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Geospatial Analysis of Stray Distribution Across Texas

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Abstract

The rising number of stray animals in both urban and rural regions of Texas presents considerable issues to public health, shelter administrations, and animal welfare. Texas is the second highest state in the nation for stray animal intake, forcing it to face elevated euthanasia rates and significant limitations in shelter resources that intensify the situation. This study intends to delineate the spatial distribution of animal shelters and correlate this information with anticipated stray animal populations to detect service deficiencies and inform targeted solutions. Spatial data on shelter locations will be geocoded using ArcGIS Pro and superimposed onto a choropleth image depicting stray animal density and euthanization rates. Data was obtained from the Best Friends Animal Society, then compiled at the county level for a thorough examination. We find through stray density and save rate analysis that strays are indeed concentrated in urban areas, while save rate is not significantly affected by geography. Mission-based shelters are also concentrated in urban areas, whereas low-save rate shelters are generally government-run animal services. Using service areas and socioeconomic data from the Census, we determined that optimal locations for shelter reform and/or reinforcement include southeast Dallas, east Houston, and the lower Rio Grande Valley (Hidalgo & Brownsville).