HEALTH MANAGEMENT FOR THE RE-INTRODUCTION OF WHOOPING CRANES (*Grus americana)* USING ULTRA-LIGHT GUIDED MIGRATION

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Abstract

The North American whooping crane (*Grus americana)* population declined to a low of 15 birds in 1941, because of hunting and habitat loss.[1] Since then, this population, which breeds in Wood Buffalo National Park in Canada and winters on the Gulf coast of Texas, has slowly increased to over 170. The International Whooping Crane Recovery Plan stipulates creation of two additional breeding whooping crane populations to achieve recovery of the species. To achieve this goal, the United States/Canada Whooping Crane Recovery Team is attempting to create a second migratory flock of whooping cranes in the eastern United States, using ultra-light aircraft to teach the birds migration.

A 2000 pilot project to test project rearing techniques was conducted with sandhill cranes (*Grus canadensis)*, and in 2001 the first cohort of 11 whooping cranes was re-introduced. The chicks were hatched and reared to approximately 60 days at Patuxent Wildlife Research Center, Laurel, MD (PWRC), using puppets and costumes to prevent human-imprinting. Training with the ultra-light aircraft was initiated at PWRC and continued after the cranes were transferred to Necedah National Wildlife Refuge, WI, where the cranes lived in large wetland pens. Eight cranes began the ultra-light led migration in October 2001. Fifty days and 1227 miles later, seven cranes arrived at Chassahowitzka National Wildlife Refuge, FL, the chosen wintering site. After losing two cranes to bobcat predation early in the winter, the remaining five cranes started the northward migration on their own in April 2002.

A team of veterinarians provided health care and disease monitoring for the pilot project sandhill cranes and the whooping cranes. The goals of the health management program are: (1) control introduction of disease between captivity and the wild, (2) provide individual care and screening to maintain the level bird fitness needed for this re-introduction effort, and (3) gather information on the potential health risks associated with the rearing, training, and assisted migration techniques used. The cranes were assessed using observation, physical examination, routine clinical pathology, radiography, fecal microbiology, serology and necropsy, from hatch at the captive facility through flight training in Wisconsin, along the ultra-light migration and shortly after arrival at their Florida destination. The veterinary team reviewed published and regional avian mortality databases to assess possible health risks at the rearing, migration, and wintering sites. A network of zoo and

private practice veterinarians was established along the migration pathway to provide emergency care for the cranes.

Most of the mortality factors for the project cranes were typical of other wild and re-introduced crane populations: neonatal parasitism, powerline strike trauma, predation, and capture myopathy.[4] However, two sandhill cranes were killed when they collided with the ultra-light aircraft. Developmental wing or leg problems compromised the performance of four cranes; these problems are regularly seen in captive-reared cranes where the impacts on fitness are generally less important than for this release population.[5] Gapeworm parasitism was a clinical problem for the cranes during the summer at Necedah National Wildlife Refuge. Despite regular, apparently successful, treatment in food items, some birds had persistent or recurrent exercise associated wheezing. Coccidia and *Hexamita* sp. were also detected in the feces, but were not associated with clinical signs. Because of an unusual outbreak of Eastern Equine Encephalitis (EEE) in horses in Wisconsin and the known susceptibility of whooping cranes to this virus, the birds were vaccinated for EEE while at Necedah.[2,6] The whooping cranes were tested at each stage of the project for West Nile Virus (WNV) for evidence of WNV exposure; serology was consistently negative. *Salmonella* spp. bacteria of a variety of likely non-pathogenic strains were detected during the routine examinations before shipment from Patuxent, on arrival at Necedah, before migration, and on arrival in Florida. There was no associated disease detected. All the identified strains had previously been reported from wild birds, so the birds were allowed exposure to the wild environment without treatment.

Fecal corticosterone levels in the sandhill and whooping cranes were monitored during all phases of the rearing, training, migration and release. The goal of this monitoring was to assess stress induced by the methods used in the re-introduction. Significant disturbances, such as shipping and restraint for health monitoring and banding procedures appeared most linked to increases in fecal corticosterone.[3]

The health data collected on the pilot project sandhill cranes and first cohort of whooping cranes provide project managers with information about the health risks associated with this specialized re-introduction technique and the data on infectious disease risks that are needed to prevent introduction of novel pathogens along with a novel endangered species.

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