WILD AWARE

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Cape Buffalo: The Boss of the Savannas

By Kaitlyn Baker & Peter Hudson

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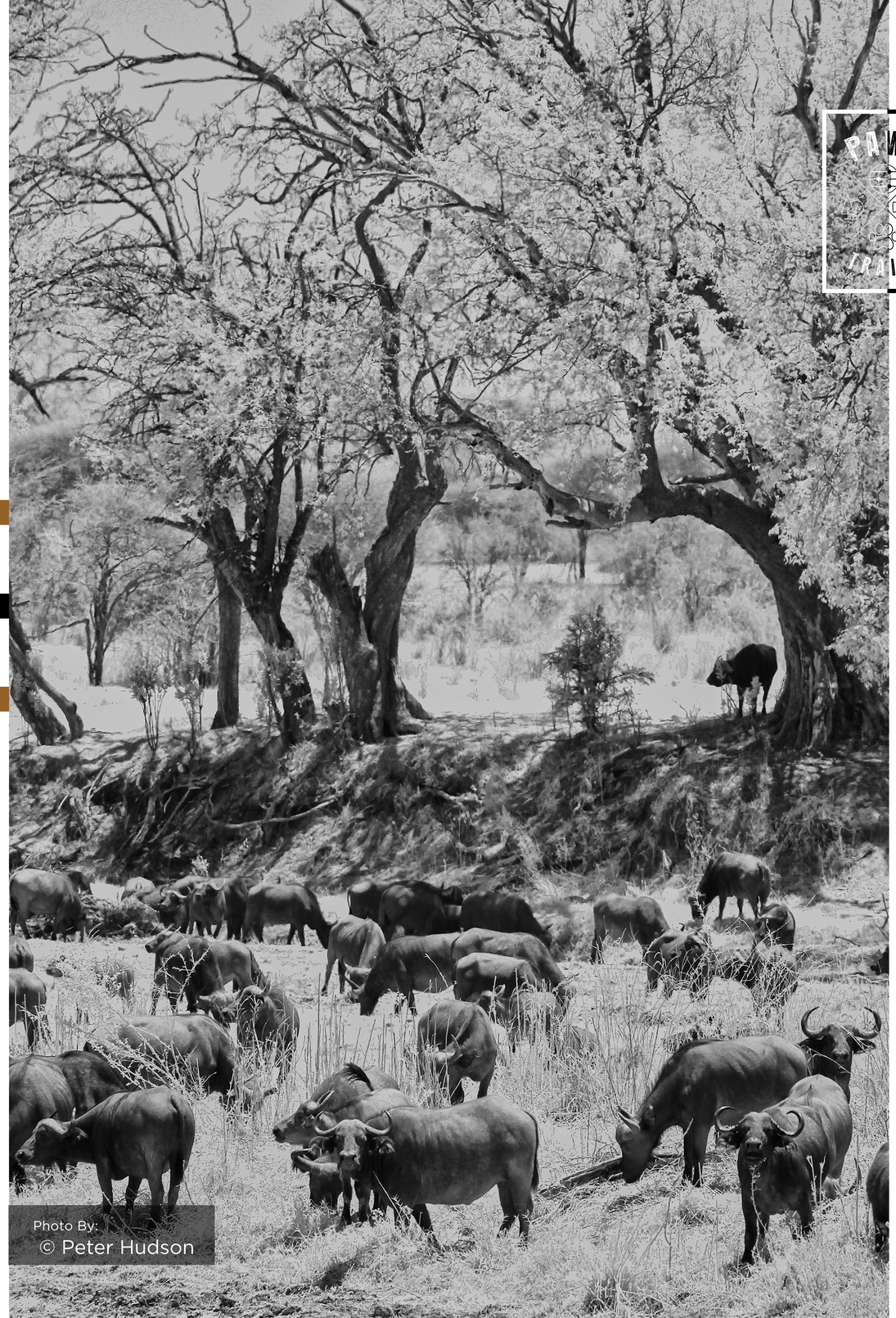

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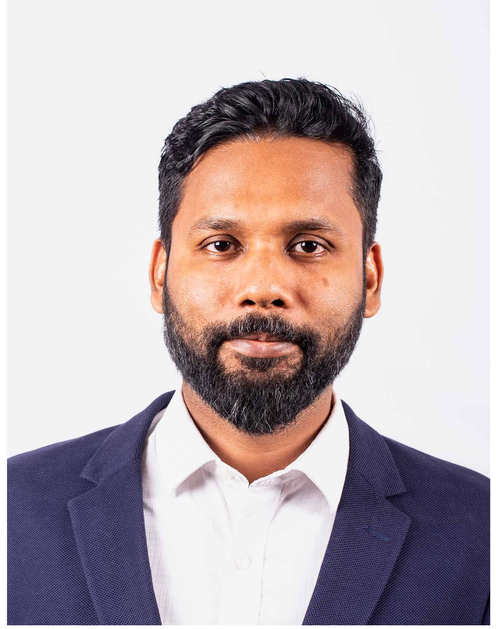


Raghul Patteri
Editor

EDITOR'S DEN

Welcome to the 39th edition of PT Aware.

In this edition, Kaitlyn Baker & Peter Hudson takes us into the vast savannas of Africa to meet one of the continent's most commanding and misunderstood giants - the Cape Buffalo. Often defined by strength and defiance, this species is far more than the stereotype of power it carries. Its story is one of complex social bonds, ecological influence, and the ever-shifting challenges of sharing landscapes with both predators and people.

Through the lens of science and photography, this feature reveals the buffalo's world in its full depth - from the evolutionary architecture of its formidable horns to the rich tapestry of clan-based societies, the resilience of aging bulls, and the quiet vulnerabilities hidden behind their imposing presence. Their history is intertwined with disease, habitat loss, and conflict - but equally with survival, adaptation, and the possibility of coexistence.

As always, the images showcased here remind us why storytelling matters. Thanks to all the wonderful photographers for their contribution. When we understand a species, we begin to care. And when we care, we act.

We hope this story inspires you to look beyond the surface and appreciate the remarkable lives unfolding across the savannas - lives that depend on the choices we make today.

Our next edition will feature the Leopards, please keep your images ready.

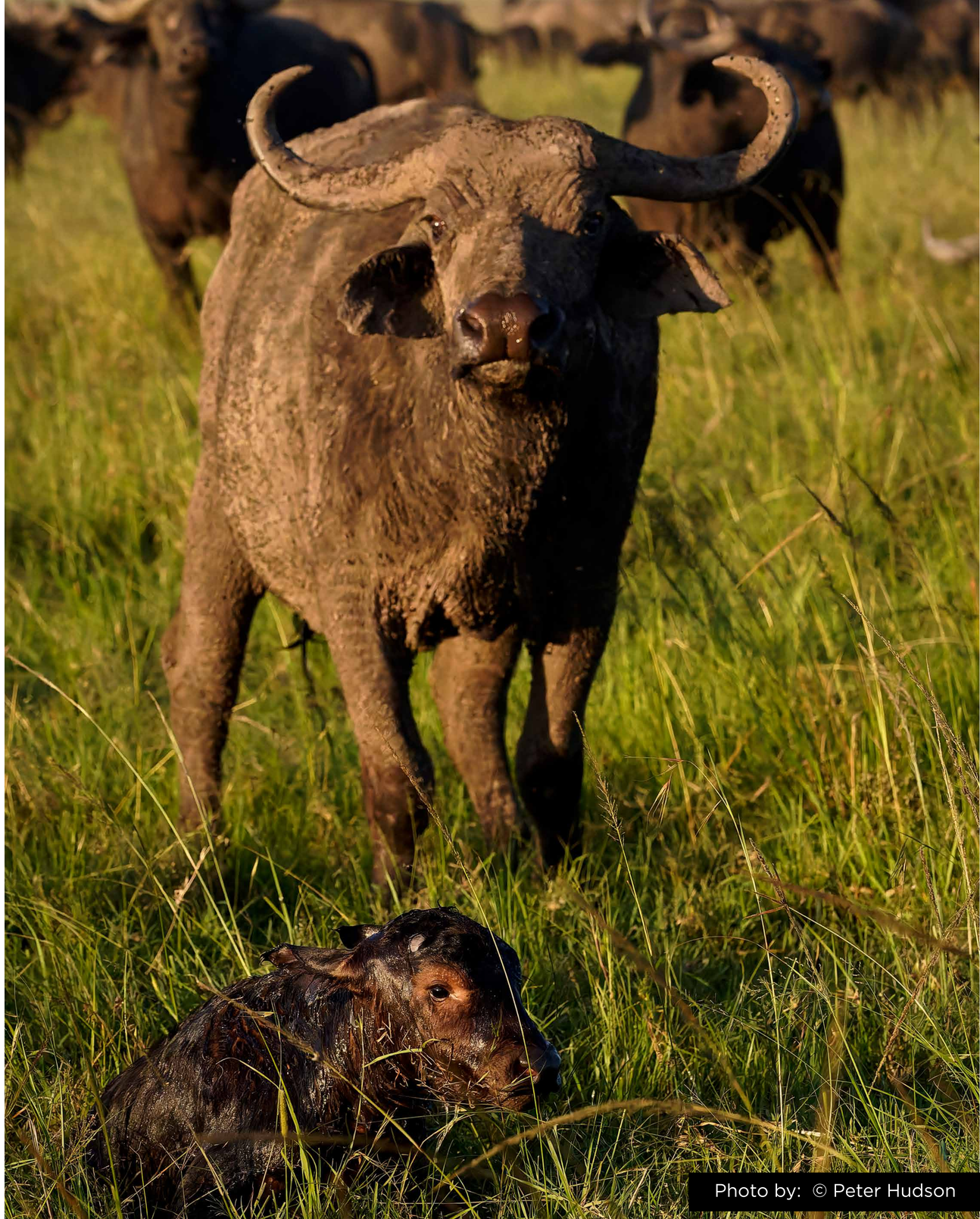


Photo by: © Peter Hudson

FOUNDERS' NOTE

There are a few animals in Africa that command quite respect, the way the Cape Buffalo does. Standing before one in the wild, you sense not just strength, but an ancient presence - an animal that has shaped landscapes, challenged predators, and lived alongside humans for centuries.

Yet the Cape Buffalo is often misunderstood. Many see it only as one of Africa's "Big Five," famous for its power and unpredictable nature. But beyond that reputation lies a remarkable species that plays an important ecological role in maintaining grasslands and supporting complex predator-prey dynamics.

With PT Aware, our goal has always been simple: to slow down and focus on one species at a time. By understanding its life, its habitat, and the challenges it faces, we hope to create deeper awareness and empathy for the natural world.

In this 39th edition, we explore the life of the Cape Buffalo, its behavior, social structure, conservation challenges, and the delicate balance between wildlife and human landscapes.

PT Aware remains a free platform for photographers, conservationists, scientists, and nature lovers who believe that knowledge is the first step toward protection.

Because when we truly understand a species, we begin to care, and when we care, we act.

Explore more editions at www.pawstrailsmagazine.com
Sincerely,

Hermis Haridas &
Nisha Purushothaman
Founders - Paws Trails

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 where he is an ecologist who studies a wide number of wildlife issues, mostly associated with infectious disease. For more than a decade he has been studying how bat biology has changed and why viruses are now being passed from bats to humans and causing problems such as the Covid pandemic. He has been studying a wide array of natural systems including the wolves and ecology of Yellowstone, tortoises in the Mojave Desert, and bighorn sheep in Idaho.

Peter is the Conservation Director at Paws Trails and uses his skills as a scientist and educator to increase awareness about conservation issues. He is also heavily involved with the Random Good Foundation that undertakes storytelling for social change.

Kaitlyn Baker was a student at Penn State and is now moving towards her PhD while learning new technical skills in the lab. She has a passion for nature and loves writing and since visiting the Mara Trails camp has been developing her photographic skills. While she was at Penn State she took classes with Peter Hudson and they have started to collaborate on some studies while sharing a love for the outdoors.

THE STORY

Cape Buffalo: The Boss of the Savannas

By Kaitlyn Baker
& Peter Hudson
(Conservation Director, Paws Trails)

Images by: Peter Hudson, Amith Krish, Prasanth Tatineni, Eric Seemann, Harshad K, Thomas Bretschneider Deepa Girish, Kaitlyn Baker, Vera Huston, Hermis Haridas, Manu Reghurajan, Gustavo Costa, and Nisha Purushothaman

Photo by: © Amith Krish

Let us dispel a common confusion right from the start. There is but one species of buffalo in Africa and that is the African buffalo (*Syncerus caffer*). The buffalo fall into four subspecies, three of which inhabit the forests and savannahs of West Africa. It is the fourth, the Cape buffalo (*Syncerus caffer caffer*), that commands attention across the eastern savannahs: distributed from southern Ethiopia down through the great grasslands of East Africa, into northern Botswana, and south again into the Cape. It is this subspecies, the largest, the darkest, and unquestionably the most formidable that we feature here.

Horns, Bosses, and the Signal of Age

Cape buffalo are among the most physically imposing animals in Africa. Males stand 1.7 metres at the shoulder and can weigh close to 900 kilograms. But it is the horns that define them. In adult males, the bases of the horns fuse across the forehead to form a continuous, calcified shield known as the “boss”, that can be several centimetres thick at its centre. This is not mere decoration but used in defence and fighting, when bulls crash skull against skull, their contests of dominance can last for hours. The boss is essentially an evolutionary solution to avoid traumatic brain injury: a natural crash helmet that distributes impact forces across its broad surface and protects the brain beneath. Females carry smaller, more slender horns that never fully fuse, reflecting the lower intensity of female-female competition.

Photo by: © Hermis Haridas

The boss also functions as an honest signal of quality, the buffalo equivalent of the prize-fighter's physique. A wide, deeply curved, symmetrical boss tells rivals and potential mates that this is an old, experienced male in good condition. Age, nutrition, and parasitic infections all leave their marks on horn development, so younger or poorer-condition males cannot easily fake a boss they have not earned. These horns and temperament are why Cape buffalo were never domesticated, unlike their Old World relatives, the water buffalo of South Asia, the yak of the Himalayas, or the auroch ancestors of European cattle. An animal that settles disputes with such lethal, unpredictable violence is simply not a practical farm animal.

Colour, Calves, and the Red Mystery

Buffalo colour varies considerably but the most striking difference is the dramatic transformation of colour between calf and adult. Calves are born with rich, reddish-brown coats that gradually darken through adolescence to the deep charcoal-black of the mature adult. This red-to-black progression is widespread among bovid species: bison calves are strikingly orange-red, and the pattern appears in domestic cattle, kob, lechwe, and reedbuck as well. The adaptive value of the natal coat remains incompletely understood. The most plausible hypotheses suggest it may help camouflage a calf lying amongst dry-grass backgrounds but may also reduce overheating or serve as a social signal advertising vulnerability and triggering protective behaviour from herd-mates. Having said that, there is one important caveat to this last idea, cattle lack red cone photoreceptors and as such do not perceive colour the way primates do, so any social signalling function must operate through contrast and luminance rather than hue.

Society: Clans, Coalitions, and the Dagga Boys

Cape buffalo are profoundly gregarious. During the wet season, herds can number in their thousands, great black rivers moving across the plains to water bodies, raising columns of dust visible for kilometres. The social architecture beneath this spectacle is more intricate than it appears. The core of the herd is organised around female kinship clans: related cows and their offspring that maintain stable associations over years and decades. Indeed, when you watch the cattle herds move you can see distinct clans of females that move together and feed together. The males do not defend exclusive harems in the manner of impala or wildebeest. Instead, dominant bulls move opportunistically among the female subgroups, attending to females coming into oestrus, with their access to reproduction determined largely by position in a linear dominance hierarchy.

Young males join bachelor groups

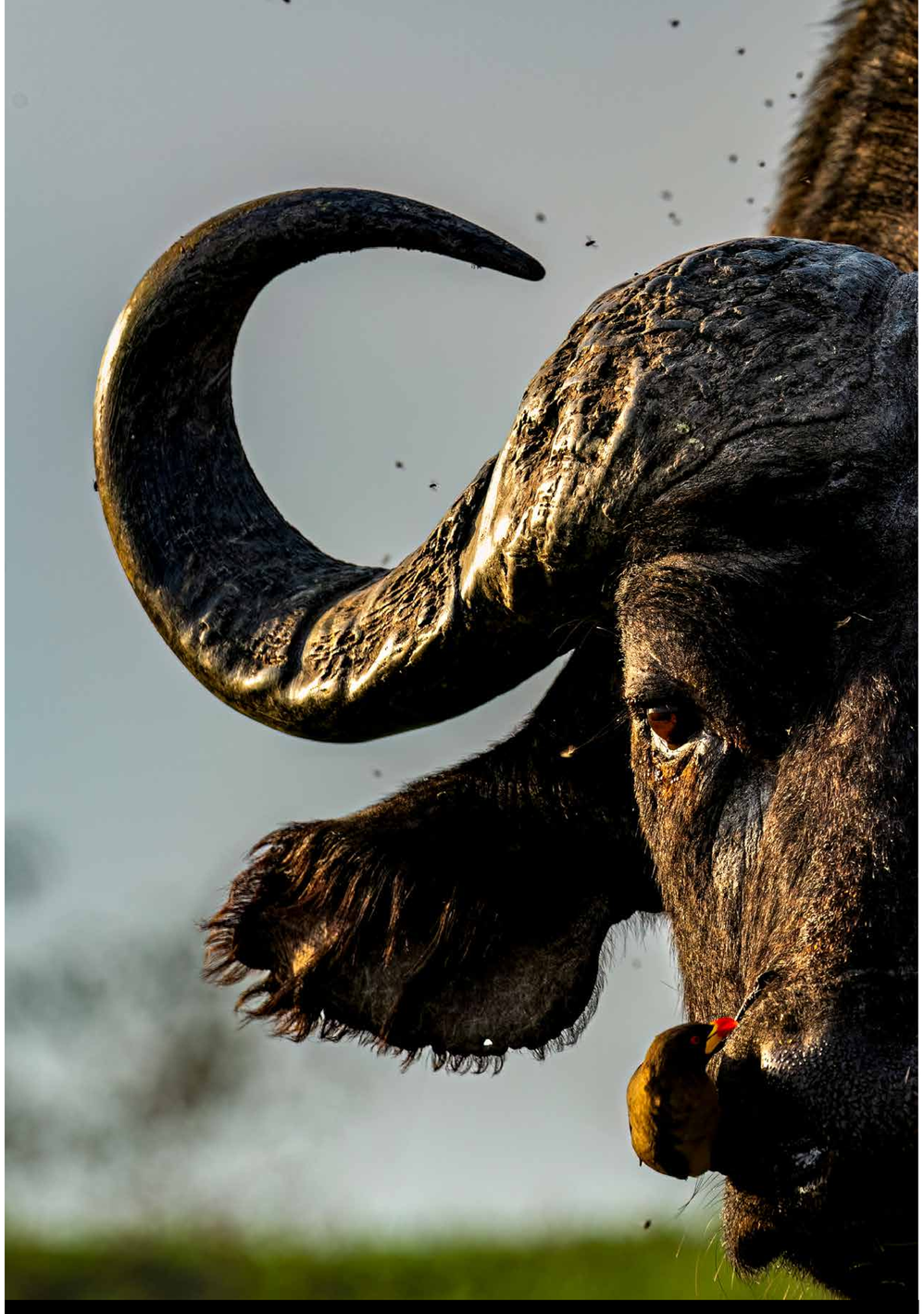


Photo by: © Nisha Purushothaman

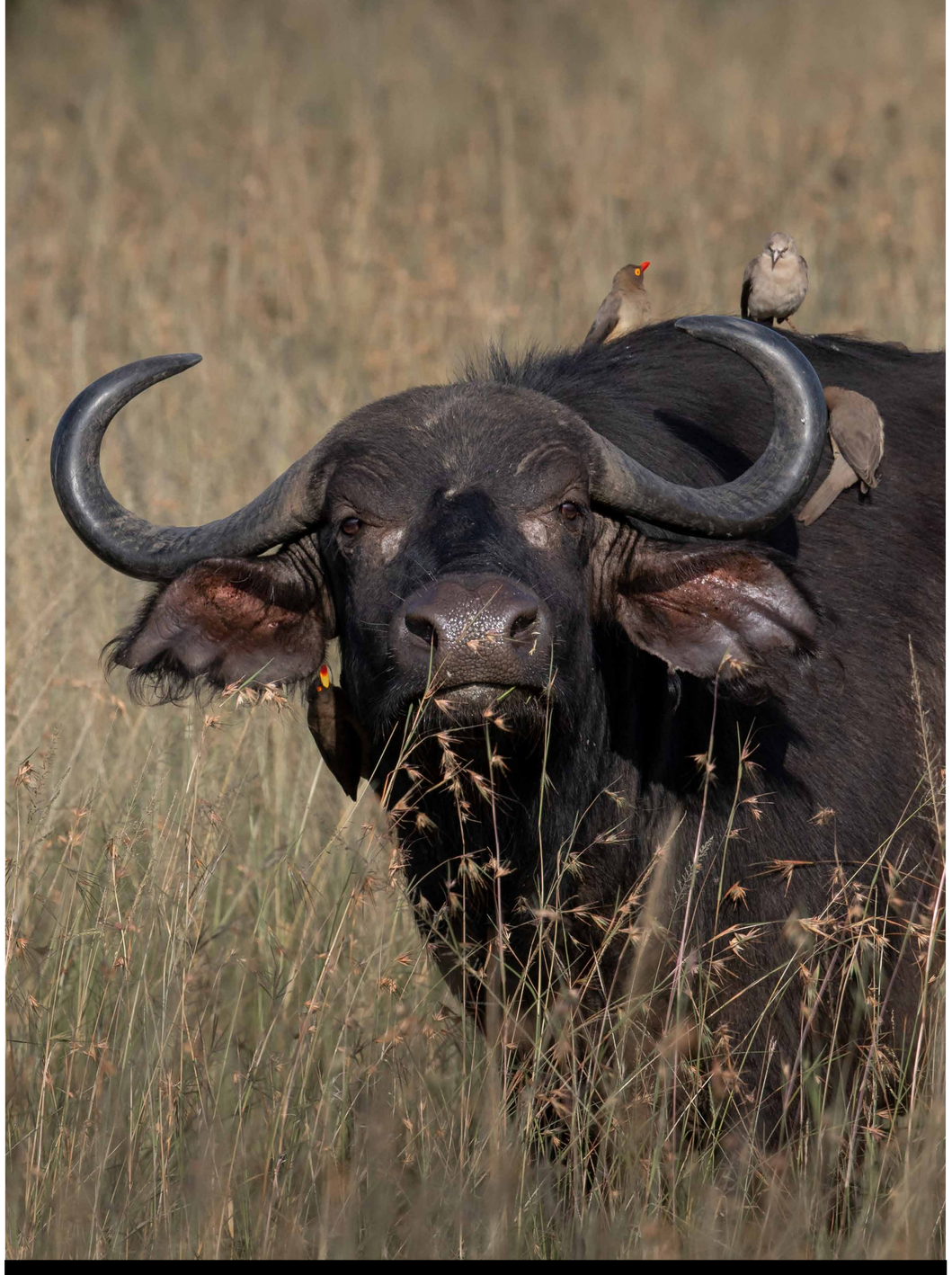


Photo by: © Gustavo Costa

at around 3 to 4 years of age, where they socialise, spar, and develop the physical and social skills needed to compete in the female herd. By eight years, their body mass and horn development are approaching their peak, and the prime bulls enter the competitive arena of the main herd. But this phase is finite. As bulls pass their competitive prime, they gradually disengage from both the female herd and the rough-and-tumble bachelor groups, coalescing into small bands of old males on the periphery of the main aggregation. These are the celebrated dagga boys, a term drawn from the Zulu word for mud, reflecting how these old veterans spend much of their day wallowing. Do not mistake their retirement for irrelevance. Dagga boys are experienced, aggressive, and formidable defenders. When lions attack a herd, it is often these old bulls that turn and courageously charge.

Disease, Danger, and the Cost of Coexistence

Outside protected areas, Cape buffalo generate genuine conflict with humans. They are large enough to destroy fences and crops and aggressive enough to injure and kill people. They are also significant reservoirs for a suite of bovine diseases including tuberculosis, brucellosis, and foot-and-mouth disease. The historical relationship between buffalo and cattle disease reached a crisis point in the 1890s, when rinderpest, a morbillivirus similar to human measles, wasintroduced into Africa via infected cattle from Asia and swept south from Ethiopia killing an estimated 95% of both livestock and buffalo. The eventual elimination of rinderpest in Africa and the world came about through cattle vaccination, and one that incidentally revealed that cattle and not buffalo the primary reservoir. Nevertheless, bovine tuberculosis remains a serious conservation and agricultural management challenge across southern Africa, where infected buffalo populations adjoin livestock-farming communities.

Conservation: Corridors, Conflict, and the Bigger Picture

The IUCN currently lists Cape buffalo as a species of “least concern”, but this designation should not breed complacency. Total numbers have declined significantly since the mid-twentieth century, and the trend continues. The primary driver, as with virtually all African megaherbivores, is habitat loss and fragmentation. Buffalo are wide-ranging grazers whose ecology acts at the landscape-scale. They track seasonal rainfall and graze across vast areas, and their population dynamics depend on access to water and mineral-rich grazing that may be hundreds of kilometres apart. When fences, agriculture, and expanding settlements sever these corridors, herds become isolated,

genetic diversity contracts, and the probability of local extinction rises.

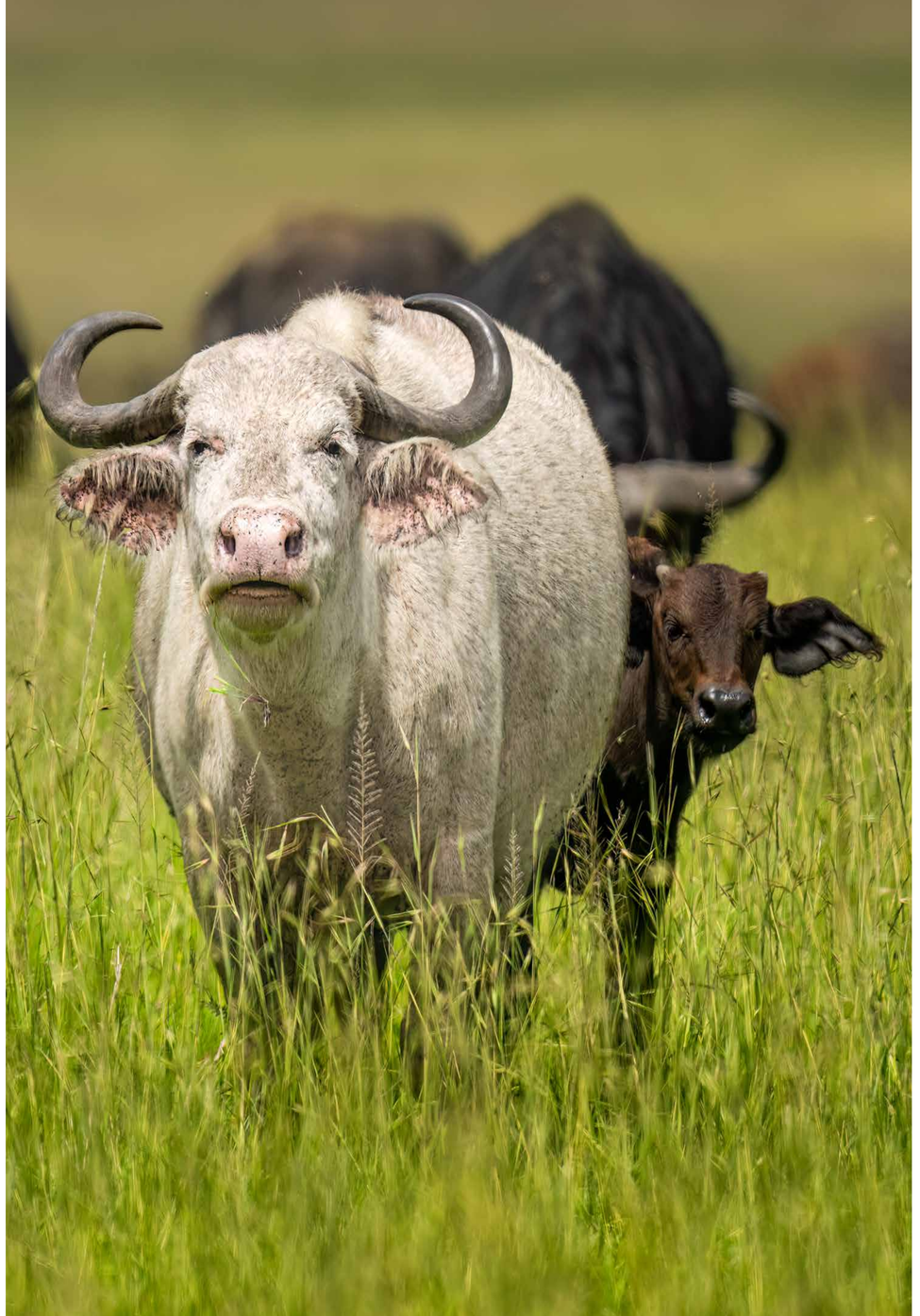
Effective conservation requires working at scales that dwarf conventional protected areas. Securing functional migratory corridors, strips of managed, unfenced, or permeable landscape that connect major reserves. So is reducing the friction at the interface between buffalo range and human settlement. Vegetated buffer zones, strategic placement of water points, and community-level land-use planning can reduce crop raiding and dangerous encounters without simply shifting conflict to neighbouring communities. Anti-poaching capacity also matters, since buffalo are targeted for both bushmeat and, in legal trophy hunting concessions, for high-value trophies.

Disease management represents a politically complex dimension of buffalo conservation. Blanket culling of infected buffalo populations has historically been used to protect livestock, but this approach is both ecologically destructive and scientifically unjustified given the complexity of multi-host disease dynamics. Non-lethal tools such as improved diagnostics, targeted movement controls during high-transmission periods, and cattle vaccination offer a more sustainable pathway, one that keeps buffalo on the landscape while reducing the legitimate concerns of livestock farmers.

Photographing Cape Buffalo

In many respects, buffalo should be easy to photograph. They are large, they occur in huge herds, and they attract Oxpeckers, both the red-billed *(Buphagus erythrorhynchus)* and yellow-billed (*B. africanus*) species that poke into the most intimate crevices of the buffalo's anatomy, creating extraordinary photos of species interactions. But buffalo are fundamentally dark animals in a high-contrast environment, and the open savannah sun is their great photographic adversary. The transition from black coat to bright sky will defeat the dynamic range of most cameras.

Try to capture the old bulls as they shake their head and carry a halo of birds and you can capture interactions that are irreverent but revealing of biology in action. The red-billed Oxpecker tends to favour the head and ears, the yellow-billed the body and wounds. With patience and a long lens, oxpecker interactions offer remarkable close range moments, sometimes even catching the bird disappearing into a nostril or an ear. Be watchful of these bulls they have quick tempers. Cape buffalo are not always indifferent to vehicles in the way that some savannah



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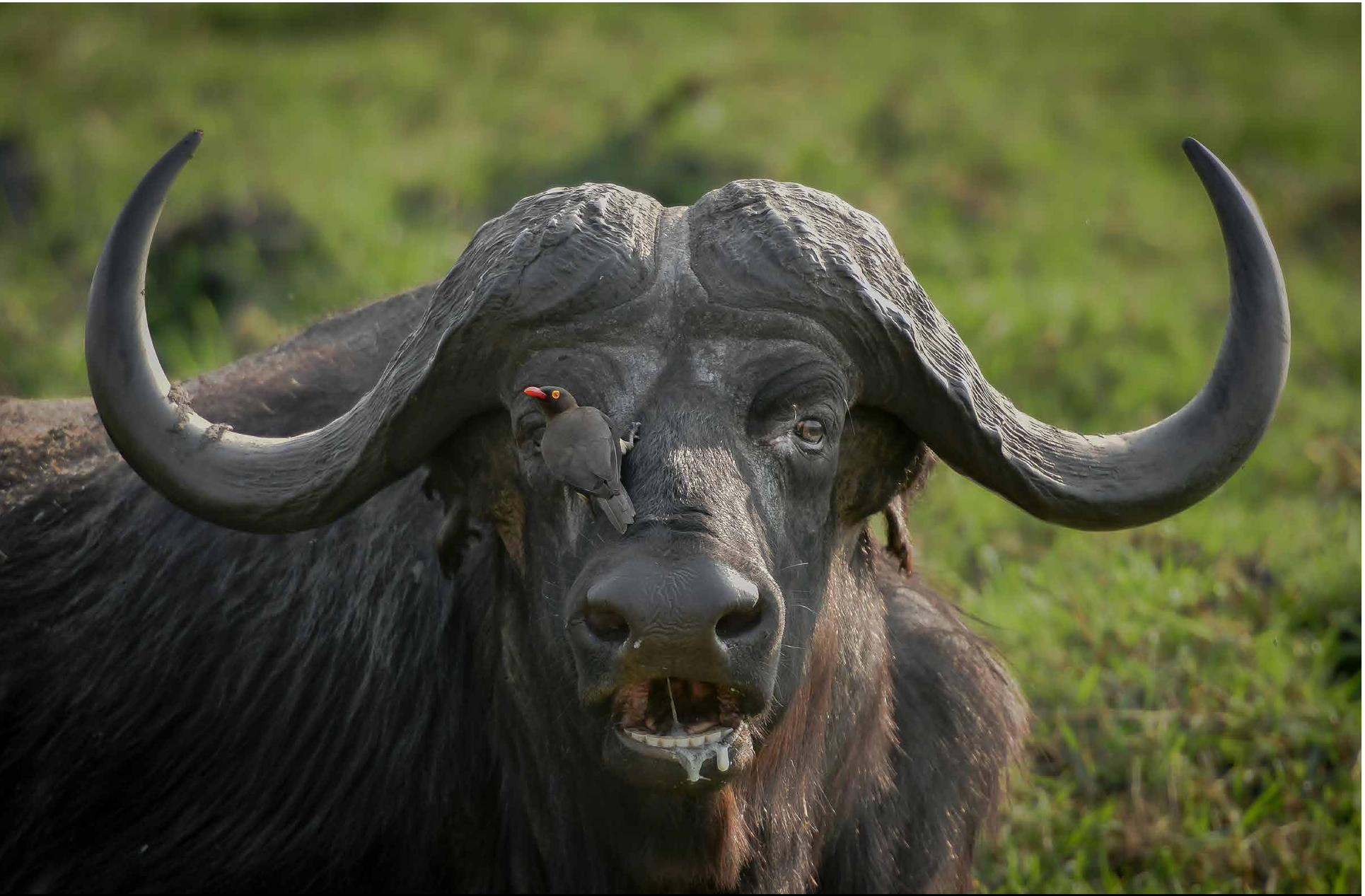

Photo by: © Eric Seemann

species become habituated. The old dagga boys in particular, will fix you with a flat, evaluating stare that should be read as the warning it is.

Photographing buffalo really requires the golden hour, straight after dawn and before dusk. At those times the warm, raking light, picks out the muscular architecture of the boss, the texture of mud-caked hide, and the subtle red undertones of an old bull's coat. Seek out herds at waterholes and wallows in the late afternoon, when the *dagga boys* are relaxed and behaviourally rich, and the low-angle light turns even the raised dust of a departing herd into something luminous. Think in monochrome and bring out the texture.

Be watchful as you drive past buffalo herds, in the late afternoons and look for the signs of females about to give birth. On several occasions I have been fortunate enough to witness such events. The best buffalo images are made by photographers who understand the biology and behaviour of these animals.

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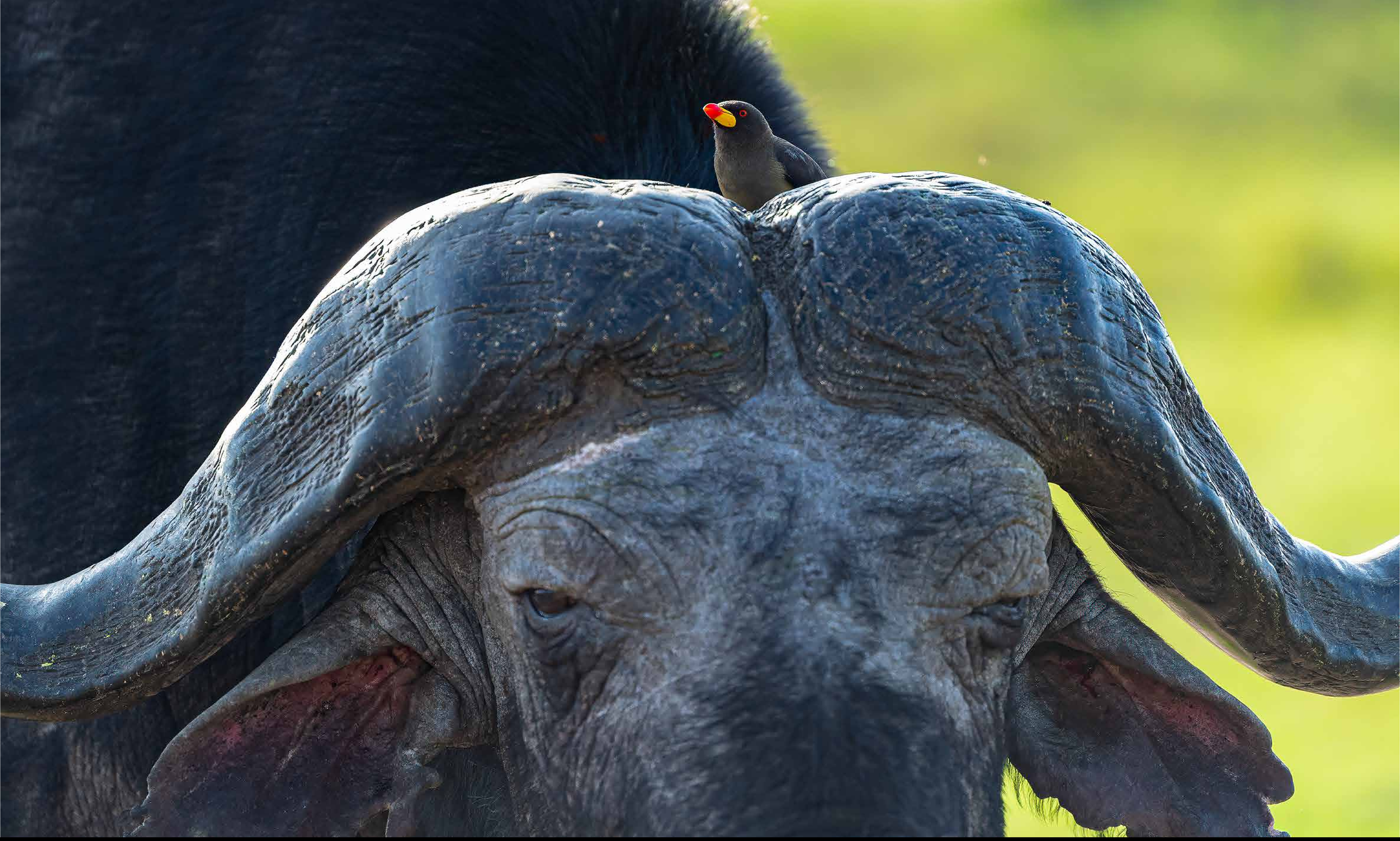
Photo by: ©Nisha Purushothaman

Photo by: © Thomas Bretschneider

Photo by: © Kaitlyn Baker



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UPCOMING EDITION

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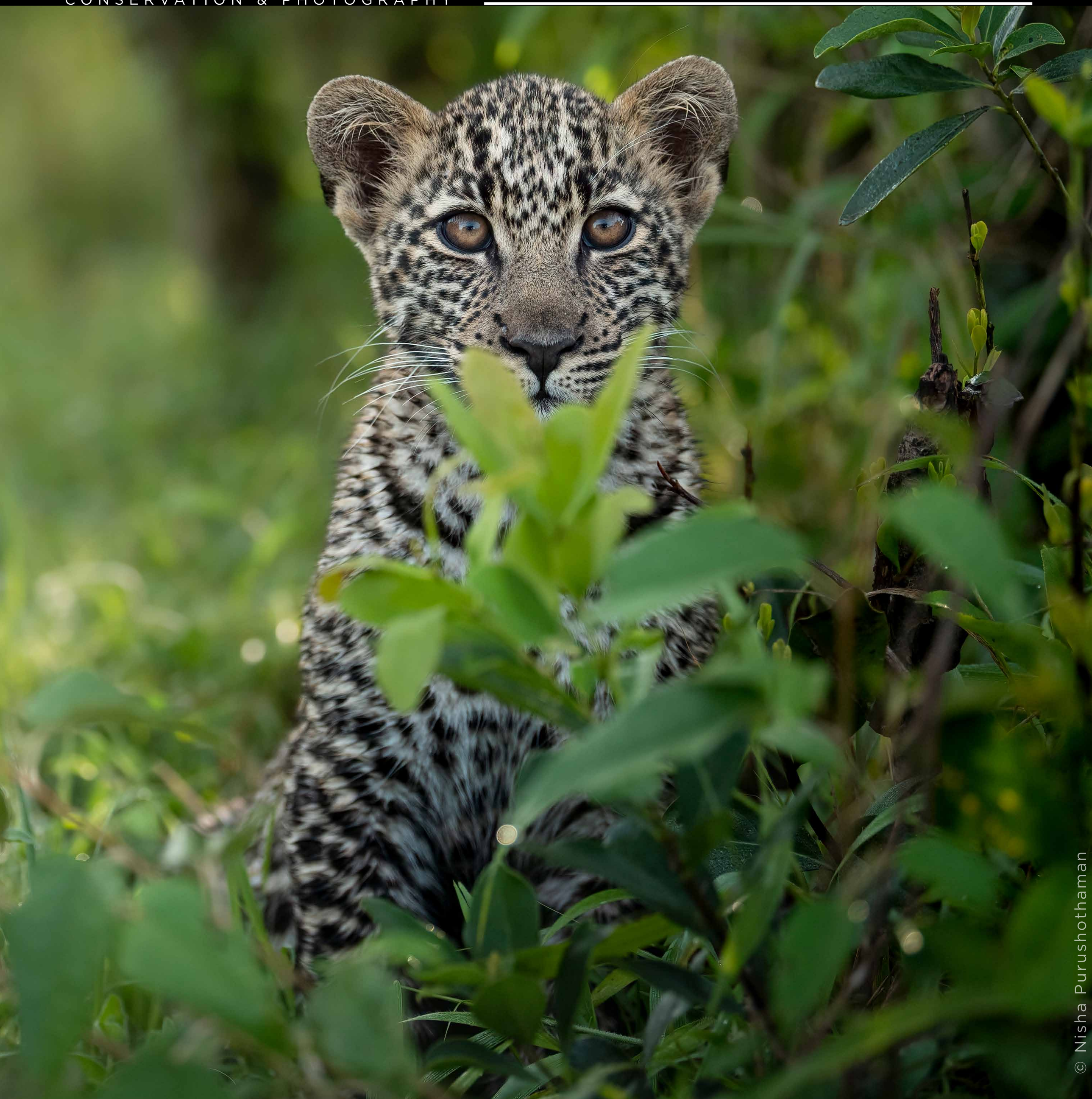

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