

10. PROJECT NEEDS

10.1 RESEARCH

The EMP is being reintroduced based upon the knowledge derived from the FP and AWBP. Major differences in the habitats and ecosystems between these populations suggest there can be corresponding dissimilarity in aspects of their ecology. Management of the eastern population is best based on locally-derived data. Accordingly, a strong research program is needed to provide data to underpin the management of this population in the face of regional uncertainties. The relative importance of research needs vary among the topics of the EMP's ecology.

10.1.1 Nest Predation or Abandonment

Figuring out why nests are being abandoned is a priority for WCEP. Most every nest abandoned is beyond the realm of expectation, and plans are underway to set up film cameras at future nest sites to find out why this occurs. This investigation is important enough to take some risks that might cause nest abandonment.

Multiple people in Wisconsin have seen whooping crane pairs on nests and even taken photographs, meaning the pairs are not abandoning nests the first time they see a human. Risks can be minimized by filming a subset of nests and not filming every nest. Camera distance from the nest may depend on available cover, vegetation type, behavior of the pair, and site specific needs.

10.1.2 Dispersal and Movements

Almost all data collected so far on movements and dispersal are new to science. Although differences in dispersal between males and females may be significant, they have received little previous study in whooping cranes and only limited study in other crane species (Urbanek & Bookhout, 1994). A pronounced spring exploratory period, first identified in this project, is being given special attention by the WCEP tracking team.

10.1.3 GIS Analysis of Habitat and Potential Population in Wisconsin

Wisconsin DNR staff plan to use monitoring data for integration with GIS spatial habitat coverage. Future analyses will assist land managers and administrators in identifying and prioritizing conservation actions locally, and at the landscape level. Examination of breeding habitat characteristics, home range, and spatial distribution will be useful in setting future population management goals for the state.

10.1.4 Nesting Ecology

Territory formation, nest building, egg-laying, and production of young by breeding pairs are all areas in need of study. This reintroduced population of whooping cranes constitutes the most intensively monitored population of migratory birds in history. Almost all of the birds are monitored by radio tracking during the course of the reintroduction. Monitoring data are compiled in the new monitoring database, which will support research on the evolution of social structure within this population. To reach the project's goal of a self-sustaining population of 100-120 whooping cranes encompassing 25-30 regularly breeding pairs, it will be particularly important to document associations among individuals and subsequent pair bond formation.

10.1.5 Habitat Use

Wisconsin:

- 1) For two field seasons (mid-March 2005 through November 2006), Kelly Maguire, ICF Aviculturist, researched whooping crane habitat use in the core reintroduction areas of Necedah National Wildlife Refuge, adjacent State Wildlife Areas, cranberry properties, and nearby wetlands in northern Juneau, southern Wood, eastern Jackson, northeastern Monroe, and southeastern Clark Counties, while pursuing a master's degree in Wildlife Ecology at the University of Wisconsin-Madison. The area is characterized by interspersed open shallow water, emergent vegetation, and wet meadow.

Global positioning system (GPS) locations and habitat type are being recorded for groups of birds aged one through four years. Data collection occurs two to three times weekly at variable times. Habitat type is classified using the Wisconsin Natural Heritage Inventory system and WISCLAND, a Landsat Thematic Mapper using satellite imagery obtained between 1991 and 1993. Kelly's research objectives are 1) to describe habitat selected at different times of the day, 2) to describe habitat selected throughout summer and fall, 3) to describe and compare habitat selected by adult versus juvenile birds, and 4) to evaluate the amount of preferred habitat available in these areas.

- 2) Prescribed burns benefit native landscapes while also helping whooping cranes. After a prescribed burn, Wisconsin land managers can further assist the reintroduction project by summarizing both the biological outcome and whooping crane use.

Florida:

During winter of 2004-2005 and 2005-2006, Lara Fondow, ICF and USFWS tracking team leader, monitored winter habitat use of EMP whooping cranes in Florida, while pursuing a master's degree in Wildlife Ecology at the University of Wisconsin-Madison.

Research thesis objectives are to provide description of both the habitat preferences and requirements of EMP cranes in Florida and some of the possible mechanisms involved in habitat selection. In the face of rapid urban development, this work will help biologists to project habitat needs over time and to determine whether sufficient Florida habitat exists to meet the needs of wintering whooping cranes.

10.1.6 Health Issues

Determining EMP mortality risk factors is an ongoing research need. The WCEP Health Team meets biannually to discuss current and potential health issues, management options and research plans. Current research includes analyzing the first five years of health data, assessing disease prevention and control strategies and investigating the potential impacts of emerging diseases, such as avian influenza and West Nile virus. Future research is needed to reduce the impacts of musculoskeletal and other diseases on the survivorship and fitness of chicks for reintroduction.

10.1.7 Food Habits

Little is known about the basic foraging ecology and diet of the EMP cranes. Future studies may be undertaken to determine whether whooping cranes affect Wisconsin agriculture and to identify potential impacts of environmental contaminants on whooping cranes.

10.1.8 Potential Utility Line Collisions

Little is known about the potential areas of concern for utility line collisions in Wisconsin. Future studies may be undertaken to understand which sections of power lines it may be useful to mark

to prevent collisions. Increasing numbers of power lines, communication towers, and wind turbines may kill as many as 225 million birds annually in the U.S. (Manville, in press; CWS & USFWS, 2006). Recently, seventeen Florida cranes and two EMP cranes died by hitting power lines. In the 1980s, two of nine radio-marked AWBP whooping cranes collided with power lines and died within the first 18 months of life (Kuyt, 1992). Since 1956, power line collisions caused the death or serious injury of at least 41 whooping cranes.

10.2 MONITORING PROTOCOL

Development of a long range EMP monitoring plan is under consideration. This plan would assist reintroduction efforts by identifying both priorities and a network of field personnel and equipment in both Wisconsin and states along the migration route.

10.3 EQUIPMENT

Additional radio reception towers are needed to enable monitoring of whooping cranes at Jasper-Pulaski Fish and Wildlife Area in Indiana and Hiwassee Wildlife Refuge in Tennessee. Similarly, PTT transmitters may become increasingly valuable in providing the project data on crane movements.