Fish, benthic insects, and trees of riparian ecosystems Mexico's Northeastern Rio San Juan

José Návar[1*], San Juana Guerra[2], Liliana Lizárraga-Mendiola[3]

[1] *Professor of Forest Hydrology and Watershed Management, Tecnológico Nacional de México/Instituto Tecnológico de Ciudad Victoria. Blvd Emilio Portes Gil No 1301 Pte. Cd Victoria, Tamaulipas, México. 87010. jnavar5978@gmail.com. Tel&Fax: 52-834-1532000 ext 330. *Corresponding Author.*

[2] *M.C.For. Consultant. Faculatd de Ciencias Forestales, UANL. Carr Nacional Km 145. Linares, N.L., México. Email: sjguerra@yahoo.com.*

[3] *Área Académica de Ingeniería, Universidad Autónoma del Estado de Hidalgo. Mineral de la Reforma, Hidalgo, México. Email: lililga.lm@gmail.com.*

This research was conducted in three major tributaries of Mexico's northeast Rio San Juan with the major objectives of: (i) describing the diversity-abundance of riparian trees, benthic insects and fish faunal communities and (ii) associating the fish and benthic insect communities to riparian tree communities, flow quality, and discharge parameters along a longitudinal gradient of water stress. In spite of the high spatial variability, two gradients could be identified using multivariate analysis. Diversity of riparian trees, benthic insects and fish fauna was larger in more pristine and less perturbed upper in contrast to lower sampling sites. Bentic insect diversity was reduced and xerophitic riparian trees are colonizing lower sampling sites due in part to a larger biomass accumulation on rivers, higher stream temperatures and deteriorated river flow quality and diminished discharge. Benthic insects appear to be better adapted than fish fauna or riparian tree communities to river flow quality and discharge variability. The description and collection of riparian fish, benthic insects and riparian tree communities; as well as the ecological roles between biological groups are an important benchmark source of information and make this report useful to understand potential inherent sources of spatial and temporal variations of river communities.