

Date: December 3, 2019

From: Dr. Kevin Whalen, CRU Western Region Supervisor

To: Dr. David Scott, USFWS Science Integrity Officer

Re: Peer review response and summary for Whooping Crane take

Dear Dr. Scott:

The peer reviews of Drs. Andersen and King of the Service's Whooping Crane white paper have been completed and are attached to this memo. Also attached is the review by Dr. Davis, who was independently contracted by the Service to assess the record and white paper. Below I highlight key issues identified by the reviewers in addition to sharing their individual comments.

### **Peer review charge**

The over-arching peer review charge was to evaluate whether the Services' current assessment of the various reports and their conclusion regarding Whooping Crane take in this matter is reasonable.

Specifically, but not limited to:

*(1) is the white paper's take assessment and underlying assumptions based on best available science?;*

It is the consensus of the reviewers that the Service's assessment and underlying assumptions were based on the best available science. None of the reviewers identified significant available information not considered by the Service that would have improved the Service's analysis. The reviewers did identify limitations of the available information to estimate mortality and thus take for the project. The reviewers share the conclusion that information allowing substantively more accurate and precise estimates of Whooping Crane mortality, due to the project, is lacking. Thus the take assessment while reasonable, bears a moderate to potentially high degree of uncertainty.

*(2) do the final conclusions of the white paper match up with species biology and current scientific understanding of future species growth and threats?; and*

It is the consensus of the reviewers that the conclusions of the white paper are supported by the current understanding of the species biology, population growth and threats. The reviewers did not identify any significant gaps in available information for the species. Drs. Andersen and King expressed significant concern over the ability to quantitatively assess mortality (threat) with reasonable precision given the paucity of existing data to do so.

*(3) what are (identify) the limitations and/or deficiencies with the Services' approach and assumptions in their conclusion on Whooping Crane risk to take?*

Reviewers identified two primary limitations of the Service's approach both driven by the lack of data specific to the project site and data on Whooping Crane risk to power line mortality. The reviewers noted that the lack of information necessitates assuming that risk is homogenized and/or proportional to the length of power line, an equivalency that is likely unfounded. For

example, spatial variability of suitable habitats may concentrate birds and thus create uneven risk for mortality within the project area. Unfortunately, however, the reviewers also note that a present lack of more site specific and fine scale data on Whooping Crane distribution and behaviors and power line threats limits the utility of more complex modeling approaches. Namely, the additional assumptions required to substantiate those approaches with the present lack of data serve only to inflate uncertainty rather than reduce it.

The reviewers conclude that the Services' assessment and conclusions are reasonable and based on best available data and science. Uncertainties are structural and due to a lack of more project specific and fine scale information on Whooping Crane spatial distribution and behaviors that affect risk to power line strike and thus project-induced mortality.