

The current thinking within the Service is that our analysis will likely need to be at multiple scales as decision-making proceeds. These scales will likely include, but not be limited to, the species range wide, at the COT/WAFWA population level, any potential DPS that might be determined and any SPR that might be identified. The analytical framework and data collection the Service is developing will be developed with these multiple scales in mind as well as the policy frameworks.

The Second framework, the analytical framework, is being developed to serve the above policy framework. There will be varying levels of effort depending on the importance of the factor being subjected to analysis and its relation to the conservation status of the species. The Service anticipates a much higher level of analysis for the small number of threats that the Service has determined to be the most important. The Service anticipates deploying a number of analytical methods including spatially explicit models, expert elicitations on specific subjects, internal decision analysis frameworks as well as other methods that may arise in the process. The spatially explicit modelling will focus on current and future changes to threats and conservation actions, using the COT spatial geography and population data to project various outcomes, as measured by abundance and distribution. The Service anticipates that this will be the highest level of effort and will be used on those threats that have been identified as the most important drivers for the conservation of the species (long-term persistence). These include at a minimum; invasive species and fire, energy development and associated infrastructure (including oil, gas, and extractable minerals), and habitat conversion due to tilled agriculture. This will allow the Service to look at risk to the highest concentrations of birds in the most important landscapes and begin to put anticipated biological outcomes into the context of the policy framework relative to the definitions of threatened and endangered.

The Service anticipates using expert elicitations potentially in a number of ways. The first might be to help distinguish the best analytical method for a given threat or the best metrics for abundance and distribution. There are multiple variations of some of these questions and the Service would benefit from some advice on the best ways to utilize these tools within the analytical framework. Also, there are certain threats or issues that have some uncertainty around them or may be controversial that could benefit from a broader conversation with experts. These might include such things as the effects of climate change on the sage brush ecosystem or the role of predation in the long-term conservation of the species.

Again, all of these various methods would be used in light of the ultimate metric the Service will use to assess long-term persistence in the form of abundance and distribution. Ultimately, both quantifiable analyses and policy application regarding less quantifiable aspects of the analysis and evaluation must come together in assessing the long-term status. The exact methodology for this aspect has yet to be defined. However, the Service has enlisted USGS expertise in assisting to develop the analytical methods surrounding decision analysis to capture this aspect.

Lastly the Service anticipates the analytical framework will present a number of scenarios or variations of implementation to bound uncertainty to give a range of biological outcomes in the form of various abundances and distributions. The final decision analysis will be assessing the likelihood of various scenarios and the resultant biological outcomes and using the scientific information as a basis apply