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Patuxent Wildlife Research Center

Range-wide Metapopulation Viability Analysis for the Golden-cheeked Warbler

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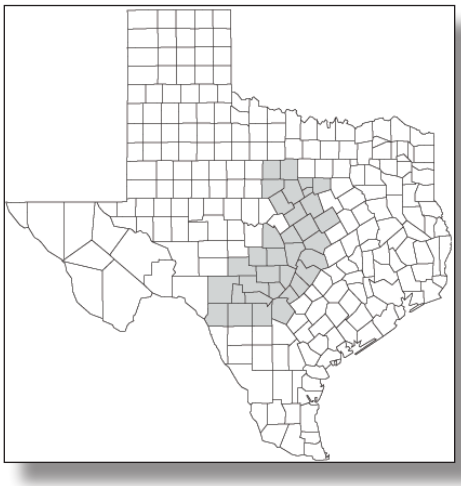

- ***The Challenge:*** The golden-cheeked warbler is an endangered songbird which breeds in central Texas and winters in Mexico and Central America. Much research has occurred in recent years concerning population dynamics, habitat modeling, and survey procedures for this species. Previous metapopulation viability analysis (PVA) are assisting the USFWS Golden-cheeked Warbler Recovery Team in deciding on carrying capacity, and thus the amounts of breeding habitat necessary to protect to ensure a high probability of persistence into the future. Furthermore, a map of the breeding habitat for this species has been created and we have well-estimated demographic parameters (e.g., annual survival, fecundity, temporal variance in these parameters, etc.). However, no range-wide PVA has been conducted to date.

- ***The Science:*** The first goal of this project will be to produce updated demographic parameter estimates (e.g., annual survival, fecundity, and temporal variances of these parameters) for golden-cheeked warblers from field studies conducted at Fort Hood. The second goal will be to produce a range-wide, spatially-explicit PVA for the warbler using the updated demographic estimates. This PVA will link the breeding habitat for this species in a metapopulation model to simulate probability of extinction and population abundance into the foreseeable future (i.e., 100 years, as specified by the recovery team). Wintering habitat will not specifically be addressed in this PVA, except in its effect on annual survival estimates. The third goal will be to utilize the PVA in an SDM framework to develop a decision-support tool for use by USFWS. This tool (which will be some type of computer program linking the PVA results to management decisions and possible land acquisition) could then be used to make optimal management decisions for this species, accounting for uncertainty in the models and parameter estimates.

- ***The Future:*** Once the demographic analyses and PVA are finished, we will then develop the decision-support tool, for use by the U.S. Fish and Wildlife Service (USFWS) and other interested parties, to help with management decisions for this species.

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