

The R(iparian) Factor: A Comparison of Phoenix and Tucson Avifauna

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INTRODUCTION

RIPARIAN HABITATS are important centers of biodiversity, especially in arid landscapes. In the AMERICAN SOUTHWEST, all riparian habitats have experienced strong pressure from human activity. We compare BIRD SPECIES DIVERSITY in four types of riparian habitat in two arid metropolitan areas - Phoenix and Tucson, Arizona, USA. Spring 2001 followed a winter of slightly above-average rainfall, while Spring 2002 followed an exceptionally dry winter. Further analysis will explore the possibility that ephemeral sites have higher species richness than urban sites in wet years, but lower richness than urban sites in dry years.

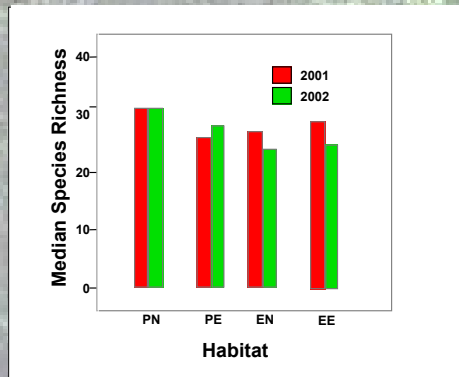
METHODS

Phoenix: Using 15-minute point counts conducted four times per year by three separate observers, two years of bird population data have been collected at twelve riparian sites systematically selected throughout Maricopa County, Arizona, USA. The riparian sites are of four types: Permanent natural; permanent engineered; ephemeral natural; and ephemeral engineered. Spring data are shown in bar graphs while box plots show variation through eight sampling periods.

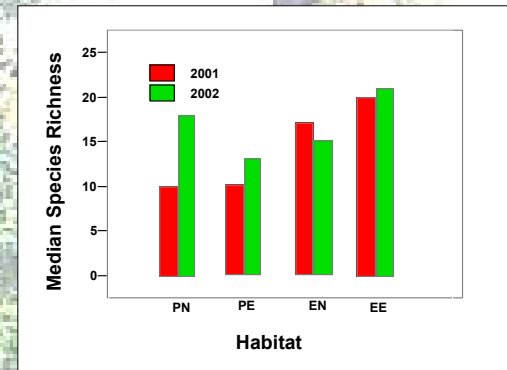
Tucson: Using 5-minute point counts conducted every spring at over 700 randomly selected sites (Route sites) and four times per year at thirteen systematically selected sites (Park sites) throughout Pima County, Arizona, USA, data from sites containing the four riparian types from Spring 2001 and Spring 2002 are presented in bar graphs.

Note: Tucson does not have an equivalent to the flowing Salt and Verde Rivers represented by two of the Phoenix-area sites.

PHOENIX SPRING
COUNT DATA



TUCSON SPRING
COUNT DATA



LEGEND

PN: Permanent Natural
PE: Permanent Engineered
EN: Ephemeral Natural
EE: Ephemeral Engineered

CENSUS PERIOD

1.Fall 2000; 2.Winter 2001; 3.Spring 2001;
4. Summer 2001; 5.Fall 2001; 6.Winter
2001; 7.Spring 2002; 8. Summer 2002

RESULTS

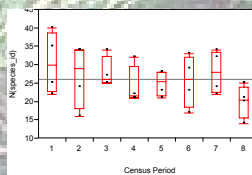
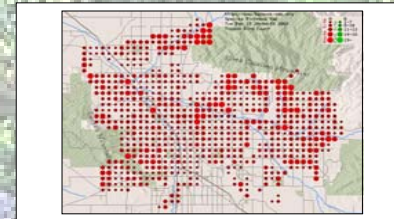
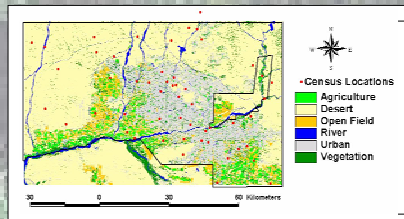
The Spring data show higher species richness in Phoenix, where there is more surface water than in Tucson. The box plots indicate more variation in species richness at ephemeral sites than at sites with permanent surface water.

THE BIG PICTURE

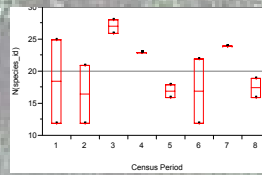
As human environments move into more and more natural environments, the role of special habitats in maintaining biodiversity is intensified. Understanding the impact of these habitats on biodiversity is an important tool for land use managers, environmental planners, and other decision makers.

ACKNOWLEDGEMENTS

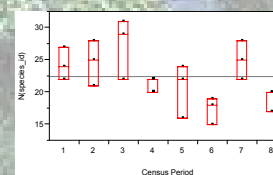
Our thanks to Susannah Lerman, Christopher Putnam, Beverly Rambo, Eyal Shochat, and Cindy Zisner - all of CAP LTER at the Center for Environmental Studies, and to all the participants of Will Turner's Tucson Bird Count Project. Background photo courtesy of Verde Valley Chamber of Commerce.



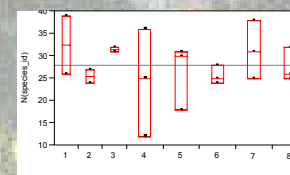
PN



PE



EN



EE

ALL-SEASON PHOENIX DATA BY HABITAT & CENSUS PERIOD