SEMP Task 2-1.6: Change in Number of Groups for the Vernon-Fort Polk Red-cockaded Woodpecker population

Fort Polk and the Kisatchie National Forest (KNF) cooperate extensively to manage the Vernon-Fort Polk RCW population, which is designated by the U.S. Fish and Wildlife Service (USFWS) as a "primary core population" for recovery of the species. The USFWS has established an overall population recovery goal of 481 active RCW clusters or 350 potential breeding groups, which are active clusters having a mature male and female capable of breeding. Forest Service and Army property goals for population recovery are 302 and 179 active clusters, respectively. Because the RCW population spans Army and Forest Service lands used for military training, it is critical that management is coordinated between agencies and integrated with military training activities. Without such cooperation, the likelihood that either agency would reach its population recovery goals would be greatly diminished.

Task 2-1.6 assesses the validity of the assumption that cooperative Fort Polk and KNF management and monitoring strategies are promoting recovery of the Vernon-Fort Polk RCW population, as measured by the change in the number of RCW groups in the population. The number of RCW groups is the monitoring measure of primary interest when assessing population trends. Trend in the number of groups is modeled in its simplest form as the constant rate of change over each unit of time. This constant rate of change is typically referred to as λ (lambda), or the finite rate of increase. Values of λ greater than 1.0 indicate an increasing population, λ equal to 1.0 indicates a stable population, and λ less than 1.0 indicates decline.

A performance target was established for an increase in the number of RCW groups of greater than or equal to 4.5 percent per year or over the past 5 years. This annual performance target is derived from the target population growth rate of 5 percent per year established in the USFWS 2003 Recovery Plan for the RCW. The 5-year performance target was developed based on the need to evaluate population trends over a longer time horizon due to year-to-year variability. A five year period was selected as the appropriate interval for long-term evaluation based on the RCW Recovery Plan definition of a critical population decline, which evaluates population trends over both 1-year and 5-year periods. Annual RCW population growth rates for the prior calendar year (the most recent data available) are used for reporting under this monitoring task, due to the annual cycle of RCW demographic monitoring and reporting events.

For the Vernon-Fort Polk RCW population as a whole, annual λ for calendar year 2006 (FY 2007 monitoring results) was 1.06, indicating a 6 percent increase in the number of groups from 2005 to 2006. Multi-year (5-year) λ for the population was 1.12, with upper and lower 90 percent confidence intervals of 1.05 and 1.19, respectively.[1] Therefore, performance results for this task were Green (the number of groups increased at a rate of ≥4.5% per year [annual λ] or over the past 5 years [multi-year λ]. The number of RCW groups and the annual change (λ) in the number of groups in the Vernon-Fort Polk population from 1999 through 2006 are shown in Figures 2-1.6a and 2-1.6b below.

[1] Confidence intervals measure the precision of an estimated value. The interval represents the range of values, consistent with the data, that is believed to encompass the "true" value with high probability (usually 90 or 95%). The confidence interval is expressed in the same units as the estimate. Wider intervals indicate lower precision; narrow intervals indicate greater precision. Thus, in the discussion above, the 90% upper and lower confidence intervals (1.05 and 1.19) indicate that given the observed data, there is a 90% probability that the true multi-year λ was between 1.05% and 1.19% per year.

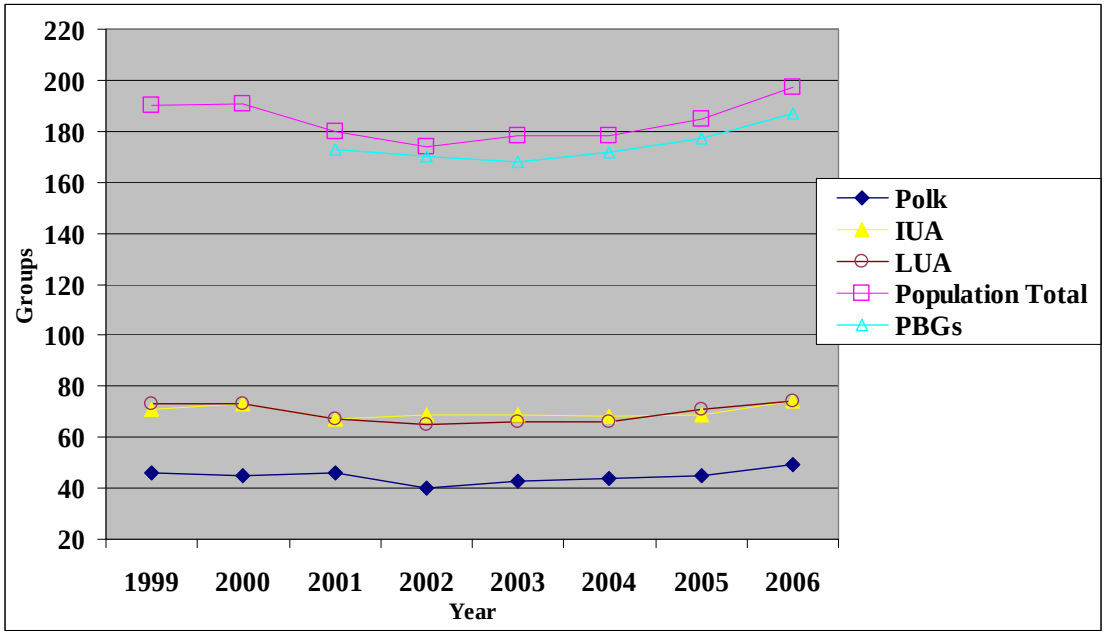

Figure 2-1.6a. Number of groups (includes single bird clusters) in the Vernon-Fort Polk RCW population annually from 1999 through 2006 by administrative unit and for the population as a whole, and the number of potential breeding groups (PBGs) by year (2001–06) for the population as a whole.

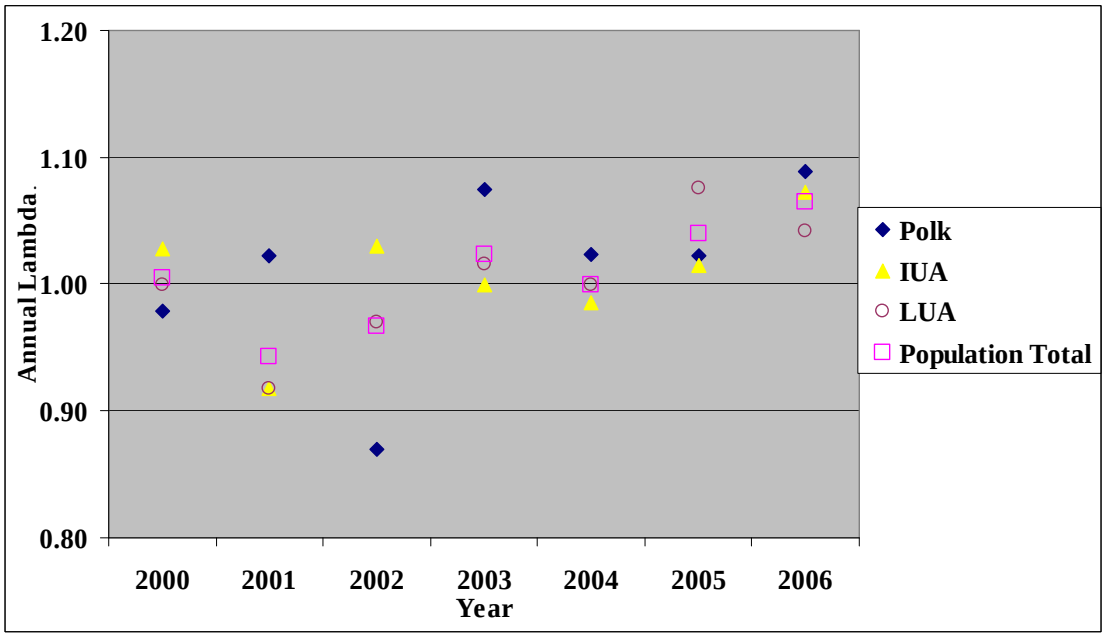

Figure 2-1.6b. Annual change (λ) in the number of groups in the Vernon-Fort Polk RCW population during 1999–2006 by administrative unit and for the population as a whole.