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AWARE

CONSERVATION & PHOTOGRAPHY
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The Ostrich
placing eggs in
more than
one basket
By Peter Hudson

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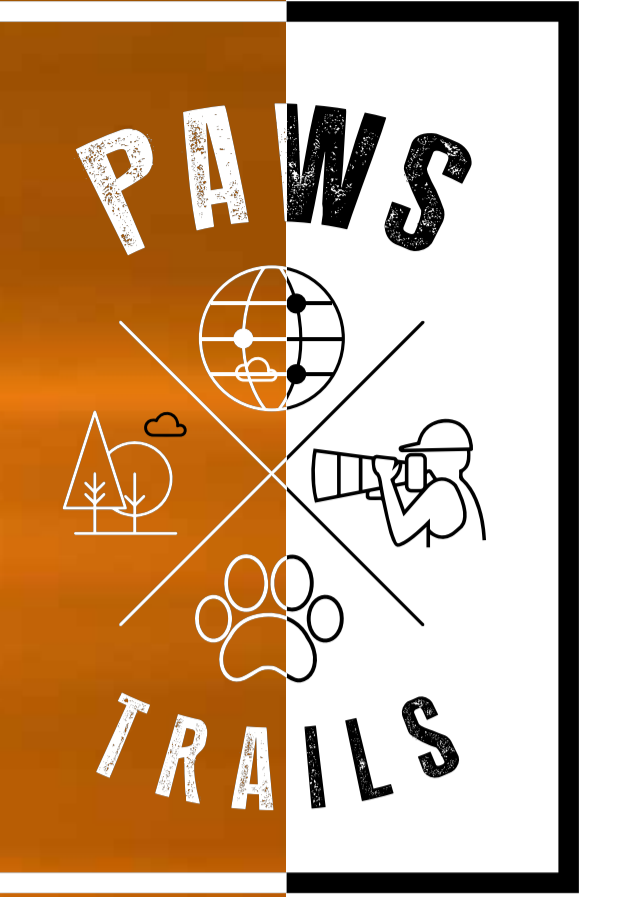
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Photo By:
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Raghul Patteri
Editor W

There is something fascinating about things that defy convention. And, it is the same when it comes to the animal kingdom. There are certain characteristics, shape, and size that is associated with a class of animals and one member who defies these conventions, stand out and draws attention.

Without a doubt, the Ostrich falls into this category. The word 'bird' brings to mind a picture of which an Ostrich is very easily a contradiction. Here is this beast of a bird that grows taller than a human and incapable of flight.

However, what it lacks in flight, it makes up in the ability to run at high speeds. In spite of their imposing size, the bird still has predators and they had to develop the strong legs capable of impressive speeds to outrun its predators. This is but just one impressive aspect of their biology which has evolved to survive their semi-arid habitat and the formidable predators that they have to face.

Join us in this edition of PT Aware to learn the marvelous story of these birds. Dr. Peter Hudson takes us through the amazing life of the Ostrich, leaving us wondering at the marvels of nature's ingenuity.

Even these impressive creatures are not immune to the threat of habitat loss and poaching and populations have been wiped out from some of their historic range. This article raises questions on the IUCN classification of "Least concern" that is accorded to the Ostrich.

We thank all the photographers who have shared the wonderful photographs for our readers to enjoy. Your images are instrumental in portraying the story of these amazing birds.

Our next edition will focus on the Coyote. So be ready to upload your images of these amazing species



Photo by: Peter Hudson

EDITOR'S DEN

FOUNDERS' NOTE

PT Aware opens your eyes to the realities of the wild world. While dazzling you with the life stories of amazing species from around the world, we also bring to you the challenges faced by them for their very survival.

In this edition, we chronicle the Ostrich, an icon of the bird kingdom. The narrative also goes into the system of classification used to define the conservation status of a species and provokes a question if a rethink on these methods is needed.

Are some species denied the attention they require due to ambiguity in their conservation status? We hope to invoke the right questions in our reader's minds, thereby leading to discussions and the formation of public opinion in support of our fellow beings on earth.

We have some exciting news.

While we were on our many expeditions in the wild, the PawsTrails team has always had a dream of having our very own safari lodge. That dream is coming true now with the launch of MARA TRAILS – the PawsTrails' lodge in the mecca of wildlife, the Masai Mara. While it wasn't easy, we are really excited that this dream has come true and Mara Trails will be welcoming the first visitors in July 2021.

PawsTrails has always been vocal in supporting that conservation should be an inclusive endeavor. To succeed, conservationists have to think holistically, taking into account the communities that live surrounding the concerned area. This is one of the guiding principles that we followed while envisioning Mara Trails. We have resolved to use 50% of our operational profits for awareness building and aiding the communities who live with the wildlife and act as their guardians. Renowned scientist Dr. Peter Hudson will be the conservation Director for Mara Trails and will be guiding us in all our activities.

So when you plan your next expedition with us, you will not only have the best experience in the Mara, guaranteed by a decade worth of PawsTrails' experience in the field, but you will also be making a difference to the natural world and the communities that protect them.

Contact us for the best safari experience

Hermis Haridas & Nisha Purushothaman

Founders - Paws Trails Explorers



THE STORY

The Ostrich

placing eggs in more than
one basket

By Peter Hudson,
Conservation Director, Paws Trails
with Hayden Kissell and Shreya Menon

Images by: Todd Gustafson, Gurcharan Roopra, Peter Hudson, Shaji Panicker, Ebrahim, Mohammad Yasir Hussain, Harikrishnan K Ram, Bernd Hüsches, Thomas Bretschneider, Munib Chaudry, Manu Rajan, Pareet Shah, Preeti&Prashant Chacko, Shyam Menon, Nisha Purushothaman





Canon
IMAGING PARTNER

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. For the past 11 years he has been working on how and why viruses move from bats to humans in an attempt to predict when viral spillover occurs. He has also been studying the wolves in 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 supported by two interns at Paws Trails: Hayden Kissel and Shreya Menon. He is also heavily involved with the Random Good Foundation that undertakes story telling for social change. 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.

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There is no mistaking the ostrich (*Struthio camelus*), few birds are as distinct and special as this large flightless bird. Despite their size these birds still face the real threat of predation by large mammals, and not bound by the constraints of flight they have dropped the big breastbone of most birds and developed long strong legs to outrun predators at speeds of nearly 50mph in their dry semi desert habitat. These long legs mean they require a long neck to reach vegetation and catch small animals and what is more, they have developed a rather intriguing breeding system. Biologically, everything about these birds is aimed at avoiding predation and yet the young need to get from being small and vulnerable to being big and safe and the ostrich does this by not putting all its eggs in one basket.

Unique Ostrich breeding system

The ostrich breeding system is complex, fascinating, and unique and well worth examining in detail. A breeding male looks like the most embarrassed bird you have ever met, since they have bright red bare skin on their head, neck and thighs which contrasts with his black body feathers and the white feathers in his tail and, what remains of, his “flight feathers”. The female in comparison is totally dull with brownish plumage. The males gather up a harem of several females that include a “major hen” and several “minor hens”.

The male builds the nest, and the major hen deposits about 10 eggs in the center of the nest while the minor hens lay fewer eggs that are deposited around the edge. Eggs in the center gets more protection from a passing hyaena or jackal since the predators invariably grab the eggs at the edge. Females do not appear short of nutrients for producing eggs and they can lay many eggs, as such a passing female will drop an egg in a nest, so that nests can end up with as many as 67 eggs. Sometimes there are more eggs than the bird can incubate (about 20) so the major hen kicks out the surplus eggs, either into a peripheral nest or just around the nest, these are not incubated and could provide easy food for a passing predator. Fortunately, she can recognize her own eggs from those of the other females, so she kicks out only those of the minor hens. While a female maybe a major hen at one nest she may also be a minor hen at a neighboring harem and indeed some females can be in anything up to five different harems, so she lays her eggs in multiple nests. If her own nest gets hit by a predator, she has the insurance policy of her eggs spread among many other nests. Once incubation starts, the minor hens go to the harems of other males. Both the male and the major hen will incubate the clutch even though almost 70% of the eggs are not parented by one of the adult birds incubating them. All this complex nesting behavior appears to be an adaptation to high predation on the eggs and chicks

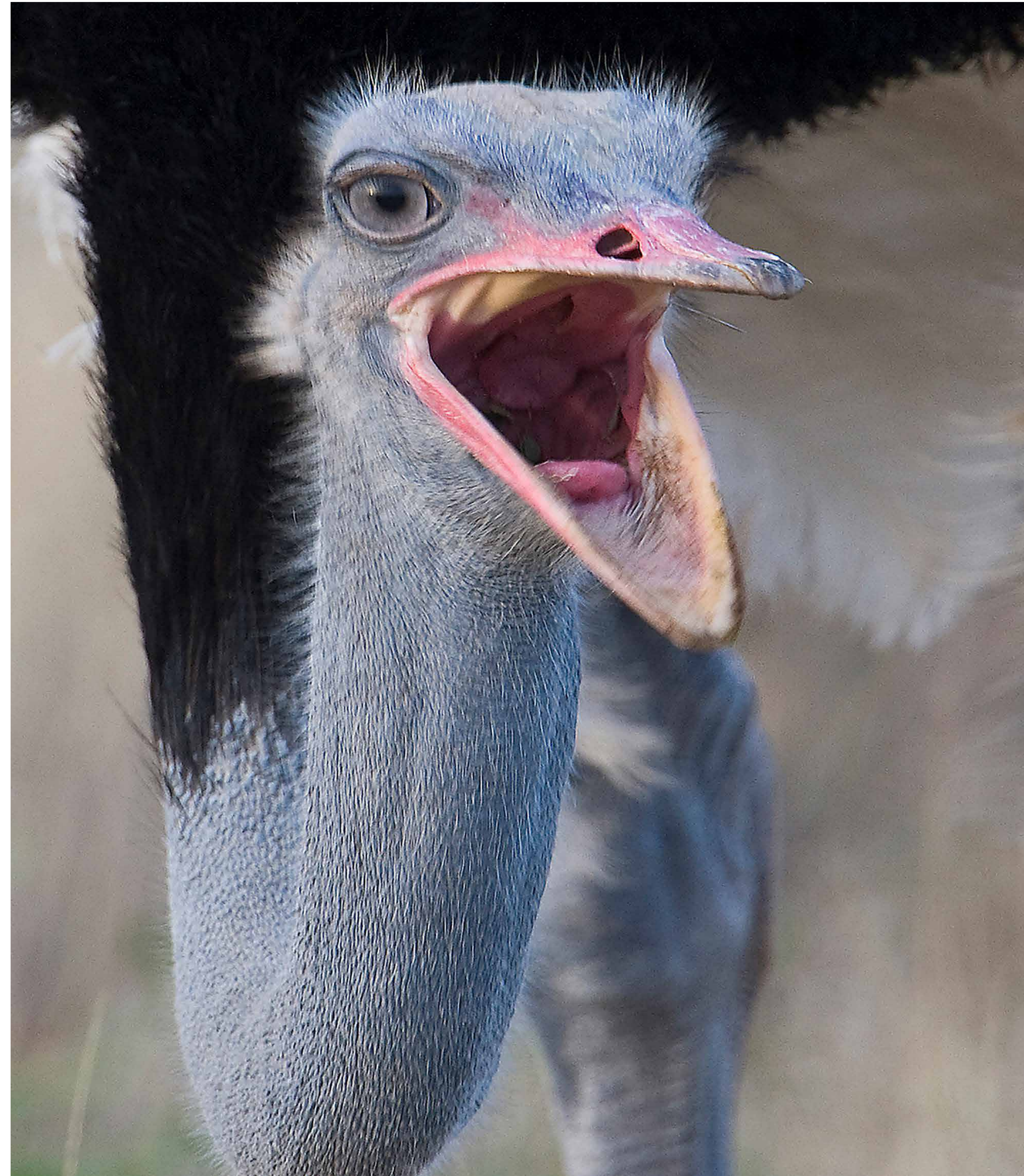


Photo by: Todd Gustafson





Photo by: Todd Gustafson



Photo by: Todd Gustafson

and reducing risk of total failure by utilizing multiple nests.

Once the chicks hatch and reach four days of age, the male and the major hen take the young away from the nest and look after the brood until they are about five months of age. Broods will often coalesce into bigger broods which will be accompanied by one or more adults. The whole breeding strategy is to try and mix up your young in multiple broods on the off chance that one or more of your own offspring avoids predation by hyaenas, jackals, lions and cheetahs. The chicks grow fast, gaining height at 30 cm a month and develop the skill to run fast from predators although they are still vulnerable until they reach adult size.

Conservation and the Ostrich

Currently, the IUCN lists the ostrich as a species of Least Concern which means it is a species that conservation practitioners need not focus, with more pressing issues where their attention is needed. Counter to this, many people working in the field are reporting rapid declines in the abundance of ostriches, particularly in the Sahel and the countries just south of, the Sahara. Indeed, the species looks as though it is suffering rapid loss on the edge of its species range while doing relatively well in national parks and protected areas.

The issue is a common one in African conservation. First the species has a broad range across most of sub-Saharan Africa and according to the rules of the IUCN, must exhibit more





Photo by: Todd Gustafson



Photo by: Todd Gustafson

than a 30% decline in range over a period of 10 years or 3 generations to be recognized as threatened. Second, obtaining accurate estimates of abundance of species across such a large area is not easy and in some parts of their range, such as South Africa, the species maybe doing well while in other parts numbers are falling dramatically and indeed ostriches have been lost from whole countries. The IUCN believe it has not approached the threshold for it to be classified as Vulnerable until there are less than 10,000 mature individuals and numbers are falling at more than 10% over ten years or three generations, and so it is listed as Least Concern. Naturally, we are interested in the free-living populations, and it is staggering to think that 90% of the African population are in ostrich farms where they are kept for their meat, skins, and plumes.

Historically, ostriches were found outside Africa, in Syria and Saudi Arabia and across much of North Africa including Morocco, Algeria and Tunisia but all these populations have been exterminated through hunting, with the last ostrich shot in Tunisia in 1887. The middle east population were decimated during the 1940s with the last Arabian ostrich shot in Bahrain in 1956 although there is a story of a live ostrich being washed off the hills near Petra (Jordan) in 1966. A small population that remained in Niger were eradicated during armed conflicts in the 1990s, highlighting how armed conflicts often result in wildlife decimation.





There are two recognized ostrich species: first, the Common ostrich, illustrated in this magazine, and second the Somali ostrich (*Struthio molybdophanes*), that is listed as Vulnerable. This species has only recently been recognized as a distinct species and has a much smaller distribution than its more widespread cousin. It is restricted to parts of Northern Kenya, Ethiopia and Somalia and is suffering in the same way as the common ostrich through habitat degradation to livestock farming, but on a much

smaller scale, and also to hunting and egg collecting. In many ways we are seeing the same processes pan out for the Somali ostrich as for the common ostrich, but at a smaller scale. Once again, we have no data about numbers so the IUCN have taken the precautionary approach since it is strongly suspected from expert witness that it is undergoing a rapid decline.

Concluding comments: baskets and risk

Ostrich biology is fascinating. We

have seen how the ostrich, once it gave up its ability to avoid predators through flight, had to become large and fast to keep away from the predators. It however has to lay eggs and produce chicks, and the chicks are still vulnerable to the predators until they can grow big and fast. The ostrich solves this problem with a unique breeding system in which they divide the risk by dividing the resources (eggs) between multiple nests and so maximizing the likelihood that their chicks may reach adulthood.

In much the same way, conservation practitioners must decide how to divide their resources between different projects to maximize the chances of retaining biodiversity. One temptation is to work only to save the threatened species. On the other hand, a portfolio approach that divides resources between habitats (eggs between baskets) that reduces the rate of habitat loss and retain biodiversity could be a more productive way than concentrating only on the status of each species.



Photo by: Todd Gustafson







Photo by: Todd Gustafson





Photo by: Pareet Shah





Photo by: Shyam Menon







Photo by: Munib Chaudry

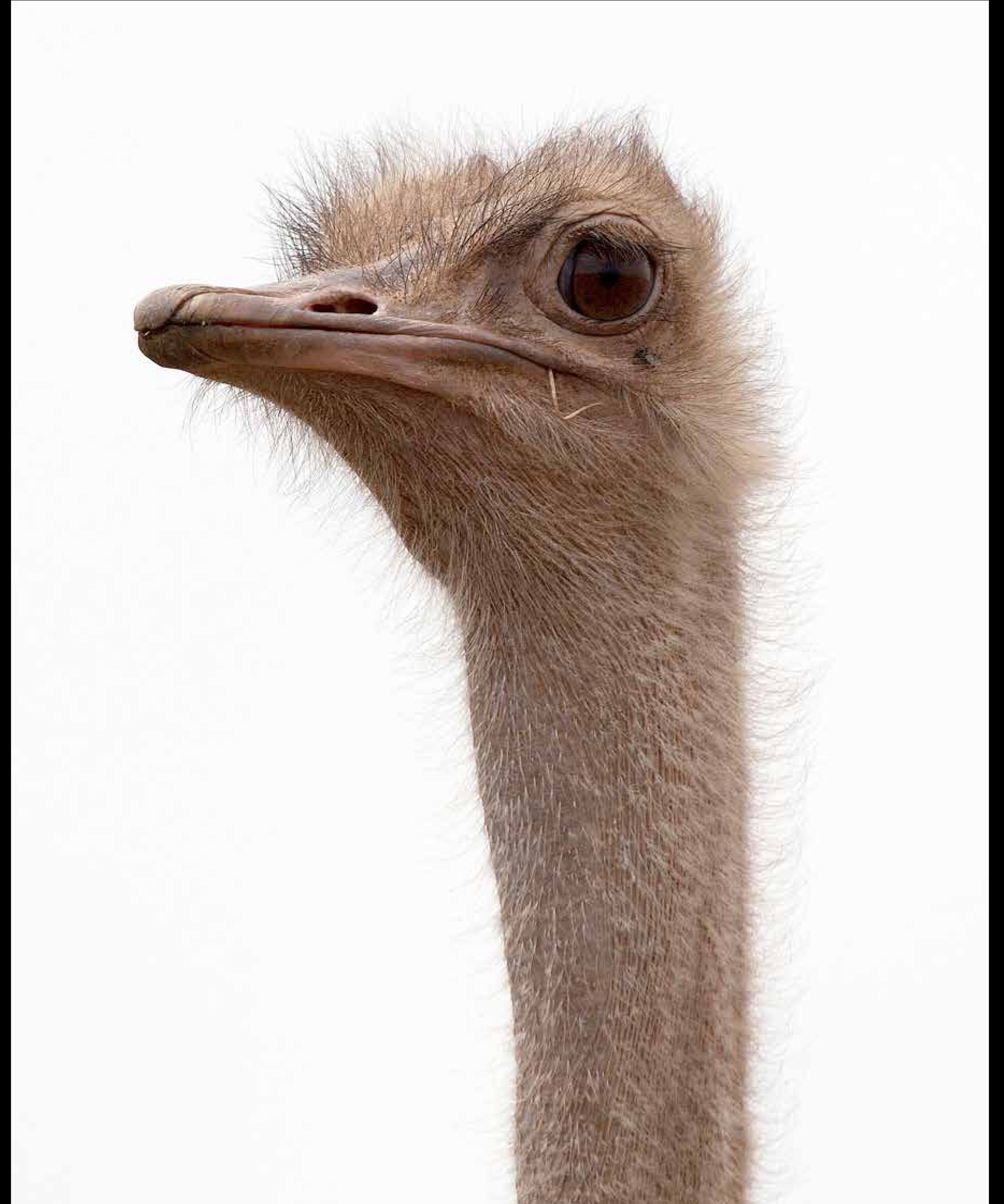


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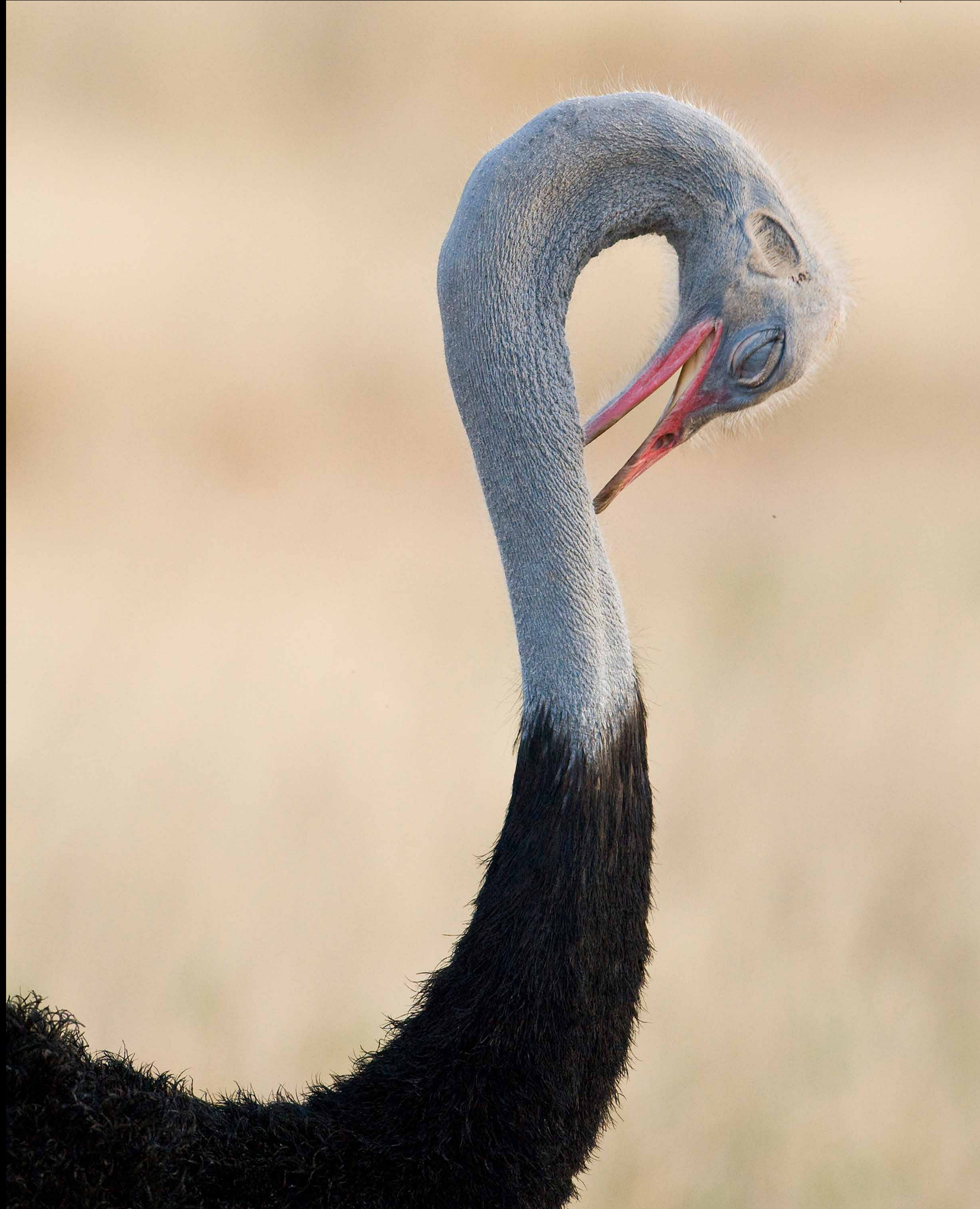


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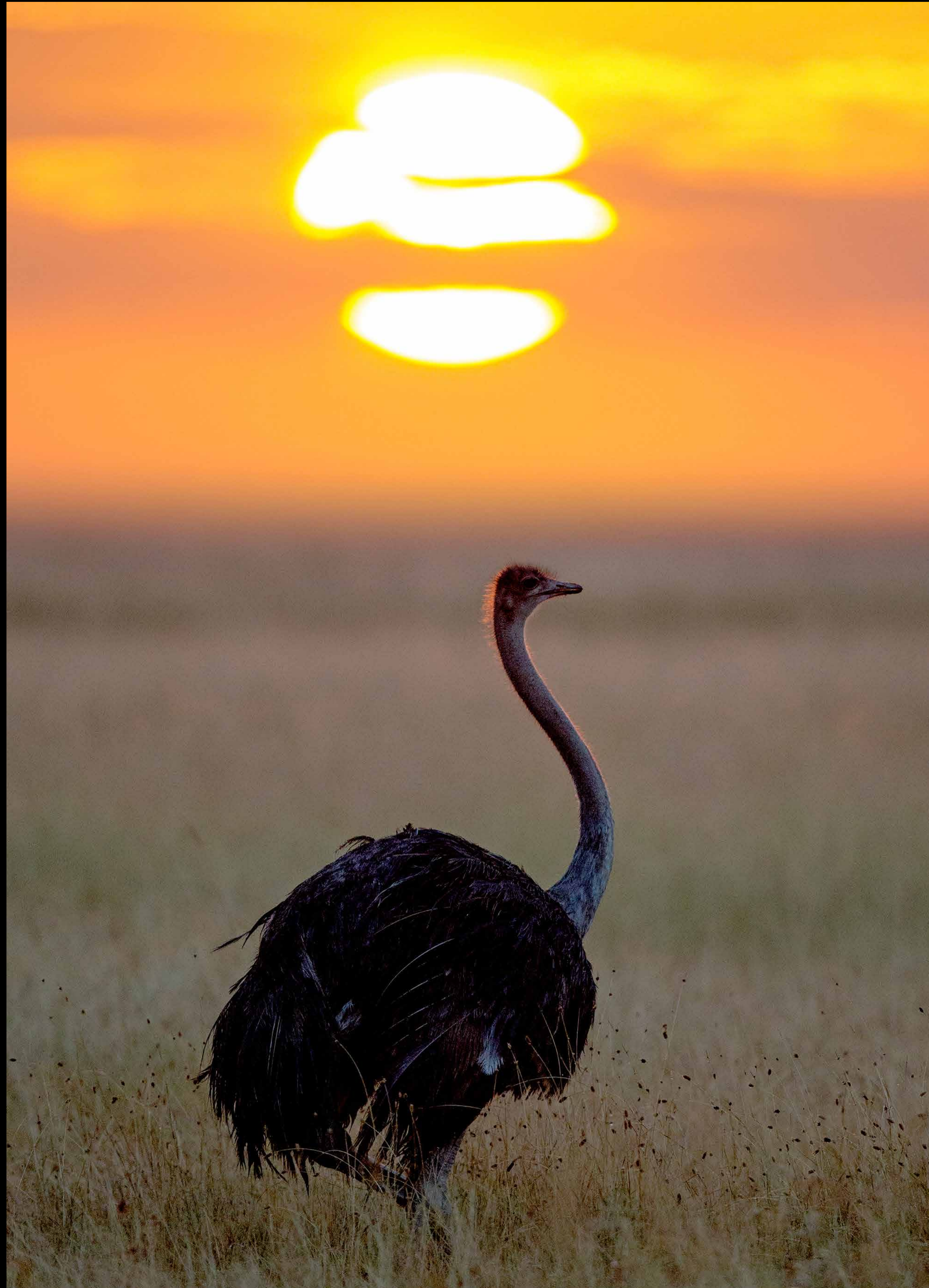


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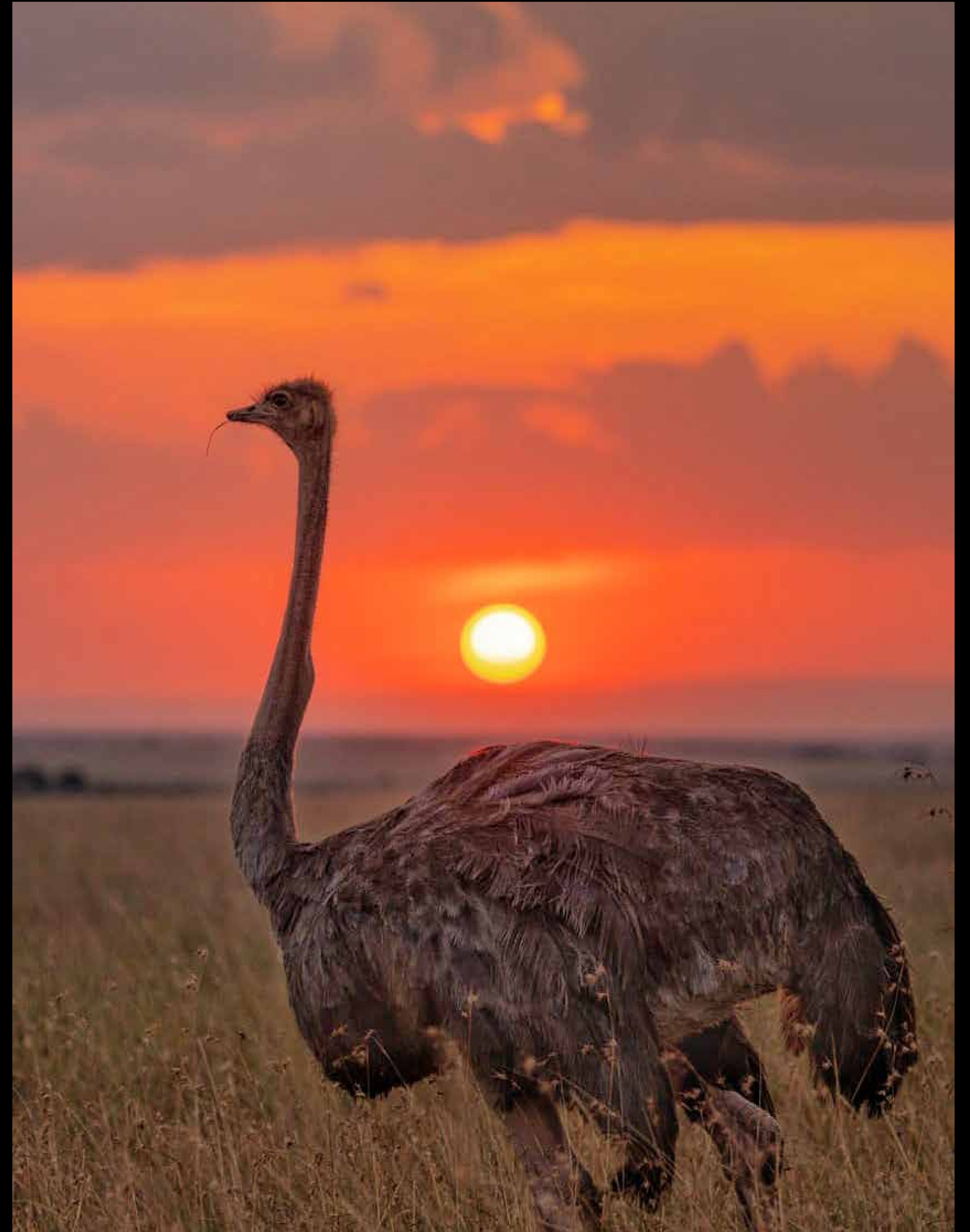


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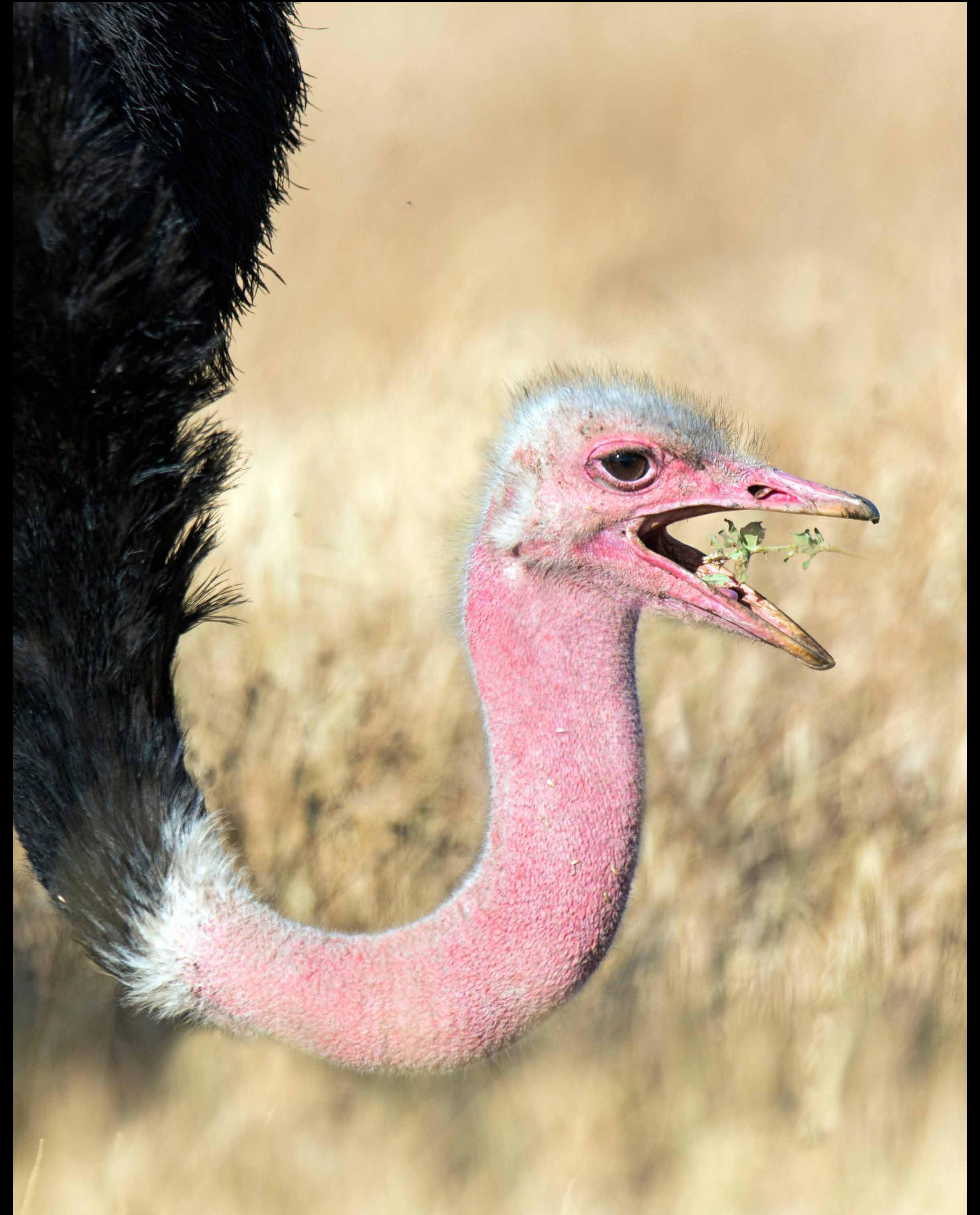


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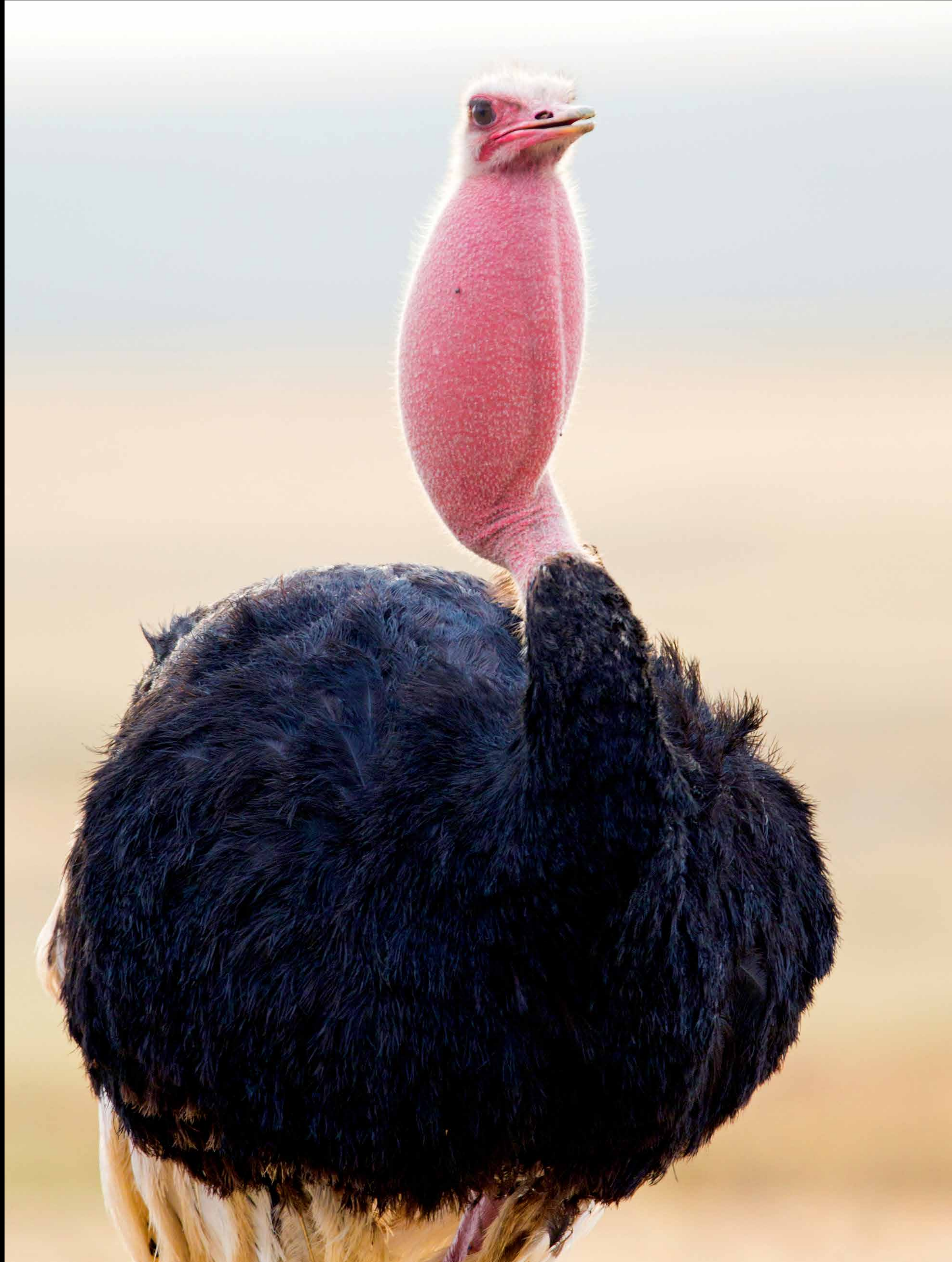


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