PHOENIX OR TUCSON - DOES LANDSCAPE DETERMINE WHERE ABERT'S TOWHEES CHOOSE TO LIVE?

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INTRODUCTION

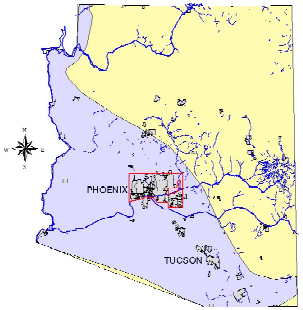
Habitat structure has often been identified as a primary driver of bird distribution in urban areas. We demonstrate how the structure of the regional landscape may override the influence of habitat through a case study of Abert's Towhees (*Pipilo aberti*) in two major urban areas in Arizona: Tucson and the greater Phoenix area.

Abert's Towhee is a common resident bird in the lower Sonoran zone of Arizona. It is highly associated with riparian vegetation, although not restricted to this habitat.

Abert's Towhee

Riparian Habitat

Distribution in Arizona



Studies on bird communities in urban-suburban habitats show that while Abert's Towhee is missing from Tucson, it is a common resident in the greater Phoenix area.

City	Habitat	Birds/4 ha	Source
Tucson	Urban	0.00	Emlen 1974
	Desert	0.00	
Tucson	Urban	0.00	Mills et al. 1989
Tucson	Urban	0.00	Germaine et al. 1998
	Native	0.34	
Tempe	Suburban	0.49	Rosenberg et al. 1987

One obvious difference between the two cities is that the Phoenix area is crossed by several major riparian corridors, but Tucson is not.

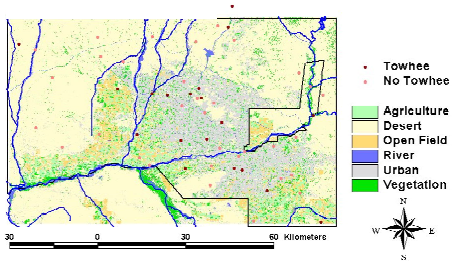
We tested the hypothesis that differences in landscape structure between the two cities explain the distribution of Abert's Towhees. Specifically:

- Do the riparian corridors that cross the Phoenix metropolis serve as a source habitat from which Abert's Towhees spread to the residential habitat?

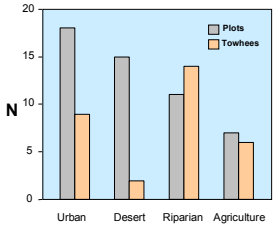
METHODS

- We censused Abert's Towhee in four habitats as described in the bird species diversity poster (Shochat & Katti).
- We measured the distance of each non-riparian point (including several man-made riparian habitats, e.g. sewage ponds, ground-water recharge basins) from the nearest river.

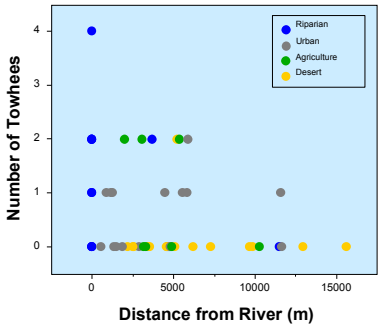
RESULTS



Abert's Towhees occurred in 19 census plots



- Riparian habitat supported disproportionately more towhees than any other habitat.
- While less abundant, towhees also occur in other habitats.
- We therefore address the spatial distribution with respect to riparian areas



- Towhee abundance declined with increasing distance from the nearest river (Spearman's ρ = -0.28, P = 0.0498)
- The low value of the correlation coefficient may reflect problems of detectability, since Towhees were not counted in some riparian plots where they have been observed at other times.

CONCLUSIONS

- **Abert's Towhees primarily occupy riparian habitats in the greater Phoenix area.**
- **Riparian corridors may facilitate towhee dispersal into urban habitats.**
- **The decrease in abundance with distance from the river suggests potential source-sink population dynamics.**
- **The absence of Abert's towhees in Tucson may be due to the lack of source habitat in the landscape.**
- **Studies on urban habitat use by birds need to incorporate landscape elements.**
- **Data from only one city may represent pseudoreplication.**

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Acknowledgments

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