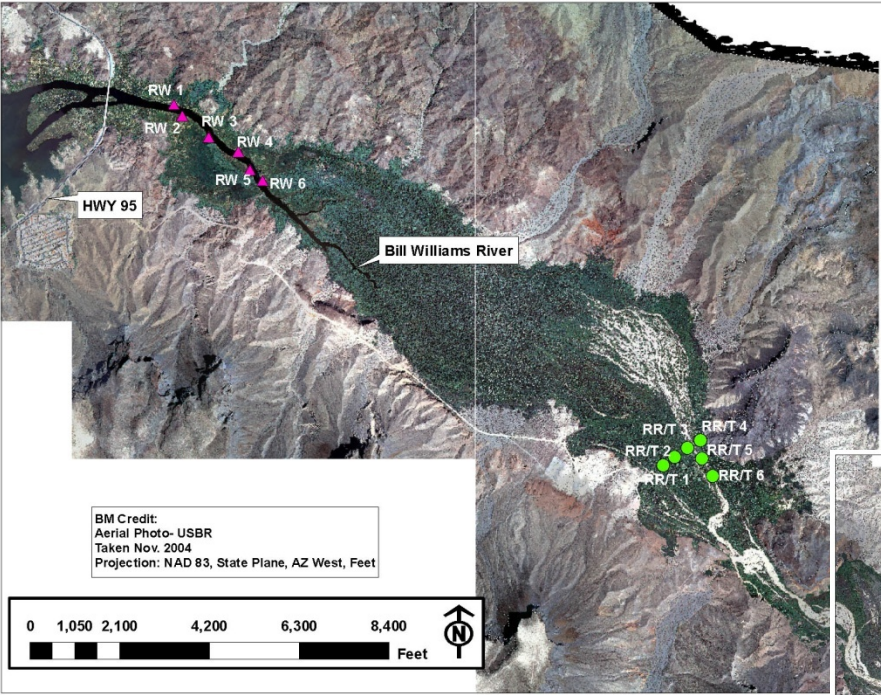
- Analyze herpetofaunal and mammalian data
- Define habitat patch size
- Relationship between wildlife richness and density and habitat quality
- MRPP for invertebrates



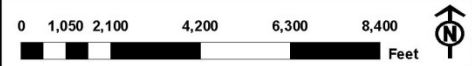


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Lin Piest





BM Credit:
Aerial Photo- USBR
Taken Nov. 2004
Projection: NAD 83, State Plane, AZ West, Feet



Legend
▲ BW REF RIP pt

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Taken Nov. 2004
Projection: NAD 83, State Plane, AZ West, Feet

