C. OBJECTIVES

In this project, DWFF staff and AU CFWE researchers will collaborate to determine a feasible, informative monitoring approach for informing DWFF's understanding of status and trends in WTD abundance and herd composition / population structure and for informing WTD harvest-management decision making at both larger (zone-level) and property-level (e.g., WMA) spatial scales. To accomplish this, we have broken the task down into more specific objectives.

CHI = Objective 1. Develop modeling, monitoring, and decision-analysis frameworks in preparation for subsequent project objectives. This involves developing a general WTD biological model structure, alternative population models, and decision-analysis scenarios in the context of DWFF WTD decision-making needs.

FLOW TO

- RAW DATA SUMMARIES

★↱ AUTOMATED PIPELINE ~ DATABASE → UPDATED ANNUALLY

Objective 2. Summarize and evaluate value of existing Alabama WTD harvest information. At present, harvest data and hunter surveys are the primary large-scale information being collected for Alabama WTD. For this objective, we will analyze currently available information related to Alabama WTD harvest (harvest reports, hunter surveys, etc.) and evaluate the utility and limitations of using harvest data as the primary approach for monitoring key biological parameters of Alabama WTD populations. Although there is a bewildering array of potential ways of monitoring WTD populations, use of harvest data (e.g., harvest numbers, hunter effort) is likely to be a core part of any cost-effective approach that can be used at large spatial scales. In addition, there are numerous existing applications and evaluations of harvest-based monitoring (e.g., Statistical Population Reconstruction, SPR models) for monitoring harvested species at

★SUMMARIZE VALUE OF WHAT ALREADY EXISTS

- GAMECHECK
- DMAP - WMAS
- HARVEST

} INCORPORATE TO MAKE DECISIONS

state- or zone-level scales, such that this project can efficiently build on such prior or ongoing work from other states.

• EXPAND FROM WHAT CAN DO W/WHAT HAVE (OBJ 2)

Objective 3. Identify, evaluate, and compare integrated WTD monitoring alternatives. Although harvest data are likely to be a key component of Alabama WTD monitoring, it is not a panacea, and models such as SPR come with assumptions and sample size needs that may not be feasible to meet. Moreover, the most effective and efficient large-scale approaches for demographic monitoring involve integrating multiple data sources. This could include integrating multiple data types that are being collected or could be feasible to collect at large scales (e.g., harvest data, citizen-science camera surveys, and state-wide roadkill reports), and/or integration of large-scale, lower-resolution extensive data with more intensive localized sampling (e.g., in a double-sampling approach). • GETTING CREATIVE • ADDITIONAL DATA • MODELING/ DATA MINING

• BASED ON 2/3 ~ WHATS BEST PATH FORWARD

Objective 4. Evaluate trade-offs of alternative decision-modeling approaches. For all options examined in Objectives 2 and 3, a basic assumption is that a) the major conclusions are robust with respect to the population-modeling frameworks used, or b) we understand the differences in conclusions among model types, why they arise, and what the implications are with respect to evaluations of monitoring strategies. An additional outcome of this project will be to guide DWFF managers in the trade-offs of using matrix-type models vs. spatially explicit ABMs as population decision-modeling frameworks in future decision-making situations. Finally, comparisons between models that use different methodologies will help us better understand mechanisms that underpin deer population dynamics, thereby informing defensible harvest-

• SET UP PIPELINES • PERPETUITY