

TRANSCRIPT

INTERVIEWEE: **George Archibald** (GA)

INTERVIEWER: David Todd (DT)

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Please note that the recording includes roughly 60 seconds of color bars and sound tone for technical settings at the outset of the recordings. Numbers mark the time codes for the VHS tape copy of the interview. "Misc." refers to various off-camera conversation or background noise, unrelated to the interview.

(misc.)

DT: My name is David Todd. I'm here for the Conservation History Association of Texas. We're in Columbus, Texas. And it is February 25th, 2008. And we have the great chance to be interviewing George Archibald who is a world-renowned expert on cranes. And we're especially fortunate that—that we have two kinds of cranes here, the Sandhill Crane and the Whooping Crane, and that Mr. Archibald and the—the group that he helped co-found, The International Crane Foundation, have both done great help in—in restoring these birds and seeing that they're protected for many years to come. With that, I'd like to say thank you for taking time to talk to us.

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DT: So thank you very much for visiting with us.

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GA: Well, it's my pleasure.

DT: I thought we might start with maybe some early episodes in your life that were a introduction to the outdoor world, or to wildlife, or—or maybe even cranes in particular that—that gave you interest and—and some passion for them.

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GA: I was raised on a farm in Nova Scotia, Canada, and we had domestic animals. And nature was all around us. I was particularly interested in chickens and ducks and geese. And my first—first memory in life is crawling on my hands and knees behind a duck and her brood. So I've always claimed that I imprinted, like the little ducklings. And ever since then I've been following birds. My parents were very, very understanding of my interest and allowed me to have a lot of birds. So by the time I graduated from high school, I had Pea Fowl and turkeys, chickens, ducks, geese, Guinea hens, pheasants, a real menagerie of birds. And I had to get rid of them, and I went to university, but I had this great, great passion for birds. And studies have been done about people who've sort excelled in certain fields, and they found that the common denominator among these people are parents that are loving and understanding of the fundamental basic intere—interests of their children, and

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encourage those interests. Not try to force them to be interested in something that they're not sort of instinctively interested in. And my parents were very wise in recognizing that I had this great interest in birds. I thought, however, I could na—never make a living keeping birds. I thought that would be my hobby. So I had planned to be a pediatrician. But during

one of my undergraduate years, I worked out in Alberta, Canada in the summer, and there were Sandhill Cranes migrating overhead, and I heard their call and looked up and saw these birds high in the sky as mere dots. And I was able to go into the wilderness and find their nesting area up in northern Alberta, and I became fascinated by cranes. I was eighteen years old,

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actually, when I first met cranes. But something clicked and I decided I would learn everything I could about cranes, still planning to go to medical school. In my senior year, by chance, and after having been accepted at medical school, I met a professor from Cornell University, and we had a great talk about birds, and cranes in particular. And he invited me to become his graduate student. And I said, yes, that's what I'd love to do. So I dropped everything about medical school and went to Cornell University to study birds. It was sort of an instantaneous decision, a very profound one, and one that I've never regretted.

(misc.)

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GA: So I'm in graduate school studying birds, and cranes in particular, for the topic of my dissertation. And I wrote letters all over the world for information about cranes and was astounded by how little information was available in the ornithological literature and through colleagues, ornithologists in the field in Asia and Africa. Suddenly, the realization came upon me that unless somebody did something for cranes, that many species of cranes would end up extirpated, extinct, much as has happened to the Whooping Crane up until 1940. And I had this overwhelming feeling that I had to do something for the conservation of these birds. I had hoped then to work for the New York Zoological Society as a field researcher and study cranes, and maybe other endangered birds, as my career after Cornell. But while I

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was a student there I discovered the writings of Aldo Leopold and his beautiful book, Sand County Almanac, in which he expressed in words what I felt about cranes. His se—his Marshland Elegy written in 1935 is so eloquent. He says about cranes, "He is the symbol of our untamable past of that incredible sweep of millennia that underlies and conditions the daily affairs of birds and of men. When we hear his voice, we hear no mere bird. He's the trumpet in the orchestra of evolution. And the sadness discernable in some wetlands stems from their once having harbored cranes. Now they stand humbled, adrift in history." I was so moved by his writings that I took a great interest in learning more about this man when I was a grad student. And just as I was completing my doctoral work at Cornell and preparing to leave for Japan to study cranes with the New York Zoological Society, I overheard a conversation. A new graduate student had arrived from Wisconsin. Leopold was

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from Wisconsin. I knew nothing about Wisconsin except what Leopold had told me through his works. I get up from my desk and went out to—and met Ron Sauey. And my first question was have you heard of Aldo Leopold? And he said, well, indeed. I know about him very well because the shack in which he wrote his beautiful Sand County Almanac is just ten miles down the road from home in Baraboo, Wisconsin. And I said, well, could I stop and visit you on my way to Japan? I would love to see his shack. And off we went to Wisconsin in a—a week or so and came up with the idea of creating this Crane Foundation.

His parents had a beautiful little farm where they had Arabian horses. They had moved the horses to Ocala, Florida and the barns were empty. And I thought this could be the seed location for this foundation. His parents agreed to lease us the farm for a dollar a year, but we had to raise money to support the mission.

DT: Can you tell us what year this is?

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GA: This was 1971. December of 1971, I visited Wisconsin for the first time. And Mr. and Mrs. Sauey gave support to build some enclosures for cranes, and our idea at that time was to write to zoos all over the world and ask them if they would consider loaning their rare cranes to this breeding center. And we would keep the birds in captivity, we would try to propagate them as a safeguard against extinction. At that time the s—former Soviet Union and China were completely closed to United States. This was back in the early '70s. The Cold War was at full throttle, and China was hidden behind Mao Tse-Tung's Bamboo Curtain in the throws of the cultural revolution. And so many endangered species of cranes are there. So we started out establishing a breeding center in the 1970's. And that was very successful. We soon

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had more cranes than we knew what to do with. And in 1978 we decided to expand our board of directors because our initial efforts had been a success, and we bought our own land five miles away from the Sauey farm. We worked with Mr. Herb Fritz, an architect at the Frank Lloyd Wright School of Architecture, and the School of Landscape Architecture at the University of Wisconsin to develop a beautiful site plan and architecture for the property. And we opened on our new land in 1983. The last crane was transferred from the old site in 1989. But many changes happened during the 1980's. China opened to the outside world. And I suppose I traveled to China three or four times a year, almost every year during the 1980's. That was the most exciting period of exploration, joining my colleagues to find out where the last eight different species of cranes were in that vast and over-populated country. And as a

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result of those explorations, not only ours, but mostly our Chinese colleagues, there are today seventy-two nature reserves for cranes in China. And the birds are very well protected, and their numbers are increasing. There are great problems in China now in maintaining the water in these reserves, because in some cases it's blocked up-stream by other districts. Nonetheless, we continue to work on that. And then the Soviet Union fell apart in 1990, and suddenly we had this opportunity to work in many areas of Russia and other new states formed from the s—former Soviet Union. So we had established all of the rare cranes in captivity in the early years of the Crane Foundation, and then we expanded our efforts to field work overseas. Of course, we've always had a very, very strong North American program on our most abundant crane, the Sandhill, and the rarest of cranes, the Whooping Crane.

DT: Well, you mentioned the Sandhill Cra...

[break in tape]

DT: George, you've been active around the world from Russia to China to Korea. But as you said, you—you've also got a program, the International Crane Foundation that is active here in—in North America. And part of these programs affects the Whooping Crane and the Sandhill Crane that—that come to Texas. And I was hoping that you could tell us what

you've been able to learn about the life history of these birds, and some of the problems they face, and some of the solutions you might propose to—to help them.

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GA: Well, the Sandhill Cranes and Whooping Cranes that come to Texas every winter are the lion's share of both species. In the case of the Sandhill Crane, several hundreds of thousands of birds on the farm areas of Texas from the Gulf of Mexico through to the border with New Mexico, and rolling into the Rio Grande Valley that extends down into Mexico, these birds are super abundant. There may be over half a million of them. They migrate up through Nebraska and on to Northern Canada, Alaska, and Eastern Siberia. They fan out over the whole top of the continent and into Asia. And they all come down here into the southwest of United States in the winter. Their great abundance is attributed to their ability to feed in grasslands and agricultural fields. They do not like tall grass. They like short grass where there are

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lots of seeds and insects. In the original prairie that covered this part of the country, unless it was burned, the grass could be very tall. And probably there was much less habitat available for Sandhill Cranes in pre-settlement times than there are today. Of course, there were more wetlands, and Sandhill Cranes will also feed in wetlands that are drying out, digging up the tubers of sedges. We don't know the numbers in foreign times, but we know in recent decades the Sandhill Cranes have increased. And it's because they're benefiting from this upland habitat that's been altered by man, to their benefit, accidentally, especially in areas that are grazed. The cows eat the grain, turn it into manure. There's a very rapid turnover of nutrients. Under the manure piles, there'll be many invertebrates that the cranes can eat. And so

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pastureland is very good feeding habitat for these birds, as are agricultural fields, such as sorghum fields and wheat fields and corn fields that have been harvested. They're harvested late in the summer, the cranes arrive, and there's all this waste grain all over the place. So they've really increased here. And they live in harmony with the farmers because the crops have already been harvested. The problem with Sandhill Cranes is when they migrate in late winter. If they're still here, they can eat corn that has been newly planted, or other crops, just before their migration in late winter. Or when they arrive on their breeding grounds, in the Prairie Provinces or in Wisconsin, we have a different group of Sandhill Cranes. They migrate to the

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southeast. But the story is the same. In the spring, they will dig up newly planted corn. So they are a threat to agriculture if there're a lot of cranes. So we have been able to develop a technique of applying a chemical called anthroquinone, which is biologically inert, does not cause any problem for the environment, but it makes the corn seeds very distasteful to cranes, and they don't like to eat that corn seed. So we've had to do work on how to make a harmonious situation between Sandhill Cranes and farmers when the cranes are doing damage. At the other end of the spectrum is the Whooping Crane, using exactly the same migration corridor through Wisconsin, but reduced to just fifteen birds back in 1940. Well, the Whooping Crane will feed in agricultural fields during its migration. And it's a much larger bird than the Sandhill Crane, and it's a beautiful glistening white. It never was as abundant as

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the Sandhill Crane, and in the wintertime, after the migration is over, it feeds in tidal marshes along the Gulf of Mexico in the area near Corpus Christi called Aransas, Aransas National Wildlife Refuge. And they feed on blue crabs, and each pair of Whooping Cranes defends a large winter territory of wetland, maybe several hundred acres of wetland. And to accommodate a large population, you need a great deal of land. And now there are a lot of coastal developments in Florida—condominiums, sea ports, and such, that are removing the w—coastal wetlands, or impacting the coastal wetlands. Also, the fresh water inflow to the coastal wetlands is threatened in Texas because there's such a need from the expanding human population. So

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there are a lot of challenges in making Texas a good place for Whooping Cranes in the future. Now my colleagues are concerned about wind energy and windmills, and the effect of those on migrating Whooping Cranes along the migration route.

DT: Is there special concern about the Kennedy tract in South Texas where there's a wind farm proposed?

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GA: Where is that?

DT: It's just west of the Aransas National Wildlife Preserve.

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GA: Yeah. Yeah, my colleagues that—although we don't have data that—that these wind farms hurt cranes, there haven't been wind farms in these areas near to the cranes. So we really don't know. So there is a concern about them. We know that cranes are very susceptible to power line collisions. And apparently there'll be a lot of power lines associated with these new energy production facilities. And—and that's a concern. So there are lots of problems facing the Whooping Crane. The population has increased to two hundred and sixty-six birds since 1940. But you take a small town in Texas, there may be three hundred people in it. Imagine that's all the humans left on earth. And that's what we have with our Whoop—our

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Whooping Crane population. They breed rather slowly, and the Inter-coastal Canal goes right through the Aransas Refuge, and every day there're enormous barges filled with toxic chemicals. Should there be a spill, an accident at the refuge, it could have a devastating effect on that little population of birds. That's why we have made efforts to start other Whooping Crane populations, such as one in Wisconsin that migrates to Florida. We've been working on that since 2001, and it has shown some promise.

DT: Why don't you tell us about how you tried to set up this new, or maybe restore an old migratory route towards the southeast?

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GA: Right. The last of the Whooping Cranes, the ones that winter in Texas, breed way up on the Northwest Territories of Canada in a place called Wood Buffalo Park—Wood Buffalo National Park. It was created for the Wood Bison. And the Whooping Crane's breed on a huge wetland complex in the northern part of that park. But the main breeding area for the Whooping Crane, up until the last nest was destroyed in 1922 in southern Saskatchewan, where the huge prairie marshes, the tall grass prairie marshes that extended from Northern Indiana through this southern Saskatchewan, that today is the world's greatest

food basket. Enormous farms, very productive, benefiting from the deep soils built up by the prairie vegetation over the eons. And the land was transformed into agriculture, the wetlands were drained,

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and the cranes were shot by the settlers. A big bird is a big meal. Now some of the wetlands have been reestablished, and conservation of grasslands and wetlands is a top priority for the states and provinces. And one of the restoration efforts is to bring back the Whooping Cranes in a place called The Sand Counties of central Wisconsin as a breeding area, and a wintering area in the southeast in Florida and the potential of expanding the wintering area to South Carolina and to Louisiana. So since 2001, captive reared birds have been trained to fly to Florida following ultralight aircraft. This is done through a partnership with an organization out of Canada called Operation Migration. These people specialize in raising these cranes and training them to follow. They all wear crane costumes so the cranes are not

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imprinted on humans, and they get them south—keep them over winter, and in the spring the birds fly back on their own, having learned the migration route the previous autumn. So today we have about seventy-five birds in that flock, and they started to breed in the wild in 2006. We're going to continue the releases until we have twenty-five successfully breeding pairs of wild Whooping Cranes in central Wisconsin. Right now we have fourteen pairs, and one pair breeding successfully, and we're hoping each year for an increment. So it's in its formative stages. Eventually, we hope to establish a non-migratory flock on the huge wetlands of southern Louisiana where they used to breed up until 1939. They were in—was a resident flock there. So a lot of effort is being placed in the restoration of the Whooping Crane. And it is the model for our restoration efforts for the most

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endangered of all cranes, although not the rarest, the huge white crane from Asia called the Siberian. And Siberian Cranes used to winter in Iran and India and China. And in recent years, they've been extirpated from the western migration routes, and today only survive in China on the winter area. The group in China has increased to between three thousand and four thousand birds, which is very encouraging. And we are hopeful, by teaching captive raised Siberian Cranes to follow aircraft, we can lead them back to Iran and to India. But nine countries are involved, including an all-star cast of challenging relationships. India and Pakistan, Afghanistan, Iran, former Soviet Union Republics, and Russia.

DT: Well, this brings up an interesting aspect of—of the International Crane Foundation's work, and I think particularly your diplomatic efforts to use the crane as a—I don't know—icon or a vehicle of peace, and understanding and care for something that folks have in common, this—this heritage of loving and hosting cranes.

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GA: One of the most rewarding things in my work is the way cranes can bring people together. So every two years we have a meeting in West Asia about the Siberian Cranes. And we have delegates from Russian, Kazakhstan, Uzbekistan, Turkmenistan, Afghanistan, Pakistan, India, Iran, and Azerbaijan, in the same room talking about the conservation of cranes. And we now have a recovery plan for the Siberian Crane, and every country has their marching orders that they develop at this meeting, and s—we're hoping that this will be successful. The problem is funding. There are very few financial resources in that part of

the world, and it—it's

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in a very expensive operation to restore these cranes. So I am currently working with colleagues in the United Arab Emirates hoping that at some point they might become interested in funding this recovery program. But I haven't reached that goal yet.

DT: Something else that comes to mind from what you've been talking about, it seems that many (?) recovery efforts depend on good captive breeding that can lead to a release into the wild. And—and I think that you're one of the pioneers of captive breeding of cranes (?) from the very beginning of (?), you've been working on these techniques and dancing with cranes, I guess, as a part of that. I was hoping you could explain some the techniques that you developed over the years.

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GA: Yes. The captive breeding of cranes is a challenging task. They are not easy to breed in captivity because they only lay a few eggs every year, and unless the pair is synchronized very well together, you'll get infertile eggs. And they never hatch. So we developed a number of techniques to get the cranes to perform better for us, including the technique of artificial insemination where we can collect semen from an adult crane, a male of course, and can divide that semen and distribute it to several females. So if so-and-so's mate is not into semen production, she can be artificially inseminated from somebody else. And we developed the technique of

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raising the cranes using puppets, hand puppets, and costumes—person is cloaked in white except for a mask, a screen that they look through, and the bird cannot see the face of the human being, they only see this very real puppet. And these birds are imprinted on the puppet and the costumed person. But they don't seem to know the difference between the costume and a real crane. And they very readily join the wild cranes, and are very afraid of humans and survive very well in the wild. So this technique has been very profound in returning captive-produced birds into the wild.

DT: I guess I have two follow-up questions, and both involve Whooping Cranes. One is, I understand that Whoopers went through this severe genetic bottle-neck, I guess, where they went down to—was it fifteen birds you said? Has that been a problem in trying to return them to have a—a really robust, diverse population? And I guess the second question would be, once you've got these Whoopers bred, when you release them, I understood at one point, you tried releasing them to Sandhill populations to see if they could be shepherded along by their, you know, reasonably close relatives. And maybe you can talk about those two aspects of—of captive breeding and release.

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GA: When wild populations are reduced to a very low level, the breeding of related individuals increases. We call this inbreeding. In domestic animals, inbreeding can be used very effectively to develop a particular type of animal that's a little different. So we have very rapid development of different breeds of domestic animals. Sometimes these animals have genetic defects. For example, Golden Labrador Retrievers have problems with their hips at a relatively young age. And people attributed that to line-breeding, or inbreeding. So this phenomena exists. In some wild populations that have been reduced to very low numbers, they stop being productive, and it's attributed to inbreeding. The eggs don't hatch. There are deformities, and so on. So there was great concern when the Whooping

Cranes were

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reduced, actually, just to three breeding pairs with a total population of fifteen individuals. But if the genetic quality of those founding bottleneck birds is very strong, you're going to have a relatively strong population growing, and sometimes can grow robustly from a very few individuals. For example, the cheetah apparently was reduced to a very few individuals. They have very little genetic diversity. They went through a bottleneck, but those animals in the core of the bottleneck were very, very genetically strong, and proliferated out with success. And that seems to be what's happening with the Whooping Cranes, because the breeding of the wild Whooping Cranes has been extraordinarily strong. And the survival rate has been good, and the population has increased at a normal rate. The second question that you had was—what was it?

DT: We're talking about trying to establish released Whoopers to Sandhill populations?

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GA: Oh, yeah, yeah, yeah. Yes. In 1976 an experiment was undertaken in Canada to bring eggs from the wild Whooping Cranes. They lay two eggs a year, but usually only rear a single offspring—to bring these extra eggs, and also eggs from captivity, to Idaho to substitute into the nests of Sandhill Cranes. Three hundred eggs were transported there over a period of twelve years, and three hundred birds survived. No, no. Three hundred eggs were taken there, and seventy-seven birds survived to migrate with their foster parents. They migrated eight hundred and fifty miles to Bosque del Apache National Wildlife Refuge along the Rio Grande River south of Albuquerque, New Mexico. They wintered in the upland agricultural habitat with Sandhill Cranes. They behaved just like a Sandhill Crane. They repeated the migration in the fall—the next fall, and subsequent springs, without their foster

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parents. But, unfortunately, they were sexually imprinted on Sandhill Cranes, and did not have a tendency to associate with Whooping Cranes. They would meet each other, they would look at each other, and sort of keep going. And they wanted to be with Sandhill Cranes. So that demonstrated how profound imprinting is. And it was based on that failure that we had to develop a new technique, which was costume-rearing developed by Dr. Rob Horwich at the Crane Foundation in 1986 at the tail end of the failure with the cross-foster experiment.

DT: You—you were just talking about the migration from Idaho to New Mexico, and earlier you've been talking about a new migratory route you were trying to establish from Wisconsin to Florida. And it seems that the route was successful, but I think that there was some trouble in Florida with storms. Can you talk about that issue, and how you planned this rebound from that?

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GA: In 2007, the people from Operation Migration led eighteen Whooping Cranes south to Florida. In addition, one Whooping Crane went south with its parents. It was the first raised in the wild. And four birds were re—released from captivity directly with the older wild cranes. And they migrated to Florida. So totally, there were twenty-three young Whooping Cranes that made it to Florida in the autumn of 2006. On February 2nd, 2007, a couple of older cranes came into the fenced area where the eighteen Operation Migration cranes were spending the winter. This was a large fenced wetland area way out in the middle of

the wilderness off Chassahowitska National Wildlife Refuge on the west coast of Florida and north of

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Tampa called the Nature Coast, full of manatees. And the fenced area was created to provide protection for these cranes that did not have parents with them, did not have other wild cranes with them, from bobcats and alligators. There were electrical wires around it. They could fly in and out of this acreage, but every night, the costume person made sure that they were all inside there to roost in the shallow water safely. When older birds visited, they would attack the younger birds. That was their old winter home. Pelleted food was available for the young cranes. They wanted the pelleted food. So a small sub-cage was built adjacent to it where the young birds could be herded in. It was netted over, and they could be kept there and fed there safely until they removed the food in the central area and the wild

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gir—birds would disperse because there was no handout. And on February 2nd of 2007, several wild birds arrived, and the standard procedure was to remove the food and put the young birds in the small enclosure. During the night a terrible storm was inflicted upon this part of Florida. There was this surge of water came in from the Gulf of Mexico, which was seven or eight feet deep in the pen where the birds were locked. So they were swimming around, and they were trapped because there was a net over the top of it. And at three o'clock in the morning, there was a lightning strike on the pen. And we think that the birds were knocked out by the lightning—either killed by the lightning, and drowned. And of the eighteen birds, seventeen died. One bird managed to get out somehow through the door. We don't know how that happened. And we question, actually, if it was in the pen. It could

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have been out by mistake. And it survived. So it was a huge setback to our program. Twenty-two people died that night in Florida from that storm in nearby areas. Well, you can have a catastrophic event anywhere on this earth. And we were very unlucky. We had a catastrophic event at our site, which likely will happen once in a hundred years at that particular site. We don't think it's the fault of the site. We think it's the—the losses were a fault of our management. If we had not locked those birds in, they probably would have flown out and gone to a safer area. And so this winter, we have that area with seventeen more Whooping Cranes in it right now, and we are very, very mindful of the weather, and we're watching the weather much more closely, and if there's any chance of a storm, it's better to leave

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the birds out than to risk the association with the adult cranes. The risk from the adult cranes is that they sometimes attack the younger cranes and get them to fly out of the safe area. Then they're roosting out where the bobcats are. So it was a big setback, but we bounced back.

DT: I guess I would have a—a follow-up question in that you're talking about trying to establish these new migratory routes, and I could see how...

(misc.)

DT: George, when we left off just a moment ago, you were talking about your efforts to—to restore one of the migratory routes, one to—that might have been anchored in—in Florida.

I was hoping you could say, well, what's a speculation, or what are the theories about how these cranes migrate once the ultralight is not training them and leading them. How—how do they navigate, at night, and during the day over so many hundreds and hundreds of miles?

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GA: Okay. These birds were led in a step-by-step process by the ultralight to Florida over a period of about two months to three months. And they spend the whole winter in Florida. They don't fly far away from their pen where they're fed. But in late March, the sun comes up in the morning, the cranes feed and drink and preen their feathers, per normal, and then they start looking skyward, and they lift their beaks, and they make a strange little call like let's fly. Dook—dook—very soft. And they all take off together, usually the whole group, and they start circling on the midmorning thermals. As the earth is warmed, the air rises, and so do the cranes on

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those thermals. And they go way, way up out of sight. And then they get cross-winds and they glide. And they glide in the direction towards the area in which they learned to fly. It's a GPS point in central Wisconsin. And they fly all day towards that point, and they put down in the evening at a fortuitous wetland. They'll spend the night, maybe two nights. In the day, maybe feeding around that area, and then they continue the migration, and they get back to this area in which they're reared within a couple of weeks or less. And the only problem that they've encountered is if they hit bad weather and get pushed east. Then as they continue north towards their magic spot, they run into a problem, which is Lake Michigan. A few of them have been, because of the winds, ending up on the way back to Wisconsin facing a huge body of water, which does not have thermals. Thermals only rise over land.

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And they'll go up, but they'll not get the proper conditions for the big migration across the lake. Some of them have gone around the southern end of the lake and sort of figured it out. But a few of them been trapped over there, and we've had to go over and bring them back to the other side. But most of them make it right back to the area in which they were reared. They come back to that spot, and then they disperse within perhaps a sixty mile radius of that area, doing what we call the spring nomadic movements. From mid April through mid June, they're moving around, searching for good habitats. And they find them, and then they spend the rest of the summer there. They molt their flight feathers and become flightless, and

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by late August they're capable of flight again, and by late November, they go back to Florida on their own. So they—although they were reared in captivity with crane-costumed people and led behind an ultralight to Florida, all the natural instincts chime in, and they perform beautifully.

DT: And how do they find this—as you said, the GPS point?

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GA: Nobody knows. We don't know the mechanism of that.

DT: Any speculation?

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GA: In pigeons there are bacteria in the brain that have deposits of iron that line up in a

magnetic orientation. And so the nerves touching those bacteria apparently are able to get navigational cues. And I don't know if the crane has such a mechanism.

DT: I have another question about migrations, or at least about the summer populations. When—when—when the Sandhills go north in—in the spring, my understanding is that—that some of them end up along the Platte River, and that it's one of the great spectacles of nature. I was hoping you could describe what it looks and sounds like.

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GA: Yes. The greatest gathering on cranes on earth happens along the middle reaches of the Platte River between the towns of Kearney and Grand Island. It's a forty to sixty mile stretch where the birds are usually concentrated. And perhaps several hundreds of thousands of cranes gather there. At night they roost on the river, and the river is carpeted with cranes. This water is very shallow and there are lots of sandbars. And early in the morning, they fly out to cornfields within three miles of the river where they feed during the day, returning to the river again in the evening. They come from all over the southwest to this little spot. And then in late March and early April, they start to move out, climbing the thermals and flying north.

(misc.)

DT: Could you please continue with the story about the Platte River?

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GA: So when you think about it, if you're migrating north in spring, if you migrate too quickly, you're going to fly right into a deadly winter. And that's why they stop in Nebraska. And they build up there, because it's very cold to the north of Nebraska. So they can't go too quickly. But it also gives them a chance to meet cranes from all over the vast winter range of the bird, which is all the way from Mexico over to New Mexico and Texas. And if a bird is unpaired, doesn't have a mate, this is a great opportunity for genetic mixing and pairing. But there's something else. During their time in Nebraska, which can be up to a month or more, they increase their body weight by eighteen percent. And that increase is fat as a

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result of eating corn and invertebrates in the meadows along the Platte River. And that is the fuel that is burned during their long migration north to the breeding ground, because the season is so short up in the Arctic where they breed, they have to nest as soon as they get there. And building up these reserves in Nebraska, which is as far north as they can get before they hit winter, helps them to survive and to breed. So we call it spring staging, and it happens in many species of cranes. They'll go as far north as they can, stop, build up their reserves, wait for warmer weather, and then continue on. And it really is one of the most dramatic

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things in the world of nature to see. The National Audubon Society has a program at their Rowe Sanctuary near Kearney whereby people can make reservations and be placed in the blinds along the river to see the cranes fly in in the evening and depart in the morning. And the earth—the air absolutely shakes with the sound and the beating of the wings of these thousands of cranes nearby. And the sound is rather deafening. And sometimes I've been there in the early morning when it's very cold, and the sun comes up with that beautiful red glow over the river, and you look up the river and as far as you can see, gray cranes, like the river's carpeted with cranes. In the distance, a Bald Eagle may flush a group of cranes. And as the Bald Eagle flies along the river, more cranes flush, and there's this great roar in

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distance, because they start to call as they lift. And it just moves down the river, this great wave of sound and bird. And right past you, suddenly you're in the middle of it, and it continues on be—past you. I call it The Great Wave. I've only seen it a few times, but it's most memorable. Have you been there?

DT: Never.

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GA: Your mother has, and she almost froze to death.

DT: I guess one thing that's interesting to me about the Sandhills in particular, is that they seem to evolve in a way that—that takes advantage of agriculture, that they d—like you said at the Platte River, that they go out three miles and they feed in the crop fields, and then they come back to their roost. And I guess that that's a good contribution to them. But I understand that—that m—m—that there's also a role to play with having natural prairies, native prairies, and native wetlands, which are often under threat and—and eroding. And I was hoping you could tell me about some of the efforts that International Crane Foundation, now many years ago, when you first started trying to restore native prairies, how you did it, why you did it, what the—some of the results have been.

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GA: When I first came to Wisconsin in 1971 to see Leopold's shack, I was interested in prairies, because he had written about planting prairies around his shack on a land that had been an abandoned corn field. He wanted to restore this perennial community of beautiful grasses and forbs. When I returned to live in Wisconsin in 1972 and start the Crane Foundation, we had a piece of land, and I was interested in taking a section of it and planting a prairie. And a wonderful young man named Charles Luthen came as a volunteer. He had just graduated from the University of Wisconsin, and he took this on as a two-year project. He collected seeds, he prepared the soil, he planted the plants. And I went out with Charlie many

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times to remnant prairies that we found along railroad tracks, graveyards, tops of hills called goat prairies, and we collected these seeds. Well, when we bought our new property and had to move from the Sauey farm, suddenly we had all of these agricultural fields that we were interested in restoring to prairie. And today we have a hundred and ten acres of the most beautiful prairie on our site. The prairie is an example. It's a metaphor of habitat restoration. Species like Sandhill Cranes that feed in agricultural fields don't need restored prairies. They likely do better in agricultural fields. But species like Whooping Cranes that depend on coastal

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marshes, perhaps coastal marshland habita—habitat can be restored in certain areas to provide more habitat for Whooping Cranes. So the whole concept of habitat restoration is something that we're very, very aware of, and that we need to do for certain of the most endangered crane species. Now it's not prairie habitat per se, it's wetland habitat per se. But the principals of studying the water and the soil and the traditional vegetation, and the steps taken to restore the natural community, are the same for all natural communities. And our prairie restoration program at ICF demonstrates what used to be on that piece of land, and the steps that we had to go through to restore it. So it's—we use it as the teaching

tool for habitat restoration.

(misc.)

DT: George, the International Crane Foundation, and through your personal efforts as well, has worked on all sorts of aspects of protecting cranes, whether it's captive breeding, or restoring migratory routes, or restoring former habitat. But it seems that one of the important aspects that we haven't talked about yet that—that you've been involved in is educating the general public. And I thought you might be willing to talk about festivals and education programs such as that that Joan Garland's been working on here in Texas, and elsewhere along the route, to try to help people understand why cranes are important.

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GA: The public education, public involvement engagement, so on, is extremely important in any conservation effort. The hero in this was not the Crane Foundation, but a guy named Robert Porter Allen. Back in the 1940's this guy was a researcher with the National Audubon Society. He studied the Whooping Cranes at Aransas, and God bless him, he traveled in his little car all along the migration route of the Whooping Crane, and he spread the gospel to hunting clubs, to schools, to public meetings, radio stations, and so on, throughout the 1940's. And without his effort, we probably would not have a Whooping Crane alive today, because he alerted the hunters, in particular, to protect large white birds that are not Snow Geese. And

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we're doing the same sort of thing today, and we have many more tools to work with. We have the internet, we have the websites, and e-mail, and so on. But the best educator is the real human being that's enthusiastic and informed. And Joan Garland is our outreach coordinator, and she follows the migration of the Whooping Cranes from Wisconsin to Florida, the ones that are following the ultralight aircraft, and speaks in schools along the way. And in—in the winter, she does the same thing near the Aransas National Wildlife Refuge to the schools and this part of Texas. And of course, the Sandhill Cranes and the Whooping Cranes are—are doing better, and

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lots of things are going on in—in United States and Canada for cranes. But most of our work is in Asia and Africa, and this is where the rubber really meets the road because we have impoverished people living near these birds. And how do we work with these people to try to make a win-win situation? We have found that we have to think about the needs of these local people first, and to try to help them. And in helping them, share with them our values about the birds. And the best example of this type of work is in China in one of the poorest areas called Guizhou Province in Western China where Black-necked Cranes were wintering on a wetland surrounded by farmland. And the local people were killing the cranes and draining the wetlands. So we were able to start a micro-lending program for the farmers to do things

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through which they could make money, maybe a healthy flock of chickens, maybe an incubator, maybe apple trees that they could plant, or some other crop. And this was most successful. The farmers were able to do new things that helped them make money that didn't harm the environment. And the crane population has increased from about two hundred birds to about eight hundred birds. And the people are now happy about conservation, proud of the cranes that are there. And that's a model now that's being

replicated in many other places in Africa and in Asia. So...

(misc.)

[End of Reel 2410]

DT: George, when we left off on the last tape, you were telling me about Mr. Allen and as he tried to educate people up and down the Whooping crane's migratory route. But one of the other things I understand he did was he did one of the very early surveys of cranes in their wintering habitat down the South Texas coast. And I was curious if you could tell about the origins of the protection of that area, which I guess is now the Aransas National Wildlife Refuge.

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GA: The Blackjack Peninsula near San Antonio Bay was a huge ranch. There were large wetlands on the gulf side of the ranch. And local bird watchers, particularly a woman in Rockport named Connie Hagar, knew about Whooping Cranes in that area. That was a place bird watchers could come to see Whooping Cranes, the last place. And because the Whooping cranes were there, the Aransas National Wildlife Refuge was created by purchasing the land from the ranchers. There were Atwater's Prairie Chickens there as well in large numbers. That was in 1935 that the refuge was formally established, and it was in 1940 that Robert Porter Allen began his studies of the Whooping Cranes. And from then on we have had—we have had accurate winter counts, and we have had a good understanding of the habitat needs of the Whooping

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Cranes on the wintering grounds. And then Robert Porter Allen did all of this conservation education with the hunters along the central flyway leading from Aransas through to southern Saskatchewan. And from those wheat fields on the border of the wilderness of the Boreal Forest, he could go no farther, and the Whooping Cranes migrated into the wilderness. Their breeding ground was not discovered until 1954 by accident as a pilot surveying for forest fires looked down and saw these large white birds. Unfortunately, Robert Porter Allen died of a heart attack the year before and never saw the birds on the breeding grounds. Sad story. But today, for the past twelve years, in the town of Port Aransas, we celebrate the

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Whooping Crane survival with our Whooping Crane Festival sponsored by the town of Port Aransas. And for two days, speakers tell about cranes and other wildlife, and lots of people come to learn and go on boat trips up through the refuge, and to celebrate the continued survival of these very special birds.

DT: Curious. When—when (?) public seems to have this fascination with—with all—not just Whooping Cranes, but all kinds of cranes. And—and it seems like these cranes have a special—I don't know if I should say an iconic value in many different cultures. And I was wondering if you could talk about some of those things that people associate with the cranes. Cranes probably don't know this, but that, you know, folks see a symbol of monogamy, or other s—kinds of traits. What—what—what do you see in them? What do the cultures see in them?

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GA: Yeah. Well, cranes have a special relationship with humans because they're enormous charismatic creatures that people can easily see and understand. You can hear them miles away with their loud calls. You can see them clearly out on the fields and marshes. They

engage in—in—they engage in spectacular behaviors, such as their dance, and their unison calls, and their threat postures, and parading around. They are social creatures during the winter, and on migration they get together in groups, and communicate with each other. They have long dagger-like beaks and could inflict serious wounds. So they have developed, they have evolved wonderful ways of communicating to avoid contact, dangerous contact with each other. And humans have observed this. And they think, my gosh, these animals are

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beautiful, and they're curious about them. And cranes are very, very beautiful. It has been said that there is nothing a crane does that is not graceful. They're very graceful. And they only have one or two juveniles, and you can see them feeding the juvenile crabs or pieces of corn or whatever. They lavish care on their young. And this is very appealing to humans because humans lavish care on their young, too. And there is a—a very lovely bond between cranes and humans because the birds are so graceful and beautiful, and because they have these behavioral traits which very may—much parallel our own species. So consequently, in different cultures, cranes mean different things. To the people in the Orient, they're a symbol of fidelity, long life, good luck, happiness. In tribal areas of Northern Russia where

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the Siberian Cranes breed, because people seel—feel so happy when they see these gorgeous creatures returning to the tundra in the spring, and see them dance, they feel so happy that they feel if they bring sick people out to see that, they'll be healed. And of course, healing has very much to do with psychological condition. And if you are happy about whatever, apparently your chances of healing improve. So to those traditional people, the cranes bring healing. And I think after that long Arctic winter, it wouldn't take much to bring a little happiness to them. In Africa, the cranes symbolize monogamy. And now, AIDS is re—raging across Africa, and monogamous relationships are promoted. And in recent years, we've discovered a

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lot of taboos. The African people in certain areas know that cranes are monogamous, and they feel if they have a part of the crane on their body that they, too, will be monogamous. So they'll put feathers in their underwear, and some very strange things. But the cranes have this meaning to them. On another level, the crane is a flagship for the conservation of a whole community of organisms, the whole wetland ecosystem, as we call it. And because people care about cranes, if they protect their habitats, the whole ecosystem is protected. So at another level, they have a very important role to humans because they are flagships of ecosystems.

DT: I think that—that some of the work that you and ICF are doing is in areas where there's a lot of strife. You mentioned earlier the—the cranes that—that move up and down through Afghanistan, Iran and some of the—the former Soviet Republics. But I understand another place that you are working is in the demilitarized zone of Korea, and trying to use this bird, not only as a eh—sort of vehicle to protect the wetlands and other protected areas there in the DMZ, but also maybe as a way to usher in a new understanding between North and South Korea. Can you talk about your efforts there?

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GA: One of the most important areas on earth for rare cranes is the demilitarized zone

between North and South Korea. It's a hundred and fifty-five miles long and three miles wide at the 38th parallel. And there are two major areas, one in the west in the central part of the country that have critical habitats for Red-crowned Cranes and White-naped Cranes. Half of the world's population of eighty thousand White-naped Cranes depend upon the DMZ. One-third of the mainland Asia population of Red-crowned Cranes—no, one-third of the world population of Red-crowned Cranes depend on the DMZ. Plus a plethora of other species, including the Swan Goose, a rare goose from Mongolia, and the Cinereous Vulture, or Black Vulture, from East

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Asia, and a number of eagles, and so on. Well, this area is an accidental wildlife preserve between two hostile neighbors. Step-by-step North Korea and South Korea are collaborating on economic programs. There are now a hundred and twenty factories built with South Korean money in North Korea in a place called Kaesong just north of the DMZ, and it employs and trains North Koreans to operate these factories producing goods at a fraction of the—what it would cost to do it—the same thing in South Korea because of the lower wages. And there are plans afoot to do more of that. And our most important crane valley, there are plans to call it Reunification City and have all kinds of employment opportunities for North Koreans in factories. So the crane habitat will be annihilated if this continues. So I'm a

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member of an organization called the DMZ Forum, it—headquartered in United States. It's just a group of volunteers from a number of organizations that are interested in the DMZ, and we helped form what we call the D—the Coalition for the Conservation of the DMZ, including organizations in South Korea, NGO's for Conservation. We're trying to build up a momentum for the conservation of this area. Well, the forces of development are so powerful, and money is so important, and this area is so strategic, that I have personally decided to try to work in North Korea to help establish an area where these cranes can go should the DMZ go under to development. It's sort of a backup plan. And that is a valley called the

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Hamgyong Valley just north of the DMZ where cranes used to winter in large numbers, but they left in 1995 because of widespread starvation and associated impact from the local people. Likely they were shooting them. If I was star—were starving, I'd likely do the same thing and that same year, the huge increase in birds in the DMZ itself. North Koreans will not even mention the word "DMZ." It's taboo for them. My colleagues can not talk about it. It's only talked about at the highest levels in the government. And through my friendship with Ted Turner, he went—he became involved in this whole thing and went to North Korea and met with the leaders and talked about the conservation of the DMZ, and to the leaders of South

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Korea. And now he is supporting an organization in South Africa called the Peace Park Foundation that specializes in transboundary nature reserves, started in 1994 by Nelson Mandela doing transboundary nature reserves in countries bordering South Africa. So a great deal of effort is underway to conserve the DMZ, but we certainly have not reached our goal. And in two week's time, I'm heading off to North Korea to start our program in the Hambyong Valley. And that will be to help the farmers. I want to introduce green fertilizers

rather than the chemical fertilizers they've been depending upon and haven't been able to get since Russia will no longer give them petroleum products. And we're buying some machinery for them, a

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manure spreader, a rice seed sorter, and a few other things, starting sort of from scratch to build what we hope will be a safe area for the wi—cranes to spend the winter, and a place where the local people's needs will be met at the same time. So it's a huge challenge, many unknowns, but a strategic area in which we must be involved.

DT: You have worked, as you pointed out, I mean in—in the former Soviet Republics, China, Korea, Africa, even here in North America. And—and I'm wondering if you could help us bring it back to you. And what is it that gives you the interest and passion to pursue this around the world?

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GA: What fuels my interest in the cranes, every time I see the cranes in the wild, I feel energized. They bring me a special type of energy and passion. And that feeling is shared with people all over the world, as I mentioned. This afternoon I hope we can go out and see and hear the Sandhill Cranes before it gets dark. And I feel just as enthusiastic and committed as I did when I first heard those birds in Northern Alberta way back in 1966. And I hope I can continue to help the cranes as long as my life continues. So it's a very fundamental interest I have. I don't know if I answered your question.

DT: No. I—I think it's—it's—it's hard to explain some of these things that are just integral to you, and—I guess a—a—a related question I might ask is that you—your—your concerns don't stop at national boundaries, nor do they stop at species boundaries. You—you still seem to be interested in chickens, especially smart chicken. And (?)...

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GA: Starlings.

DT: ...and Starlings. And I was wondering if you could tell us about your projects in those regards.

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GA: Oh, my wife and I have a great interest in birds, and we keep a lot of domestic birds at my home, just as I did when I was a kid back in Nova Scotia. And we today have Pea Fowls, and turkeys, and chickens, and pigeons, and Guinea hens, and one starling that my wife trained to talk. And it can say in perfect English "Twinkle, twinkle little star, how I wonder what you are, up above the—screech"—can't get to world. But anyway, it's quite amazing to hear. Plus a number of other expressions. And we're very interested in plants, horticulture. And wherever I go in the world, I'm—I'm always interested in the botanical features. And at our home, we have many gardens. So life in all of its forms, whether it's a beautiful flower, or a grass, or a crane, continue to fascinate me.

DT: You mentioned your home. Do you have a—I guess your physical home near Baraboo, Wisconsin. But we often ask people if there is a special spot that's kind of a spiritual home, a place where they like to go because it makes them feel good. And I was—wonder if there's a place that you could describe for us.

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GA: There's a place that I love to go near my home. It's on the property of a friend, Mr. Phil Pines. He lives across the Wisconsin River. And we sit on the grassy bank having a cocktail at sunset, and it's wonderful to be with a dear friend having a drink. And the sun is setting

over the river in the west. The Baraboo hills lift off the plain to the east. And on the sandbanks on the river right in front of us, hundreds of Sandhill Cranes fly in just at sundown. So the geology, the river, the sunset, the cranes, and friendship all meet at that special spot. And I just love to go over there at sunset and sit with Phil and watch the cranes come in.

DT: You have a lot of friends, and I—I was curious what you would tell a young friend about why you think they should care about these things that you have worked on so long.

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GA: I never say that—I never tell young people that they should be interested in what I'm interested in. I share with them what I'm enthusiastic about, and enthusiasm is contagious. That's one of the characteristics of the human species. You can meet somebody that's enthusiastic about something you never heard of before, and because of that person's interest, you become interested. So it's completely contagious. And that is the greatest type of teaching, if you can ignite someone's interest in something that way. But it has to be genuine. You can't fake it. And when I meet young people, I often try to discover what their interest is, and

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to encourage them in their fundamental interest, whether it's sports, or photography, or whatever, because I think a very vital thing in life is to discover what your instinctive interests are, if the—if you have them. And if you don't have them, maybe you can help someone develop an interest in something. But I think that likely, if you dig deep enough, everybody has a real interest in something, as I had in birds when I was a little boy.

DT: Well, we're all lucky that you did have that interest in birds.

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GA: Like your daughters. Do they have some fundamental interest in something that you can see?

DT: We'll find out. Stay tuned. Thank you very much for your time today.

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GA: You're welcome.

DT: Appreciate it.

(misc.)

[End of Reel 2411]

[End of Interview with George Archibald]