

# DISTRIBUTION AND ROOST SITE HABITAT REQUIREMENTS OF WESTERN YELLOW (*LASIURUS XANTHINUS*) AND WESTERN RED (*LASIURUS BLOSSEVILLII*) BATS

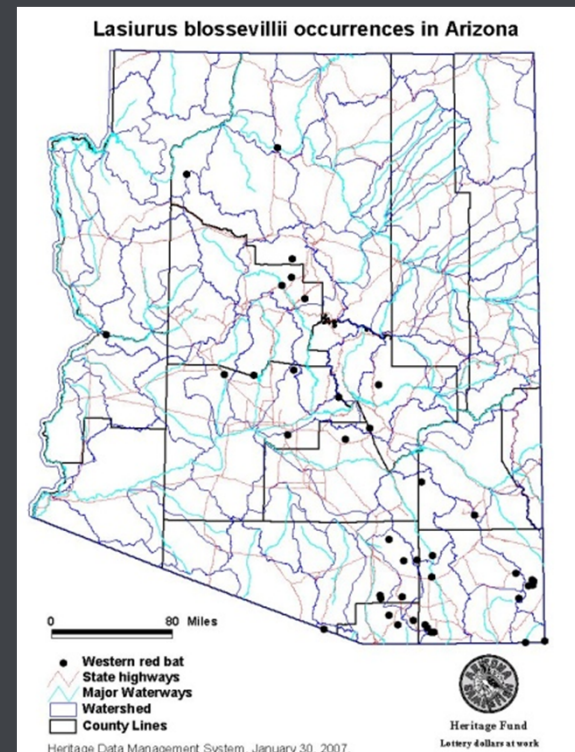
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# Western Red Bat Ecology



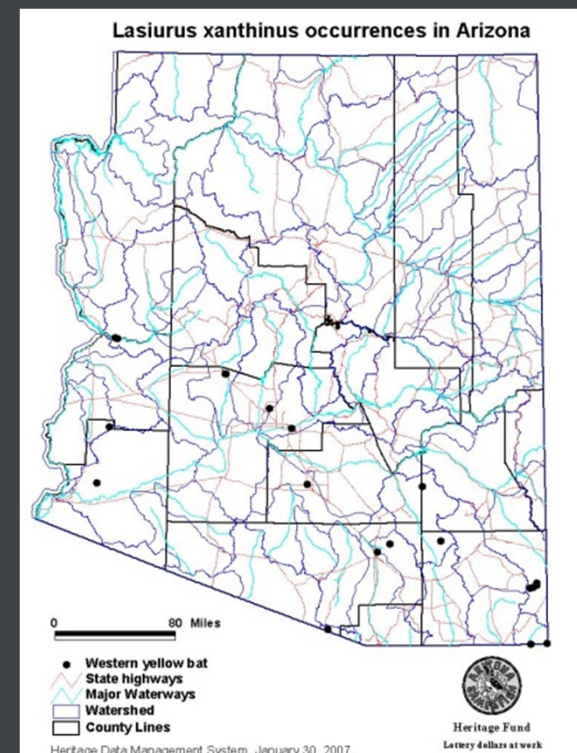
- Riparian
  - cottonwood, oak and sycamore communities
- Foraging
  - Lepidoptera
  - Canopy and understory
- Roosting
  - Foliage
- Distribution
- Migratory
  - Warm season
  - Resident?



# Western Yellow Bat Ecology



- Riparian
  - Palm trees
- Foraging
  - Beetles
- Roosting
  - Foliage (Palm)
- Distribution
- Migratory
  - Warm season





# Research Objectives

1. Locate roost
2. Describe roost
3. Estimate distribution
4. Management guidelines

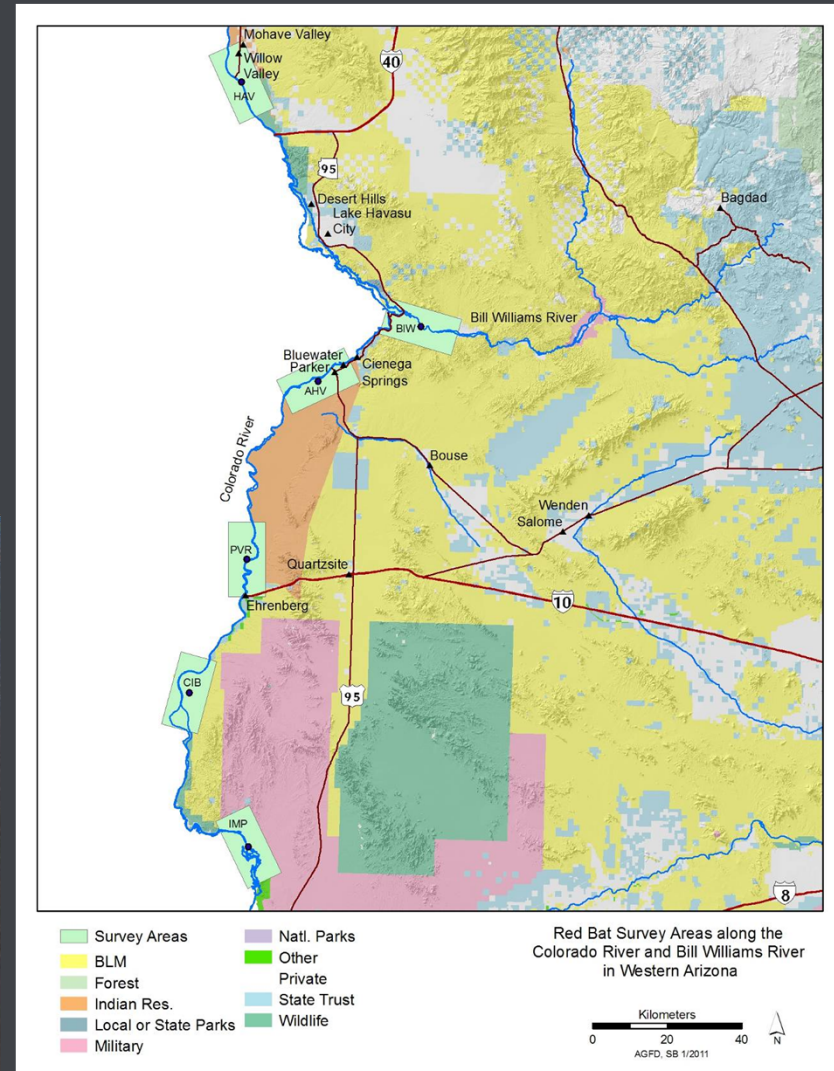


# Study Area (Treatment)



## 5 treatment plots

- Riparian habitat
  - Cottonwood canopy
  - Even-aged stand
  - Little or no understory

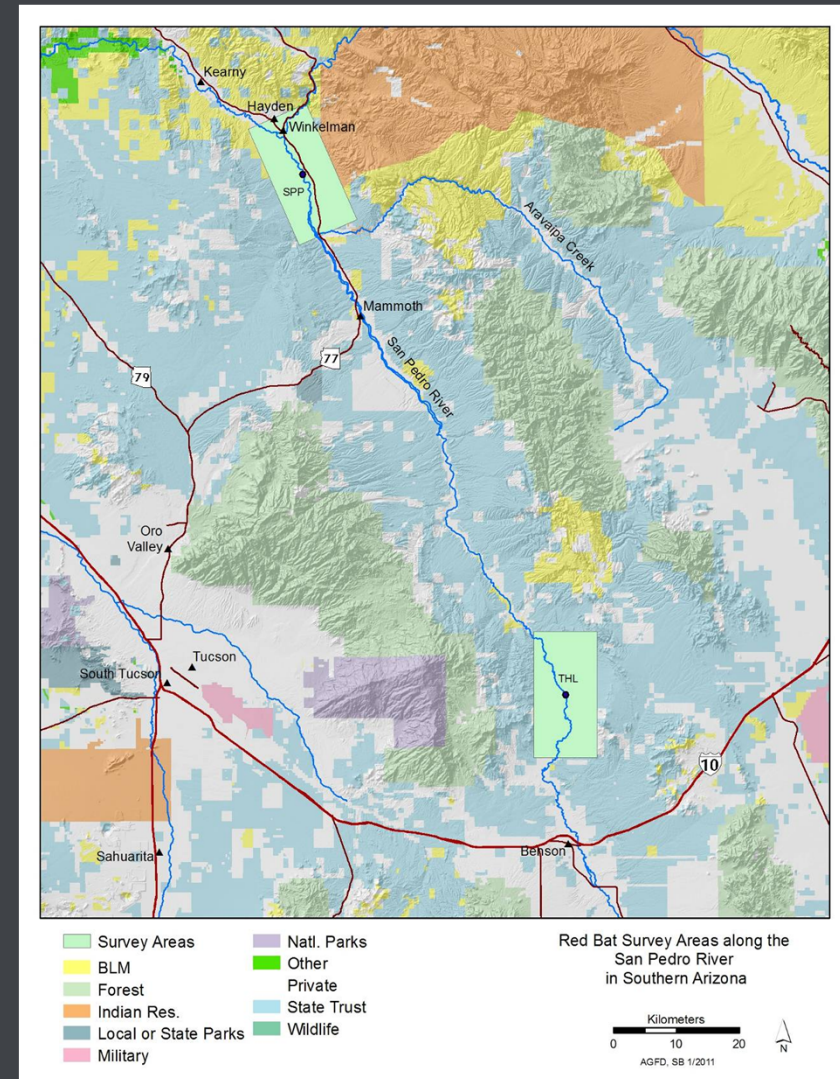
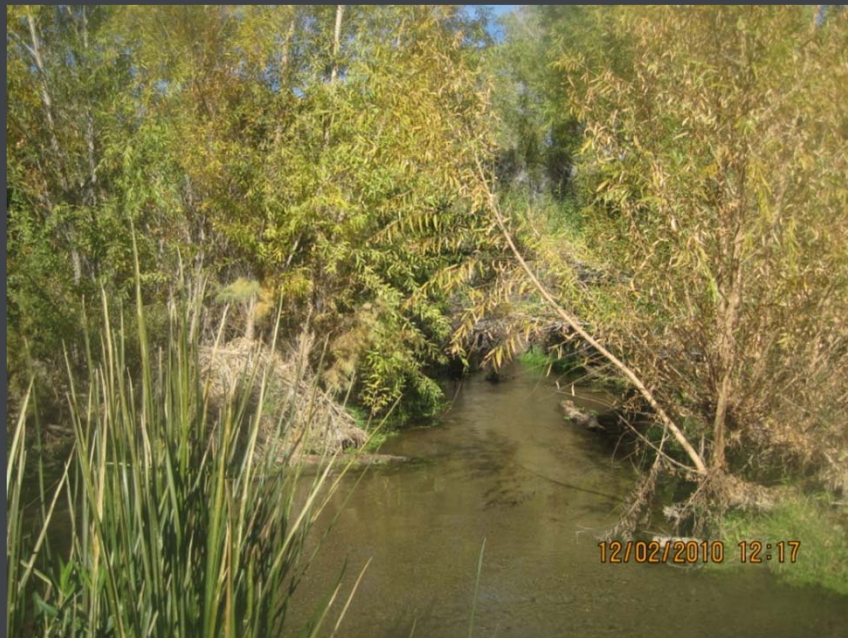




# Study Area (Control)

## 3 Control plots

- Riparian habitat
  - Cottonwood canopy
  - Mixed understory
    - Native
    - Invasive





# Locate Roosts

## Western red bat

- Sampling period
  - Cold season
  - Warm season
- Telemetry
  - 5/20 individuals
- Sampling methods
  - 39m by 7.5m



## Western yellow bat

- Sampling period
  - Warm season
- Telemetry
  - 20 individuals
- Sampling methods
  - 39m by 7.5m





# Describe Roost

## Variables

- tree heights
- Dbh
- canopy cover
- canopy height
- slope
- aspect
- tree roost species
- number of live branches
- dead crown ratio
- foliage condition
- bat roost height
- distance from trunk







# Describe Roost

## Variables

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# Results: Diversity

42 sample days

## Control:

- 17 species
  - Silver-haired bat
  - Mexican long-tongued bat
  - Pocketed free-tailed bat
  - Western small-footed myotis
  - Southwestern myotis

## Treatment:

- 12 species





# Results: Captures

## Western red bat

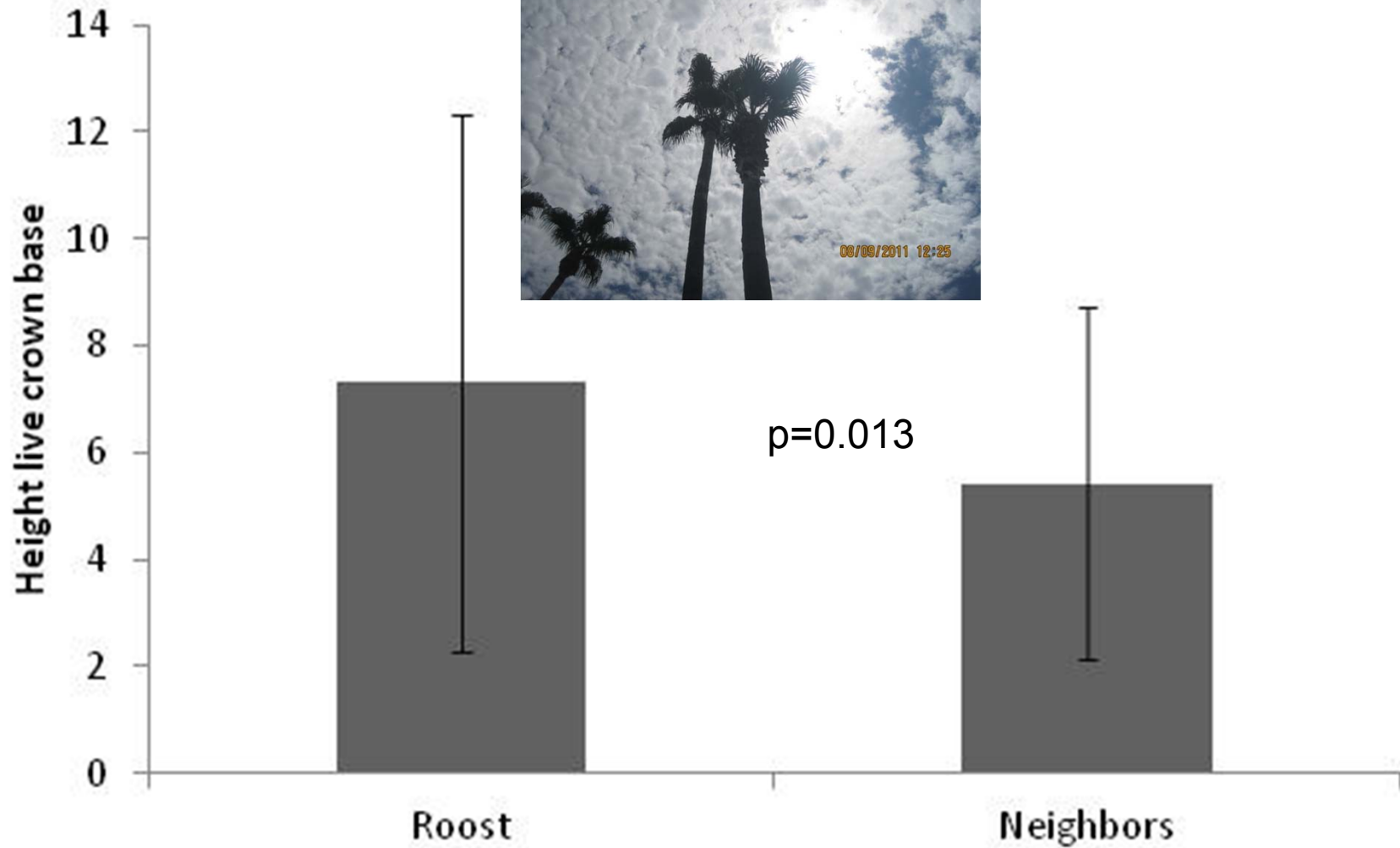
- Cold season
  - 2 bats (Treatment sites)
    - Males
- Warm season
  - 8 bats
  - 5 (Treatment sites)
    - 4 males
    - 1 female
  - 3 (Control sites)
    - 2 females
    - 1 post-lactating (9.5g)

## Western Yellow bat

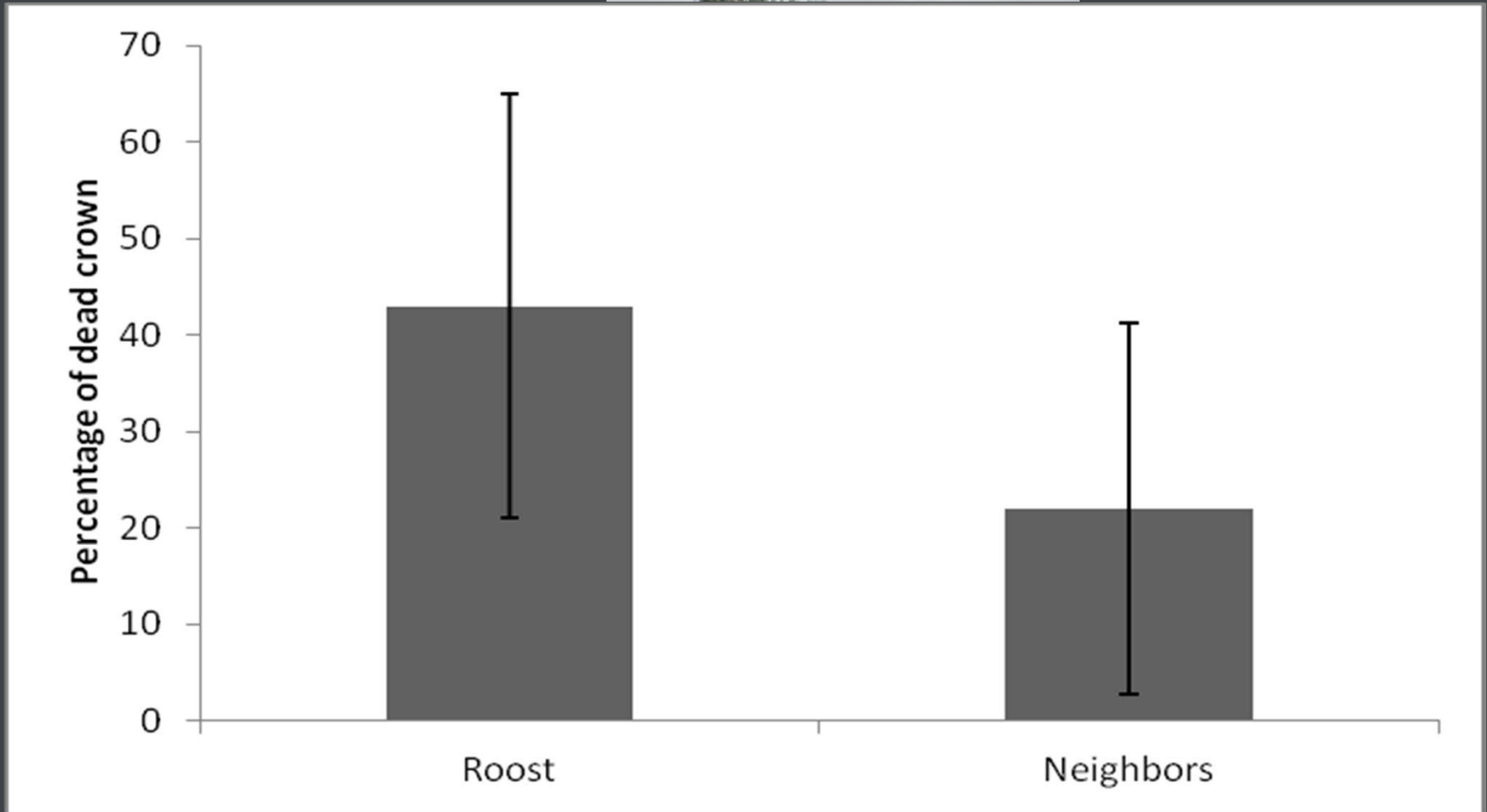
- 10 bats
- 8 (treatment sites)
  - 6 female
    - 1 manifest destiny
  - 2 male
    - 1 male flightless
- 2 (Control sites)
  - 1 male
  - 1 female



# Western Yellow Bat



# Western Yellow Bat

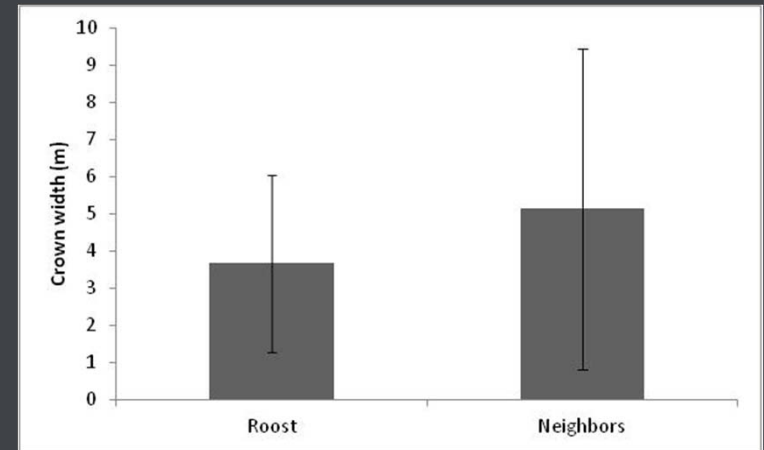




# Western Red Bat

Roost trees *did not* vary significantly from the Neighboring trees.

- Roost tree height ( $p=0.825$ )
- DBH ( $p=0.419$ )
- Height of the base of the live crown ( $p=0.806$ )
- Percent of live crown ( $p=0.342$ )
- Crown width ( $p=0.053$ )





# Discussion

## Western Yellow Bat

- High live crown base
- High Percent dead crown
- Wide and deep dead palm frond skirt
- Selecting for the Tree

## Single scale analysis (Tree)

- Patch
- Landscape



# Discussion

## Western Red Bat

- Canopy
- Patch scale selection
- Eastern Red Bats  
(Higginbotham et al. 2000)

## Single scale analysis (Tree)

- Patch
- Landscape







# Discussion

- ◉ Warm Season
- ◉ Cold Season
  - Males
- ◉ Single scale analysis (Tree)
  - Patch
  - Landscape





# Acknowledgements

- Allen Culvert
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