Flora characterization in a wetland restoration project that recycles wastewater from tertiary treatment

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1.5 ha of land located at 31°07'53" N, 110°56'12.23" W was allowed by municipal authorities to use for a wetland restoration project where the main source of water was wastewater from a tertiary treatment. In order to plant endemic flora in the site some research was conducted where the main concern was to select those plants that could grow successfully given the physical and chemical characteristics of soil, water, weather and at 1122 m above sea level. The site is both: closed to a wastewater treatment plant and to a watershed. This condition makes the restoration project fit quite accurately since it counts on regular water for supply and, on the other hand, river Alisos can receive, eventually, water of quality improved by the ecosystem services. Preliminary studies included, regarding the wastewater leaving the plant, Oxygen Biochemical Demand (OBD) and microbiologic analysis. Soil studies were carried out to determine the kind of soil prevailing in the site, its density and infiltration rate.

The system required to investigate what species were more likely to populate a wetland ecosystem with unique characteristics: the site is in the northwest of Sonora, Mexico, which accounts for semiarid climate with a crude winter. Mangroves were not eligible due to the low temperatures in January and February. The final selection of plants was possible with the support of two American Organizations, Borderland Restoration and Arizona Native Plants Society. Platanus wrightii, Juglans major, Quercus arizonica, Mimosa dysocarpa, Asclepias angustifolia, Conoclinium greggii, Heliomeris longifolia, and the aquatic species Ludwigia peploides, Lilaeopsis schaffneriana, and Eleocharis montevidensis, among others.

Biography
Perfecto Barragán-Peña is a professor at Instituto Tecnologico de Nogales. He has worked on a variety of environmental research projects from the recycling of used cooking oil to produce biodiesel, rainwater harvesting and green infrastructure to wetland restoration. His scientific work has been published in Journal of Environmental Sciences (China), Open Access Journal of Toxicology (USA), and Environmental Technology (UK). He currently teaches Project Management in Urbanism and Statistics which are part of the Master Degree Program in Urbanism. His main concern is water management and the water services wetlands make possible.

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