



Whooping Crane Eastern Partnership Five Year Strategic Plan

December 2010

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PREFACE

In fall 2010, the Whooping Crane Eastern Partnership (WCEP) will begin its second decade of work to introduce a migratory population of whooping cranes to eastern North America. The size of the population has grown to about 100 birds, and the scope of the operations has grown with the flock. It is now clear that the introduction of migrating birds is successful, and our focus turns to understanding and promoting successful reproduction by the reintroduced birds at levels that will lead to the establishment of a self-sustaining population.

This document identifies benchmarks for evaluating our progress during the five-year period and outlines how such an evaluation will occur. The external review of WCEP completed in March, 2010 provided strong recommendations to develop such a plan and to establish workable methods of accountability within the organization. This strategic plan will help implement both of those recommendations.

The strategic plan is a guide to setting general priorities for 2011-2015. It sets a broad direction for reintroduction efforts and serves as a foundation for annual

workplans based on WCEP's four operating principles. The knowledge and recommendations of individuals and teams conducting the varied reintroduction activities is vital to successfully developing specific implementation plans. Operating teams should complete annual workplans and submit them to the Guidance Team by December 1 each calendar year.

PART 1. BACKGROUND INFORMATION

a. Introduction

The whooping crane (*Grus americana*) is a critically imperiled North American crane species with fewer than 270 birds in a single wild population that migrates between Wood Buffalo National Park in the Northwest Territories of Canada and the Aransas National Wildlife Refuge on the Texas Gulf Coast. In the recovery plan for this species, the International Whooping Crane Recovery Team recommended the restoration of an additional and separate, migratory, self-sustaining whooping crane population to eastern North America (www.bringbackthecranes.org/recovery/recoveryplan2007.html). Other efforts include reintroduction of a non-migratory population to Florida (releases into that flock have been discontinued) and a proposed reintroduction to Louisiana with releases starting in 2011.

b. Whooping Crane Eastern Partnership

Organized in 1999, the Whooping Crane Eastern Partnership (WCEP), comprised of nine government agencies and non-profit organizations, was formed to implement the Recovery Team's recommendation by restoring a migratory population of whooping cranes to eastern North America.

WCEP founding members are the International Crane Foundation, Operation Migration, Inc., Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, the U.S. Geological Survey's Patuxent Wildlife Research Center and National Wildlife Health Center, the National Fish and Wildlife Foundation, the Natural Resources Foundation of Wisconsin, and the International Whooping Crane Recovery Team. Since its inception, other strategic partners in the restoration effort include the Florida Fish and Wildlife Conservation Commission, and states and organizations along the Atlantic and Mississippi flyways.

WCEP implements its activities through coordinated joint and individual efforts by partners working with state and federal agencies that have jurisdiction over the whooping cranes and/or the habitats they use. The partnership works through a "team approach" where key areas of WCEP activity and day-to-day decisions are addressed by one or more project teams that include individuals from partner groups with expertise and decision-making responsibilities in that area:

www.bringbackthecranes.org/design/WCEPGuidanceDocument.html.

c. Recovery Goal and Fundamental Objectives of the Partnership

The establishment of one or more discrete wild whooping crane flocks in addition to the existing Aransas-Wood Buffalo flock is called for in the 2006 Recovery Plan and is part of the recovery strategy. The size and productivity of an eastern migratory flock is important to the criteria for reclassifying the whooping crane from endangered to threatened status on the Federal List of Threatened and Endangered Species. The minimal benchmarks in the Recovery Plan for the eastern migratory population are a self-sustaining flock of 100 birds and 25 breeding pairs. If the reintroduced eastern migratory population is the only reintroduced flock in existence, the recovery criteria require a larger self-sustaining flock of 120 birds and 30 breeding pairs.

To act as criteria in evaluating the progress of the restoration effort and serve as primary guides in decision-making, WCEP has identified the most critical shared objectives of the partnership. These fundamental objectives are to:

1. Establish a self-sustaining migratory population of whooping cranes in eastern North America (the eastern migratory population). Here, a self-sustaining population is one with recruitment from natural reproduction rather than introductions from captive flocks, and for which only minimal management is needed (e.g., activities such as translocation of birds, fencing of nests, pest control, and supplemental feeding are not routinely undertaken).
2. Minimize the chance of potential negative effects of the eastern migratory population on the Aransas-Wood Buffalo population, for example, through disease transmission.

d. Current Status of the Eastern Migratory Population

The reintroduction effort over the past ten years has proven successful in establishing a population that exhibits directed migration using two different release methods, ultralight-led migration and Direct Autumn Release (DAR). The reintroduced population has demonstrated high levels of adult survival comparable to the Aransas-Wood Buffalo population, and the population in 2010 stands at nearly 100 cranes.

e. Nesting History

The first wild-hatched chicks were produced in 2006 by a renesting pair that successfully hatched two chicks, one of which survived through fledging and is currently a member of the eastern migratory population. However, reproduction did not occur as expected in subsequent years, despite appropriate pairing, courtship, nest-building, copulation, and egg-laying by growing numbers of whooping crane pairs:

- 2005 – First year that pairs in the eastern migratory population nested. Two nests were built and two eggs laid, but neither egg survived to hatching.
- 2006 – First successfully fledged chick in the eastern migratory population. Five nests built, all five nests were unsuccessful. One pair renested and hatched two chicks. One of the chicks, #W1-06, survived to fledging.
- 2007 – Four unsuccessful nests. One pair renested, but this nest was also unsuccessful.
- 2008 – 11 unsuccessful nests.
- 2009 – 12 unsuccessful nests. Five or six pairs renested (it is unknown if there was a sixth renest). Two chicks hatched, but both chicks died within a month. One of the chicks that hatched was from a captive-produced egg.
- 2010 – 10 unsuccessful and 2 successful first nest attempts of the year, 2 unsuccessful and 2 successful second nests and 1 successful third nest. Seven chicks hatched to five sets of parents (two pairs had two chicks). One of the chicks that hatched was from a captive-produced egg. Two chicks, #W1-10 and #W3-10 (from the captive-produced egg), survived to fledging.

WCEP responded to this lower than expected reproductive success with detailed nesting studies in 2009 and 2010. The goal of these studies was to investigate the cause(s) of nest abandonments and incubation failures by collecting data throughout the nesting period on crane behavior and on potential factors influencing incubation length, including temperature, food availability, and black fly abundance and distribution.

f. Research and Management

The eastern migratory population is being reintroduced based upon the knowledge derived from the Aransas-Wood Buffalo and Florida non-migratory populations. Major differences in the habitats and ecosystems between these populations suggest there can be corresponding dissimilarity in aspects of their ecology. Therefore, we base our management of the eastern population on locally-derived data where that is available. Accordingly, a strong research program is needed to provide data to underpin the management of this population in the face of regional uncertainties.

WCEP is currently developing a science framework to guide the reintroduction program. We have established population viability assessment (PVA) metrics, and compiled past data into a format that supports PVA analysis. We are preparing to implement a new monitoring strategy that aligns all field data collection with priority management decision-making, research questions, and project evaluation data needs. We have begun development of a new data management system that implements the new monitoring strategy and provides data access to all project partners. We have conducted two years of intensive observational studies to identify factors affecting nest success, and identified nesting research priorities for the next two years. We conducted a pilot black fly

suppression treatment in 2010 in order to allow us to design an experimental full-scale black fly suppression treatment to evaluate the role that black flies play in whooping crane nest abandonments. We are currently developing an overall reintroduction research strategy and are establishing a science advisory committee to aid us in further integrating our science and management frameworks.

Our research and management strategy will focus on identifying the causes of nest failures through controlled management experiments on the current nesting areas, through continued observational studies of the reintroduced population, and through testing of experimental methods to expand the population to alternative nesting habitats with conditions that may be more favorable for successful wild reproduction.

g. Additional Information

Further information on whooping crane biology, history, habitat use, status and distribution can be found in the Wisconsin Whooping Crane Management Plan: dnr.wi.gov/org/land/er/birds/wcrane/pdfs/WC_Mgmt_Plan.pdf and on the WCEP website: www.bringbackthecranes.org.

PART 2. OPERATING PRINCIPLES

a. Science

WCEP uses the best science available to inform decisions. This accepts the fact that science is always changing through new research and discovery. It also means that there are times when we need to make decisions with the best information we have even though we may not have enough.

Priority Objectives:

- **Produce and implement a research and science strategy for WCEP.** The Research and Science Team will consider the information needs of all operational teams and develop a science strategy for meeting them.
- **Establish a Science Advisory Committee.** The Research and Science Team will coordinate with a Science Advisory Committee to identify and engage scientific expertise on research needed to inform decisions by the other WCEP functional teams.

b. Collaborative Partnerships

WCEP is made up of partners, each of which bring value to the organization. WCEP operates in an atmosphere of collaboration by which each partner organization is represented at each team level and part of the decision making.

WCEP will communicate focused, unified messages to landowners and other stakeholders. The ultimate success of the project depends on educating a diverse network of partners across the landscapes where these birds breed, winter and migrate. WCEP will look for opportunities to incorporate other new partners into the conservation and restoration of whooping cranes.

c. Communication

Communication within a large partnership is difficult yet critical to our success. Open, transparent communication is essential to building trust, avoiding surprises, and keeping our common mission first and foremost in our daily operations. Sharing meeting minutes, including decisions and how they are reached in a timely manner, is one component of transparent communication.

The Administration and Communications Team will be responsible for most of the formal information flow both within the partnership and to our outside audiences. Open and respectful communication between individuals within this broad and diverse partnership will be key to the success of the partnership.

d. Evaluation

The WCEP project conducts continuous evaluation and adjusts its day-to-day operations in order to keep the end goal in focus. Review and evaluation of key elements are undertaken annually and/or every five years in order to identify strategic adjustments needed for the project. Key planning documents and operational guidelines will be updated annually and/or every five years based on this evaluation and review.

PART 3. OPERATIONAL PLANNING

a. WCEP Strategies

The primary focus of WCEP over the next five years will be on achieving successful reproduction in the wild flock by overcoming the current pattern of nesting failures, while continuing to promote growth of the population through releases of captive-reared birds and through management of released and wild-hatched birds. Key to this effort will be identifying the factors that are contributing to the nest failure, and identifying management actions that address those factors and promote successful reproduction. This effort is the highest priority of the partnership.

1. Successful establishment of a self-sustaining eastern migratory population of whooping cranes will be achieved by releasing birds into appropriate habitats (i.e., habitats that will support successful nesting).

Male whooping cranes return to their natal areas when they are ready to establish breeding territories. Therefore, the only management option available to us for promoting use of the most suitable breeding habitat is to release male whooping cranes directly into, or perhaps very near, the desired nesting locations.

- **To identify habitat most likely to support successful nesting, we will complete a comprehensive habitat analysis.** Future releases of captive birds will be targeted to sites that we think will provide habitat for successful nesting. In order to avoid gaps in the population structure that would affect the eastern migratory flock in the long term, a preliminary analysis of habitat should be completed by January 2011 and the final analysis no later than January 2012, and every effort to identify a release site for 2011 should be made. The analysis should include landscape factors as well as individual site characteristics, and be based on what we know about life history requirements and knowledge we have gained from past habitat use by the cranes and the results of the nesting studies.
- **We will select future sites for release of whooping cranes based on the expected long-term suitability of that habitat as a future breeding territory.** Expected suitability of habitat to support successful whooping crane breeding will be the primary site selection criteria for the next ten years of release. Further site selection screening will include other factors identified in previous site screenings, such as the Cannon report – *Cannon, J. R. 1999. Wisconsin Whooping Crane Breeding Site Assessment - Final Report. Submitted to the Canadian-United States Whooping Crane Recovery Team, September 22, 1999* (available on request from the International Crane Foundation: www.savingcranes.org/library-3.html). This is a cross-cutting effort that will be directed and managed by the Operations Team.

In addition to finding the most biologically suitable breeding habitat for whooping cranes for our next release site or sites, we also plan to work with potential land owners and managers and their neighbors to identify and build support for use of those lands as future release and whooping crane breeding habitats. Release site selection will be a key step in setting the stage for the future success of the reintroduction effort.

- **Further releases of captive cranes into the Necedah area will be discontinued until we identify management actions that can address the causes of nest failures.** Research on nesting birds and experimental management of nesting birds will be priorities for the partnership. If the pattern of nesting failures can be successfully modified through management actions in the Necedah area, the population nesting at Necedah may be augmented at a future date by additional releases of captive birds. Releases of captive birds into the Necedah area, however, may also be conducted if doing so supports the overall reintroduction effort. For example, the Necedah area may be an optimal location for conducting experimental trials of new or modified release methods (see below).

- **We will evaluate our current rearing and release techniques, as well as continue to explore and evaluate other potential release techniques.** We will evaluate the DAR and ultra-light release methods, and conduct pilot releases using captive parent-reared birds.

Current release methods include the ultralight-led releases and the DAR method. Variations on each method, and additional methods, may be developed as needed. Captive parent-reared releases, crane chicks would be raised by captive whooping cranes instead of the costume, is an alternate rearing and release method that has been proposed for 2011. The release method for captive parent-reared cranes is still in development.

- **We will select optimal release methods for future whooping crane releases based on the results of the release method evaluations, and the opportunities or limitations provided by the habitat characteristics of the chosen release site(s).** The numbers of birds that will be released between 2011 and 2015 will depend on several factors: annual production at the captive breeding centers, distribution of those chicks among release programs and other whooping crane recovery needs, capacity of various release methods, and ability to learn from alternate release methods through comparative studies. We anticipate that annual release cohort sizes will range from 12 to 20 birds.

2. We will continue to explore options to increase reproduction of the whooping cranes nesting in the Necedah area through management actions. Note that while patterns of nest abandonments have been of great concern to the partnership, we do not have detailed information from the Aransas-Wood Buffalo population about breeding success of young cranes, and it is possible that reproduction by these cranes at Necedah may increase as the cranes mature.

- We will evaluate the data collected over the past two nesting seasons, and identify priority research and monitoring for upcoming nesting seasons.
 - We will explore options for management actions, such as egg collection from early nests, to increase nesting success and to possibly increase the number of eggs/chicks for release.
- **Our goal is to complete the nesting research data and habitat analysis, and to identify future release sites in time for releases into Wisconsin in 2011.** However, given the time required to analyze our habitat data, identify suitable nesting habitat, contact landowners and land managers of suitable sites, obtain all required authorizations, and construct release facilities, future releases may be delayed until summer 2012. Our highest priority is to ensure that we release the whooping cranes into habitat where they will have the opportunity for successful nesting and rearing of the next generation of wild whooping cranes in the eastern migratory population.

3. Management of post-release cranes will ensure that post-release survival remains high, and monitoring of the post-release cranes provides data to inform ongoing management actions.

- **We will complete and implement the WCEP Monitoring Strategy.** Successful establishment of a self-sustaining population of whooping cranes will require recruitment sufficient to offset mortality. The WCEP Monitoring Strategy recommends that the two highest monitoring priorities be measuring adult survival and monitoring breeding activity sufficient to document recruitment. Also, to confirm that young whooping cranes are exhibiting behaviors important to survival, the WCEP Monitoring Strategy recommends that first-year birds be monitored to document appropriate habitat selection, avoidance behaviors, and crane associations. On an as-needed basis, existing protocols will be updated and new protocols will be developed by the Monitoring and Management Team.
- **Post-release management of whooping cranes will focus upon achieving project objectives.** When cranes need to be relocated or removed from the population due to inappropriate location or behavior, or illness/injury, decisions on when or whether to intervene will be based on the likelihood of the bird(s) survival in the wild, its genetic value to the population, and relative cost in money and time to allow for re-release into the wild. Decisions on disposition of bird(s) will be made in consultation with the Whooping Crane Recovery Coordinator.
- **We will complete development of the WCEP database, which will become the repository of project data, for the benefit of all partners.** Data derived from multiple aspects of the project such as field monitoring, captive rearing, and research, will be housed in a common on-line, secure database which is currently nearing completion. The database will allow for integration of multiple sets of data, and available to all partners to inform management decisions, measure progress towards project objectives, and facilitate data analysis to answer critical research questions.

b. Budgeting and Fundraising

The Guidance Team will work with the operational teams to develop an annual budget to implement their annual workplans. We will use this budget to set funding priorities, identify funding shortfalls, and develop coordinated fundraising plans.

The Guidance Team will assess feasibility of creating a “WCEP General Fund” to which all partners contribute and which funds priority WCEP activities, e.g., acute research or conservation needs.

c. Communication

We will improve mechanisms of communication both within and outside WCEP. The Administration and Communications Team is charged with developing an effective system for dissemination of information to internal and external audiences.

Specific activities include:

- Developing a transparent structure for managing information on the WCEP Wiki, so that:
 - Project reports and documents can be located by all members.
 - Inter-team communication is facilitated.
 - Decisions are transparent to all members.
- Coordinating with other team leaders to establish a schedule for reporting.
- Structuring and managing yearly meetings and incorporating information and reports generated from the meetings into the working functions of WCEP.
- Managing the WCEP Annual Report and updating the report's format and distribution.
- Providing support and encouraging teams in the publication of scientific papers.
- Coordinating with WCEP partners on presenting outreach programs.
- Developing and distributing education and outreach materials for partners and public use.
- Developing press releases and press packets and working with local, national and international media.
- Maintaining the WCEP website and providing support to other partner websites.

d. Evaluation Plan

The Guidance Team will evaluate our progress in meeting the goals identified for the project overall. We will review our strategic plan, annual reports developed by the teams, and share results of our review and develop annual guidance for the teams.

Biological Goals

The WCEP project will be evaluated against the following fundamental objective: Establish a self-sustaining migratory population of whooping cranes in eastern North America. According to the 2006 International Whooping Crane Recovery Plan, to assure the sustainability of the population, the target 2020 goal is a minimum eastern migratory population of 120 whooping cranes with 30 breeding pairs that regularly nest and fledge offspring.

At five year intervals, beginning in 2011, a comprehensive review of the eastern migratory population status should occur in accordance with the 2006 Wisconsin Whooping Crane Management Plan, and be based on the Population Viability Analysis tool being developed at the U.S. Geological Survey's Patuxent Wildlife Research Center. This analysis will be conducted by the Research Team with peer review by the WCEP

Scientific Advisory Committee resulting in a set of recommendations for action to help achieve the population goal above. The analysis will be used to guide population management decisions implemented by various WCEP teams over the following five year period with annual updating.

Annual calculation and review of the demographic characteristics of this population should be conducted by the Research Team with assistance from the Monitoring and Management Team to include basic indices on bird survivorship, mortality and recruitment as well as total population. Current criteria for survivorship, mortality and recruitment for the eastern migratory population are not set, but would be expected to fall in the known range of the Aransas-Wood Buffalo population indices. In addition, the genetics of the eastern migratory population should be analyzed at a similar frequency due to concerns of overrepresentation of certain lineages as well as the potential for sibling matings to lower flock genetic diversity. Included in this annual review will be assessments of habitat limitations, pair formation, behavior and general reproduction. This annual review will be presented at the annual March meeting.

Operating Principles

The Guidance Team and Operations Team will annually evaluate how the partnership is operating according to our operating principles. The Guidance Team will evaluate itself, the Operations Team, functional teams, and team chairs annually. The Guidance Team will review annual workplans which will be developed by the functional teams.

Teams will be evaluated on the following criteria:

- Is the annual workplan produced, is it consistent with strategic plan, and was it implemented, as shown in an annual team report (draft workplans and reports are due December 1 of each year, well in advance of the annual meeting in March).
- Are decisions documented and made available to the rest of WCEP by posting on the Wiki?
- Are operating principles of WCEP being demonstrated in their work?
- Are conflicts and differences of opinion addressed and resolved appropriately?
- Are all relevant team members included in decisions, and are decisions raised to the appropriate level?

Team chairs will be evaluated on the following criteria:

- Regular team meetings are held.
- Meeting summaries and decision memos are shared/posted to the Wiki.
- Team chairs effectively facilitate group discussions.
- Team chairs seek input of all partners contributing to their functional area before developing decision recommendations.

PART 4. CONCLUSION: A LOOK TO THE FUTURE

Whooping cranes are charismatic birds that will require our long-term attention and support to fully recover from their near extinction in the 1940's, when only 21 individual whooping cranes remained alive in the wild. A self-sustaining wild flock of whooping cranes that nests in Wisconsin and migrates south to wintering habitat is a crucial component for recovery of the species from its current status: in danger of extinction. The efforts of the Whooping Crane Eastern Partnership and our many supporters and contributors have resulted in great success in the first ten years of the reintroduction effort. The eastern migratory flock numbers nearly a hundred adult whooping cranes. As we work through the next five and ten years of the reintroduction effort, we intend to set this population on the path to long-term viability, so that whooping cranes become a familiar and expected part of the landscape in the eastern United States.

Seeing success in building and sustaining populations of long-lived, highly specialized species such as the whooping crane requires patience and sustained efforts over the long term. Whooping cranes in the wild often do not raise young until their third, fifth, or even seventh year, and even mature cranes may skip a year of reproduction in hard years. Therefore, population growth is slow, and seeing results in population recovery takes time.

Our vision for the WCEP reintroduction project and the partnership in 2016:

- We see positive recruitment into the eastern migratory population, with many breeding age pairs and successful nesting – a clearly visible upward trend.
- We have in place a management plan for best use of the resource of nesting whooping cranes at Necedah.
- We understand the primary factors that lead to nesting and reproductive success for whooping cranes in Wisconsin.
- We are releasing cranes into locations that will result in future breeding territories that support successful reproduction. Release sites data from past releases are driving our selection of release methods. Cranes released into these new sites are starting to exhibit courtship and nesting behaviors, with oldest pairs successfully fledging chicks.
- As a program, we are collaborative, science-based, and have the resources needed to do the job right.
- Implementation of the WCEP science strategy and monitoring strategy provides us with data that helps us evaluate our progress and identify optimal strategies for management, and points the way for the next five years of the reintroduction.

- Our coordinated, partnership-wide approach to budgeting and fundraising puts us in a strong position for obtaining the needed project funding and resources, and funding is available for the highest priority needs of the project.
- Whooping crane management is “business as usual,” meaning that it is fully integrated into Wisconsin Department of Natural Resources and U.S. Fish & Wildlife Service programs.
- There is a proactive approach with landowners about whooping cranes, good public acceptance of whooping cranes on public and private lands, and the population is part of the Wisconsin landscape.