GIS ANALYSIS OF SHIFTING FARM LANDSCAPE IN NORTHERN LOUISIANA

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Abstract: The agricultural landscape of the Northern region of Louisiana plays a very critical role in the economic and environmental health of the state. While the use of the farm landscape over the years resulted in large economic returns for some. The risks from the widespread use of agrochemicals and fertilizer runoffs to the surrounding ecosystems continue to amplify. Accordingly, the Northern Louisiana agricultural landscape as an ecosystem under stress poses a set of challenges to managers in the region. The ongoing threats are further compounded by the limited coverage in the mainstream literature. There is also the lack of emphasis on a mix approach anchored in the applications of geospatial information systems (GIS) and temporal analysis in tracking the change. The expectation is that such an approach would provide an effective decision making tool for land managers in the region. In terms of methods, this paper uses a mix scale technique of GIS connected to descriptive statistics, primary and census data to analyze the extent of changing agricultural landscape spatially. Emphasis is on the issues, environmental and spatial analysis of the trends, factors fueling change and the current efforts to mitigate the problems and some future lines of actions. The preliminary results point to the incidence of change in the form of declines in agricultural land areas in selected parishes and spatial diffusion of the trends. There is also a widespread use of pesticides and agrochemicals at the expense of the surrounding ecology. Aside from some mitigation initiatives, the changing landscape is attributed to a whole set of socio-economic elements. To deal with the problems, the paper offered some suggestions ranging from the continuous use of GIS to education.

Key words: GIS, agricultural landscape, Northern Louisiana, factors of change, environmental and spatial analysis.