

LANDSCAPE ANALYSIS USING A GIS METHODOLOGY FOR THE EVALUATION AND
PREDICTION OF RELATIONSHIPS OF AMPHIBIAN HEALTH IN MISSOURI

WETLANDS

Miriam Romero

Dr. Kathleen Trauth, Dissertation Supervisor

ABSTRACT

A new methodology to quantify wetland health is developed using landscape characteristics for 49 wetlands in northern Missouri and relating them to wetland health. Wetland health was defined in this project as the presence of sensitive or rare amphibian species, such as tiger salamanders or northern crayfish frogs, which are very sensitive to habitat disturbance. Crops, forest, grass, stream, roads, change in elevation, and others characteristics were landscape characteristics considered because they are assumed to affect wetland habitat for amphibians. Multiple linear regression analysis was performed at the different spatial scales mentioned above, to test the relationship between wetland health and landscape variables. It was found that proximity to roads affect negatively the wetlands health up to a distance of 900 meters, while crops can have a negative effect up to a distance up to 2100 meters.