Trends in abundance of Golden-cheeked Warblers at eight study sites across 14 years

F. W. Weckerly, J. R. Ott, and L. O'Donnell

Trend analysis of population abundances is integral to conservation and management. When available, trend data from multiple study sites provide additional information on spatial and temporal variation in population dynamics. Recent studies of the federally endangered Golden-cheeked Warbler have reported abundance estimates at spatial scales from local to the entire breeding range. To date however, population trajectories for the species in a spatial and temporal framework have not been addressed. In this project we are analyzing spot mapping data collected at eight study sites over 14 years to estimate spatial and temporal variation in territory density. We are applying two complementary techniques: Mixed effects models which provide both a summary of trend across all plots and estimation of plot-specific regression and the Exponential Growth State-Space Model which provides explicit estimates of population growth rate and variance for each study site while accommodating variation in sampling interval.