Population growth rate was calculated by dividing the annual change in the number of post offices by the total number of post offices in operation for that year multiplied by 100, resulting in percent growth rate (positive or negative) for proxy population (Figure 3). When population growth rate is calculated in this way, changes in growth rate during the first few decades of the record are disproportionately large because the total number of post offices is small, and therefore, the percent change represented by the addition or subtraction of even one post office is exaggerated. For instance, note in Figure 3 that population growth rates during the first three decades of the record fluctuate as much as 50 to 60 percent over the course of a few years. The total number of post offices remains very small for the first 30 years of the record. Changes in growth rate were determined as absolute changes; for instance, a change from 15 percent negative growth rate and a change from 5 percent to negative 3 percent growth within a given period were both counted as a negative 10 percent change.

Using this array, population response was compared to episodes of environmental and economic conditions that would favor population growth in Las Animas County ("pull" factors) or negative conditions that would provide disincentive for remaining in Las Animas County ("push" factors). Population response was measured as the maximum amount of percent change between the year prior to the onset of the environmental or economic push or pull and the maximum positive or negative value attained during the episode.

Detected Data in addition to mining in the western portions of the county, the economy of Las Animas County is dominated by agriculture, which during the 19th and first half of the 20th centuries was highly dependent on environmental conditions for success. The present study found that the correlation between the number of post offices (Bauer et al. 1990) and census population for Las Animas County, Colorado between 1870 and 1990 (DOE 2013) is powerful (R=0.931) and highly significant (p=0.001) (Figure 2). Using the correlation equation to calculate population equivalents, each post office represents approximately 770 people.

Interpretation and Discussion Based on these measures of environment and economy, correlation between population growth rates and both economic and environmental conditions and episodes of environmental growth and pull factors was significant. The correlation between population growth and economic pull and push factors was strong and significant (R=0.617, p=0.002), that is, population growth increased when economic conditions were good and decreased when economic growth was negative (Figure 3). The correlation for the environmental conditions, although the correlation was not as strong or as significant (R=0.4387, p=0.011) (Figure 4). However, when episodes of drought and average moisture were examined separately and after discarding a data point outlier from the early portion of the record when growth rate was exaggerated due to the low overall number of post offices, the correlation between drought and population growth rate is much stronger and more significant (R=0.826, p=0.011) (Figure 9). There is no significant correlation between population growth rate and episodes of above average moisture (R=0.1487, p=0.314) (Figure 10).