AWARE
CONSERVATION&PHOTOGRAPHY
JAN / FEB 2021

GREY CROWNED CRANE

BY PETER HUDSON & SHREYA MENON

CONTENTS

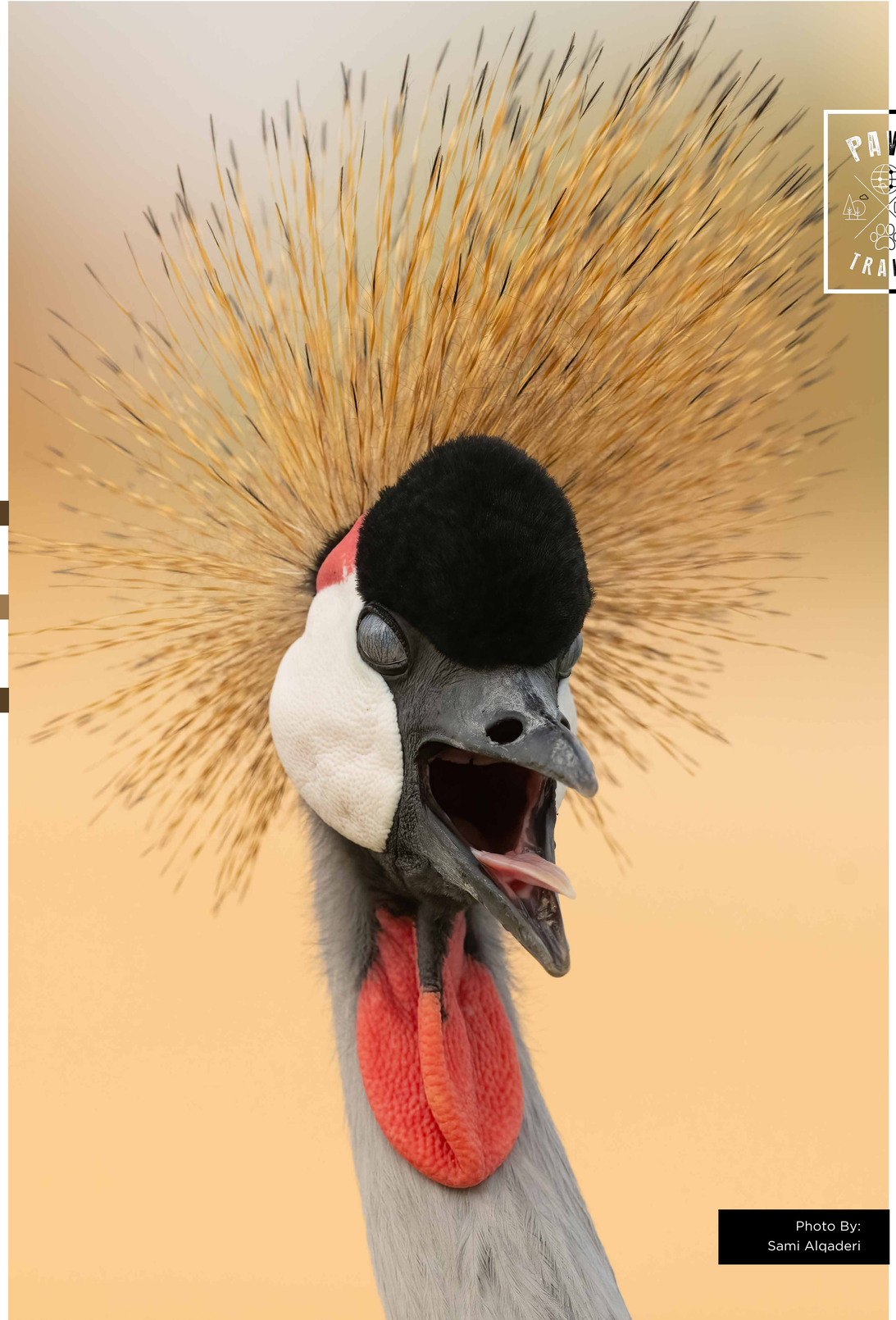
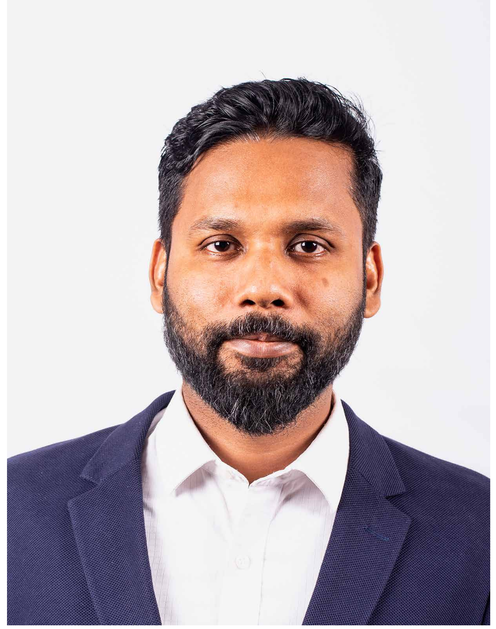


Photo By:
Sami Alqaderi

Publisher: Paws Trails Explorers **Editor:** Raghul Patteri **Conservation Director:** Peter Hudson
Content Director: Nisha Purushothaman, **Director Photography:** Hermis Haridas, **Design desk** : Nithya Purushothaman



Raghul Patteri
Editor

EDITOR'S DEN

Wetlands are important ecosystems that provide many crucial ecological functions for the sustenance of both wildlife as well as human populations. Alas, a vast majority of the world's wetlands were already lost or severely degraded due to human interference by the time their importance was realised. About half of the human population depends on wetlands as their source of water and about half depend on wetland crops as their staple food – figures that put into perspective the importance that wetlands hold to us.

There are innumerable numbers of plants, birds, animals, insects, and amphibians that depend on wetlands for habitat, food, and survival. The impacts of wetland destruction on these organisms are still to be understood fully.

There are various species of waterbirds who depend on wetlands. Among them, the crowned beauties of Africa, the Grey crowned cranes are truly an enchanting species. These long-legged beauties are the dancing queens of the savannah wetlands with their beautiful feathers, crown, and captivating mating displays.

However, these birds too seem to have fallen prey to the impacts of destruction to habitat, and their population has reduced by half in the last three generations. This is an alarming trend as these birds are an important indicator species to the wetland quality.

In this edition of PT Aware, Dr. Peter Hudson walks you through the important aspects of wetland conservation, its impacts on the Grey crowned cranes, and their conservation efforts.

We thank all the gifted photographers who contributed the beautiful Grey crane images that you will enjoy in this edition. PT Aware is proud to associate with the Scientific and photographic community from all over the world to bring you breathtaking images side by side with the latest in scientific perspective.

Our next edition will focus on the Mountain Gorilla. So please prepare to upload your best images of these charismatic apes. Selected photographs will be published in the next edition.

Photo by: Sami Alqaderi

FOUNDERS' NOTE

Welcome to the 13th edition of PT Aware. We are entering the third year of publishing this magazine.

This is also our first publication for the year 2021. It is important to take into cognizance that the entire humanity is looking at this year with eager anticipation to come out of the clutches of the covid pandemic. And yet, there is still uncertainty as to when things will return to pre covid era business as usual.

Both of us are fortunate to be welcoming the new year from the majestic Maasai Mara, where we are hosting a photographic expedition. It is a pleasant coincidence that this edition focuses on the Grey crowned cranes which are native to the African wetlands. As avid bird photographers, wetlands have always captivated us for the sheer variety they hold in biodiversity. Add to this the important ecosystem services that wetlands provide, and this will help to put into perspective the importance that wetlands hold for sustaining life on earth.

It is important that conservation efforts focus holistically on the entirety of wetland dynamics when devising conservation goals and strategies. Community photography can be an effective tool in wetland conservation, given that the vast majority of wetlands lie outside protected areas. It will be easier and more effective for communities to monitor the wetlands and water bodies in their localities and record decline or progress through photographs. PT Aware has faith in using and developing community photography further and the global Paws Trails community has been a trendsetter from the start.

Stay connected through the various outreach programs on our social media handles and help us spread the voice of reason and hope for wildlife and conservation.

Wish you all a happy and prosperous 2021.

pawstrails.com/register
pawstrails.com/magazine

Hermis Haridas & Nisha Purushothaman
Founders - Paws Trails Explorers

THE STORY

Wetlands and the decline of The Grey Crowned Crane

By Peter Hudson,
Conservation Director, Paws Trails
with Shreya Menon

Peter Hudson is a scientist, photographer and conservationist. He undertook his first scientific expedition to Africa at the age of 21 and has been a regular visitor ever since. Passionate about nature, he manages his own 36-hectare nature reserve in Pennsylvania which is home to bears, bobcats and other animals.

In his professional career, Peter is the Willaman Professor of Biology at Penn State University. The focus of his research has been the infectious diseases of wildlife and in particular how new diseases emerge. He has been running scientific studies on the wolves in Yellowstone, tortoises in the Mojave Desert and bighorn sheep in Idaho. He is currently involved in a major project in Australia investigating the viruses associated with bats.

Peter established a new global health institute at Penn State that seeks to develop the concept of One Health, whereby the future health of humans is dependent on that of the environment, livestock management and the conservation of wildlife. He is an adjunct Professor at The Nelson Mandela African Institute of Science and Technology based in Arusha, Tanzania and a Fellow of the Royal Society.

peterhudsonphotos.com

instagram.com/peter_hudson018

Shreya Menon is an 11th grade student at the Indian High School in Dubai with a passion for wildlife conservation and ecology. Her plan in life is to pursue further studies of ecology and go to a University that specializes in conservation biology.

Currently, she is working as an intern with Peter Hudson and with Paws Trails where she hopes to gain experience and insight about the science of conservation

Photo by: Randy Gebhardt

Photo by: Peter Hudson

When most wildlife photographers think of Africa our mind goes to the great national parks, the large expanses of beautiful savannah land with the big herds of wildebeest and that wonderful smell of dry grass. Of course, most of Africa is not protected and in this human dominated landscape animals must live alongside humans and adapt to the habitat changes or decline towards extinction.

When I look at Europe and India, the animals that have fared best in our human dominated landscapes are often the birds, since they can adapt so well to small areas of urban habitat provided by gardens and parks and of course can fly from one patch to the next. The birds that have not done so well are the wetland birds. We have this predilection to drain marshes, tidy up rough grassland areas and turn the rich alluvial soils into cereal fields so the birds that need boggy areas and areas of thick rushes lose their habitat and decline. Even in artificial wetlands we often fail to include large marsh areas with tall rushes and as a consequence, wetland conservation is a priority for the future.

African wetlands in trouble

Wetlands are among the world's most threatened habitats, with only 13% of the original habitats left. Africa's wetlands are threatened as large areas are drained for agricultural land and yet these wetlands also provide staple food and materials for up to 15% of the world's population. The worrying thing is that there is a lack of awareness of the importance of wetland habitats, not just for wildlife but also the consequences of dredging some rivers, damming others and the effect on the water supply to towns and villages downstream. We lack the monitoring systems to provide us with the data of water flow and wildlife populations, the knowledge-based resources for mitigation and financial incentives. There is a real urgency to understand the consequences of the loss of major areas of wetland at large scales.

To help highlight the issue of wetlands we focus here on the plight of the Grey Crowned Crane (*Balearica regulorum*), a bird dependent on the wetland areas of East and Southern Africa which can be considered an indicator species of the state of African wetlands. Not only is it important ecologically, but also a beautiful and graceful bird that has captured the eye of many a photographer, as I hope you can see from the pages of this magazine. Up until recently, the population was doing really well but within the past 40 years we have become aware that the population is falling at an alarming rate.

In 2008 the International Union for Conservation of Nature red list had the crane listed as a species of least concern but within a year

Photo by: Sami Alqaderi

Photo by: Kambiz Cameo Pourghanad

Photo by: Peter Hudson

Photo by: Kambiz Cameo Pourghanad

the bird was relisted as vulnerable and by 2012 as endangered. This uplisting within just four years is quite remarkable and reflects the increasing threats, in particular habitat loss and the illegal removal of birds and eggs from the wild. To be classed as an endangered species means the species poses a very high risk of extinction as a result of a rapid decline of more than 50% over the past three generations. In 1984, there were thought to be well over 100,000 gray crowned cranes, in 2004 there were 50,000 and and now the estimate is about 28,000. We are looking at a 70% decline in less than three generations (45 years). This truly rapid decline in the population of the state bird of Uganda is very worrying indeed and we need to find the right conservation actions to take. Obviously, habitat restoration is important but what have been the demographic changes?

The central issue for the crane and other wetland species is that the majority of wetland areas are outside protected areas and the birds are both vulnerable to habitat destruction and to both harassment and persecution by people. It is one thing for birds to adapt to a human dominated landscape, but we must change human behavior so people respect and support wildlife in urban areas by ensuring the animals are not chased or disturbed by them or by dogs or cats. Having said that, in Africa the cranes are in conflict with farmers and so are harassed in the

Photo by: Gaurav Kalbhor

Photo by: Peter Hudson

agricultural countryside where the birds frequently visit crops to feed and take the young shoots of maize, soya, rice or other crops and in so doing seriously damage the success of the crops. There has also been a market for the eggs and chicks which people rear and sell the birds to hotels or for private zoos.

Crowned crane densities in good habitat depend primarily on access to good food sources such as grass seeds and also access to suitable nesting areas where the pair can construct a nest in dense vegetation, close to shallow water where they can avoid the attention of predators. The mother incubates the eggs for about 28 days and then takes the chicks from the nest on the day they hatch.

For the first few weeks the chicks are flightless and need to grow fast, so the mother must take them to insect rich areas to provide a good source of protein for the chicks to grow fast to a point where they can at least flutter away from predators. The family group stays together as the chicks grow and even join up with others to form loose feeding flocks outside the breeding season.

The immature birds don't breed until they are three years of age and these first years are tough as they must learn where the seasonal food sources are, learn to avoid high tension wires and just avoid predators.

Photo by: Sami Alqaderi

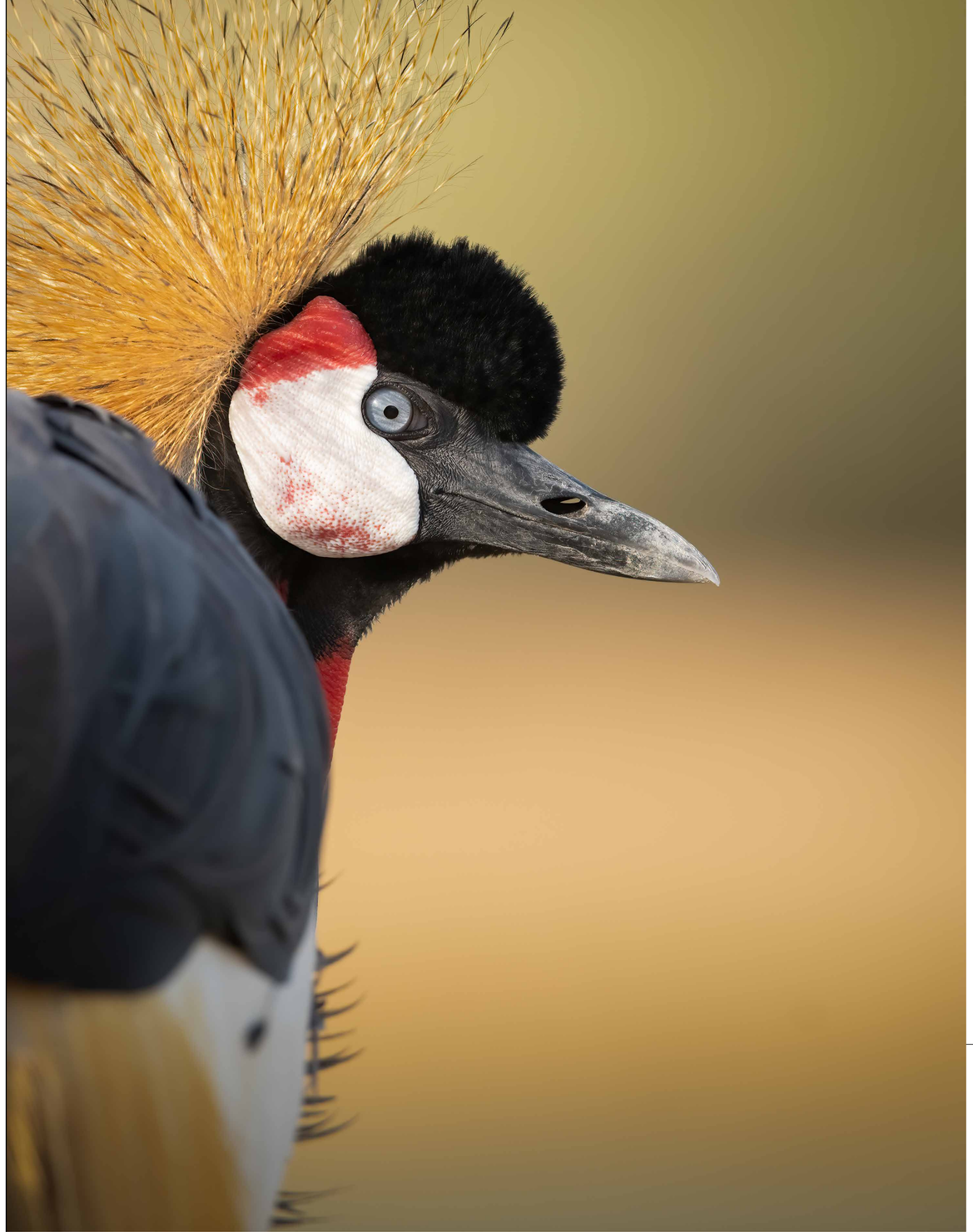


Photo by: Sami Alqaderi

Photo by: Nitin Michael

Photo by: Sami Alqaderi

Are the cranes facing an extinction debt?

At this juncture I want to examine the plight of the crowned crane and their population changes in more detail and ask if they are facing an extinction debt? Now an extinction debt occurs when past events mean the population is destined for extinction and clearly requires some immediate actions. For example, since the crowned cranes are long-lived birds, if their breeding production is really low then our monitoring of adults will not show any immediate or large decline in numbers for at least three years, since it takes that long for the chicks to become adults. However, in this situation we are left with an ageing population of birds and no recruitment so the numbers will start to fall steadily and eventually could go extinct, without the recruitment of young birds to bolster the breeding population. Certainly, the count data and the situation for crowned cranes looks dire from the data we have on the breeding success of the birds.

When we look at the information available on crowned cranes, there are signs that the breeding success of the crowned cranes has indeed dropped dramatically. Potentially a successful pair of birds could raise three chicks to fledging and it's not uncommon to see the crowned cranes in national parks producing some good broods. However, studies in Uganda found only a small proportion of wetland areas where the cranes appeared to be breeding and some historical

Photo by: Nitin Michael

evidence that the breeding average in nests has fallen from 1.3 to 0.8 chicks per nest.

So, the first question we must ask is – could this low breeding production alone account for the rapid decline of the crowned crane population by more than 50% in 45 years? Even if the fledging success was to fall to less than half a chick per nest then the population would not have fallen by 50% in three generations. Indeed, the breeding success would have to drop to less than one chick from every 10 nests. As such I think it fair to assume that the poor breeding success alone cannot account for the rapid decline. We believe, from observations of marked birds that the life expectancy of the adults is about 20 years which means that 95% of the adults must survive from one year to the next. So, the next question to ask is: What sort of fall in adult survival would be needed to explain the decline in the numbers? Well by doing some calculations, the answer is that the adult survival rate must fall to about 82% - equivalent to a fall in life expectancy from 20 years to 5.5 years. That is a huge fall in life expectancy! In other words, the mortality rate of cranes must have increased almost threefold to account for this dramatic decline and there is something going on that means adults are dying and dying at a very alarming rate.

While some birds are killed to protect crops, others hit overhead cables, and some are caught for illegal trade but there is no obvious single factor that seems to be causing this increased mortality rate. Of course, there may well be an interaction between these factors, and this could be acting through the destruction of habitat loss so that adults are dying from starvation and cannot get access to areas to even attempt breeding. So, our conclusion is that they are probably not facing an extinction debt but the impact of habitat loss on adult survival is far too high.

Of course, with a lack of information on age related mortality and the factors involved we have had to take a very simple approach to what is happening with the crowned crane and made some very broad assumptions. The figures we have used have been applied across large areas and are nothing more than average estimates. In reality we suspect there is large scale variation in both adult survival and breeding success from one location to another. For example, protected areas and wildlands may act as a source of young adults in contrast to the agricultural landscape where the breeding fails so what happens is that the protected areas act as a source of birds that move to the agricultural areas where the birds fail to breed and indeed may survive poorly.

Let us now look at some of the conservation actions that are being taken.

Photo by: Sami Alqaderi

Photo by: Peter Hudson

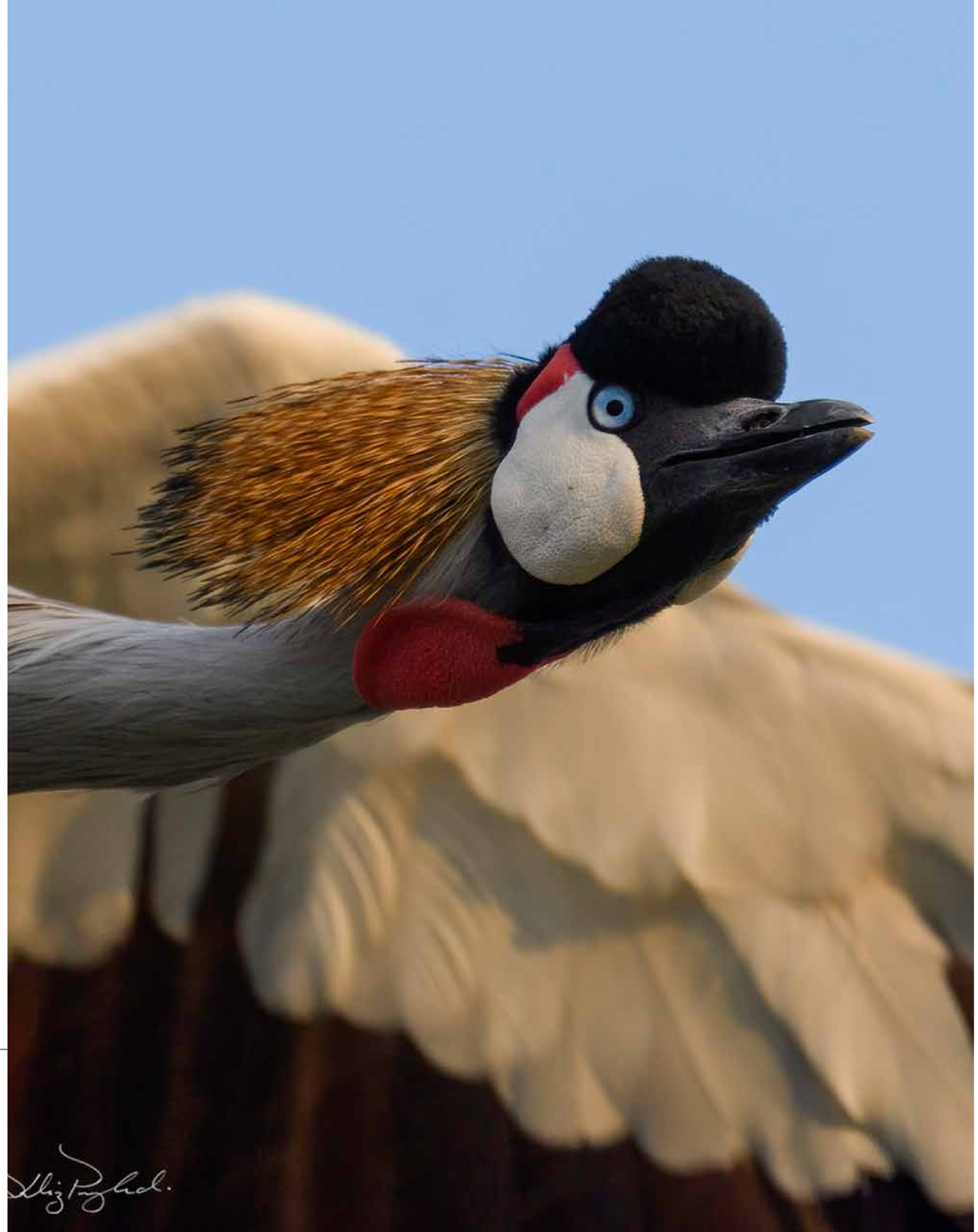


Photo by: Kambiz Cameo Pourghanad

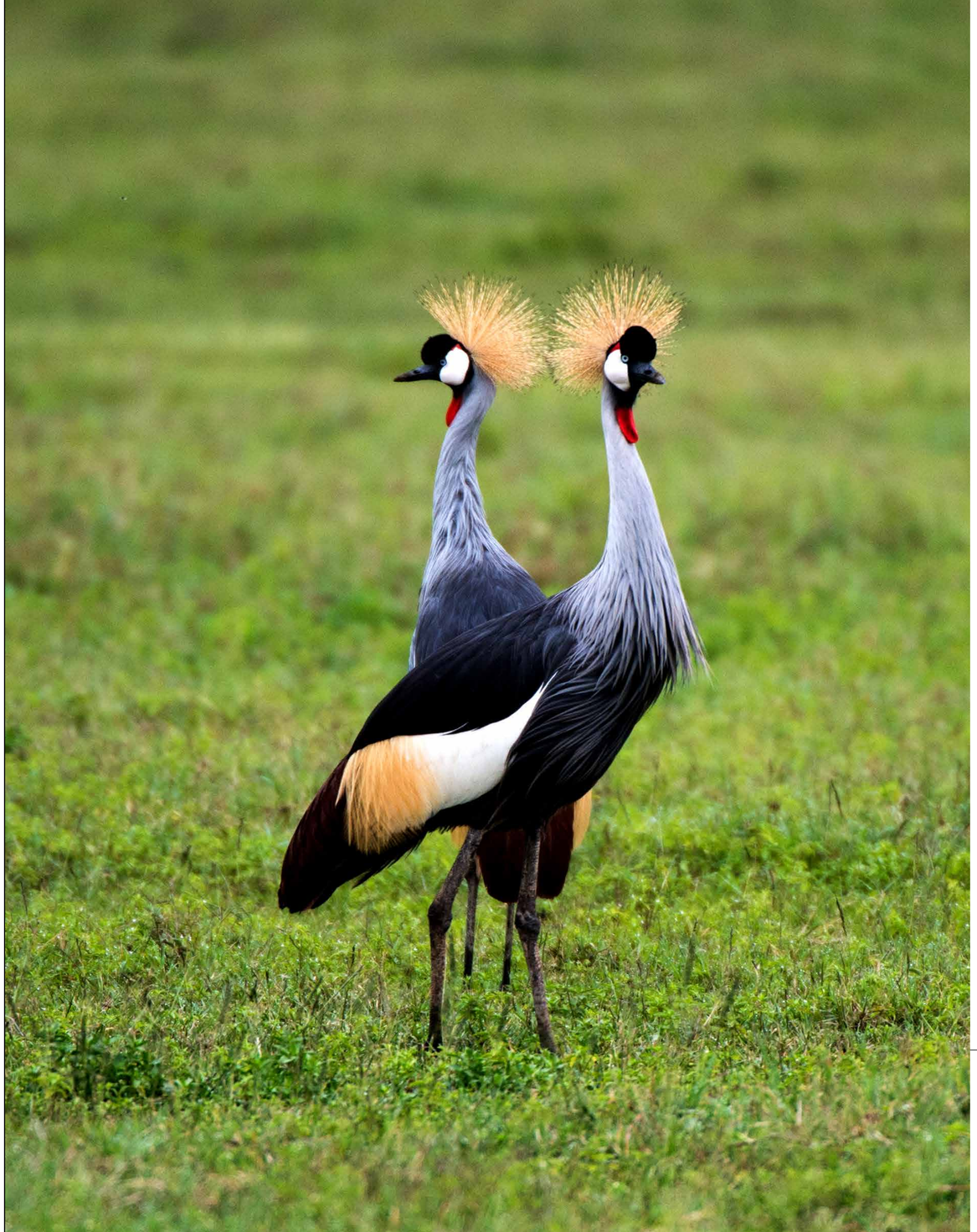


Photo by: Randy Gebhardt

Photo by: Nisha Purushothaman

Action in Rwanda

In Rwanda, one man, Dr Olivier Nsengimana, has played a very significant role in highlighting and educating the public about crowned cranes. He has established the Rwandan Wildlife Conservation Association (RWCA) to focus on helping endangered species in Rwanda and, partly because of the tragic times he had to live through the genocide in Rwanda, he has developed a personal love of the gray crowned crane and its survival.

One of the first things his organization did was to collaborate with the Rwandan Government and launch a media campaign with an amnesty for people who had cranes in captivity. They visited every captive crane and registered each by fitting a unique numbered leg band that makes every bird easily identifiable. Owners were educated on the laws protecting cranes and appropriate crane care and now there is a national database which helps them to monitor the illegal trade of cranes and highlights any newly poached cranes. Subsequently they removed 239 from captivity and of these 156 cranes have so far been released into the Akagera National Park. This is a wonderful park with extensive areas of wetlands where the crowned cranes should do well alongside other remarkable birds like the shoebill. Ideally, we hope this park population could become a source population, generating excessive numbers of young

Photo by: Nisha Purushothaman

that could occupy and repopulate neighboring habitats outside the park. What is more, the RWCA have been training marsh wardens to stop illegal activities in the region and so improve crane protection. They have also been training “Conservation Champions” to travel round the country counting and recording where the crowned cranes are and to provide education to the people of Rwanda about these birds and living with wildlife.

The Akagera National park is close to the border of Uganda and Tanzania and these cranes frequently move across the border to the neighboring wetland areas and now there is trans-border cooperation developing to focus on wetland conservation.

I think we have some important conservation lessons to learn from the study of crowned cranes. We have seen dramatic declines of an indicator species and that should be sounding alarm bells since this could be a reflection of what is happening to the wetlands of Africa. Now we need better monitoring, more resources for protecting and managing wetlands and an appreciation that the wetlands in one location have important ecological effects for people that live far from the wetland. In this respect The Ramsar Convention on Wetlands of International Importance was signed as an international treaty to help stimulate national action and international cooperation for the conservation and wise use of wetlands and their resources across the world.

Photo by: Nisha Purushothaman

Photo by: Steve Metildi

Photo by: Steve Metildi

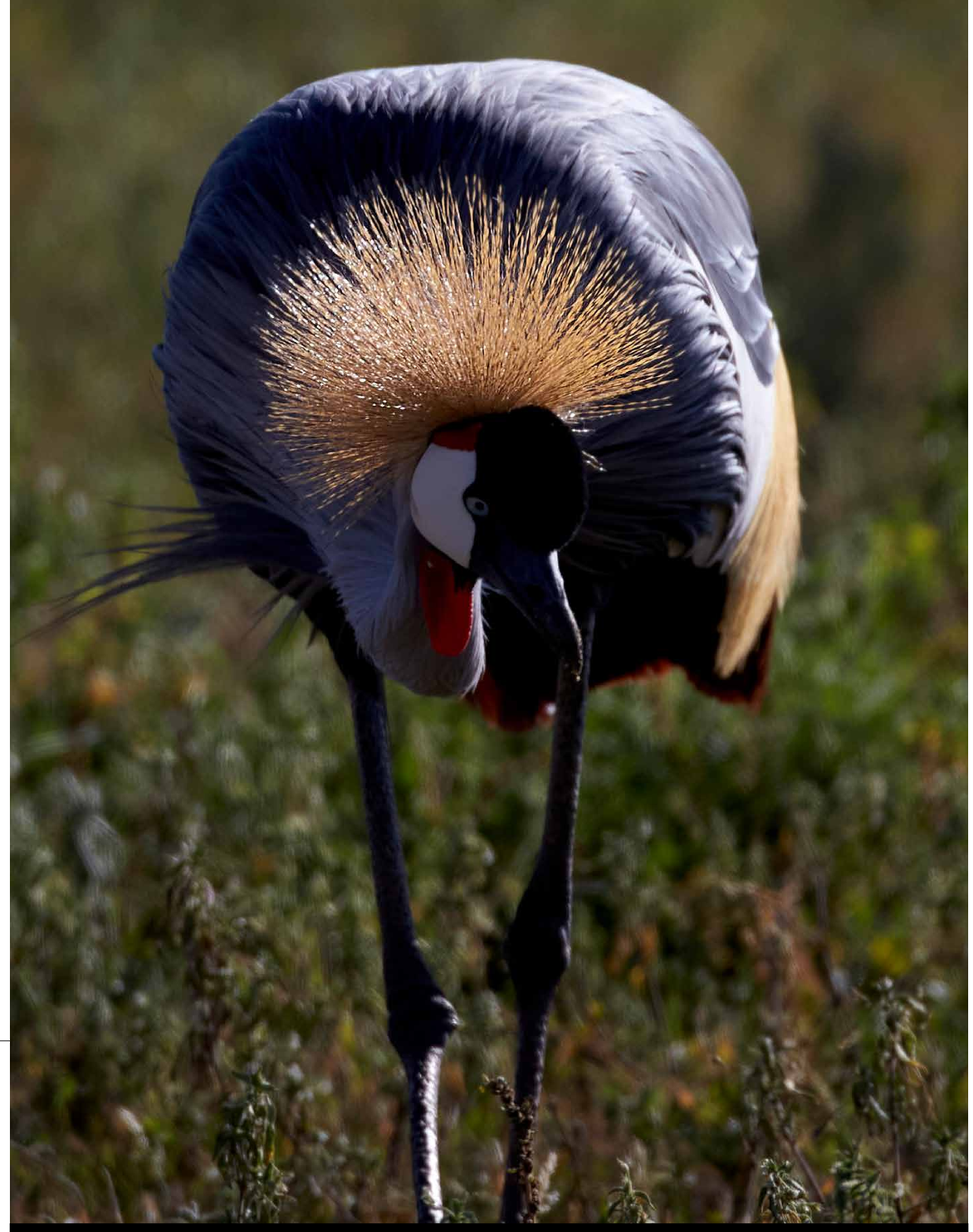


Photo by: Peter Huson

Photo by: Peter Hudson

Photo by: Nisha Purushothaman

PI AWARE

CONSERVATION&PHOTOGRAPHY

UPCOMING EDITION

MOUNTAIN GORILLA