

Witness the invisible herbs

Herbarium collections contribute to a more complete picture of historic riparian communities in the Tucson Basin, southern Arizona

Kathryn Mauz

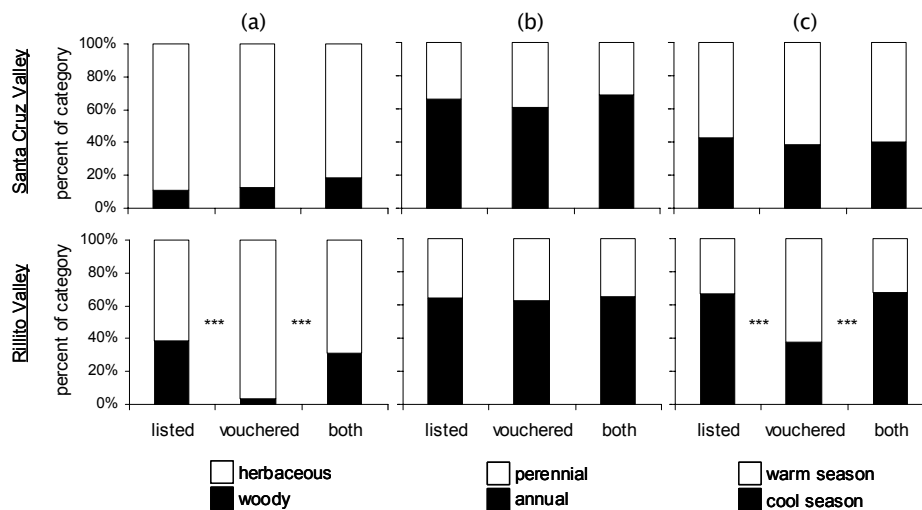
Arid Lands Resource Sciences, University of Arizona, 1955 E 6th St #205, Tucson AZ 85719
kmauz@u.arizona.edu

Summary

Data sets based on specimens at the University of Arizona herbarium from the Santa Cruz River and Rillito valleys, Tucson Basin, southern Arizona, are used to illustrate the contribution of herbarium collections to description of historic riparian flora for the time period 1880-1920. Further, comparison of contemporary collections and species lists for these areas [1,2] are used to illustrate the potential for bias in representation of growth form (woody/herbaceous), longevity (annual/perennial), and phenology (cool season/warm season). Differences in collection histories and objectives between the two areas are discussed as contributors to these patterns.



These case studies demonstrate bias in the Rillito Valley but not in the Santa Cruz Valley in the representation of growth forms (herbaceous plants are under-represented) and seasonality (warm-season plants are underrepresented) in the historic flora. In both valleys, herbarium collections document species that are not represented in historic lists, however in the Rillito Valley this contribution nearly doubles the number of plant species known historically. The important lessons for riparian restoration pertain to the ultimate goals of restoring ecosystem function by reproducing ecosystem (often meaning vegetation) structure. This study provides evidence that - particularly in strongly seasonal vegetation types - the consequences of the temporal and spatial occurrences of taxa should be explicitly considered in interpreting historic floristic data and planning new botanical field efforts that seek to document and/or restore plant diversity.



Comparing plant lists and herbarium vouchers: Percent composition of herbarium collections and historic plant lists for the Santa Cruz Valley and Rillito Valley by a) growth form, b) longevity, c) phenology. Longevity and phenology totals are based upon herbaceous plants only, and phenology totals omit non-seasonal plants. Asterisks indicate significant Chi-squared analysis results (d.f.=1, $p < 0.01$) between pairs of categories.

References: [1] Thornber, J. J. 1909. Vegetation groups of the Desert Laboratory domain. In *Distribution and Movements of Desert Plants*, V. M. Spalding, ed., pp.103-112. Publication 113, Carnegie Institution of Washington, Washington, D.C. [2] Willis, E. L. 1939. Plant associations of the Rillito floodplain in Pima County, Arizona. M.S. Thesis, University of Arizona.

Citation: Mauz, K. 2003. Witness the invisible herbs: Herbarium collections contribute to a more complete picture of historic riparian communities in the Tucson Basin, southern Arizona. Poster presented at the Society for Ecological Restoration Annual Meeting, Austin, Texas, Nov 19-22.