

**A MESSAGE FROM
THE RESEARCHERS**

MAY 2008 PROPERTY OWNER UPDATE

San Pedro River, Benson, Arizona

RIPARIAN VEGETATION - HYDROLOGY LINKAGES

In areas with little rainfall, unique ecosystems along the river banks and floodplain (riparian area) often include deciduous forests. On the San Pedro River, Fremont cottonwood-Goodding willow forests provide a home for many species, including the endangered southwestern willow flycatcher. Such forests also provide scenic and recreational values for everyone to enjoy.

Riparian vegetation is strongly influenced by the presence and variations in water availability. Recent research on the San Pedro River has shown that cottonwood-willow forests occur where there is stream flow year-round, or nearly so, and where the water table is fairly shallow and does not change much over the year¹. At drier sites, tamarisk is the dominant tree or open shrublands prevail. Similarly, year-round flow sites support marshes which are absent in drier areas².

Although previous research has yielded important insights about the relationships between water and riparian vegetation, much remains unknown. We seek to continue our work in order to better examine these patterns over time, and to provide on-going information useful to land-managers and land-owners in the San Pedro River basin.

The long-term perspective is especially important in this setting. Monitoring water and vegetation trends over several years will help us better understand the relative effects of extended periods without rain (drought) versus changes in management strategies such as increased or decreased groundwater pumping rates. Data collection at a network of sites provides a broad perspective on the conditions and changes occurring on the San Pedro River.

The goals of this project are to:

1. Document vegetation-water connections at a network of sites on the lower and middle San Pedro River;
2. Monitor long-term conditions at restoration sites (Three Links Farm and H&E Farm);
3. Compare trends over time at restoration sites to those at reference sites; and
4. Provide information to managers and landowners regarding groundwater and riparian management strategies.

Provide information to managers and landowners regarding groundwater and riparian management strategies. Various factors influence the physical and biological conditions along the San Pedro River. Some of these factors are related to local management decisions, while some, such as regional drought, are not. Documentation of current conditions, and monitoring of long-term trends, can help us understand the patterns and causes of change, and enable us to make informed decisions about future actions. We greatly appreciate the involvement and support of landowners and local land managers in carrying out this research.

References

1. Lite, S.J. and Stromberg, J.C. 2005. Surface water and ground-water thresholds for maintaining *Populus-Salix* forests, San Pedro River, Arizona. *Biological Conservation*. 125: 153-167.
2. Stromberg, J.C., Badstad, K. Leenhouts, J.M., Lite, S.J., Making, E. 2005. Effects of stream flow intermittency on riparian vegetation of a semi-arid region river (San Pedro River, Arizona). *River Research and Applications* 21:1-14.

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FOR LIST OF
STREAMSIDE
PLANTS FOUND
ON YOUR
PROPERTY.****2008 DATA
COLLECTION****June 10th, 11th
and the week of June 17th**

Riparian Vegetation-Hydrology Linkages

San Pedro River, Arizona

Study Site: UNDISCLOSED

Streamside herbaceous species list (June 2007)

The following list of plants occurred in plots randomly selected in the streamside zone. This list is only a subset of the total flora of the site. The common names are according to USDA Plants Database (<http://plants.usda.gov/index.html>).

Centaurium calycosum (Arizona centaury)

Conyza canadensis (Canadian horseweed)

Cynodon dactylon (Bermuda grass)

Cyperus esculentus (yellow nutsedge)

Echinochloa crus-galli (barnyardgrass)

Helenium thurberi (Thurber's sneezeweed)

Heterotheca subaxillaris (camphorweed)

Juncus torreyi (Torrey's rush)

Lepidium lasiocarpum (shaggyfruit pepperweed)

Lepidium thurberi (Thurber's pepperweed)

Melilotus alba (yellow sweetclover)

Polypogon monspeliensis
(annual rabbitsfoot grass)

Polypogon viridis (beardless rabbitsfoot grass)

Populus fremontii (Fremont cottonwood seedlings)

Pseudognaphalium canescens (Wright's cudweed)

Rorippa nasturtium-aquaticum (watercress)

Salix gooddingii (Goodding willow seedlings)

Schoenoplectus americanus (hardstem bulrush)

Sorghum halepense (Johnsongrass)

Tamarix ramosissima (Tamarisk seedlings)

Typha domingensis (southern cattail)

Veronica anagallis-aquatica (water speedwell)

Xanthium strumarium (rough cocklebur)



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