



Whooping Crane Use of the Associated Habitat Reach

One management objective in the Program’s Adaptive Management Plan (AMP) is to contribute to increased survival of whooping cranes during migration by increasing use of the associated habitat reach (AHR) through improvements in habitat suitability. Competing hypotheses exist in the AMP as to whether or not:

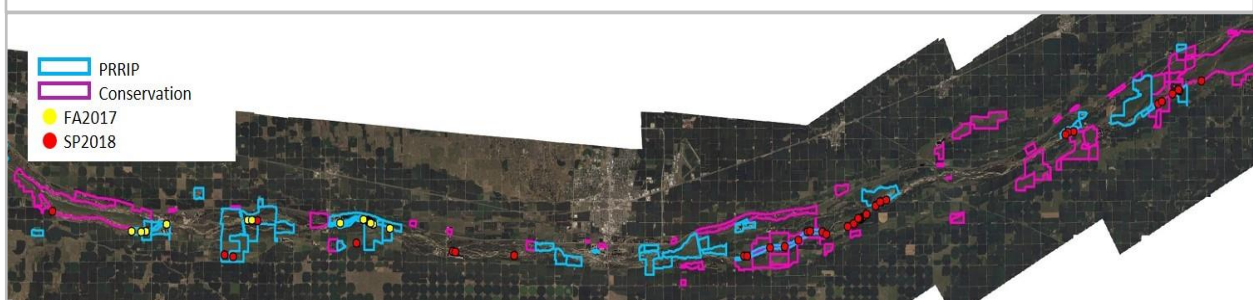
- the creation of habitat complexes, as described in the Program’s Land Plan Table 1, will result in an increase in whooping crane use of the AHR and thus survival of whooping cranes during migration,
- increased channel widths are necessary for increasing whooping crane use of the AHR and thus survival of whooping cranes during migration,
- an increase in the abundance, distribution, and quality of wet meadow habitats will result in an increase in use of the AHR and thus survival of whooping cranes during migration, and
- an increase in the abundance, distribution, and quality of wetland habitats will result in increased use of the AHR and thus survival of whooping cranes during migration.

As such, Platte River channels, wet meadows, and wetlands are monitored during the spring and fall migration seasons annually to document whooping crane abundance and habitat use within the AHR.

Preliminary Fall 2017 and Spring 2018 Monitoring Results:

During the fall/winter 2017 monitoring season, 23 unique whooping cranes were documented in the AHR during Program monitoring. These cranes compiled a total of 198 total crane use days which is higher than any migration season since 2002. During the spring 2018 monitoring season, 118 unique whooping cranes were documented during Program monitoring and an additional 20 whooping cranes were observed by the public during days when Program flights were cancelled due to inclement weather. These cranes compiled a total of 492 total crane use days which is much higher than any migration season since monitoring efforts began in 2001. Of note, much of this recent use has occurred on Program or other conservation organization owned and managed properties (Figure 1).

Figure 1. Distribution of whooping crane use in relation to Program and other conservation owned properties, fall 2017 and spring 2018.



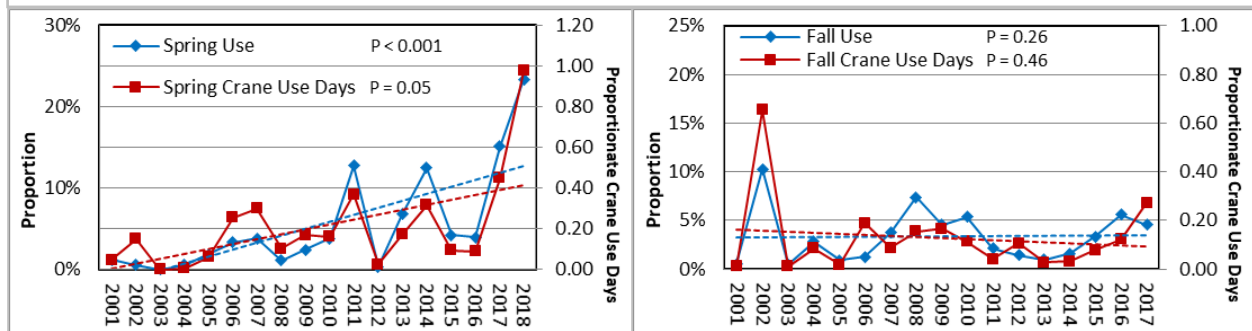
Looking Backward:

Whooping crane monitoring and research activities conducted to date have included the implementation of Program’s whooping crane monitoring protocol to document abundance and habitat use within the



AHR and conducting telemetry and stopover studies. Since 2001, whooping crane use of the AHR has increase significantly during the spring migration season, which is a strong indication habitat suitability has improved within the AHR since 2007 (Figure 2). During this same timeframe, however, whooping crane use has remained fairly steady during the fall migration season (Figure 2).

Figure 2. Observed use of the central Platte River during spring (left) and fall (right) migration seasons, 2001-2018.



Detailed habitat selection analyses have been completed and have undergone the Program's independent third party peer review. The Program accepted the whooping crane habitat synthesis chapters and the WEST whooping crane report and peer reviews as final. Results of habitat selection analyses within the AHR and throughout the Great Plains indicate whooping cranes select unobstructed channel widths of 650 feet and unforested corridor widths of 1,100 feet disproportionately to availability. Detailed diurnal habitat selection analyses indicate whooping cranes select cornfields and riverine habitats over wet meadows within the AHR; however, throughout the Great Plains whooping cranes select riverine, open water, semi-permanent wetland, and wet meadow habitats over all upland landcover classes including cornfields.

Looking Forward:

Based on analyses conducted to date, the Program informally adopted 650-foot unobstructed channel widths and 1,100-foot unforested corridor widths as suitable whooping crane habitat within the AHR. As such, the Program plans to maintain unobstructed channel widths and unforested corridor widths that meet these criteria on existing properties and expand widths that don't conform to these widths on new Program lands. While various flow-related metrics were evaluated in these detailed habitat selection analyses, we were unable to establish a relationship between flow and roost-site selection within the AHR.

During the Program's First Increment Extension we plan to continue to monitor whooping crane abundance and habitat use within the AHR. In addition, with new telemetry data collected by the United States Geological Survey, Fish and Wildlife Service, and the Canadian Wildlife Service we will attempt to determine if whooping cranes stop within the AHR in response to central Platte River flows. This new telemetry data includes locational data collected on 30-minute intervals which will allow us to better pinpoint when whooping cranes choose to stop within or bypass the AHR. Although we have been unable to establish a relationship between flow and whooping crane use of the AHR to date, it seems logical to conclude that some minimum amount of river flow is necessary to encourage roosting within the AHR over the long term. Detailed analyses of this new data will allow us to verify any potential relationships



59 between flow and whooping crane use of the AHR. This could be a focus area for target flow and/or
60 Extension flow management planning discussions.