

Testimony of Dr. George Archibald
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Before the House Subcommittee on Fisheries, Wildlife and Oceans
Regarding H.R. 1771 "*Crane Conservation Act of 2007*"
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Introduction

Good morning Ms. Chairwoman, Representative Brown and members of the Subcommittee. As the Co-founder and Senior Conservationist of the International Crane Foundation (ICF), and someone who has dedicated his life to saving cranes, it is an honor to appear today to provide testimony and strong endorsement for H.R. 1771, the Crane Conservation Act of 2007 (CCA). This important legislation, a natural extension of the Multinational Species Conservation Fund established by the U.S. Congress, will provide significant new hope for the world's 15 species of cranes and the wetland, grassland and other ecosystems on which they—and many other species—depend. Further, as cranes often traverse great distances during migration, supporting their protection promotes cooperation and goodwill between diverse peoples and nations.

Cranes are among the most threatened families of birds in the world, yet their special characteristics create unique opportunities for conservation action. In this way cranes are both sentinels and flagships for conservation. With their cultural significance, high visibility, extraordinary beauty, dramatic migrations, and striking behavior, cranes inspire caring and action. When people commit to save cranes, they commit to broad cooperation and to the future of ecosystems that sustain cranes, people and the diversity of life.

I've experienced what is possible on behalf of these magnificent birds. I've seen hostile nations come together to protect their shared cranes. I've seen species coaxed back from the very brink of extinction through human creativity and extraordinary dedication. While great challenges exist—over two-thirds of the world's cranes are threatened or endangered—we can save them. We have good science and many passionate individuals working worldwide, and we are poised to do more. Implementing the Crane Conservation Act would leverage efforts and resources to help save these imperiled, revered birds.

Why Cranes?

You may wonder, "Why all the concern about saving cranes?" The reasons for concern are both scientific and cultural. Because of their diverse habitats and world-wide distribution, cranes offer a rare opportunity to assess, on several continents, the general health of land and water ecosystems and the life they support. Because cranes show consistently declining numbers in many parts of the world, they are a signal that key crane habitats, both wetlands and grasslands, are being seriously altered or damaged on a worldwide scale.

The facts from science are sobering, but it is the mystery of cranes that stirs us most deeply. We stop, listen and shiver when the cranes call. We catch our breath at the sight of great wings, held up like a shield as they signal to others of their kind. Over the centuries, cranes have become symbols that speak to the human heart with visions of paradise and longings for the inexpressible.

Cranes have figured prominently in the silks, sculpture, poetry and folk tales of many cultures. Embroiderers stitched crane shapes on kimonos and wall hangings. Sculptors fashioned cranes in jade,

bronze and gold. Poets and musicians were captivated by the cranes' grace, while dancers imitated their elaborate displays. Kings kept cranes as symbols of royalty and power. Because of their long life spans and because cranes often mate for life, they have become symbols of longevity, monogamy and good luck, decorating palace walls and wedding altars. Even today, several nations have chosen cranes as the national bird, and cranes appear on the stamps and coins of many countries.

The disappearance of cranes would mean more than an empty place in the sky, more than a missing strand in the weakened web of life. It would mean the loss of a symbol of inestimable beauty and value. If cranes are, as Aldo Leopold suggested, a "symbol of our untamable past," they also are symbols of our uneasy present and unknown future. Few other animals afford us such a view - backward to the beginnings of geologic time and forward to the future we are building for our grandchildren.

Now, in response to the challenge of their decline, people from many nations are working to save the cranes. Through these efforts, cranes are becoming ambassadors for the many smaller creatures that don't inspire human compassion. To save the cranes, we must save their habitats. In the process, many other species, some endangered, that depend on wetlands and grasslands will also be saved.

The World's Endangered Cranes

A significant number of the fifteen crane species are listed as endangered or seriously threatened under the Endangered Species Act of 1973. Five species of Asian cranes -- Siberian, Red-crowned, White-necked, Black-necked and Hooded -- plus the Whooping and Mississippi Sandhill cranes in North America are listed as endangered. Four species of African cranes -- Wattled, Blue, Grey Crowned and Black Crowned -- plus the Sarus Crane in Asia are considered seriously threatened. The International Union for the Conservation of Nature and Natural Resources (IUCN) has similar classifications for these same species and furthermore states that trends for eight of these species are not favorable.

Rare and beautiful, these cranes are increasingly vulnerable. As large birds they have always been targets for hunting and trapping. Now more than ever, habitat destruction is the cause of their decline as people compete with cranes and convert wild areas to accommodate growing human population. Lands are stripped of natural resources, flooded to become reservoirs, drained for agriculture or misused as sinks for polluted runoff and wastewater.

Crane Conservation Act of 2007

The Multinational Species Conservation Fund addresses some of the most treasured and exotic animals that are dangerously close to extinction. Animals that have benefited from the Fund—tigers, rhinos, great apes, elephants and marine turtles—have experienced devastating losses of populations because of the destruction of their natural habitat, poaching, illegal trade and humanity's incursion into their environment. Yet, through the help of the Fund and the dedication of many, conservation successes are being achieved. It is important that the very positive nature of this resource be made available to other species. There is a very strong case to be made for the world's cranes. We urge your support for the proposed Crane Conservation Act and wish to share the following thoughts:

- The CCA is species specific and broadens the scope of the Multinational Species Conservation Fund into a new taxa—birds.

- Eleven of the world's fifteen species of cranes are threatened or endangered, constituting a clear conservation need.
- The crane is a flagship species representing vast landscapes of wetlands and grasslands: conserve the crane and the habitat on which it depends, and countless other species—including humans—share the benefit.
- The extraordinary charisma of cranes offers a strong beacon for conservation education and action—cranes offer a high-profile investment.
- Cranes are the largest flying birds in the world, covering great distances and touching many different people and nations through their migrations. Investing in the protection of cranes promotes cooperation and goodwill among diverse nations.
- Cranes are culturally significant and have iconic status throughout the world. In Vietnam, cranes carry the souls of the dead to heaven; in Japan, cranes are honored as a symbol of long life; and in the Midwestern U.S., the Ojibwe people call cranes the “speaker for the clans,” a unifying voice among people. Protecting cranes protects these important cultural symbols and meanings.
- The CCA will bolster the work of hundreds of crane researchers and conservationists worldwide. It will also leverage the resources of many organizations, governments and private individuals working globally to protect cranes.

People and their governments around the world have already shown considerable willingness to act on behalf of cranes. The International Crane Foundation is a small non-profit organization, and yet the very small grants we have provided often have leveraged substantial financial commitments from other sources and remarkable actions by government agencies. In China, for example, over 40 nature reserves have been established for cranes, while Russia has millions of acres protected because of the needs of cranes. Given the charisma and cultural significance of these birds, grants made through a new fund for cranes, under the Multinational Species Conservation Funds administered by the U.S. Fish & Wildlife Service, would have considerable impact on the ground on five continents, generating sizable non-federal financial matching contributions.

I wish to share with you some of the stories of the world's most imperiled cranes, their threats, and the work that is being advanced by ICF and partners to protect these species and the places they need to survive.

SIBERIAN CRANE (*Grus leucogeranus*)

The most highly specialized members of the crane family, Siberian Cranes have the longest migration routes, the most aquatic nesting and feeding requirements, and the most distinctive behavioral displays. Their clean and silvery call can instantly be recognized amongst a chorus of other species. During the unison call (when mated pairs call simultaneously), the striking white birds with black wing tips stand with their heads thrown back and pink bills pointing skyward.

Mysterious Migration

After 30 years of study, we are still piecing together the puzzle of the Siberian Crane migration routes. A western Asian flock east of the Ural Mountains flies south and around the Caspian Sea, rests at the Volga River Delta, and finally completes its route of over 5,000 miles to Iran. However, this group has declined to single digit numbers, and it is not certain if current efforts at leading newly released Siberian Cranes by a powered hang-glider, a feat similar to that accomplished with Whooping Cranes,

will be successful in rescuing this small group. Another flock in Central Asia has disappeared on their wintering grounds in India. Only the eastern flock has viable numbers today. Around 3,500 birds migrate from eastern Siberia through northeast China to winter at Poyang Lake.

Now we are attaching small radios tracked by satellites to the wild cranes to learn more about the migration routes of the eastern Siberian flock. We hope to learn more about spring migration routes and the poorly known summering areas for juveniles. We will use this information to identify and protect important habitats. We are also using these satellite transmitters to study how the birds move and respond to changes expected from water development projects such as the Three Gorges Dam.

Flagship for Migratory Birds and Wetlands

In spite of our intensive work, one of the three populations of Siberian Cranes has been lost and another is at the verge of extinction. In response, ICF has intensified its efforts and works closely with governments, scientists, and local communities under two international agreements. Since 1992 we have led efforts to protect Siberian Cranes and wetlands in all 11 of the range countries under the Convention for Migratory Species *Memorandum of Understanding concerning Conservation Measures for the Siberian Crane*.

Using the charismatic and culturally significant Siberian Crane as a flagship species, the UNEP/GEF (United Nations Environment Programme / Global Environment Facility) “Siberian Crane Wetland Project” began in 2003 and runs for six years. We are protecting over 35 threatened migratory birds at 16 sites in China, Russia, Kazakhstan, and Iran. ICF is working with the governments to develop a coordinated approach towards the conservation of internationally important wetlands along two flyways of the Siberian Crane.

The work is extraordinarily varied. Governments have expanded protected areas by 1.8 million hectares. Perhaps the most unusual site is the new Non-Shooting Area and Ramsar Site in Iran, established to protect the wintering grounds of the Siberian Crane on the private rice fields (damgahs) and traditional duck trapping areas. The duck trappers keep firearms away, and carefully minimize disturbance to the birds, as their livelihoods depend on attracting flocks of ducks that swim into side channels of the wetland where they can be caught. Now, Duck Trapper Associations meet regularly with government representatives to consider how best to protect the damgahs and wintering waterbirds from encroaching development. The damgahs offer habitat and protection for other rare birds such as eagles, and have considerable potential for tourism, that could help supplement income of the duck trappers and pay for public education efforts and habitat enhancements.

In northeast China, the Siberian Cranes rest during migration on a complex of wetlands that are suffering from years of drought and water diversions to support growing human populations. Our team has involved diverse government sectors in planning wetland restorations for these project sites that set new precedents for China with special water allocations for conservation.

As we assess conditions of these wetlands such as the huge Zhalong Marsh, ICF benefits from its long commitment to this region. I (George Archibald) and Ron Sauey first studied birds of Zhalong in 1982. And ICF's Su Liying served as a biologist at Zhalong from 1982-89. Now, just like 25 years ago, she travels widely through the marsh at all times of year. Frigid winter is one of the best times for field work, Liying claims. Thick ice gives her access even to the favored resting places for the Siberian Crane, sites that are the soggiest and most impenetrable parts of Zhalong in May when the cranes

pause en route to the Siberian tundra. By mapping ditches and roads that cross the marsh, we are learning how best to return water to parts of Zhalong that are drying out.

WHITE-NAPED CRANE (*Grus vipio*)

The only crane species with a gray and white striped neck and pinkish legs, White-naped Cranes breed in northeast Mongolia, northeast China, and adjacent areas in southeast Russia. Every autumn, birds in the western portion of the breeding range migrate south through China to the mid-Yangtze River Valley, while cranes from the eastern breeding area migrate along the east coast of China, through Korea and then across the Korea Strait to southern Japan. These highways in the sky don't have stop signs, nor do sedge meadows have passport check points. The White-naped Cranes of the world travel on migration routes taught them by older birds in the flock. When they descend for feeding, they may land on fields that straddle politically tense international borders.

Since the collapse of the former USSR in 1991, White-naped Cranes along the Amur River valley have expanded their nesting into low-lying fields that have been abandoned. In addition, damming of Amur River tributaries seems to be reducing spring floods, providing better nesting habitat for the cranes. With reduced flooding, however, the risk from fires has increased. In spite of this, Russian scientists report that the number of White-naped Cranes is increasing in recent years.

No Man's Land: A Refuge

The White-naped Cranes have lived in Korea's Han River Estuary for centuries. The cranes come for tubers of the sedge and tidbits of leftover rice in surrounding paddies. By the hundreds, they also gather along the Sochon River that courses through the center of the demilitarized zone (DMZ). The DMZ is a no man's land, the buffer between North and South Korea. The DMZ was created in 1953, at the close of the Korean War, when opposing armies withdrew to either side of the zone. The area is still closed, making it an ideal, if unplanned, wildlife refuge. Tall chain-link fences, capped with rolls of barbed wire, line miles of riverbanks, where the river crosses one corner of the DMZ. The land is eerily quiet, except for the sounds of birds.

About half of the world's White-naped Cranes still live in the DMZ, thanks to the Korean government and ornithologist Kim Hon Kyu, who invited me (Archibald) to the DMZ to study the White-naped and Red-crowned Cranes of the Han River Estuary in 1974. A plan was brewing to develop the estuary for agriculture, but Kim hoped to save it for the cranes. Fortunately, wetlands on both sides of the Han River Estuary were protected by the Ministry of Culture as a National Monument.

Later, hundreds of White-naped Cranes were discovered wintering on the Cholewon Basin of the central highlands, a region crossed by the DMZ. The cranes roost in wetlands there, and then fly in the morning to rice fields in the Civilian Controlled Zone nearby. Satellite radio transmitters (provided by Japanese ornithologists) revealed that some White-naped Cranes spend the entire winter in or near the DMZ, while others winter in Japan, spending at least one month in or near the DMZ in both spring and fall.

ICF works with colleagues in both North and South Korea, who monitor the numbers and locations of cranes. Conservationists promote the idea of creating an international nature reserve for cranes and other wildlife in the DMZ. Then, when reunification happens, the critical habitat for White-naped (as well as Red-crowned) Cranes will be protected from threats of urban development. Today the White-

naped Cranes thrive on the Han River Estuary, now bordered by high-rise buildings and the fifth largest city in the world – the Seoul metropolis has a human population of over ten million.

Now, as we look to the skies, we note that the migrations of the White-naped Cranes are beginning to be better understood. When we regard the land, we see that the birds are finding ways to adapt in areas of international tension. They are winged ambassadors in search of peace and safety, reminders of the scientific mysteries and political challenges still waiting to be solved.

BLACK-NECKED CRANE (*Grus nigricollis*)

The Black-necked Crane is a close relative of the Whooping Crane. Yet it is unique among cranes, adapted for life at high altitudes. The Black-necked has shorter limbs and a stockier build than its relatives, enabling it to endure the harsh weather found on the Qinghai-Xizang (Tibetan) Plateau. These cranes spend their summers at altitudes of 9,700 to 12,000 feet. In winter the cranes migrate short distances to lower altitudes (6,000 to 12,000 feet) in southwest China, northeast India and Bhutan.

Before 1950, Black-necked Cranes apparently existed in large numbers. By 1991, however, ornithologists estimated that the number of Black-necked Cranes had dropped to less than 4,000, partly due to the decimation of wildlife that took place during political changes and the Cultural Revolution in China. Fortunately, China dramatically expanded its wildlife refuge system during the 1980s and 1990s. Nature reserves in China and Bhutan now protect this rare cranes' breeding and wintering areas.

Nevertheless, because of the difficult conditions where it lives, the Black-necked Crane was until recently the least known of all cranes. Because human pressures were growing even on the most remote breeding areas, it was vital that scientists learn more about this species.

The Human Side to Conservation

During the 1980s, ICF began to study Black-necked Cranes in the wild. Research Associate Mary Ann Bishop, Ph.D., began winter studies of the cranes in the valleys of south central Tibet. The greater part of the world population wintered here, and Bishop was able to confirm 3,900 birds – more than we had expected. We were also surprised to learn of the close dependence of this crane on human activities.

Even the valleys in Tibet are cold in winter. By night, the cranes roost on sandbars in swift-moving rivers that do not freeze. By day, the cranes feed on waste grain on nearby croplands. Traditionally, Tibetan farmers planted barley in spring, harvested it in fall, and left the ground fallow until spring plowing. Cranes found abundant waste barley, yet caused no damage as they departed for high altitude marshes in spring for nesting.

This situation was highly unusual. Most of China's spectacular wildlife lived in pristine places as far from human presence as possible. ICF realized that agricultural policy, and farmers, were key to this species' future. We began work with agricultural agencies in Tibet, to ensure that modernizing agriculture would maintain a place for the Black-necked cranes.

Other winter sites had growing conflicts. When ICF's Jim Harris visited Cao Hai Nature Reserve in 1991, he found local farmers converting the shallows of the lake to croplands. Cranes and waterfowl, losing their natural feeding places, turned to potatoes and winter vegetables. Nature reserve staff — not knowing how to manage angry farmers—were no longer welcome in the villages.

The people living by Cao Hai were among the poorest in China. Harris began visiting farmers, to learn more about their lives. He remembers sitting with a woman by the open door of her home, young children peeking at this strange visitor. Their father had taken sick, and could no longer work. Suddenly, the woman jumped up and ran out over the fields. Her plot lay by the distant water edge. Ruddy Shelducks had just flown in, and she shouted to keep the wild ducks off her crop.

At that moment, Harris saw the fields, the ducks, and the wetland from her perspective. He realized the conflicts could only be solved if this family, and others, had good options for improving their lives.

ICF partnered with the nature reserve and Chinese specialists in rural development and resource management. Conservation at Cao Hai no longer focused on restricting people and preventing development. Instead, small grants to families and simple training in business planning enabled this woman and many others to start new ventures that did not depend simply on using finite natural resources more intensively. Later, ICF helped to establish revolving loan funds, with small groups of farmers managing their own funds and taking turns to borrow. Economic activity in the villages diversified. Some bought old oil barrels and made them into stoves to sell in neighboring countries, others bought foods in one market and sold them in another for profit.

The villagers gradually became partners with the nature reserve, to safeguard their water and soil resources, on which their future as well as the cranes depend. One village set aside its wetland for the birds, with the families taking turns to keep livestock out. Another village created small dams to slow its stream and trap sediments. They planted shrubs and trees to reduce soil loss, and banned free roaming herds of goats.

Cao Hai and its farmers show how people can take leadership in solving resource problems, and offers hope for other wetland reserves. And the Black-necked Cranes have responded. Their numbers at Cao Hai have more than doubled since Harris' first visit.

RED-CROWNED CRANE (*Grus japonensis*)

One of Asia's most ancient and prized symbols, the endangered Red-crowned Crane is strikingly beautiful. From an ornithologist's perspective, this crane is special, not only because it is so rare (with a world population of only 2,750 birds), but also because of its strong body, complex behaviors and captivating displays. Says one researcher, "Their displays are like a carefully choreographed ballet, with smooth, fluid transitions from one routine to the next – bows, stretches, and a complete 'butterfly arch' with ruffled wings and the head tipped way back."

In Japan

The Red-crowned Cranes of Japan are a prime example of the clash between the old and the new. Their symbolic power is rooted in over a thousand years of Japanese tradition in art and legend. Because it is believed that they mate for life, the cranes are embroidered on wedding kimonos to signify monogamy and fidelity. They are found in 7th and 8th-century poetry, in aboriginal Ainu legends and in 17th-century travel books. Their images are painted on walls, sliding doors, folding screens, scrolls and woodcuts as far back as the 15th century. The cranes were strictly protected by feudal law and they were abundant on lowlands throughout Japan.

When Japan abolished feudal laws near the end of the 19th century, the cranes were ruthlessly hunted and their habitats destroyed. They appeared to be extirpated from the archipelago until a small group of perhaps 30 birds were discovered wintering in the southeast corner of Japan's most northern island, Hokkaido. This cold place is frozen during the winter months, except for streams and small rivers where these last cranes found their food and safe roosts in darkness. Their numbers remained at a stable low until 1953 when severe weather froze even moving streams. The cranes would have starved without food, if local people had not provided them grain. The cranes, black and white against the snow, responded. The compassionate people continued to feed the cranes in following winters. Apparently food in winter was a limiting factor for the population. They gradually increased to about 170 birds in the mid 1960s.

In 1972, I (Archibald) joined Japanese biologists Hiroyuki Masatomi and Tamake Kitagawa to study these cranes. With spring, the cranes disappeared, migrating north (as people then believed) to nest in Russia. On a hunch, colleagues and I rented an airplane and conducted a survey over the wetlands in mid-May. We spotted 53 nests – proof that the majority of the cranes observed at the feeding stations in winter were breeding on Japanese soil. We also reported to the Japanese Government's new Environment Agency that many cranes were killed by collision with power lines near the feeding stations. And at that time, portions of Kushiro Marsh were slated for development. But the national publicity following the discovery of breeding cranes led to creation of a national park for the wetlands.

Subsequently, the cranes in Hokkaido have been well studied. Additional wetlands key to breeding have been protected. Bright-colored plastic attached to power lines near the feeding stations have made the lines visible to flying cranes. Strikes have been reduced, and since 1972 the crane numbers have continued to increase.

With strict protection, the cranes have proven far more adaptable than anyone would have guessed. The cold summers in foggy southeast Hokkaido make agriculture difficult, so there is little pressure to convert wetlands to croplands. But the extent of wetlands has certainly not grown in the past 50 years. Yet crane numbers rise higher and higher, with birds now nesting in small wetlands near humans. Over a thousand cranes now live on Hokkaido. The cranes have proven that coexistence with humans is possible.

On the Asian Mainland

There are also *migratory* flocks of Red-crowned Cranes. They breed in northeastern China and southeastern Russia, where they nest and feed in marshes with relatively deep water. Some of these birds winter in the demilitarized zone (DMZ) of Korea, while others fly south to the coastal regions of Jiangsu Province in China. Here they feed on waste grain and on aquatic plants and animals in coastal marshes and open waterways. Unfortunately, the mainland flocks are severely threatened, primarily by habitat loss. Urban expansion near the DMZ threatens the last remaining wintering areas on the Korean Peninsula.

Continued agricultural and industrial development affects breeding areas in the Sanjiang Plain and Songnen Plain in northeastern China and the Amur River basin in Russia, as well as wintering areas in coastal Jiangsu Province. Although a network of protected wetlands extends across both countries, crane populations are falling. The chief threat has been the growing thirst for water. At Zhalong Nature Reserve in China, for example, canals now entirely circle the 200,000 hectare wetland, carrying water elsewhere for human uses. Water that formerly flowed over the landscape cannot reach the marshes

unless water agencies open water gates. Rainfall alone is not sufficient, especially during the many recent years of drought. The wetlands are drying out, and in some years intense fires have burned across the reserve during the breeding season, killing eggs and young birds. Livestock now graze where cranes nested twenty years ago.

For the past five years, ICF has been working closely with reserve authorities and other government agencies to secure allocations of water for this wetland and others in Songnen Plain. We now have an agreement that ensures a water supply to sustain these globally famous wetlands, an action that will establish an important precedent for China.

Since 1994, ICF has helped Russian colleague Dr. Sergei Smirenski protect an important nesting area for Red-crowned Cranes within an old channel of the Amur River. With funds provided by Pop International, a textile company in Japan, 6000 hectares of prime crane habitat were secured in 1994 on a 49-year lease to create Russia's first non-governmental protected territory since 1917, Muraviovka Park. Today the Park not only protects nesting White-naped and Red-crowned Cranes, but educates the general public about the conservation of the environment through summer camps for children and a demonstration of organic farming on agricultural lands that border the wetlands. Since 1994, ICF has brought teams of American school teachers to assist with the camps. For the past five years, the Park has exchanged students and teachers with crane reserves in nearby China, strengthening awareness in both countries of their shared interest in cranes, wetlands and other resources of the Amur Basin. The Park is a model for the conservation of other wetlands vital to the survival of these majestic black and white cranes.

The story of the Red-crowned Crane offers much hope. Provided that nations work together to conserve wetlands across Japan and the mainland breeding range, the cranes will respond to careful protection, ensuring their survival into the centuries to come.

WHOOPING CRANE (*Grus americana*)

Back from the brink, North America's Whooping Crane is a sign of hope for endangered species. Recovering from a low of only 22 individuals in 1941 to just over 500 birds by 2007 (captive and wild), the Whooping Crane's recovery is one of conservation's most inspiring success stories. Threats to the Whooping Crane began in the 19th century. Biologists estimate that in 1865, there were 1200 to 1400 birds alive. But by 1890, the Whooper had disappeared from the heart of its breeding range in the north-central United States. Several factors contributed to the steady decline. The breeding grounds of the Whooper were altered and disturbed as settlers broke the prairies and drained marshes for farming. Whooping Cranes also were hunted and their eggs collected as specimens. By the early 1940s, a tiny migratory flock survived, wintering on the Texas coast. Where this flock of Whoopers summered, however, was a mystery.

Then, in 1955, at Wood Buffalo National Park in the Northwest Territories, personnel returning from fighting a forest fire noticed a Whooping Crane family. The breeding grounds had finally been discovered! This last flock, which breeds in Canada and winters at Aransas National Wildlife Refuge in Texas, became the focus of long-standing cooperation between the United States and Canada.

Because of the tiny number of Whooping Cranes, biologists proposed increasing the population through captive breeding programs. In 1967, one egg from each of six two-egg clutches was transferred from Wood Buffalo Park to the Patuxent Wildlife Research Center near Laurel, Maryland. Within the next six years, 44 more eggs were removed and hatched in the US. The captive Whooping

Cranes at Patuxent first produced eggs in 1975, when most females were between 7 and 11 years old. Artificial insemination helped improve fertility of eggs and problems with artificial incubation were overcome by allowing Sandhill Cranes to incubate Whooper eggs. Gradually, the captive flock at Patuxent grew to 58 birds.

In 1989, the U.S. and Canadian Recovery Teams for the Whooping Crane decided to split the flock and send 22 Whooping Cranes to ICF. This decision was a milestone for ICF, reflecting international recognition for its leadership and success in the captive breeding of cranes.

Back From the Brink

The Whooping Cranes have been rescued from extinction, but they are still the rarest of all cranes. Continued recovery of the species will depend on captive breeding and reintroduction programs. Monitoring of habitat will be essential, especially at Aransas. There is risk of devastating pollution from chemical spills because barges travel the Intracoastal Waterway past Aransas and immediately beside the cranes' wintering marshes. Erosion of land along the canal, loss of freshwater ponds the birds use, and over-fishing are also problems. The cranes' primary foods are blue crabs which inhabit shallow marshes only if sufficient freshwater comes down the coastal rivers to mix with salt water in the estuaries. If the shallows become too salty, the blue crabs retreat to deeper water where the cranes cannot catch them. Human demands in the region for fresh water continue to grow.

Teaching Cranes with Aircraft

It has long been a goal of recovery efforts to establish a new flock of Whooping Cranes, separate from the Texas flock. In 1999, the Recovery Team meeting at ICF authorized a dramatic effort to create a new flock migrating between Wisconsin and Florida. A major challenge with crane reintroduction is that young cranes learn migration routes from their parents. If there are no cranes in a flyway, how will the young cranes know where to go? The Recovery Team authorized the use of ultralight aircraft to train and lead the young cranes on migration.

This idea was not as far-fetched as one might have imagined back in 2000, because Bill Lishman (Founder of Operation Migration) had already succeeded in leading Canadian Geese and later Sandhill Cranes on long flights behind ultralight aircraft. On the other hand, it was not a small task to assemble a team of pilots and biologists to provide guidance and support for a 1200-mile autumn journey from Necedah National Wildlife Refuge in Wisconsin to Chassahowitzka National Wildlife Refuge in Florida. In order to prevent the Whoopers from imprinting on humans, all personnel involved in their care and training after hatching, including the pilots, had to wear crane costumes.

The Recovery Team required that a trial migration with Sandhills first be undertaken in 2000. An array of private and governmental organizations -- including the International Crane Foundation, Operation Migration (OM), and the U.S. Fish & Wildlife Service -- formed the Whooping Crane Eastern Partnership (WCEP). After a successful trial with Sandhills, the partnership began its remarkably complex effort. Eggs from ICF and other breeding centers were flown to Patuxent, where they were hatched and given early exposure to ultralights. In early summer, the chicks were flown to Necedah where they trained, learned their home marshes at Necedah and gained experience following the ultralights. Each October, OM has organized aircraft, ground vehicles, pilots and bird handlers as well as 15-20 crane chicks to undertake the long migration to Florida. Once the birds arrive, they winter under care of biologists from ICF, OM, and the U.S. Fish & Wildlife Service in an open-topped pen where the birds are free to fly in and out. These birds begin their independent lives in the wild on a

morning in late March or early April, when they circle high over the coastal marshes and set out for Wisconsin.

First Breeding

By 2005, some of the birds were old enough to pair and begin making nests. Two pairs each laid a single egg that only survived a single day. New crane parents frequently fail in their early nest attempts. In 2006, five pairs were incubating eggs in April in the Necedah area. But one by one the nests failed – four clutches were taken by predators, while the fifth pair abandoned incubation. To our delight, one of the pairs re-nested and hatched its chicks on June 21 and 22. While Whooping Cranes seldom raise two chicks, this pair found abundant food in the summer marshes, and both chicks fledged in August. One soon disappeared, perhaps taken by an eagle, but the other chick with its parents successfully migrated to Florida.

Beginning in 2005, ICF and FWS have started experiments with a new method for adding birds to the population. Chicks are being hatched at ICF and reared at Necedah, then set free in autumn where they encounter the older Whooping Cranes and the more numerous Sandhill Cranes. In 2005 and again in 2006, the chicks have successfully migrated south, guided by the other cranes.

The eastern migratory population now numbers approximately 54 birds, growing faster than any of the partners would have hoped in 1999. Yet the project cannot be considered successful until free-living pairs rear enough chicks to sustain the population. Whooping Crane recovery is a long and slow process. If we succeed, the flock will be a testament to the remarkable charisma of cranes and the willingness of numerous individuals and organizations from two countries to work together for a shared dream.

WATTLED CRANE (*Buggeranus carunculatus*)

Wattled Cranes are the largest and rarest cranes of Africa. They occur in eleven sub-Saharan countries, including an isolated population in the highlands of Ethiopia. The species is most abundant in the extensive flood plain systems of southern Zambia (Kafue Flats), Mozambique (Zambezi Delta) and Botswana (Okavango). In South Africa and Zimbabwe, they are dependent upon small upland wetlands called dambos.

The large size of the Wattled Crane sets it apart from other African cranes. There are other distinctions as well. For example, cranes have calls and signals to keep in touch with one another and to warn of danger. Though Wattled Cranes also have loud calls, they are essentially the “quiet” cranes. In the midst of the noisy orchestra of bugling from other cranes at ICF, the Wattled Cranes seldom call. When they do, their calls are high-pitched and squeaky, resembling a boy struggling through the voice changes of adolescence.

The Wattled Crane is the most aquatic of Africa’s cranes. In the large floodplain systems, the breeding and feeding cycles of Wattled Cranes are linked to the natural flood cycles of rivers. Wattled Crane pairs are “triggered” to nest as floodwaters begin receding after peak flooding. Nesting in shallow open water after the flooding ensures that nests will be protected from predators and wildfires but will not be drowned by further rising floodwaters. The natural cycle of flooding and drying also stimulates the production of the Wattled Cranes’ primary food source – the underground tubers of the spike rush *Eleocharis angulata*.

While most cranes lay two eggs per clutch, Wattled Cranes usually only lay one. Wattled Crane eggs have the longest incubation of any species, 33 – 36 days. Other crane species have the ability to raise at least two chicks, but even when Wattled Crane pairs lay two eggs, the parents lead their chick away from the nest after the first egg hatches, leaving the second egg to die. The chick is slow to gain independence. Wattled chicks are not able to fly until they are over 100 days old – the longest fledging period of any crane. These factors lend to the species' vulnerability. The Wattled Crane has been eliminated from much of its former range.

Threats

Human and livestock disturbance, powerline collisions, mass aerial spraying against tsetse flies, and illegal collection of eggs, chicks and adults for food and captive trade are significant threats to Wattled Cranes throughout their range. Destruction, alteration, and degradation of wetland habitats, however, constitute the most significant threats to the Wattled Crane. When the ancient flood cycles of river floodplains are altered by dams, diversions, and other water development projects, Wattled Cranes are particularly vulnerable. Large dams on the Zambezi River, for example, have resulted in a vast reduction in suitable breeding and feeding grounds in the Zambezi Delta. Since the construction of the Itezhi-tezhi Dam in Zambia, there has been dramatic constriction in Wattled Crane nesting and feeding areas in the Kafue Flats. In a year of normal flooding conditions on the Kafue Flats, about 40% of Wattled Cranes attempt to breed, but when floods fail only about 3% of all pairs breed. When floods are absent, tuber productivity decreases, floodplain soils become impenetrable, and the feeding grounds are abandoned by Wattled Cranes, ducks, waterfowl and many other species.

Wanted – Healthy Floodplain Ecosystems

As Wattled Cranes are affected by river regulation, so too are the farmers and fishermen who depend on the natural fluctuations of water for their livelihoods. In the Zambezi River Valley, large dams have caused great hardship for hundreds of thousands of Mozambican villagers whose livelihoods depend on the ebb and flow of the Zambezi River. Subsistence fishing, farming, and livestock grazing have collapsed with the loss of the annual flood. Changes in flooding regime have affected the availability of water supplies, fuel wood, building materials, and medicinal plants, as well as general public health and the cultural relationship between local people and the river. Similar declines are also reported for the subsistence fishery of the Kafue Flats following river regulation.

Based on the cooperative partnerships forged during the past 15 years, ICF and the South African-based Endangered Wildlife Trust (EWT) launched a new conservation program in 2001 called the African Wattled Crane Program (AWCAC). Based on the links between Wattled Cranes, water, wetlands, and human welfare, its mission is to conserve Wattled Cranes and their habitats by promoting cooperation in and among African nations. The long-term vision is healthy wetlands for the co-existence of cranes and people in Africa. This goal is being achieved through conservation programs that include research, management, capacity building, and education and awareness in each country that supports Wattled Cranes. It is hoped these programs will enable these big, quiet birds to survive on a continent where millions of people are struggling to meet their basic needs.

Thank you for inviting me to share testimony in support of this important opportunity. Cranes are imperiled, but there is hope. Together, we have the opportunity to ensure future generations are enriched by the beauty and majesty of cranes and healthy natural places.