

# Home Range Sizes of Cactus Wrens (*Campylorhynchus brunneicapillus*) at Arizona State University

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## Introduction

Prior studies into avian home range sizes have primarily looked at home range sizes in relation to habitat use. However, it has yet to be determined how other environmental factors influence these home areas. In this study, we investigate how time of day affects home range size in Cactus Wrens on the campus of Arizona State University.

## Methods

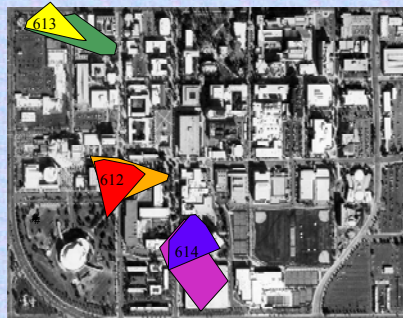
- Five adult Cactus Wrens mist netted in late summer and early fall.
- Fitted with 1.93 g radio transmitters (Holohil Systems Ltd.)
- Birds located 3 times per day for a period of 4 weeks
  - Morning (0645-1115 hrs)
  - Afternoon (1200-1400 hrs)
  - Evening (1600-1845 hrs)
- Bird locations determined visually
- Birds were found at least four hours after previous location to assure independence of points.
- Locations transferred to ArcView GIS 3.1 software
- Home ranges calculated with Adaptive Kernel method (AK) and Mean Convex Polygon (MCP) using ArcView Home Range Extension program.

Average Time Observed	
<b>Bird 612 Male</b>	
	Time observed
Morning	838
Noon	1248
Evening	1705
<b>Bird 613 Male</b>	
Morning	915
Afternoon	1244
Evening	1703
<b>Bird 614 Female</b>	
Morning	821
Afternoon	1248
Evening	1710

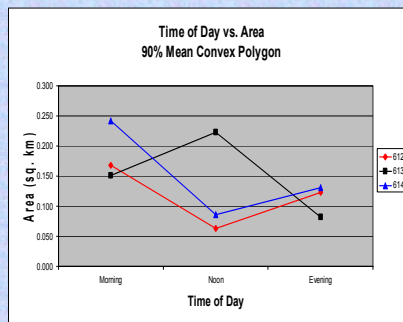
Sex of each bird located and average time that each bird was observed.

## Results

90% Mean Convex Polygon  
Morning vs. Evening

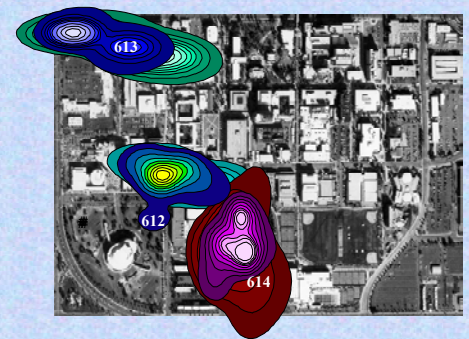


Home ranges of ASU Cactus Wrens in morning and evening using 90% MCP method. Areas on top represent evening home ranges, those underneath represent morning home ranges

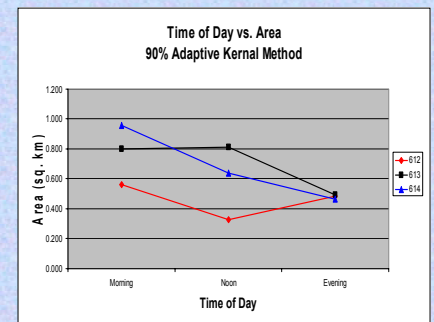


Average home range size decreased 60% from morning to evening using the Mean Convex Polygon method.

90% Adaptive Kernel Method  
Morning vs. Evening



Home ranges of ASU Cactus Wrens in morning and evening using the Adaptive Kernel method. Areas on top represent evening home ranges, those underneath represent morning home ranges.



Average home range area decreased 62.1% between morning and evening using the Adaptive Kernel method.

## Conclusions

- These preliminary results indicate that Cactus Wrens at ASU have larger home range sizes in morning than in evening.
- In the future, time of day should be taken into account when conducting home range and movement studies

## Acknowledgements

Support for this research was provided in part by a grant from the Howard Hughes Medical Institute and the ASU Office of the Provost through the Undergraduate Biology Enrichment Program.