Reduced Riparian Quality results from decreasing woody species richness and diversity, altering species composition and favoring soil compaction and bank erosion

INTRODUCTION

Riparian vegetation is strongly influenced by the surrounding land use.

In Mexico, 73% of the aquatic systems experience some type of contamination and degradation. The Sabinal River Basin, in Southern Mexico, represents how land use change is influencing riparian zones and species composition.

OBJECTIVES

1. To evaluate the quality of the riparian zone.
2. To examine physical elements that describes alterations in the riparian zone.
3. To compare the riparian woody vegetation.

METHODS

1. Riparian Quality Index (RQI) was applied in different land use (Secondary Forest SF, Grasslands and Crops GC, Human Settlements HS) N=15, One-way ANOVA (P <0.05), *post hoc* test Tukey's HSD
2. Botanical Collections (≥ 3m height). Shannon – Wiener Index (H'), richness (S) and dominance (D)
3. Principal Component Analysis (PCA) was conducted to examine differences in species composition using PRIMER – E v.6 with PERMANOVA extension

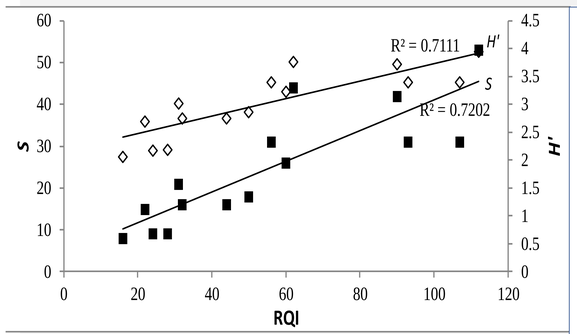
RESULTS

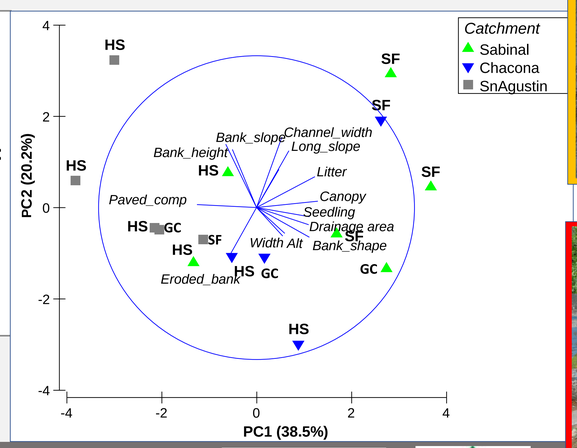
- Higher RQI was shown in Riparian Zones adjacent to Secondary Forest, also higher woody species diversity, richness and better substrate condition SF - HS (P=0.005).
- PCA1 38.5% associated with canopy cover, organic matter & litter, seedlings, bank shape.
- PCA2 20.20% channel dimensions (width, bank height, slope & erosion)
- Species richness and diversity were positively correlated to the RQI
- Species found associated to disturbance: exotic species, *Tabebuia rosea*, *Guazuma ulmifolia*

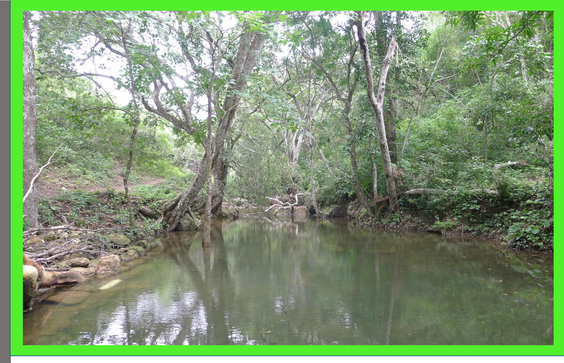
ID	Catchment	Land use	RQI	River condition
1	Sabinal	HS	24	Bad
2	Sabinal	HS	31	Bad
3	Sabinal	GC	93	Moderate
4	Sabinal	SF	112	Good
5	Sabinal	SF	90	Moderate
6	Sabinal	SF	107	Good
7	Chacona	HS	60	Poor
8	Chacona	HS	44	Poor
9	Chacona	GC	50	Poor
10	Chacona	SF	62	Poor
11	San Agustín	HS	22	Bad
12	San Agustín	HS	28	Bad
13	San Agustín	HS	16	Bad
14	San Agustín	GC	32	Bad
15	San Agustín	SF	56	Poor

Very good

Bad







Presenter: Erika Díaz Pascacio
erika.diaz@unach.mx