

The ICF *Bugle*  
*Inspiring a Global Community*

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## CHANGING CONSERVATION CLIMATES

# Sarus Cranes, Rainfall and New Laws in India

By K.S. Gopi Sundar, Research Associate (India)

Sarus Cranes in north India, and other locations, occur on landscapes with very high human populations and intensive agriculture. Their successful breeding is dependent on remnant wetland patches, and traditional agricultural practices help them to persist on the otherwise disturbed lands. Alongside the struggle to maintain wetlands amid a burgeoning human population, the changes in rainfall patterns likely driven by global climate change are new challenges that cranes here face. More frequent extreme rainfall events, very high or very low rainfall years, are predicted for the northern Gangetic floodplains where the majority of the world's Sarus Cranes reside. As ICF begins to plan for a long-term program focusing on the Sarus Cranes in this region, the question of whether our conservation work will have any impact looms. I analysed an eight-year data set collected following 253 territorial pairs of Sarus Cranes in Etawah and Mainpuri districts of Uttar Pradesh. The analysis was aimed to evaluate what the focus of our conservation efforts should be. *Continued on page 2*



A Sarus Crane at home in flooded paddy with wild grasses growing on the dykes in Aligarh District, Uttar Pradesh. *Photo by K.S. Gopi Sundar*



*Read about*  
 Water, Wolfberries and  
 Whoopers on Page 6

Pairs that defended territories with more wetlands did better at breeding, and most pairs did better when rainfall was high. Removal of wetlands from territories and low-rainfall years reduced the ability of Sarus Cranes here to breed successfully. The biggest threat, however, came from conversion of agricultural land to townships. Between 1998 and 2010, several Sarus Crane pairs were ousted from their historical breeding areas permanently as buildings, an airport and highways replaced wetlands and fertile agricultural land. A computer modeling exercise showed that the population in Etawah and Mainpuri would halve within a decade if development continued at the pace it did during the study. The modeling also showed unequivocally that change in land use and wetland loss was by far the most important aspect that required conservation attention. Changes in rainfall patterns were not even remotely as important. Clearly, attention to wetlands and development planning is required to ensure continuance and improvement of conditions for Sarus Cranes here.

Fortunately for the cranes and the farmers, shifts in political power and improved attention to farmers' needs have halted the rapid development in Etawah and Mainpuri. Furthermore, a revision of India's Land Act now posits that multi-cropped irrigated agricultural lands, like that in Etawah and Mainpuri, cannot be converted to other land uses. The Land Act is currently tabled in the Indian Parliament and carries the power to secure the future of farmers and cranes alike. This comes close on the heels of a Supreme Court judgement in India that disallows conversions of community wetlands due to their immense utility to farmers (see *ICF Bugle* 37(2): 6). Together, one amended policy and one new law, both prompted and enacted at the behest of farmers, and both surfacing in 2011, safeguard an ancient culture whose well-being is closely tied with Sarus Cranes. Hopefully Indian farmers and the government can begin to outsource their fascinating way of living to other parts of the globe, and enable long-term crane conservation.

*Gopi Sundar's scientific paper on factors affecting long-term Sarus Crane breeding success is published in the journal Biological Conservation. This is the first long-term study to provide unequivocal evidence of the relative importance of habitat over changing rainfall for crane conservation, and only the second such study globally for any bird species. The long-term study was supported by the International Crane Foundation, the National Geographic Society's Conservation Trust, the Waterbird Society's Kushlan Research Award in Ciconiiform Research and Conservation, and the Uttar Pradesh Forest Department.*

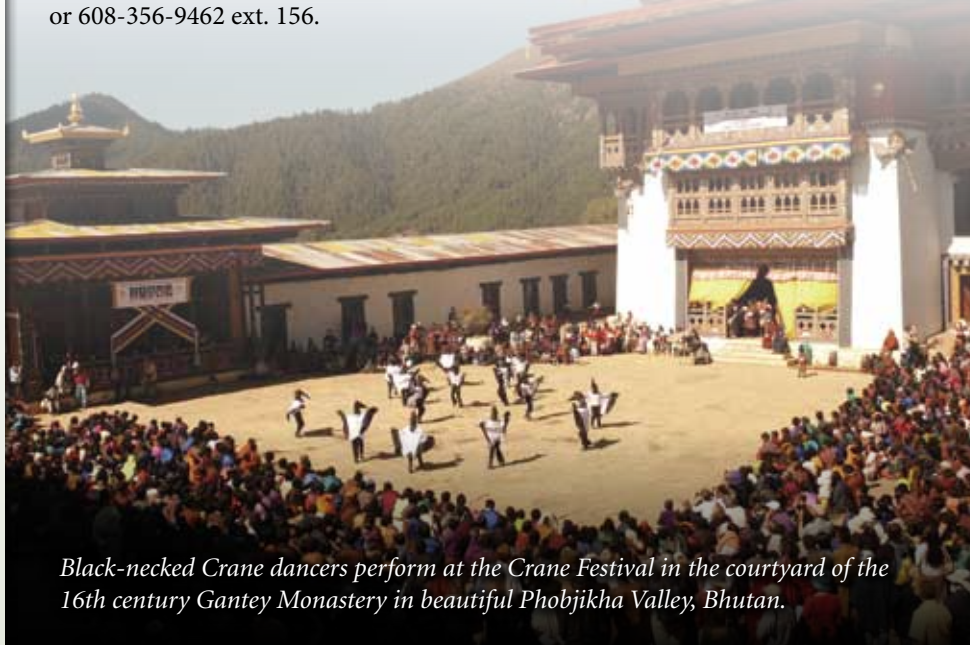
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## Bhutan in 2012!

You are invited to join ICF's co-founder, George Archibald, during the first two weeks of November 2012 for an east to west road trip across the Himalayas of Bhutan. Highlights will include stunning scenery, a Black-necked Crane festival, more than 100 species of birds including the magnificent Great Hornbills and the rarest of the world's herons, the White-bellied Heron, as well as traditional culture in the Cloud Kingdom where the national slogan is Gross National Happiness. Space is limited. For information on the trip contact Julie at [julie@savingcranes.org](mailto:julie@savingcranes.org) or 608-356-9462 ext. 156.



*Black-necked Crane dancers perform at the Crane Festival in the courtyard of the 16th century Gantey Monastery in beautiful Phobjikha Valley, Bhutan.*

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The ICF Bugle is the quarterly newsletter for members of the International Crane Foundation. ICF was founded in 1973 by Ronald Sauey, Ph.D. (1948 - 1987) and George Archibald, Ph.D.

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Bugle comments or questions?  
Please write Betsy at [Bugle@savingcranes.org](mailto:Bugle@savingcranes.org) or P.O. Box 447, Baraboo, WI 53913

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## Notes from the President

### When People Commit to Saving Cranes



By Rich Beilfuss

Our Annual Member Meeting in September is a wonderful opportunity to reflect on our successes and consider the tasks we face going forward. It is inspiring and humbling to fill a banquet hall with people who have dedicated so much to ICF – our members and supporters, directors, staff, interns, volunteers, and colleagues visiting from around the world.

My attention this year has been deeply focused on strategic planning: how can ICF best confront the challenges of the coming decade – the rapid economic expansion of China (home to five threatened crane species) or expanding human populations across the crane landscapes of Africa, for example, or the water crisis, exacerbated by climate change, facing vast regions of Asia, Africa, and North America? With so many significant needs, why should so many of us commit our time and resources to the seemingly narrow cause of cranes?

These difficult questions have illuminated several important outcomes that result from – that indeed are inseparable from – our commitment to saving cranes. When people commit to cranes, they are really committing to the landscapes that sustain cranes, people, and the diversity of life on earth. In this way, cranes are both sentinels and flagships for a better world.

### When people commit to saving cranes....

...they commit to resolving direct threats faced by cranes and many other species in the wild. Our global partnership to reduce the illegal trade in African cranes, for example, is targeting the underground trade networks that have contributed to precipitous declines in many species of plants and animals that we hold dear. Our Whooping Crane Eastern Partnership manifests the triumphs and set-backs associated with restoring a species to landscapes it has lost.

... they commit to securing the diverse ecosystems on which cranes depend, and the broader watersheds that sustain those vital landscapes. In the Zambezi River Basin, ICF works with the World Wide Fund for Nature and regional universities to engage Zambezi water authorities and dam operators in implementing environmental flows that restore vital floodplains for Wattled Cranes, a wealth of other biodiversity, fisheries, agriculture, and other ecosystem services. In East Asia, our efforts to secure the migratory flyway of the critically endangered Siberian Crane have contributed to restored water supply for Momoge National Nature Reserve, a critical staging area mid-way on the long migration corridor. This past spring more than 3,400 Siberian Cranes, the highest number ever recorded here,

found safety and food at Momoge, with cranes staying for over two months.

... they commit to improved livelihoods for the communities that share their landscapes with cranes. Our award-winning Phu My project in Vietnam now provides the main income for more than 400 people, through the successful production and marketing of handicrafts made from renewable wetland materials. The income generated by this project covers costs of managing this important wetland for Sarus Cranes and other species.

... they commit to connecting people from diverse cultures and backgrounds to take action based on shared values. As I write, ICF is bringing together colleagues from North and South Korea to protect vital wintering grounds for threatened Red-crowned and White-naped Cranes in the Korean DMZ, based on their shared reverence for cranes. Through our visitor and outreach programs here and abroad, we employ the charisma of cranes, human connections, and experience with the wild as powerful tools for expanding conservation action.

...they commit to empowering conservation leadership for some of the most important wetlands and grasslands on earth. We identify and assist leaders with the training and resources they need to engage their communities in positive change. Maurice Wanjala in Kenya and Jimmy Muheebwa in Uganda have inspired literally thousands of their fellow community members to restore wetlands and their watersheds for Grey Crowned Cranes.

...they commit to enacting sound water, energy, industrial, and agricultural policies that safeguard vital crane landscapes. Together with the businesses and community leaders of coastal Texas, we are striving for policies that support the fair allocation of water to downstream users, including fisheries, tourism, and the last self-sustaining flock of Whooping Cranes. Similarly, colleagues in South Africa have joined with farmers to challenge mining policies that are destroying productive farms and grazing lands that sustain Blue Cranes and a wealth of rare species.

...they commit to translating knowledge into conservation action for cranes. At Poyang Lake, the most important freshwater wetland in China, our long-term research informs national decision-makers about the importance of natural water level fluctuations for maintaining cranes and the rich biodiversity of the system, and the consequences of dams operating to stabilize water levels. Other ICF research has led to new deterrents that prevent crop depredation by cranes on agricultural lands.

Thanks for your commitment to cranes and to making the world a better place.



## Securing Crane Landscapes for People and Wildlife

This fall, the International Crane Foundation launches the second year of its *Seven Rivers* campaign, investing in strategic actions to achieve sustainable water management, restore and maintain valuable services provided by natural systems, and improve human livelihoods to benefit cranes, people and broader biodiversity.

The future of this endangered family of birds depends on the health of seven globally-significant river basins, essential to wildlife and people. Within them are strongholds – and last stands – of our beloved cranes, including: Whooping Cranes in the **Guadalupe** of Texas; Red-crowned and Hooded Cranes in the **Amur-Heilong** of East Asia; Wattled and Grey Crowned Cranes in the **Zambezi** of southern Africa; Sarus Cranes in the **Mekong** of southeast Asia and the **Upper Ganges** of South Asia; Siberian Cranes in the **Yangtze** of China; and White-naped Cranes in the **Han** of the Korean peninsula.

One of the highlights of our *Seven Rivers* campaign last year was a new ICF commitment to save the last self-sustaining flock of Whooping Cranes. We launched a program, led by Dr. Elizabeth Smith, to protect fragile gulf marshes in the Guadalupe River Basin of southeastern Texas that serve as wintering grounds for Whooping Cranes. Through Liz's efforts, we better understand the needs of Whooping Cranes and the issues affecting the sustainable management of the river basin. Along with a host of partners, Liz is helping ensure that sufficient flows of fresh water reach the wetlands that are vital for cranes, fisheries and many other species. This year's unprecedented drought and resulting challenges for people and wildlife dramatically emphasize the importance of this work.

In this second year of our *Seven Rivers* campaign, we are excited to launch another new initiative, a regional program to protect threatened Sarus Cranes across wildlife-rich, densely-populated, and developing areas of South Asia. Called the "last living river in India," the Chambal

*ICF's Seven Rivers Campaign is supporting research and conservation action in seven major river basins on three continents, including the Ganges River Basin.*

River is a key tributary that feeds into the extensive Ganges River Basin, stronghold of the world's Sarus Cranes and a rich diversity of bird species. To build leadership capacity in this region that has received very limited conservation attention, ICF, with help from National Geographic, has supported the innovative research of Indian scientist K.S. Gopi Sundar. This past September, Gopi's work culminated in the completion of his doctoral degree from the University of Minnesota, where he was honored as the Outstanding Conservation Biology Graduate Student for 2010-11.

Gopi's research demonstrated that traditional farming practices are key factors allowing Sarus Cranes and many other wetland-dependent species to thrive in one of the most densely settled regions of the world. His discoveries are of great value for maintaining the high diversity of the region – including the world's largest population of Sarus Cranes – and for conservation programs across Asia and Africa where people and cranes depend on increasingly scarce, shared natural resources. Gopi returns to India this fall and his fledgling "Sarus Scape" program will work with farmers, universities, government officials, and local leaders to guide land use decisions that will support the incredible biodiversity of the region.

We invite you to make a special gift to International Crane Foundation's *Seven Rivers* campaign. The campaign will help initiate this new program to protect Sarus Cranes and the ecosystems on which they depend. Your gift will also continue essential efforts to ensure the last natural flock of Whooping Cranes finds food and healthy wetlands, and sustain hopeful initiatives across Africa and Asia benefitting cranes, communities and natural places.

**Through commitments from ICF's Board of Directors and other generous donors, your gift to the *Seven Rivers* campaign will be matched dollar-for-dollar until we reach our goal of \$1,000,000. Please use the enclosed envelope to make your gift today.**

*Gopi's research demonstrated that traditional farming practices are key factors allowing Sarus Cranes and many other wetland-dependent species to thrive in one of the most densely settled regions of the world.*



## Can You Hear Me Now? New Transmitter Tested at ICF

By Anne Lacy, Long-term Crane Research Coordinator

*Solar panel, compass, Teflon ribbon, shrink wrap...* These are a few of the components comprising a new transmitter that ICF staff and colleagues from Nebraska developed and tested this summer. The transmitter is designed to be placed on a crane like a backpack, allowing researchers to gather data on the crane's location and details about its movements. The new transmitters use cell phone towers to relay information quickly and inexpensively to a researcher's smart phone. These birds text while flying!



In late July this ICF classroom was temporarily transformed into an electrical engineering/computer lab/testing range. Dr. Can Vuran, from the University of Nebraska-Lincoln, and two of his graduate research assistants, Dave Anthony and Paul Bennett, collaborated with ICF Field Ecology and Crane Conservation Department staff to test a solar "backpack" transmitter and to test them on live birds, both captive and wild – all in one short week.

The prototype "mote" – a small, waterproof package powered by a thin solar panel - is able to determine, within meters, the location and compass heading of its host crane, report the surrounding temperature, as well as establish if the crane is pitched at an angle (this helps us determine if the crane is in flight or performing other behaviors).



Basov, a Siberian Crane who lives at ICF, was one of our three captive test subjects. To test both transmission quality and our ability to quickly attach a harness to hold the transmitter, we relied on our aviculture staff and captive birds. The cranes were somewhat confused by their new backpacks, but we soon had the information we needed and removed the devices after 24 hours. Now, we were ready for a trial on a wild crane.

Success! On a foggy July morning we captured a male Sandhill Crane in our long-term study area (work that we are able to do under federal and state permits). Our team ran out to put the device into action. We were excited at the prospect of receiving information from a free flying bird.



Cleared for takeoff! After capturing this wild Sandhill Crane, we fitted the transmitter on his back, made sure it was secure and comfortable, and took other standard measurements that we use for our field research. The solar panel on the top of the unit must be exposed to the sun for the unit to function. In the weeks since deployment, we observed this crane and feel confident that the profile of the transmitter clears the crane's feathers and has regular exposure to the sun.

We still had more testing to do, but we have the perfect outdoor laboratory. In September we placed three more transmitters on wild cranes. In the photo at right, the device is seated securely in the middle of this female's back, ready to "talk" to us. We wait to discover where these birds migrate. Sandhill, phone home!

READ MORE ONLINE  
[savingcranes.org/sandhill-crane-conservation.html](http://savingcranes.org/sandhill-crane-conservation.html)

## Deepest Thanks to Phill Pines

By George Archibald, ICF Co-founder

Over the last few decades, faithful ICF supporters Phill and Joan Pines, lovingly restored 2,500 acres of riparian areas along the north side of the Wisconsin River about six miles from ICF. Former agricultural fields were transformed to prairies, and 250 acres of rehabilitated wetlands provide habitat for nesting waterfowl and Sandhill Cranes. Watching more than 4,000 cranes glide to the river at sunset along the levee and among the islands so nurtured by Phill and Joan is a natural wonder. The cranes benefit from the Important Bird Area located along this wild stretch of the Wisconsin River that Phill and Joan helped to develop.

In March of this year, Phill retired as the Chief Operating Officer of Great Dane Trailers. A few months later tragedy struck. On September 5, Phill was killed when the plane he was flying lost power and crashed. ICF wishes to express heartfelt condolences and thanks to the Pines family for their generosity in conserving rare prairie and wetland ecosystems, for providing operational support to ICF, and for allowing so many of our visitors and researchers to experience and study the cranes on their property. Many an evening, Phill and I shared our ideas at a special spot where the sunset, river and cranes met in the October twilight.



# Texas Drought Challenges Whooping Crane Conservation

By Elizabeth Smith, Whooping Crane Conservation Biologist



Photos by Liz and Dave Smith



Blue Crab

central U.S. Warmer temperatures and the lack of rain result in low freshwater inflows into coastal bays. Even less freshwater reaches the bays when additional water upstream is diverted in the basin. Environmental conditions deteriorate, and important food items for Whooping

Cranes, such as blue crabs and wolfberries, become scarce as salinities increase in the bays, effectively reducing productivity and availability during the winter months.

The current exceptional drought conditions across Texas have impacted agriculture, and reduced water supplies for municipalities. The potential appears imminent for higher mortalities of Whooping Cranes from drought effects this coming winter. Bay salinities are now greater than ocean salinities throughout the San Antonio Bay system. The shallow, coastal ponds where Whooping Cranes forage for blue crabs are lined with salt precipitates – and very few crabs. Even with the current drought conditions and the potential for high losses of cranes this year, we are hopeful that measures such as supplemental feeding, and freshwater pond maintenance will be enacted and the population will persevere.

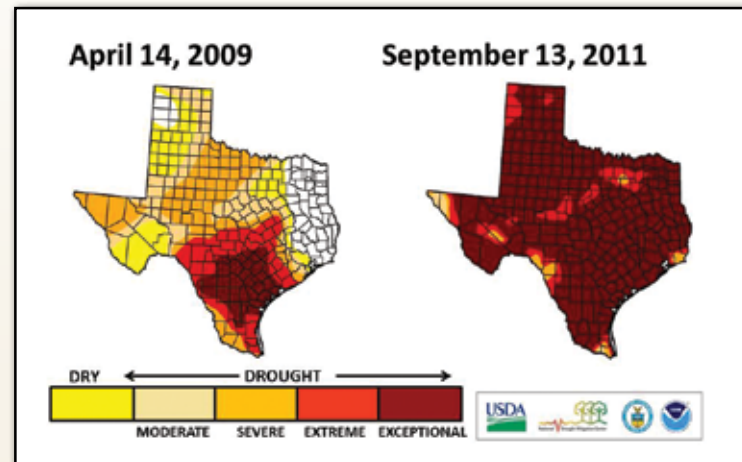
ICF is part of a conservation initiative to secure coastal habitats in Texas for the expanding wintering Whooping Crane population. We also support the efforts of The Aransas Project in their litigation to ensure that responsible

water management is implemented in the Guadalupe-San Antonio Basin. Without appropriate freshwater inflows, we will lose much more than the last remaining wild flock of Whooping Cranes. An entire coastal ecosystem and its inhabitants are in peril.

The challenges associated with saving this iconic species are multiple and complex. ICF is actively working with universities, other non-profits, and government agencies to better understand the ecology of the Whooping Crane's wintering habitat along the Texas coast. We are collaborating with area researchers to define key data gaps and secure the necessary research funding. With our multi-pronged approach, we are working toward the necessary management and

conservation efforts to preserve this essential and vital system and our revered Whooping Crane.

We continue our public awareness and education efforts through generous support from: The Coypu Foundation, Derse Foundation, The Dixon Water Foundation, The Meadows Foundation, Inc., The Crane Trust, Inc., The Susan Vaughan Foundation, Inc., Texas A&M University, and The Trull Foundation.



The 2011 Texas drought map is a sea of red. The lack of rain and freshwater inflows have increased salinity in coastal bays – vital foraging habitat for Whooping Cranes. Blue crabs move to deeper water when the shallows become too salty. Fresh drinking water is also scarce. The loss of 23 Whooping Cranes during the 2009 drought has prompted the proposal of measures to counteract potential losses this year.

Whooping Crane numbers from the last naturally occurring flock have continued to increase since a record low of 15 in 1941. This recovery is the result of hard work by many for 70 years, yet the Whooping Crane remains the rarest crane in the world. Moreover, the latest count of 278 birds leaving their winter home in the Aransas National Wildlife Refuge area last spring is a long way from the 1,000 individuals and 75 pairs needed for downlisting from endangered to threatened by Canada and the United States.

A large, long-lived bird with a low reproductive rate and a migration covering over 2,500 miles twice a year from northern Canada to coastal Texas faces many challenges in our modern landscape: habitat loss, powerline and fence collisions, increasing wind, powerline, and coastal development, as well as, water management in the coastal river basins. Their coastal habitat in Texas is also changing as black mangrove, a tropical species, spreads northward eliminating large tracts of marsh formerly used for foraging. Growing uncertainty about current and future freshwater inflow management from the Guadalupe-San Antonio River basins increases the complexity of maintaining a healthy, productive home for Whooping Cranes, and a diversity of other coastal species.

The Texas wintering grounds of the Whooping Crane are situated along the coast where rainfall deficits are common. Droughts are generally related to the occurrence of La Niña-El Niño events, an ocean-atmosphere phenomenon that alternates on average every five years. Effects of the El Niño vary depending on location, and the alternating La Niña often produces prolonged drought conditions in the south



In February of this year, the Louisiana Department of Wildlife and Fisheries (LDWF) released 10 Whooping Cranes at White Lake, Louisiana. It was a historic day, as there had not been a non-migratory wild Whooping Crane in Louisiana since 1950. Five of the cranes have since perished. Seventeen additional birds are scheduled for release this fall. Photo by Gopi Sundar

## Whooping Crane Update

By Tom Stehn, Whooping Crane Coordinator, U. S. Fish and Wildlife Service

The Aransas-Wood Buffalo population (AWBP) of Whooping Cranes rebounded from 263 in the spring of 2010 to 279 in the spring of 2011. With approximately 37 chicks fledged from a record 75 nests in August 2011, the flock size should reach record levels approaching 300 this fall. Twelve juveniles were captured in Wood Buffalo National Park in August, bringing the total number of radioed birds to 23. Crews visited migration stopover sites to gather habitat use data. The tracking is the first done on the AWBP in 25 years and is a top research priority of the Whooping Crane Recovery Team.

Production in the wild from reintroduced flocks in 2011 was again very disappointing with no chicks fledged in Florida or Wisconsin. Incubation behavior in Florida and nest abandonment in Wisconsin continues to be the focus of research. Data collected so far in Wisconsin indicates that swarms of black flies may play a role in a majority of nest abandonments. Ten captive-raised Whooping Cranes were released in February at White Lake, Louisiana where a non-migratory flock had resided up until 1950. Seven of the birds were alive after the first seven months of the project, but two of those were illegally shot and killed in October.

The captive flocks had a good production season in 2011. Approximately 17 chicks were raised in captivity for the non-migratory flock in Louisiana, and 18 chicks are being prepared for release in Wisconsin (10 for the ultralight project at the White River marshes, and 8 for Direct Autumn Release at Horicon National Wildlife Refuge). Two chicks of high genetic value were held back for the captive flocks.

Including juvenile cranes expected to be reintroduced this fall, flock sizes are estimated at 278 for the AWBP, 115 for the WI to FL flock, 20 non-migratory birds in Florida, and 24 in Louisiana. With 162 cranes in captivity, the total of Whooping Cranes is 599.



### At our Annual Member Meeting in September, we honored two "Good Eggs"

who have committed much of their lives to saving cranes. Tom Stehn recently retired after 29 years of service with the U.S. Fish and Wildlife Service, dedicated much of his career to saving Whooping Cranes at Aransas National Wildlife Refuge and coordinated the International Whooping Crane Recovery Team. Brian Johns (left) served 36 years with the Canadian Wildlife Service, and oversaw the recovery of Whooping Cranes on their breeding grounds in Wood Buffalo National Park.

In September, ICF transferred eight Whooping Crane chicks to the Horicon National Wildlife Refuge in central Wisconsin. The chicks are part of the Direct Autumn Release (DAR) project conducted by the Whooping Crane Eastern Partnership. While the birds are housed at the refuge, they remain under the watchful eye and supervision of costumed biologists from ICF. The cranes were released in October at Horicon into the company of older cranes. These young DAR Whooping Cranes learn the migration route south by following older birds. Photo by Marianne Wellington





## International Crane Foundation

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