



ANIMA MUNDI

Adventures in Wildlife Photography

Issue 37, Year 10 - January 2020

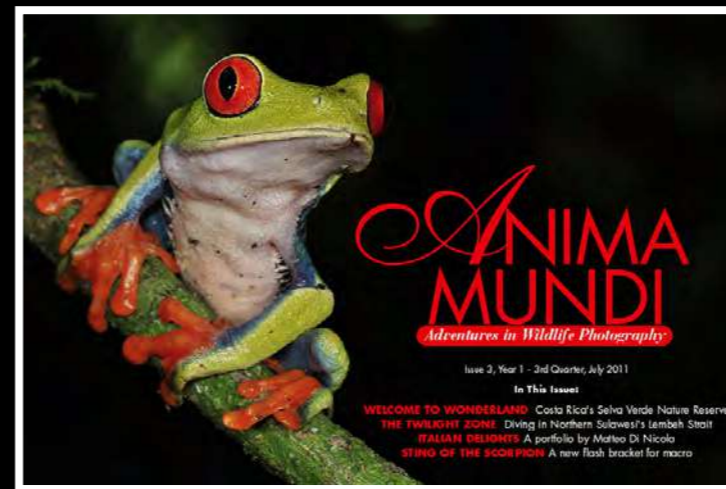
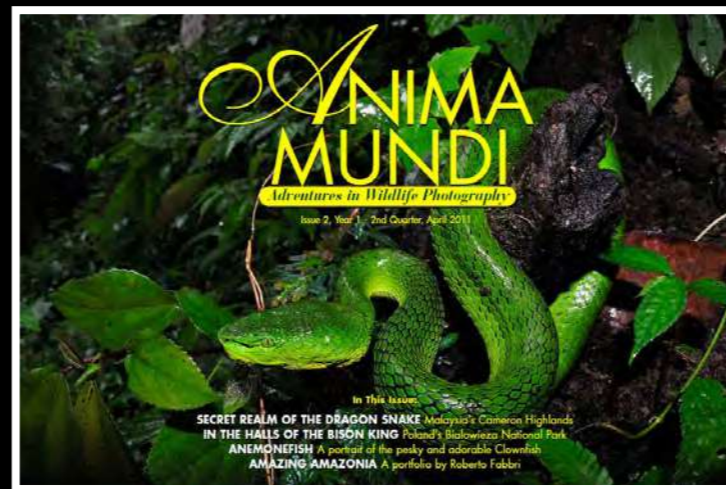
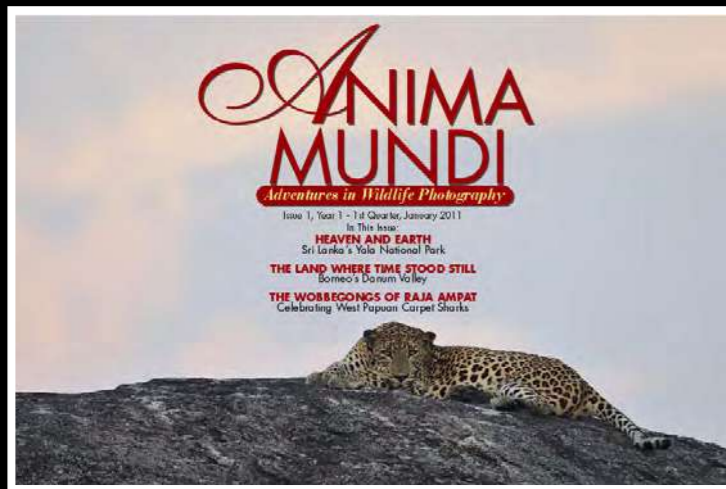
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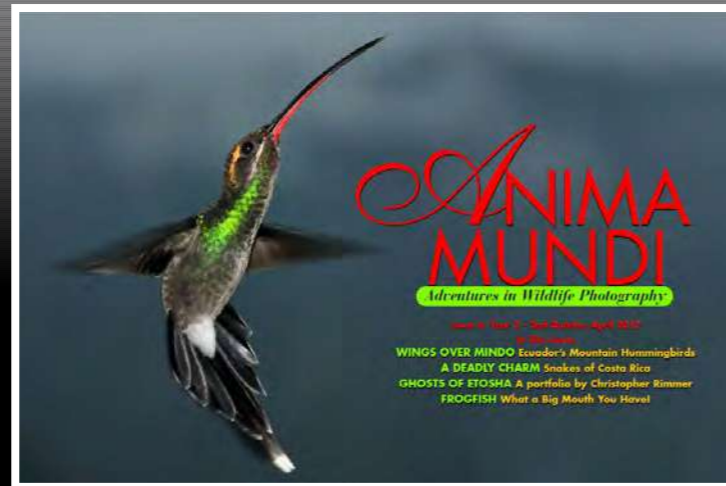


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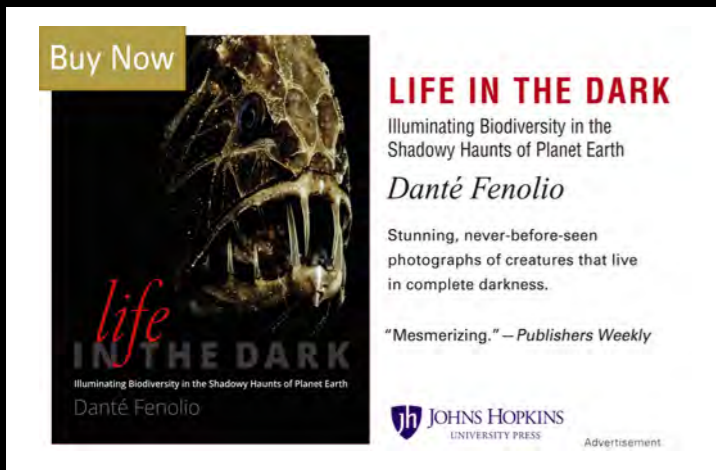
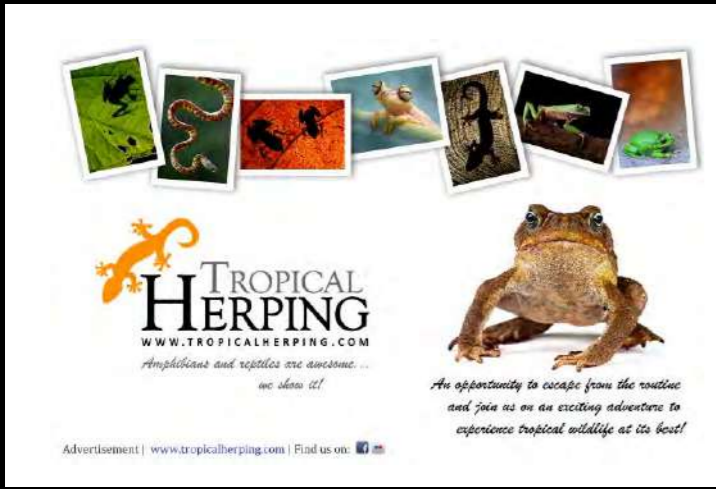
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With more than 30,000 downloads worldwide per issue (as per January 2017), ANIMA MUNDI has seen its readership consistently and rapidly growing in the span of six years of life and twenty-five published issues. Its authoritative and unbiased travel reports and wildlife articles offer a high level of scientifically-correct information - at absolutely no cost - to thousands and thousands of nature and photography enthusiasts all over the world. Each and every issue of ANIMA MUNDI - Adventures in Wildlife Photography is permanently available for FREE downloading - our mission is the dissemination and condision of information to promote nature awareness and habitat conservation, and we are proud to reach out on a quarterly basis to a world of passionate, highly motivated, seriously interested readers who all share our passion for wildlife photography and travelling. This is a sample - among many others - of what our readers say:

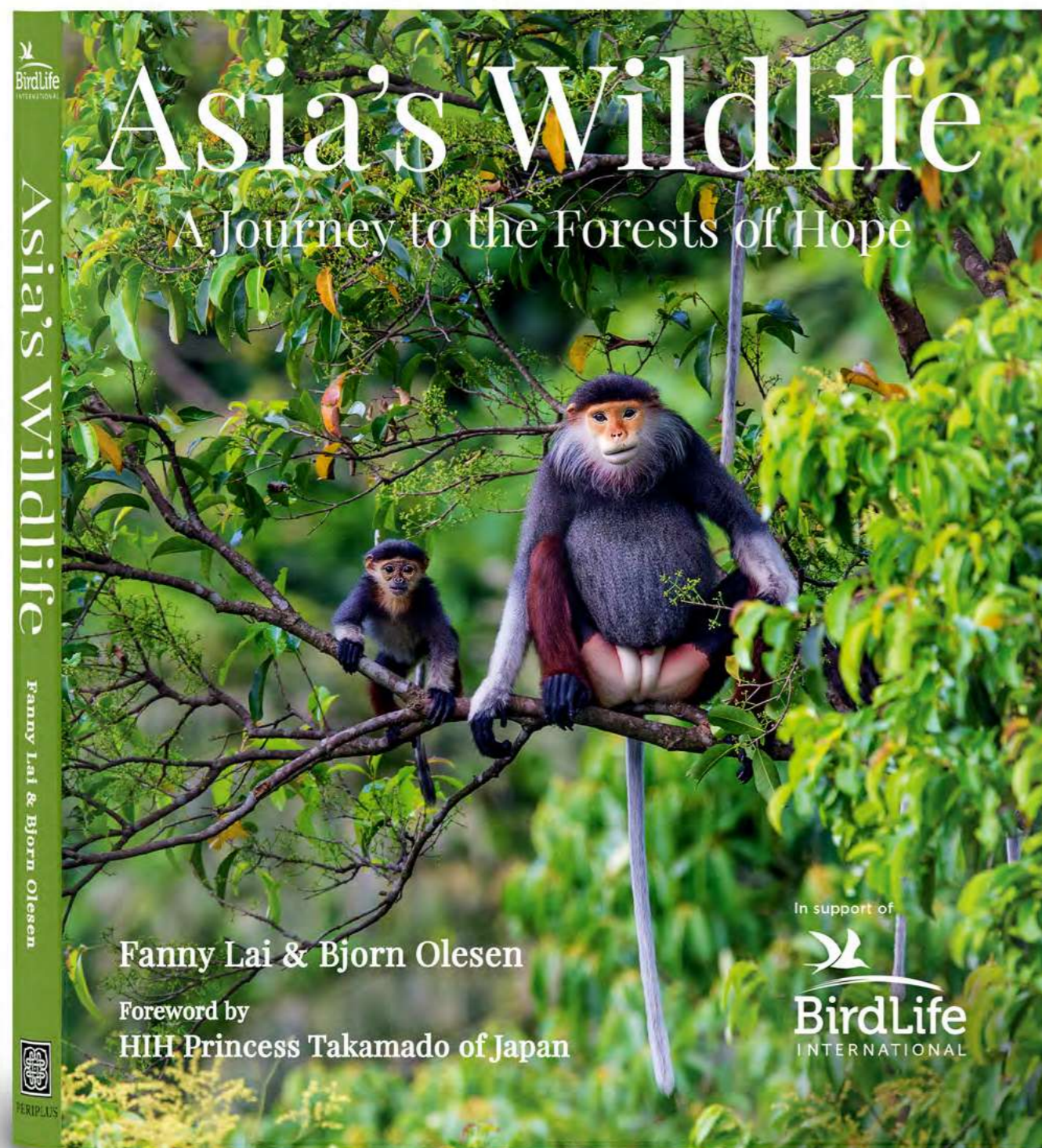
Dear Andrea & Antonella,

I have just finished reading your latest edition of Anima Mundi and I was inspired to write and say how much I am enjoying your publication and following your adventures. My wife and dive/photo partner Cherie and I were so inspired by your feature on Yala National Park that we booked a Safari with Eco Team and we had a fantastic time. It was exactly as portrayed in your article and we also followed your recommendations for visiting the cultural triangle in Sri Lanka. As we were leading one of our dive tours on a live aboard exploring the Maldives last June, a private side trip to Sri Lanka was clearly not to be passed up due to your information. So, I guess it's good news for you both that others are reading and responding to your work. So, we just wanted to give you some feedback, say hello and wish you all the best with your future adventures. Keep up the great work.

Kevin & Cherie Deacon
Dive 2000
Sydney, Australia.
www.dive2000.com.au

Advertising on ANIMA MUNDI - Adventures in Wildlife Photography means reaching out and getting in personal contact with such people - passionate travellers, dedicated wildlife and nature photographers, world-famous field researchers. All sharing a common bond, all interested in serious, reliable information on wildlife and nature travelling and photographic workshops, trips and equipment. All waiting to hear from you!

Contact us for details at editor@animamundimag.com



Asia's Wildlife: A Journey to the Forests of Hope

'In these pages, we can read about eight forests in eight countries of Asia that we call forests of hope because of the love and commitment we have for them. The powerful photographs evoke feelings in me, and I suddenly realise that that is because Asia is my homeland. That we are blessed with such beautiful forests is a joy and a responsibility. But they are, of course, just examples of the miraculous riches that forests possess, and on this tiny planet we want all forests to be forests of hope.'

Hope is the life force we all share. Hope is the thing with feathers. It perches in our souls.'

HIH Princess Takamado of Japan. Honorary President of BirdLife International.

'The surprising range and breathtaking beauty of the animals so miraculously photographed in this excellent book are a powerful reminder of the need to protect these treasures before they are lost forever.'

Dr. John van Wyhe, historian of science and one of the world's leading experts on Charles Darwin and Alfred Russel Wallace.

'Close-up views of Endangered fauna in their natural habitats are difficult enough to obtain, but the breathtaking quality of the photography in this valuable documentation of Asia's forests makes this book highly recommended for both scientists and nature lovers alike.'

Robert Stuebing, The Field Museum of Natural History, Chicago.

'These arresting portraits of living creatures from eight Asian forests remind us all that forests have value beyond our capacity to measure. Without forests we cannot dream. Without forests we cannot breathe. Without forests we cannot hope. Forests are forever, and their conservation is the human endeavour that represents the best hope of our own survival as a species. Forests of hope indeed!'

Dr. Nigel Collar, Leventis Fellow in Conservation Biology, BirdLife International.

This book features some of the world's least known species like Vietnam's Saola and the Sumatran Tiger in their natural environment. It weaves high quality photography of these species and inspiring conservation stories from forest sites across Asia together through the lenses of lead photographer, Bjorn Olesen. I recommend it highly to anyone interested in saving Earth's biodiversity.'

Prof. Paul R. Ehrlich, President, Center for Conservation Biology, Stanford University.

Wildlife of Asia's Forests of Hope has been produced to raise funds in support of BirdLife International, and to increase awareness of nature conservation and their Forests of Hope programme in Asia. The authors have contributed their time and resources on a pro bono basis for the production, research and travelling for this one-of-a-kind publication.

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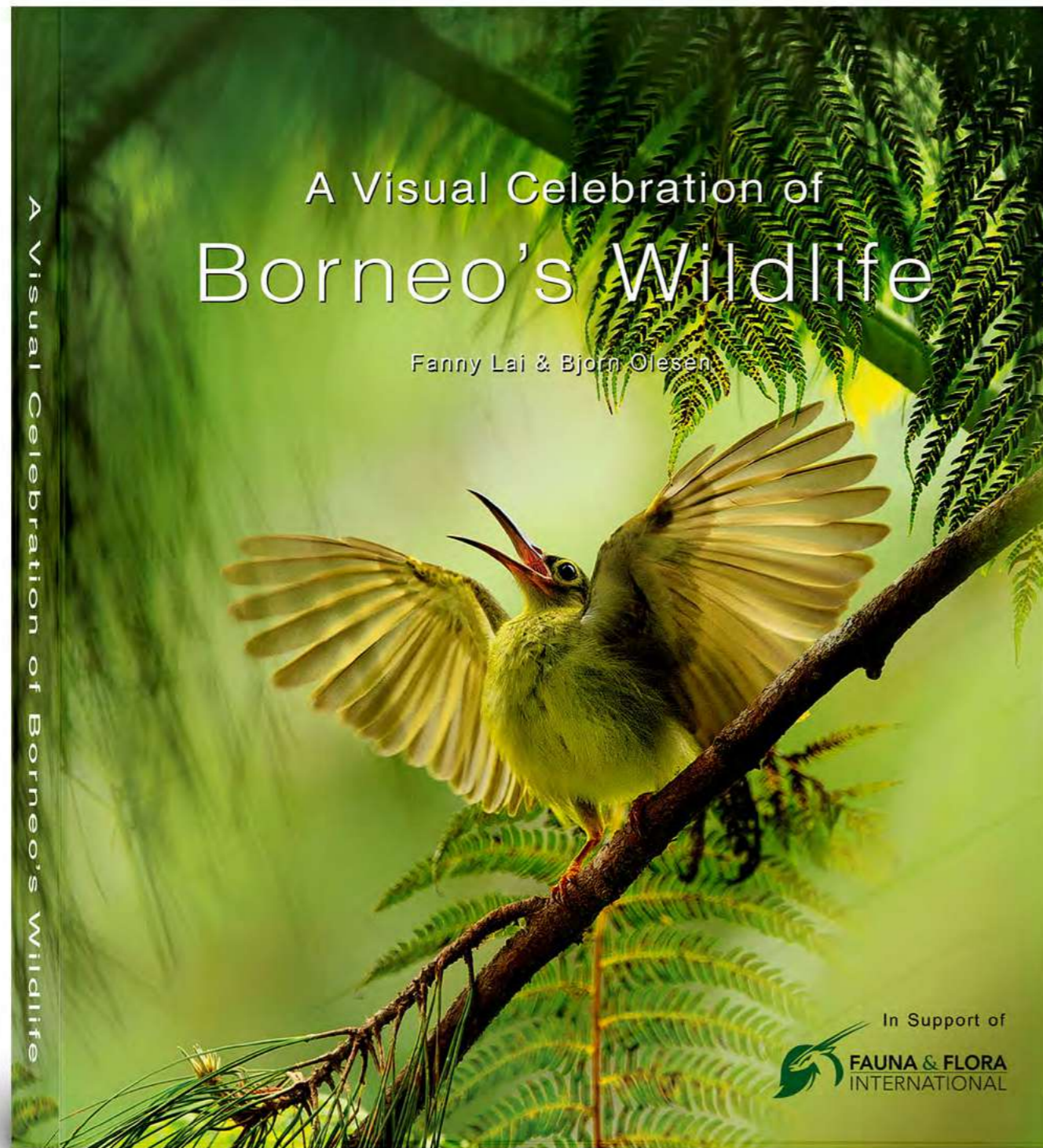
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Dr. John van Wyhe, National University of Singapore, historian of science and leading expert on Alfred Wallace, author of *Dispelling the Darkness: Voyage in the Malay Archipelago and the Discovery of Evolution by Wallace and Darwin*.

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■ A lioness charges at full speed after its intended prey, two fleeing wildebeest. Such sights are not rare in Kenya's legendary Masai Mara Nature Reserve - see our story on page 4.



ANIMA MUNDI

Adventures in Wildlife Photography

Are we fighting a lost battle?

Welcome to a new issue of *Anima Mundi - Adventures in Wildlife Photography*! As we enter our tenth year of life the state of world still seems to be continuing that downward trend which has been sadly accompanying us during the past decade or so. Exploitation of natural resources continues unabatedly worldwide, deforestation runs rampant, the slaughtering of protected wildlife is getting worse than ever and the devastating effects of climate change are making themselves felt more and more everywhere. It really looks like the war we have been fighting is lost, and being optimistic about the future of wildlife and the natural environment on this planet is getting more and more difficult. But we don't give up - yet!

We begin on page 4 with our own trip report from a legendary wildlife photography destination which even the most seasoned nature traveler cannot afford to miss - the Masai Mara Nature Reserve in Kenya. If you have to choose one destination ever, this is it - the amounts of sightings and photographic opportunities we experienced there was unique. Truly an unforgettable trip, and as such it will take us two separate issues of *Anima Mundi - Adventures in Wildlife Photography* to cover it fully.

From page 57 and on we present you instead with a photographic tribute to a rare destination indeed - our contributor **Samuel Bloch** takes us to the remote and severely protected Subantarctic islands lying off southern New Zealand. It is a wonderful opportunity to meet and admire some of the world's rarest animals.

On page 76 we present our contributor **Cesar Barrio Amoròs**'s field research report on the deadly poisonous Yellow dart frog *Phyllobates terribilis* - the world's most toxic vertebrate.

We finally wrap our current issue from page 90 and following with a feature by our contributor and underwater photographer **Don**

Silcock, who tells us in images and words about his experiences in snorkelling with the prehistoric-looking and potentially dangerous American crocodiles *Crocodylus acutus* in Mexico's Banco Chinchorro.

And that is all for now - until April with a new issue. In the meantime...

Have a good trip!
Andrea & Antonella Ferrari
www.animamundimag.com



We appreciate your feedback - constructive criticism, useful suggestions and interesting contributions are welcome. Please drop us a line at editor@animamundimag.com

■ *Male impala Aepyceros melampus silhouetted at dawn, an iconic image from Kenya's Masai Mara Nature Reserve.*

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KENYA'S MASAI MARA RESERVE

AFRICAN EDEN

Nothing can be compared to this
legendary, easily visited and truly unique
wildlife photography destination

*Adult male African lion ■
Panthera leo at sunset. On the
title page, cheetah Acinonyx
jubatus surveying its range
from the top of a hillock
as a hot-air balloon
hovers in the distance.*





Topi ■
Damaliscus lunatus
jimela.

TEXT BY ANDREA FERRARI
PHOTOS BY ANDREA & ANTONELLA FERRARI

The Masai Mara (also known as the Maasai Mara, and locally simply as The Mara) is a large game reserve in Narok County, Kenya, contiguous with the Serengeti National Park in Tanzania. It is named in honor of the Masai people (the ancestral inhabitants of the area) and their description of the area when looked at from afar: "Mara" means "spotted" in the local language, due to the many trees which dot the landscape. The Masai Mara National Reserve (MMNR) covers some 1,510 km² (580 sq mi) in south-western Kenya. It is the northernmost section of the Mara-Serengeti ecosystem, which covers some 25,000 km² (9,700 sq mi) in Tanzania and Kenya. It is bounded by the Serengeti Park to the south, the Siria escarpment to the west, and Masai pastoral ranches to the north, east and west. The Greater Mara Ecosystem encompasses areas known as the Masai Mara National Reserve, the Mara Triangle, and several Masai Conservancies, including Koiyaki, Lemek, Ol Chorro Oirowua, Olkinyei, Siana, Maji Moto, Naikara, Ol Derkesi, Kerinkani, Oloirien, and Kimintet. Rainfall in the ecosystem increases markedly along a

southeast-northwest gradient, varies in space and time, and is markedly bimodal. The Sand, Talek River and Mara River are the major rivers draining the reserve. Shrubs and trees fringe most drainage lines and cover hill slopes and hilltops. The terrain of the reserve is primarily open grassland with seasonal riverlets. In the south-east region are clumps of the distinctive acacia tree. The western border is the Esoit (Siria) Escarpment of the East African Rift, which is a system of rifts some 5,600 km (3,500 mi) long, from Ethiopia's Red Sea through Kenya, Tanzania, Malawi and into Mozambique. Wildlife tends to be most concentrated here, as the swampy ground means that access to water is always good, while tourist disruption is minimal. The easternmost border is 224 kilometres (139.2 mi) from Nairobi, and hence it is the eastern regions which are most visited by tourists. There are several bush landing strips which serve the camps and lodges in the Masai Mara, including Mara Serena Airport, Musiara Airport and Keekorok, Kichwa Tembo, Ngerende Airport, Ol Kiombo and Angama Mara.

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■ Nile crocodiles
*Crocodylus
niloticus* feasting
on a wildebeest
carcass.





African elephant
Loxodonta africana
- a relatively
uncommon species
in the Mara plains.

WILDLIFE

The Mara is world-renowned for its exceptional populations of lions, leopards, cheetahs and elephant, and the annual migration of wildebeest, zebra, Thomson's gazelle and other antelope, to and from the Serengeti every year known as the Great Migration. Wildebeest, topi, zebra, and Thomson's gazelle migrate into and occupy the Mara reserve, from the Serengeti plains to the south and Loita Plains in the pastoral ranches to the north-east, from July to October or later. Herds of all three species are also resident in the reserve. All members of the "Big Five" (lion, leopard, elephant, Cape buffalo, and rhinoceros) are found here. The population of black rhinos was fairly numerous until 1960, but it was severely depleted by poaching in the 1970s and early 1980s, dropping to a low of 15 individuals. Numbers have been slowly increasing, but the population was still only up to an estimated 23 in 1999. Hippopotami and crocodiles are found in large groups in the Mara and Talek rivers. Hyenas, cheetahs, jackals, and bat-eared foxes can also be found in the reserve. The plains between the Mara River and the Esoit Siria Escarpment are probably the best area for game viewing, in particular regarding lion and cheetah. As in the Serengeti, the wildebeest are the dominant inhabitants of the Masai Mara, and their numbers are estimated in the millions. Around July of each year,

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Greater Blue-eared Starling
Lamprotornis chalybaeus
expelling the seed of a fruit it has recently eaten.

■ *Mother and cub cheetah Acinonyx jubatus. The Mara is one of the best spots in the world to admire this endangered species.*



these animals migrate north from the Serengeti plains in search of fresh pasture, and return to the south around October. The Great Migration is one of the most impressive natural events worldwide, involving some 1,300,000 wildebeest, 500,000 Thomson's gazelles, 97,000 Topi, 18,000 elands, and 200,000 zebras. Antelopes can be found, including Grant's gazelles, impalas, duikers and Coke's hartebeests. The plains are also home to the distinctive Masai giraffe. The large roan antelope and the nocturnal bat-eared fox, rarely present elsewhere in Kenya, can be seen within the reserve borders. More than 470 species of birds have been identified in the park, many of which are migrants, with almost 60 species being raptors. Birds that call this area home for at least part of the year include vultures, marabou storks, secretary birds, hornbills, crowned cranes, ostriches, long-crested eagles, African pygmy-falcons and the lilac-breasted roller, which is the national bird of Kenya.

HISTORY

The Maasai Mara National Reserve is named specifically after the Masai people. The Masai people make up a community that spans across northern, central and southern Kenya and northern parts of Tanzania. As pastoralists, the community holds the


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Left, Yellow-breasted Longclaw *Macronyx croceus*; top right, Violet-backed starling *Cinnyricinclus leucogaster*; bottom right, Purple Grenadier *Uraeginthus ianthinogaster*.





Adult male African lion  *Panthera leo*.

belief that they own all of the cattle in the world. The Masai rely off of their lands to sustain their cattle, as well as themselves and their families. Prior to the establishment of the Mara Triangle and Masai Mara, the Masai lived on the land where the current reservers are located. Once the Masai Mara was declared a national reservation as a conservation area for the protection of wildlife and wilderness, the Masai were forced to move out of their native lands. When it was originally established in 1961 as a wildlife sanctuary the Mara covered only 520 km² (200 sq mi) of the current area, including the Mara Triangle. The area was extended to the east in 1961 to cover 1,821 km² (703 sq mi) and converted to a game reserve. The Narok County Council (NCC) took over management of the reserve at this time. Part of the reserve was given National Reserve status in 1974, and the remaining area of 159 km² (61 sq mi) was returned to local communities. An additional 162 km² (63 sq mi) were removed from the reserve in 1976, and the park was reduced to 1,510 km² (580 sq mi) in 1984. In 1994, the TransMara County Council (TMCC) was formed in the western part of the reserve, and control was divided between the new council and the existing Narok County Council. In May 2001, the not-for-profit Mara Conservancy took over management of the Mara Triangle. Kenya was colonized by British colonial forces up until 1963 when Kenya gained independence. Prior to Kenyan independence, Eastern Africa and much of Africa as a whole, Kenya

Black-backed Jackal ■
Canis melomelas feeding
on the head of its prey,
an antelope fawn.





African leopard
Panthera pardus
at dawn. The Mara
is a great location
to observe these
stunningly beautiful
felines.



■ Left, Grey crowned crane *Balearica regulorum*, a relatively uncommon but truly spectacular bird. Right, Yellow-billed oxpecker *Buphagus africanus* feeding on ticks as it perches on the back of a zebra.



■ A rare sight:
Serval Leptailurus
serval with its prey,
a rat it has just
caught in the
tall grass.





Far left, abstract detail of the strongly patterned Masai giraffe *Giraffa camelopardalis tippelskirchii*. Left, bull Cape buffalo *Syncerus caffer* resting in a quiet pool.

■ Another rarely observed denizen of the Mara, the severely endangered Black rhino *Diceros bicornis*.





■ Top left, Wood sandpiper *Tringa glareola*; top right, Red-necked spurfowl or Red-necked francolin *Pternistis afer*. Bottom left, Lilac-breasted roller *Coracias caudatus* with prey; bottom right, Common sandpiper *Actitis hypoleucos*.



An iconic scene from the ■
Mara: African lions *Panthera*
leo feeding on a wildebeest
kill at dawn, with Spotted
hyenas and vultures
participating to the banquet.



■ A herd of wildebeest *Connochaetes taurinus* attempts a crossing of the Talek river.





Top left, Masai Mara national reserve flower Amnocharis tinneana; top right, Little bee-eater Merops pusillus. Bottom left, Gray-headed Kingfisher Halcyon leucocephala; bottom right, Fireball Lily Scadoxus multiflorus.



■ The feeding of African lions *Panthera leo* is a violent, brutal, bloody affair - punctuated by loud growls, threats and the occasional fight among the participants.



experienced extreme measures of colonization that has left long lasting negative effects on the country. For example, the establishment of the Maasai Mara National Reserve and Mara Triangle was brought forward by British colonists that wanted to preserve the African wildlife and landscape. The British thought that the local people in the area were causing more harm than they were. These establishments completely ignored local communities, which ultimately displaced local peoples from their lands. The Mara displaced thousands of Masai, where the community lost culturally significant areas and has put harsh pressures on cattle grazing. Unlike most other National Parks in Kenya the Masai Mara National Reserve is not administered by the Kenya Wildlife Service, but by Narok County government. The more visited eastern part of the park is managed by Narok County Council and the western part, known as the Mara Triangle, by the Trans-Mara county council, which is contracting management to the Mara Conservancy, a local nonprofit organization formed by the local Masai that contains several anti-poaching units. Although one third of the whole Masai Mara, The Mara Triangle has only two lodges within its boundaries (compared to the numerous camps and lodges on the Narok side) and has well maintained, all weather roads. The rangers patrol regularly which means that there is less poaching and excellent game viewing. There is also strict control over vehicle numbers around animal

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Masai giraffe ■
 Giraffa camelopardalis
 tippelskirchii.

■ Nile crocodiles
Crocodylus niloticus
feeding on a
wildebeest carcass.





■ *Left, African leopard Panthera pardus resting in a tree canopy; right, aerial safari with a hot-air balloon hovering above a wildebeest herd and the endless grassy plains of the Mara.*

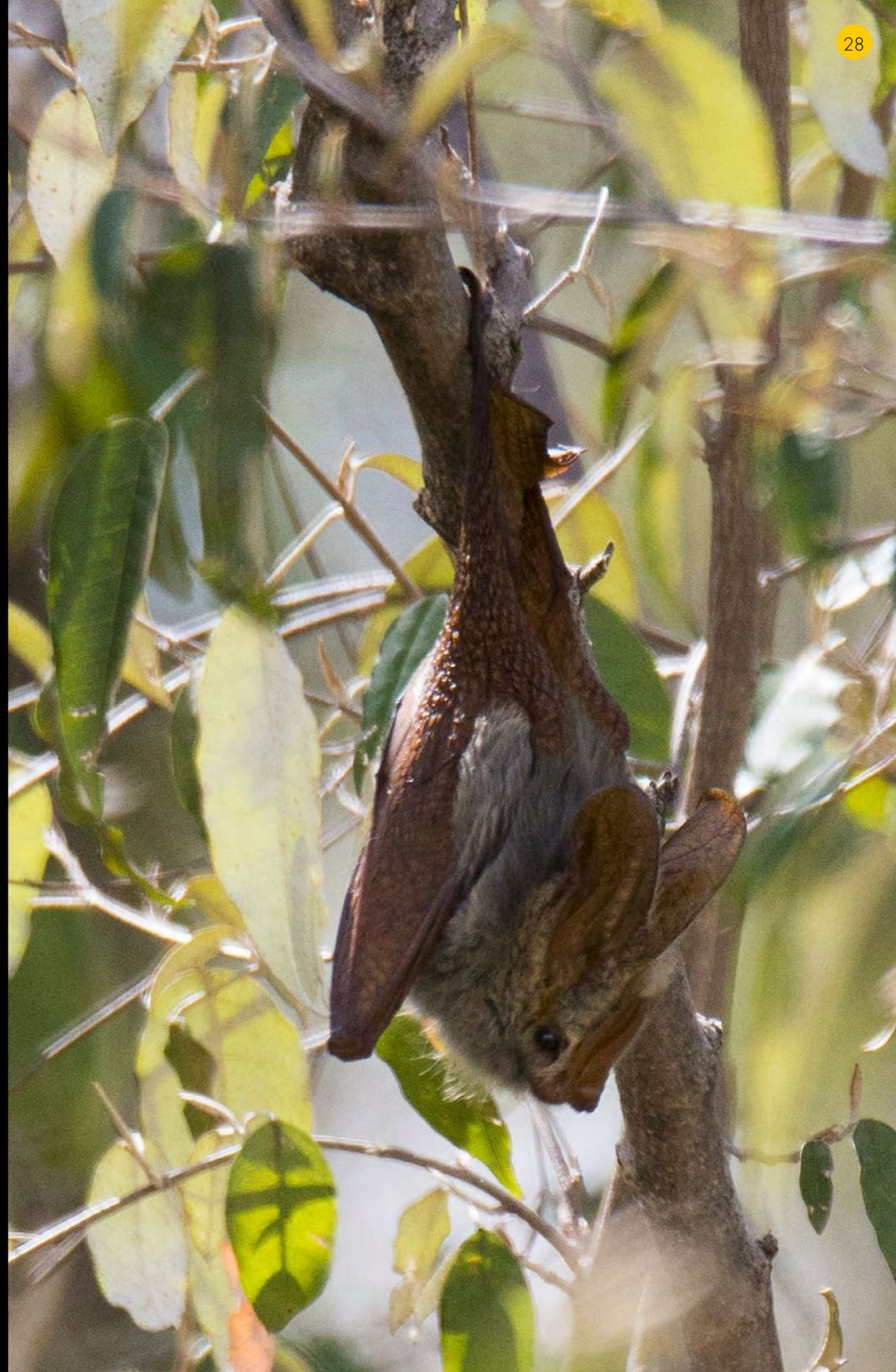


■ *Plains zebra*
Equus quagga,
formerly Equus
burchellii. When
feeding as here
they will take turns,
with one always
keeping an eye
out for possible
approaching
predators.





Left, playfully sparring African leopard *Panthera pardus* siblings; right, a rare sight - Yellow-winged bat *Lavia frons*.





Male African lions *Panthera leo* competing for the remains of a wildebeest kill.



Top, Nile crocodiles *Crocodylus niloticus*; Bottom left, Kirk's dikdik *Madoqua kirkii*; bottom right, Bohor reedbuck *Redunca redunca*. The latter two species are rarely observed by most visitors in the Mara.



sightings, allowing for a better experience when out on a game drive. The Mara Triangle is the southwestern part of the Masai Mara National Reserve, Kenya, and is managed by the not-for-profit organisation The Mara Conservancy on behalf of Trans-Mara County Council. Divided from the rest of the Masai Mara National Reserve by the Mara River, the Mara Triangle is less visited and less crowded, often with many more game animals grazing on the plains and between the volcanic hills that distinguish this corner of the Mara. The outer areas known as Masai Mara Conservation area is administered by the Group Ranch Trusts of the Masai community who also have their own rangers for patrolling the park area. The wildlife roam freely across both the Reserve and Conservation areas which are a continuous wildlife ecosystem.

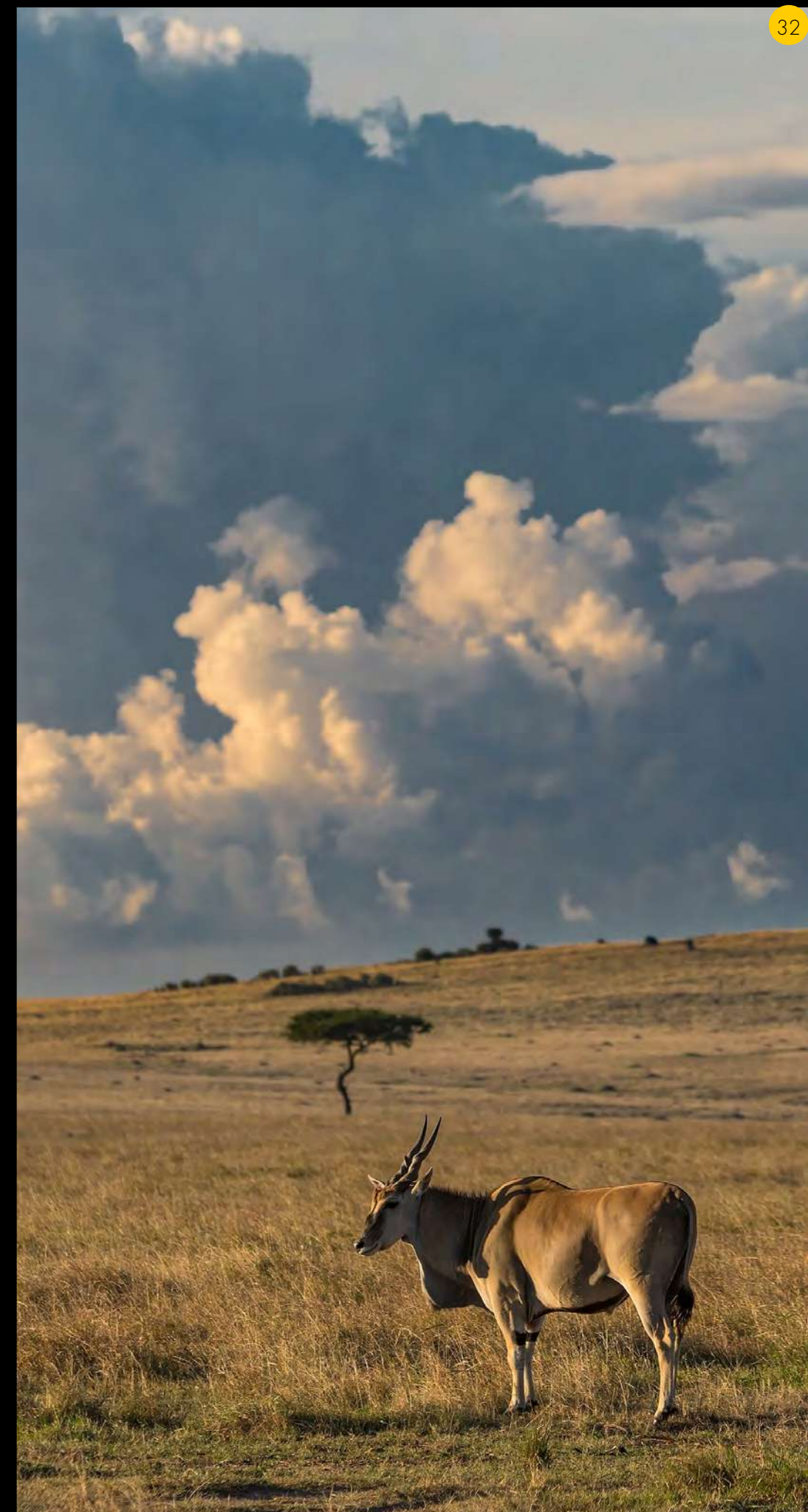
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African leopard
Panthera pardus
at dawn.



Left, Marabou ■
stork *Leptoptilos*
crumenifer; right,
Eland *Taurotragus*
oryx at sunset.



FIELD RESEARCH

The Masai Mara is a major research centre for the Spotted hyena. With two field offices in the Mara, the Michigan State University based Kay E. Holekamp Lab studies the behavior and physiology of this predator, as well as doing comparison studies between large predators in the Mara Triangle and their counterparts in the eastern part of the Mara. The Mara Predator Project also operates in the Masai Mara, cataloguing and monitoring lion populations throughout the region. Concentrating on the northern conservancies where communities coexist with wildlife, the project aims to identify population trends and responses to changes in land management, human settlements, livestock movements and tourism. It works in partnership with a number of lodges in the region by training guides to identify lions and report sightings. Guests are also encouraged to participate in the project by photographing lions seen on game drives. An online database of individual lions is openly accessible, and features information on project participants and focus areas. Since October 2012, the Mara-Meru Cheetah Project is working in the Mara monitoring cheetah population, estimating population status and dynamics, and evaluating the predator impact and human activity on cheetah behavior



■ Black-chested snake eagle or Black-breasted snake eagle *Circaetus pectoralis*.

and survival. Collected over the years, photographic data allows the project team to trace kinship between generations and build Mara cheetah pedigree. The data collected helps to reveal parental relationship between individuals, survival rate of cubs, cheetah lifespan and personal reproductive history. This work has never been done before and the team is sharing results with the Mara stakeholders and respondents. The ongoing research is a follow-up study, which will compare results with the previous one in terms of cheetah population status and effect of human activity on cheetah behavior and surviving. The project is working in affiliation with Kenya Wildlife Service, Narok and Transmara County Councils and with assistance of Coordinator of Maasai-Mara Cultural Village Tour Association (MMCVTA). The team is cooperating with Mara Hyena Project and working with managers and driver-guides from over 30 different Mara camps and lodges. Rangers and driver/guides are trained in cheetah identification techniques and provided with catalogues of the Mara cheetahs. Finally, the Masai Wilderness Conservation Trust is an

organization whose mission statement states the following: *"The Maasai Wilderness Conservation Trust (MWCT) works to protect the legendary ecosystems and astounding biodiversity of East Africa through conservation that directly benefits local Maasai communities."* While the MWCT was founded by an American, Edward Norton, the team is comprised largely of Masai peoples. This organization is prized off of their assistance provided in the local communities that have faced severe threats to their land and ultimately their culture as a whole. While research conducted on wildlife within the Mara is an important factor in sustaining ecotourism and a healthy ecosystem, it's equally important that organizations work to ensure a successful future for local communities that have been affected by the park. ●

DON'T MISS THE SECOND INSTALLMENT OF OUR MASAI MARA STORY – COMING IN APRIL 2020 ON ISSUE 38 OF ANIMA MUNDI – ADVENTURES IN WILDLIFE PHOTOGRAPHY!



■ Yellow-billed stork *Mycteria ibis* feeding on bullfrog.



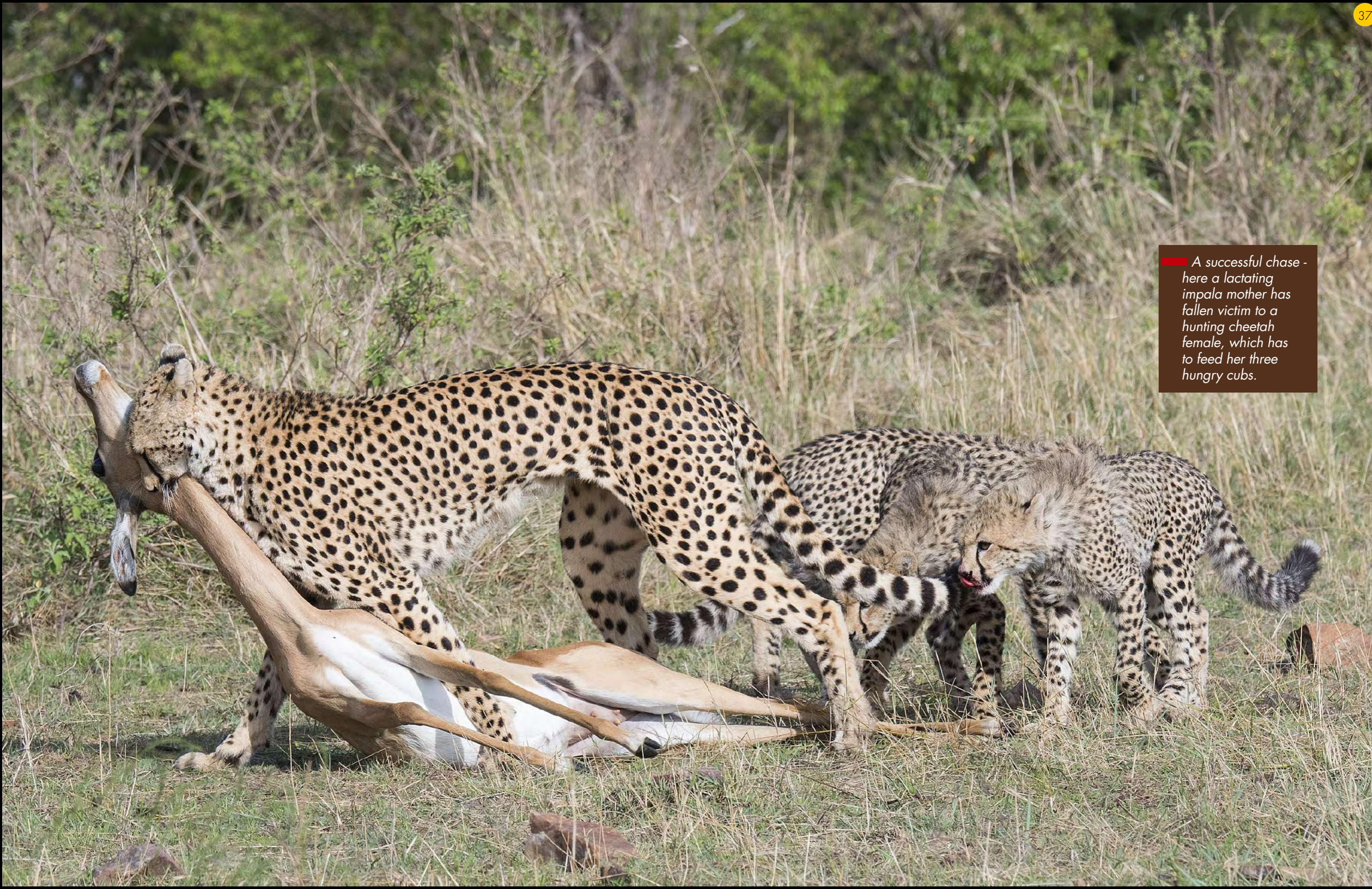
Nile crocodile ■
Crocodylus niloticus. The Mara is home to a large population of these huge and dangerous reptiles.



■ A lioness charges - unsuccessfully - a herd of fleeing wildebeest. Safety here lies in numbers - the cat was quite clearly distracted by the confusion of the stampeding herbivores and lost its opportunity.



A successful chase - here a lactating impala mother has fallen victim to a hunting cheetah female, which has to feed her three hungry cubs.





■ The brief and repeated mating sessions of African lions *Panthera leo* are tense affairs, which start sensuously enough but most usually culminate in a violent reaction by the snarling female.



■ A spotted hyena *Crocuta crocuta* snaps angrily at a number of vultures which are trying to snatch a morsel from its prey. Contrary to popular belief, spotted hyenas are not only scavengers but also active and very successful predators.



A lioness reacts angrily to the avances of a young male. Despite the violent scuffle, the two mated repeatedly soon after.



A lioness charges after a fleeing wildebeest *Connochaetes taurinus*.




*A gigantic Nile crocodile
Crocodylus niloticus asserts
its dominant position during
a feeding frenzy.*

The hunt is on!
A lioness charges after a herd of stampeding wildebeest. Such scenes can be often observed in the wide open plains of the Masai Mara.





A herd of wildebeest 
Connochaetes taurinus
crosses a dry riverbed.



■ Left, the sleek spotted shape of an African leopard *Panthera pardus* as it slides down a river bank. Right, a basking Mwanza Flat-headed Rock Agama *Agama Agama mwanzae*.





A rather unique sighting as a young lioness attacks unsuccessfully a fleeing hippo Hippopotamus amphibius in a dry riverbed.

Left, Secretary  bird *Sagittarius serpentarius*;
right, Lappet-faced vulture or Nubian vulture *Torgos tracheliotos*.

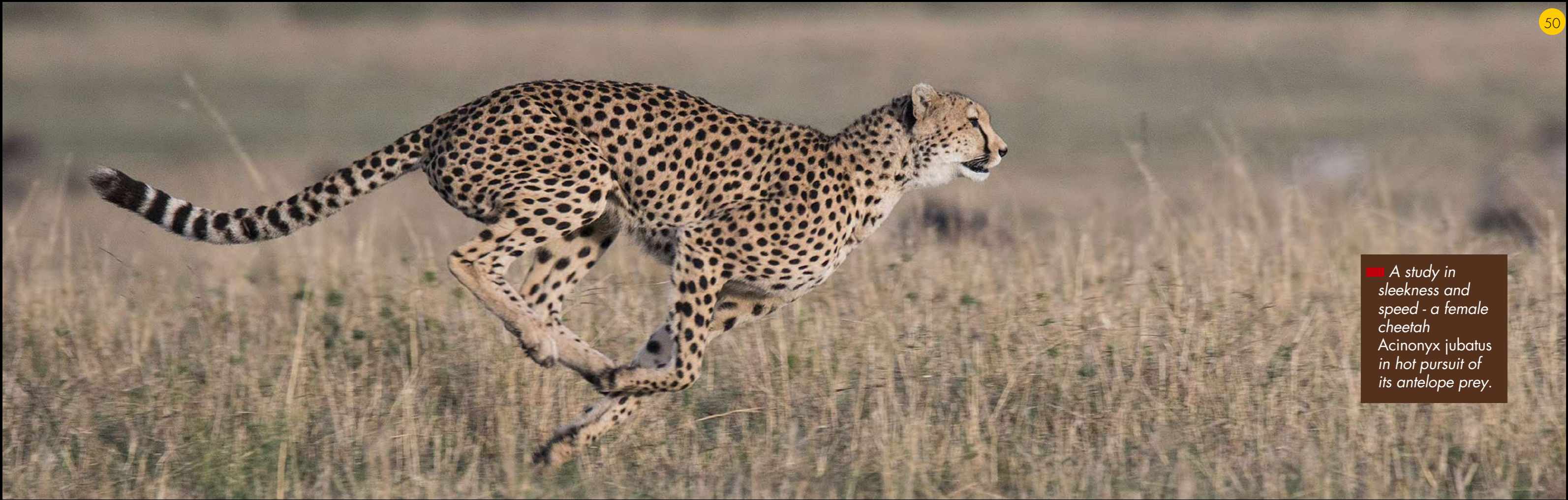




A flash of ■ blue and turquoise - a Lilac-breasted roller *Coracias caudatus* lands on its perch.



■ A pride of African lions *Panthera leo* feeding a Cape buffalo carcass.



■ A study in sleekness and speed - a female cheetah *Acinonyx jubatus* in hot pursuit of its antelope prey.



Another rare sighting - ■
a gravely endangered Black
rhino *Diceros bicornis* in the
soft light of the early morning.



■ *Grant's gazelle*
Nanger granti, a
stunningly elegant
grazer and one of
the favourite prey
items of the Mara.



A female cheetah *Acinonyx jubatus* surveys its range as a nervous Masai giraffe in the background keeps a wary eye on it.





■ Vultures can be clumsy and noisy on the ground, but once in the air they are incredibly elegant and graceful. This is a massive Rüppell's Vulture *Gyps rueppellii*.

At-a-glance travel guide



COUNTRY OF DESTINATION: **KENYA**



USEFUL TIPS FOR YOUR EXPEDITION

Some simple, common sense, field-tested advice and information to make the best out of your trip and avoid hassles, worries and problems

ROUTE: Your international flight will land at Jomo Kenyatta International Airport in Nairobi, the capital of Kenya - depending on your arrival time, you may opt to spend the rest of the day in Nairobi or go directly to the domestic landing strip to get on your bush plane to the Mara. Most flights to the Reserve depart in the morning, so plan accordingly.

MEANS OF TRANSPORT: Getting around in the Reserve can only be done by jeep. 4x4 Safari vehicles - often custom modified for wildlife photography - are driven by Masai guides, usually very experienced trackers and spotters who will give their best to guarantee good daily sightings. Many

Masai guides are also very familiar with the specific needs of wildlife photo/videographers, and are exceedingly proficient at positioning the vehicle to get the best camera or video opportunities. Your Masai driver (ours was **Benson Loigero**) will be your best friend during your safari - they are very proud of their land and its wildlife, and rightly so!

CURRENCY: Kenyan Shillings, US dollars and Euros are commonly accepted in most camps and lodges.

ACCOMODATION: The Masai Mara Reserve offers a huge choice of lodges and tented camps, from very expensive and luxurious ones to relatively

affordable ones. For our trip there we opted to stay at the lovely **Mara Eden Safari Camp**, whose simple but very comfortable tents are placed in a strategic point at the very heart of the Reserve, right on the banks of the Mara River. The area is great for wildlife! Staying there means that to get to and from your tent at night you'll have to be escorted by a Masai, as wildlife - including dangerous species - roams the camp when it's dark. The tents are comfortable, spacious, very clean and provided with attached bathroom and shower. We booked our trip through our friend **Jason Fernandes** of **Wilderness Uncut** and we can safely recommend their services - the organization and the bookings were faultless.

A legendary, exceptionally rewarding destination which cannot be missed



FOOD: Food in the hotels in Nairobi and at the camps is safe, abundant and filling. Meats take the pride of place, often with an exotic touch, and luxury hotels in Nairobi offer some truly tempting fare.

LANGUAGE: Bantu Swahili and English are spoken everywhere, and most Masai guides are often more or less basically multilingual.

WORRIES: Nairobi is a big city, so it presents the good and the bad of all other capitals in the world - common sense applies and it is advisable to avoid unsavoury neighbourhoods. While in the Mara one always has to keep in mind this is wild, untamed country - and if a Masai is seen walking nonchalantly in the grasslands where lions lurk, it does not mean the common tourist can do the same. Always follow the rules regarding wildlife, even when safely sitting inside an open vehicle.

HEALTH: Relatively safe as malaria has been eradicated from most of the Parks, being however still present along the coast and on the highlands. There are no mandatory vaccinations required but Yellow fever is recommended if visiting certain areas. For more detailed information you may want to visit the [Tropical Medical Bureau](#).

CLIMATE: The climate of Kenya varies by location, from mostly cool every day, to always warm/hot. The climate along the coast is tropical. This means rainfall and temperatures are higher throughout the year. At the coastal cities, Mombasa, Lamu and Malindi, the air changes from cool to hot, almost every day. The further inside Kenya, the more arid the climate becomes. For many areas of Kenya, the daytime temperature rises about 12 °C (corresponding to a rise of about 22 °F), almost every day. At night, heavy clothes or blankets are

needed in the highlands, when the temperature drops to about 10–12 °C (50–54 °F) every night. Although Kenya is centred at the equator, it shares the seasons of the southern hemisphere: with the warmest summer months in December–March and the coolest winter months in June–August.

BESIDES: Kenya is a stunningly beautiful and varied Country, boasting a number of Parks and a lovely coastline on the Indian Ocean where the stunning beaches of Mombasa, Malindi and Lamu lie. For those interested in the annual Great Migration taking place from the Serengeti to the Mara, the summer months are the time to go, even if the Reserve gets very crowded with tourists visiting it from all over the world. This is an amazing time to witness spectacular predator-prey interactions but the hundreds of vehicles milling around the river crossings spoil somewhat the atmosphere. We prefer to go there off-season! ●

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SOUTH OF NEW ZEALAND

SUBANTARCTIC TREASURES

Our contributor Samuel Bloch travels to one of the remotest areas of the planet to document in words and images its spectacular and fearless wildlife



Kelp is a prominent plant on the shores of the Subantarctic Islands, and it is photogenic. So are penguins. These Snares penguins, viewed from an inflatable boat, were considering whether they wanted to enter the water, or not. Snares penguins are endemic to the Snares archipelago; they are considered Vulnerable by the IUCN, with a population estimated to 25,000 pairs. Location: The Snares, New Zealand. On the previous page, many of the subantarctic islands host endemic shag species, like this Campbell shag, found only on Campbell Island. They are all similar but still show some minor differences.



TEXT AND PHOTOS BY SAMUEL BLOCH
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Scattered in the Southern Ocean between New Zealand and Antarctica, constantly buffeted by the wind, the Subantarctic Islands of New Zealand and Australia are one of the most remote corners of the Earth. The Maori tried to settle on the Auckland Islands; so did the British, for what would become the shortest-lived settlement in their history. Whalers and sealers used the islands as bases, and a meteorological station was erected on Campbell Island, but these times are now long gone. Apart from the scientific station of Macquarie Island, occupied since 1948, the region is now uninhabited by humans. Snares, Auckland, Campbell, Macquarie, Antipodes, Bounty. These islands are now the realm of wildlife: albatrosses soar in the sky, penguins jump on the shore, elephant seals sleep on the beaches and whales patrol the sea. Less iconic but no less interesting, several species of parakeets, shags, teals and snipes have evolved in isolation, and many of them are endemic to a single archipelago. Sealing has taken its toll, but New Zealand fur seals and sea lions are now entirely protected and have started to recover. Vegetation is variable, from the daisy trees of the Snares to the barren rocks of the Bounty, where only one vascular plant has been found (Cook's scurvy grass). In the open, tussock and endemic megaherbs thrive. The Subantarctic Islands are nature reserves, and the conditions of visit are

strict. In some places, it's forbidden to land, unless you're a researcher with a very good reason to visit. The only way to come close is on an inflatable boat, braving the unruly sea to have a look at the unique wildlife that lives on the shore. In other places, specific landing sites are granted, allowing the lucky visitor to stroll among penguins and albatrosses that haven't learnt to fear humans, and are therefore quite relaxed, or even inquisitive.

Further north, in the Pacific Ocean east of New Zealand, the Chatham Islands are not part of the "Subantarctic", but their isolation is similar, and many endemic species live there as well.

All these islands face the same threats as mainland New Zealand, invasive predators being the most urgent. Birds there have evolved without any terrestrial predator, for the only native mammals are marine mammals. Some have forgotten how to fly, like the Auckland and Campbell teals, but most have anyway dearly suffered at the hands of the countless rats, stoats, cats, mice, rabbits and pigs that men brought with them. Species like the Macquarie parakeet have gone extinct, while others went close. Most of these pests have now been eradicated thanks to colossal projects, but other threats like global warming and fisheries keep pressuring bird populations, in the Southern Ocean like everywhere else around the globe. ●

Royal penguins nest only on Macquarie Island, in large colonies that can be set high on the slopes of the island. In such a remote place, animals haven't learnt to fear humans, and are therefore quite curious when visitors land on their beach.



The Bounty Islands are just rocks jutting out of the sea, with almost no vegetation growing on top; only one species of vascular plant has been found there. They are the epicenter of the Salvin's albatross population, with around 40,000 pairs of this Vulnerable species nesting there, circling in the sky like pigeons in Paris. Location: Bounty Islands, New Zealand



These elephant seals are called "weaners", for they've just been weaned by their mothers. Born this year and newly independent, they are pictured here sparring to prepare for fights they will have to pick when they become adult, to assert dominance on the beach. Location: Macquarie Island



Albatrosses, like many seabirds, like to follow ships, hoping to gather scraps of food. Even when we never threw anything overboard, we always had Cape petrels, prions and an assortment of albatrosses in our wake. This young Antipodean albatross followed us as we left the Auckland Islands, en route to Macquarie Island.



The dark rocks of the Antipodes offer stunning backgrounds for penguin photography. Captured from an inflatable boat, this Erect-crested penguin showed curiosity towards its visitors. The population is declining, and the species is classified as Endangered, with almost all birds nesting on the Antipodes and the Bounty. Location: Antipodes Islands, New Zealand.



Not many passerines have colonized the subantarctic islands, but New Zealand pipits seem to have found appropriate habitat on the Auckland and Campbell islands. One is pictured here in a field of Ross lily, one of the typical megaherbs of this region. Location: Enderby Island, New Zealand.



Unlike Royal penguins, King penguins nest only close to the ocean. Not afraid of humans, they can be inquisitive but also very relaxed, like this group preening and resting on the shores of the Southern Ocean. Location: Macquarie Island.



This massive male elephant seal relaxed on the beach next to the last female in its harem not to have weaned its offspring, in mid-November. Location: Macquarie Island.



A Grey-faced petrel drifts by the ship on its quest for food, in the Pacific Ocean. Because they come to land only at night, being at sea is almost the only way to observe these birds. Location: between Dunedin and the Chathams, New Zealand.



A Yellow-eyed penguin takes a break in a grassy field on Enderby Island. The subantarctic islands hold most of the population of this species, which is also found on New Zealand's South Island, but it seems like they are declining there too.



Three Southern rockhopper penguins stand on volcanic rock on the edge of the ocean, at the Auckland Islands. Rockhoppers are not very common in the Subantarctic Islands of New Zealand and Australia, but they can be found in small numbers, sometimes among colonies formed by other species like the Erect-crested penguin.



Giant petrels, like albatrosses, are seabirds. When we think of them, we imagine them flying above the waves, not seeing land for weeks on end... therefore it was quite an odd sight to see this Northern giant petrel in such a wooden environment. Location: Enderby Island, New Zealand.



After their breeding period, Southern elephant seals stay on land for a few weeks to moult, not consuming any food. Location: Macquarie Island.



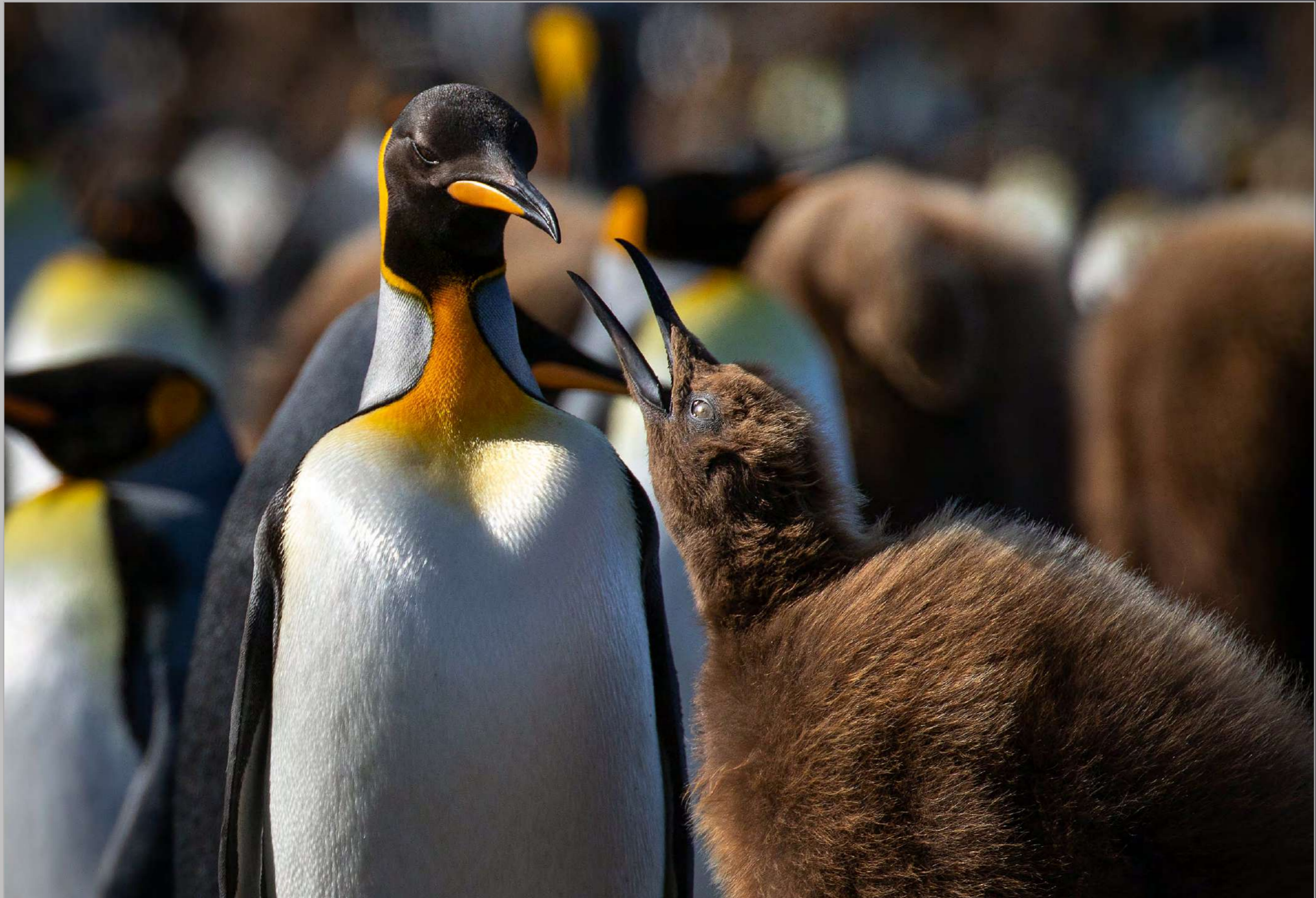
A Southern royal albatross takes flight from its nesting grounds on Enderby Island. These giants, clumsy on the ground, need open land to take-off. With a gale like we had that day, they are in the air in a second, graceful again.



Pitt shags are endemic to the Chatham Islands, where they can be seen along the rocky shore.



The Buller's albatross is a "mollymawk", a lesser albatross. Not as big as the greater albatrosses (wandering albatrosses, royal albatrosses), they are still among the largest seabirds, and sport more colours, especially on the beak.



It takes 14 to 16 months for a young King penguin to fledge. In the meantime, they will rely on their parents to bring them food. Therefore, King penguins breed only every 2 to 3 year. Location: Macquarie Island.



A Southern royal albatross calls while two congeners fly by. These birds have complex courtship rituals, and it's a true spectacle to see them fly in circle around the peaks of Campbell Island. Although they range as far as South America, Southern royals only nest on Campbell Island and a few other islands in the region. They are therefore rated as Vulnerable by the IUCN. Location: Campbell Island, New Zealand.



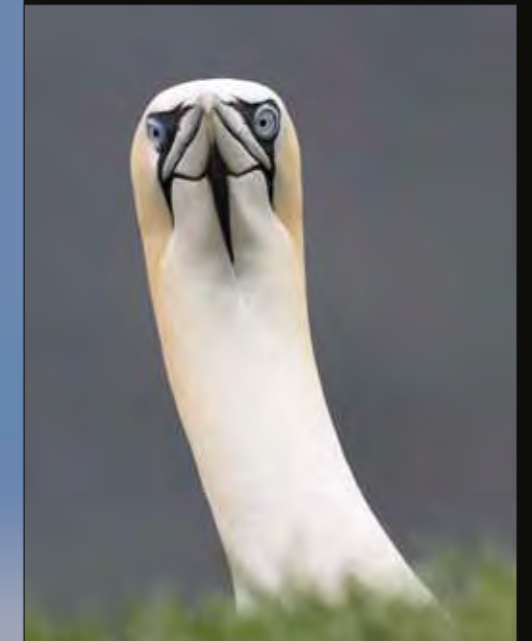
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"My experience was EXCEPTIONAL! The trip exceeded my expectations in all areas. I hoped to get in a position to see owls and couldn't possibly have been happier. It was abundantly clear that David invested significant time and effort prior to the arrival of the group in scouting the area around Quebec and Ontario. He knew exactly where to go to find every species of owl. His knowledge and efforts were very much appreciated by the entire group. My primary objective was just getting in a position to photograph owls and was not expecting much in the way of photographic instruction. I was very pleasantly surprised and was very happy with the instruction. Prior to the trip I had a love/hate relationship with auto focus as it applies to photographing birds in flight. I've struggled with this for years. While I have a lot more to

learn, and need to work at honing my skills, the trip with NPA helped me tremendously in being able to photograph birds in flight. Photographing birds in flight was my main objective. Prior to the trip I was nearly clueless in comparison to my skills after the trip. You can also see from my bird list that I found the trip productive from a birding perspective as well".
Kevin McCarthy, USA

"I recommend NPA workshops! The level of services by workshop leaders was excellent. Quality of photographic instruction was exceptional and they

were always on hand to solve issues that arose, and I had more than my share of equipment issues. Quality of wildlife provided was good and I was amazed at how easily the subjects accepted new setups provided. Locations visited were right on for the species targeted. My most memorable moment was using the flash setups the first time and capturing an image of the Swordbill Hummingbird. I feel that my level of photography has improved with the custom functions that were set up on my camera for me and the resulting images that I obtained. Overall experience and

expectations were achieved and we were fortunate to have a very compatible group on our tour, which made it very enjoyable. This was my first workshop and I would recommend them to friends".
Rosemary Harris, Canada

"Great trip, great experience and great workshop leader. Great opportunity for capturing images of magnificent and uncommon (in southern USA) birds. Organizers contribute to great group dynamics and superb attitude. Cool techniques".
Eric Grossman, USA



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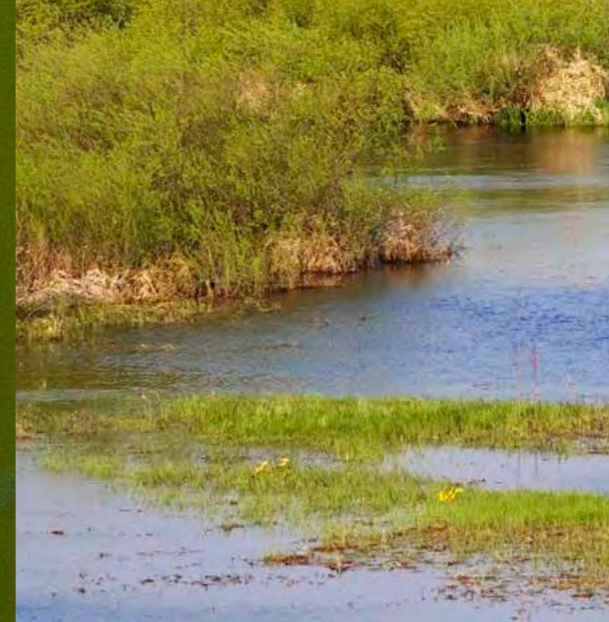


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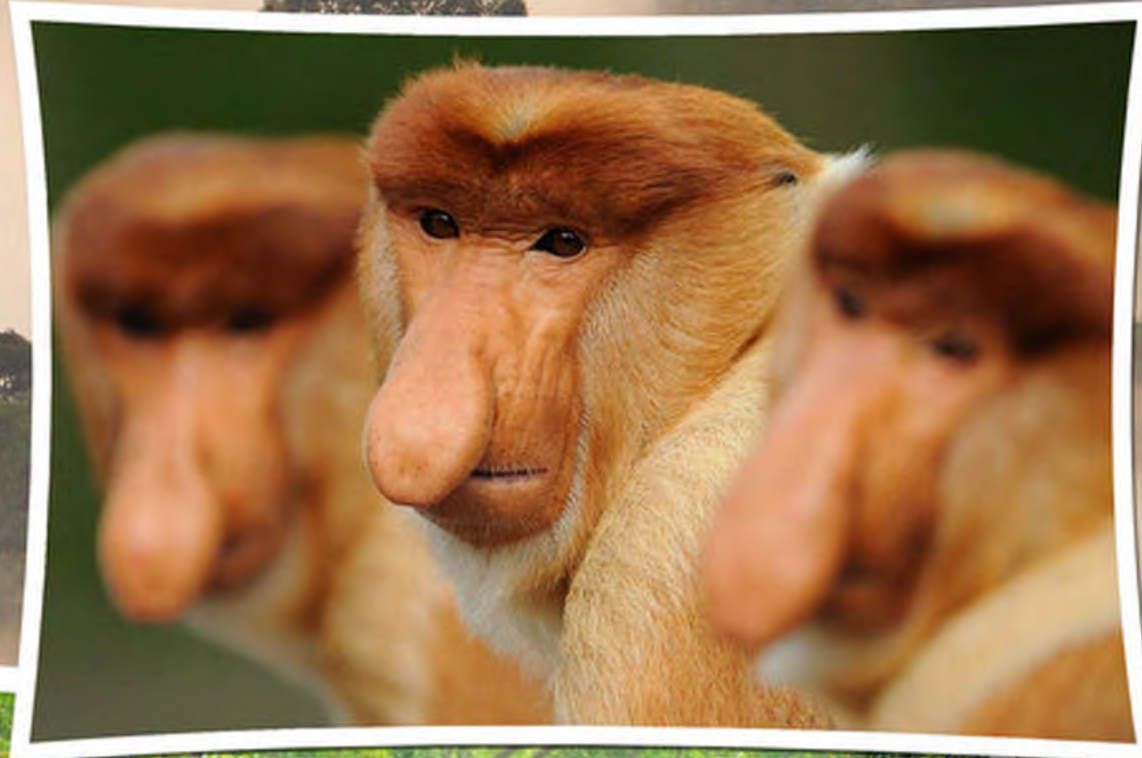
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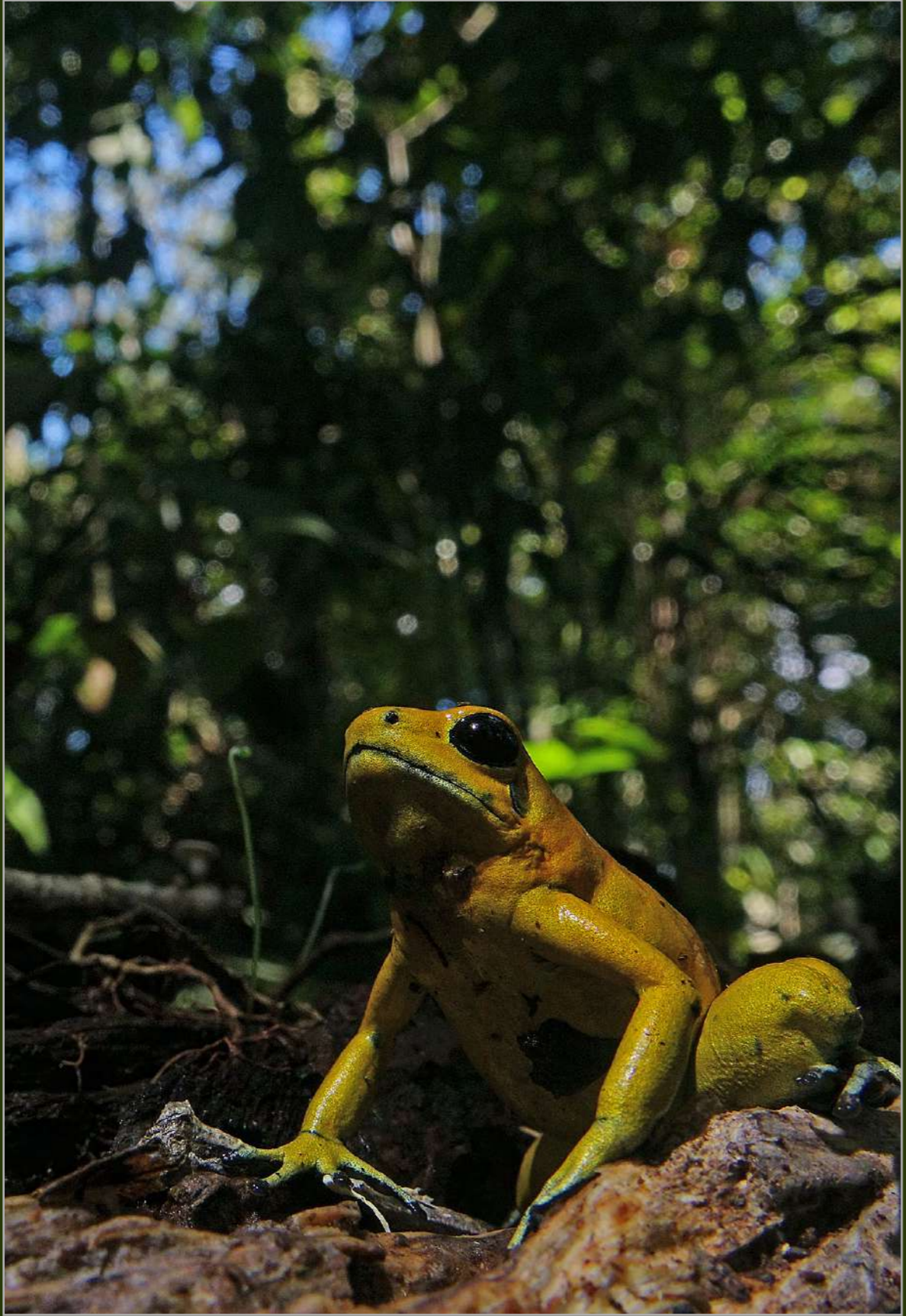
Field researcher and passionate conservationist Cesar Barrio Amoròs searches for the deadly Yellow Poison Dart frog *Phyllobates terribilis*





There is no more famous anuran than the golden real poison dart frog. Yellow, bright and bold, it stays quite even close to humans. In 1978, Charles Myers with John Daly and Boris Malkin, described this new striking species of poison frog from Cauca, Colombia, known as Kokoi by the Embera indigenous people.

TEXT AND PHOTOS: CESAR L. BARRIO AMORÓS
CRWILD/ DOC FROG EXPEDITIONS
WWW.CRWILD.COM



The striking bright yellow-orange morph of *Phylllobates terribilis*.

*I*t's early in the morning, the Embera men are already walking through the forest in silence. They are hunting. But not hunting anything to eat. Before that, they need to empower their darts. Emberas do not use bow and arrows to hunt, but blowguns with darts. Many other etnias use blowguns in South America, but no one is as effective as them. One shot, and the prey dies almost immediately. To be so effective, they need a secret component in their darts that assures a quick death and not allowing the prey to escape. And this component is what they are looking for. Still walking barefoot in the jungle, suddenly one says: "kokoi!". He takes a leaf, and proceeds to catch the yellow frog, avoiding touching it directly. Captured by a leg, the frog barely moves and the Embera just rubs his darts on the kokoi skin. He releases the frog, which, hopping, jumps away with not much signs of distress.

The story of the Kokoi

In 1973, Chuck Myers and his colleague John Daly were in Colombia doing field research, and came along with the discovery of a distinctive new species of bright yellow frog, which Daly (world's expert at that time about frog toxins) considered the most potent animal toxin discovered to that moment. They, with Boris Malkin, described the new frog as *Phylllobates terribilis* in 1978, honoring

with the dreadful name the possible fate of anyone touching it. And the frog became famous, as the most toxic vertebrate in the world, fame and fact that until now, no other vertebrate surpassed. During the eighties and nineties, and even as recently as 2014, Colombia has suffered a long and tiring war against drugs and guerrillas (armed conflict), and many areas in the country were not possible to visit. Of course biology was one of the abandoned disciplines due to the difficulty to obtain data in the field. The general area of occurrence of *P. terribilis* was one of those dangerous places to go, and so, the species remained for a long time without proper attention. In 2012, a Colombian NGO, Fundacion Proaves, established a 47 ha reserve near Timbiqui, Cauca department, with the specific purpose to protect the species. And this has been surveyed and protected by the ranger Venancio Florez, a real hero of conservation. I had the luck to walk with him and discover many different species around and also, of course he was the one that showed me my first kokoi.

A dream come true

But the story started a little before. I received early in 2019 a call by Raul Nieto, old friend and another hero of conservation of the Choco, both in Ecuador and Colombia, inviting me to go

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The bright orange morph of *Phyllobates terribilis* can be encountered in close proximity to other morphs, and they will mate with each other. In the background, a mint (pale bluish or greenish) Kokoi. While I was photographing an orange one, a mint one was very close, and just with a stick, I made him hop a little until both were in my frame.



Left, the other striking dendrobatid we encountered in the area was *Oophaga sylvatica*. One morph, mainly dirty orange, was present at one side of the river. Right, another of the most brightful and astonishing of hylids was this female of *Boana rubracyla*.



Diverse species of anoles, such as this *Dactyloa chocorum*, were present in the area.



The pale yellow morph of *Phyllobates terribilis* is also dominant, and sometimes its color is not uniform; it can present stains in grey or black.



In the deep jungle, among browns and greens, a stoic yellow little figure emerges as the most powerful creature of the rainforest. No other animal will ever touch it. Perhaps except a snake (*Erythrolamprus epinephelus*) known to be the only immune predator to its venom.

to the *terribilis* area to know it directly. This is one of the deepest dreams of any herpetologist, and even naturalist... to go to the Chocan rainforest (one of the last well preserved natural forests in the world, receiving the highest rainfall in the world, over 8.000 mm per year), with the specific purpose of knowing one of the most mythic and mystic of all frogs! How to say no!

So, with my friend Cristian Porrás, we arrived to Cali, and then we flew to Timbiquí with Raul, where the ranger Venancio was the key contact to go around. He knows everybody and is knowledgeable about which parts are dangerous and which ones not. Not everybody is welcomed there, and some people, such as a Russian frog dealer, disappeared mysteriously a couple of years ago...

Our first find

Just to be in that mystical area, the Chocan rainforest looking for the most toxic vertebrate on Earth, was enough to be high and hyper excited. Walking through the forest we arrived to a natural clearing, and then, Venancio told me... "Do you see? There...!". And indeed, a bright yellow spot was shining in the middle of the forest floor. He didn't move as we approached... and actually it allowed taking pictures from quite close without moving. That confident it was about its power. I know many other aposematic dendrobatids, and all run away jumping long or short, or just disappear in the vegetation. Not Kokoi!,

he was so powerful... This was actually our best chance to take pictures, we didn't have any permit or even interest in touching one, despite that we always wore gloves just in case.

We saw at last around 7 individuals in different localities, and on one, we saw the three recognized morphs in just few meters away of each other. While I was photographing an orange one... a mint (bluish or greenish) one was very close, and just with a stick, I made him hop a little until both were in my frame. Another time, while filming an interview to Venancio, a juvenile *terribilis* just was hopping around our equipment. Not all individuals were as bold; some of them were shy and hopped away quickly. In the same area we also listened a consistent call that was determined to be of *Oophaga sylvatica*, and we could see two different morphs of it. Two more aposematic dendrobatids inhabit the area, the diminutive *Andinobates minutus*, one of the smallest poison frogs, and a relative of *sylvatica*, *Oophaga occultator*, that honored its name and remained hidden.

A disturbing situation

We were so focused on knowing and obtaining very good quality videos and photos of the Kokoi, that barely had time to dedicate searching for other herps. But we really noted something disturbing. In several night walks, we didn't see the expected amount of reptiles and amphibians we are used to see, for example in Chocan Ecuador, or in

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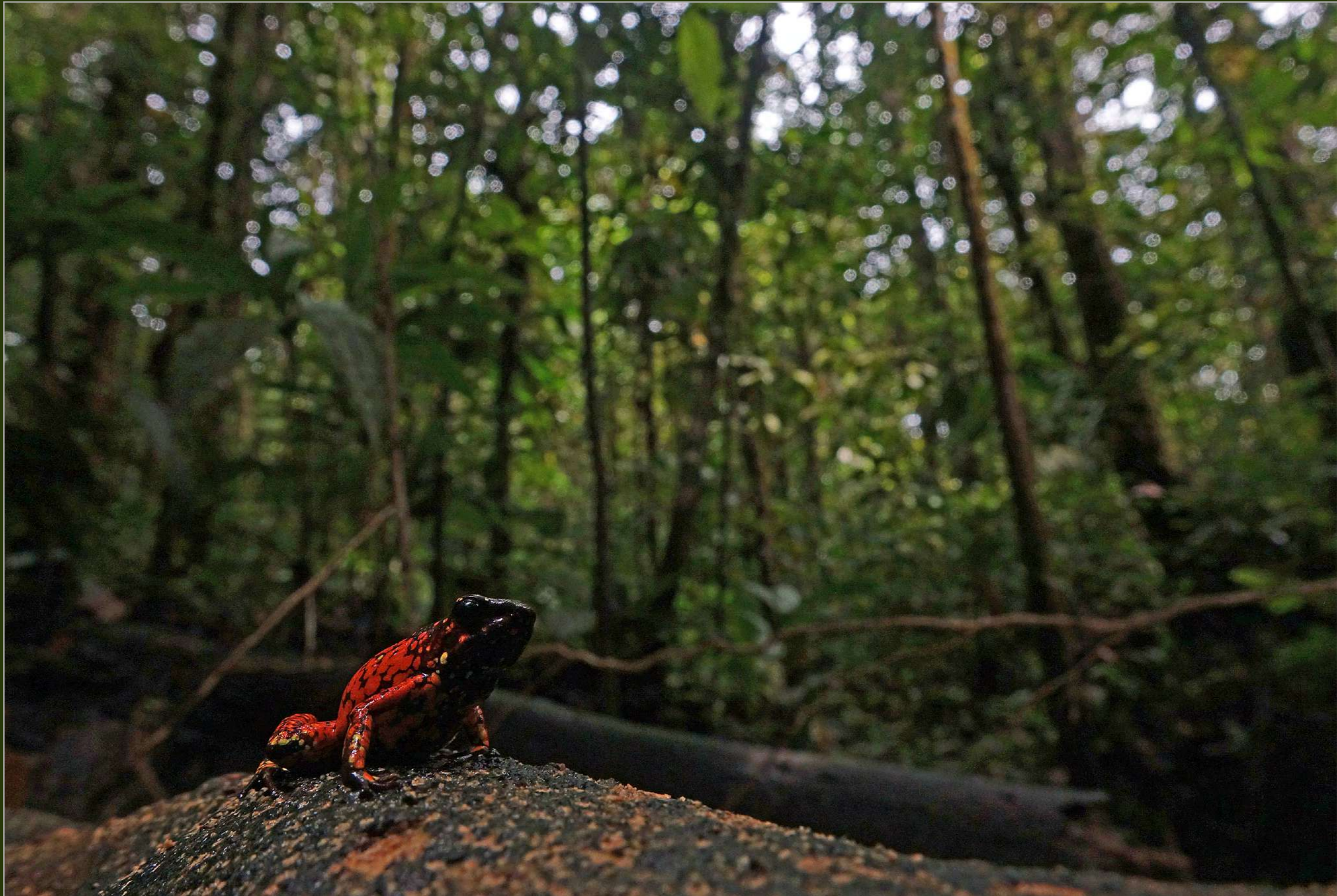
Males call in rainy days making their long trills audible in a distance. Some times they just wait for the female and in a few moments they will mate (without known amplexus) and lay eggs in the leaf litter.



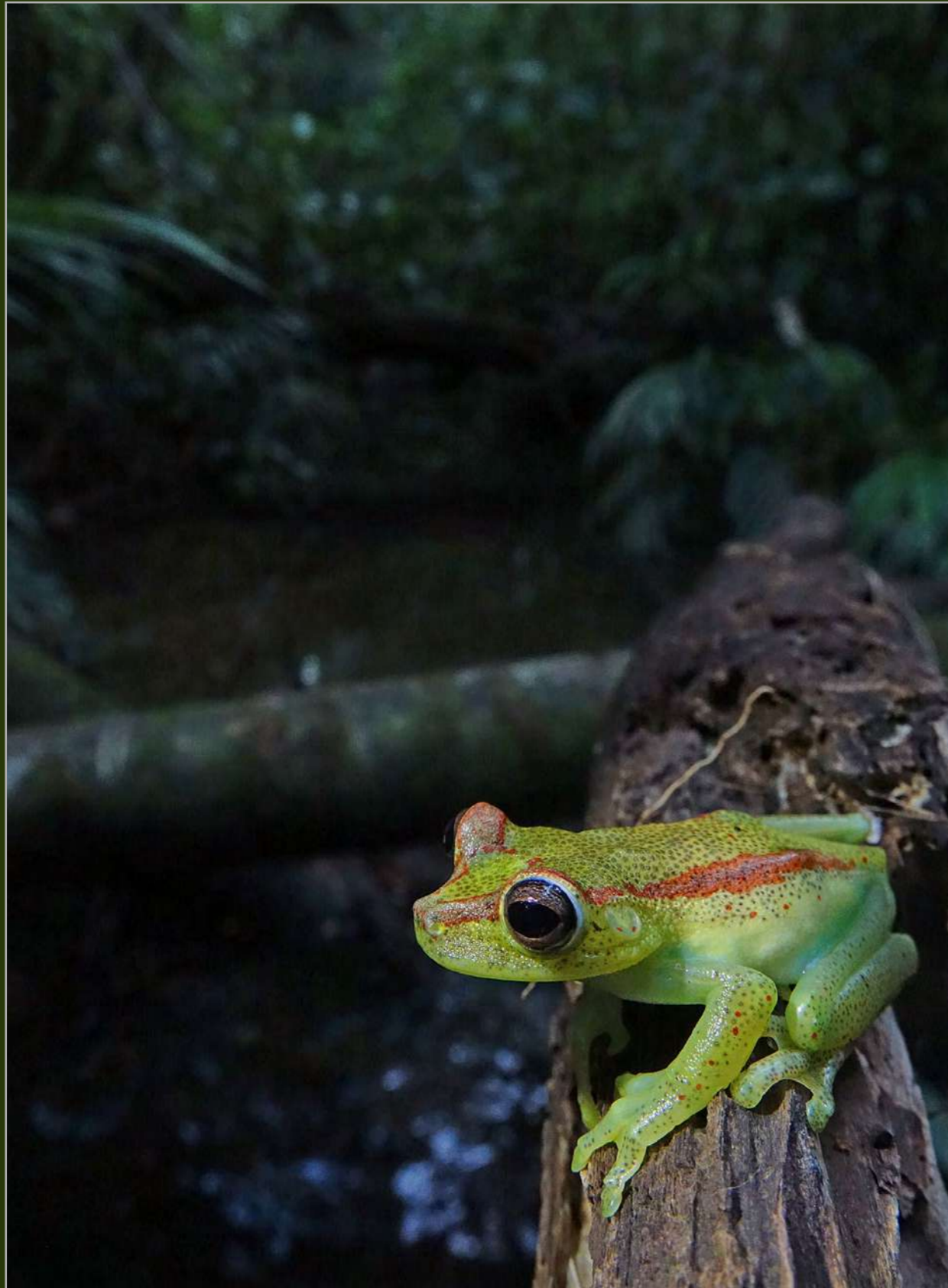
A large *Dactyloa princeps* was seen chasing and consuming a forest cockroach in the canopy.



The potent component of the Kokoi's venom, the batrachotoxin, is the most potent toxin among vertebrates. Its toxicity was exaggerated and it is heard many times in documentaries and popular articles that the toxins of a single frog could kill 100 men or 10 elephants. This is not true of course, but still the venom is powerful enough to kill around 6 to 10 men and maybe, one elephant. A single frog can have around 1100 micrograms of batrachotoxin. 170 Mg are enough to kill an average person of 68 Kg.



The territory of a male *O. sylvatica* can be quite large, as we never heard two close males. Mostly they were about 50 m from each other.



Boana rubracyla is a creek inhabitant that awakes at dusk and starts calling. Females will search for nice voice males to mate.

Costa Rica. Just a few frogs and lizards appeared and only two snakes, in 5 nights! To me this is a reminder that something ominous is happening in the area. Probably the fumigation with glyphosate that occurred from 2005 to 2014 to end the coca fields, was too prominent and the chemical travelled through the air to distant areas, affecting most vertebrates. Venancio and others remember on those years seeing monkeys, sloths and birds just falling down and dying. Of course amphibians are among the most sensitive creatures in the forest, and their absence could affect predators as snakes. Some years passed, and probably now some species are recovering but the damage was so important that many creatures were probably locally extinct and many others will need a lot of time to recover well.

What about the venom?

Few years before Myers, Daly and Malkin described the species, its potent component, the batrachotoxin, was presented by Daly and collaborators as the most potent toxin among vertebrates. Its toxicity was exaggerated and I heard many times in documentaries and popular articles that the toxins of a single frog could kill 100 men or 10 elephants. This is not true of course, but still the venom is powerful enough to kill around 6 to 10 men and maybe, one elephant. A single frog can have around 1100 micrograms (μg) of batrachotoxin. 170 μg are enough to kill an average person of 68 Kg.

How a little frog can be so toxic? It is known that colorful dendrobatids are poisonous, and that they sequester alkaloids from its prey, basically ants and mites. But why *terribilis* is so much more toxic than other dendrobatids? What is in its diet that differs from other species? Even the two closest relatives, *Phyllobates bicolor* and *P. aurotaenia*, occurring in the same general area to the north (but not sympatric) are significantly less toxic than *terribilis*. It is not yet known, and analysis of diets of different dendrobatids will decipher the riddle. In New Guinea, a small beetle (*Melyridae*) is known to contain batrachotoxin, and perhaps the "secret" component of the kokoi's venom is not mites or ants, but some little beetles. Those highly poisonous species, after a while in captivity, eating fruit flies and small crickets (with no toxins), lessen and even lose their toxicity. And even if it is so clear for herpetologists, maybe it is not so clear to the rest of the world, and must be worthy to explain that no frog is capable to transmit their toxins by biting, spitting, peeing or so. Their defense is passive, and only if a predator tries to bite them (this applies also to bufonids –common toads- and phyllomedusids –leaf frogs-) will release the venom from dermal glands.

It is also surprising to know that the batrachotoxin is also present in at least two genera of birds from Papua-New Guinea: *Pitohui* and *Ifrita*, and on a melyrid beetle also from New Guinea. While *Pitohui* is orange and black (apparently aposematic) resembling an American Icterid, *Ifrita* is a small

passerine very similar to the European common firecrest *Regulus ignicapillus*. How the birds use the toxic plumage or how toxic it is remains a mystery.

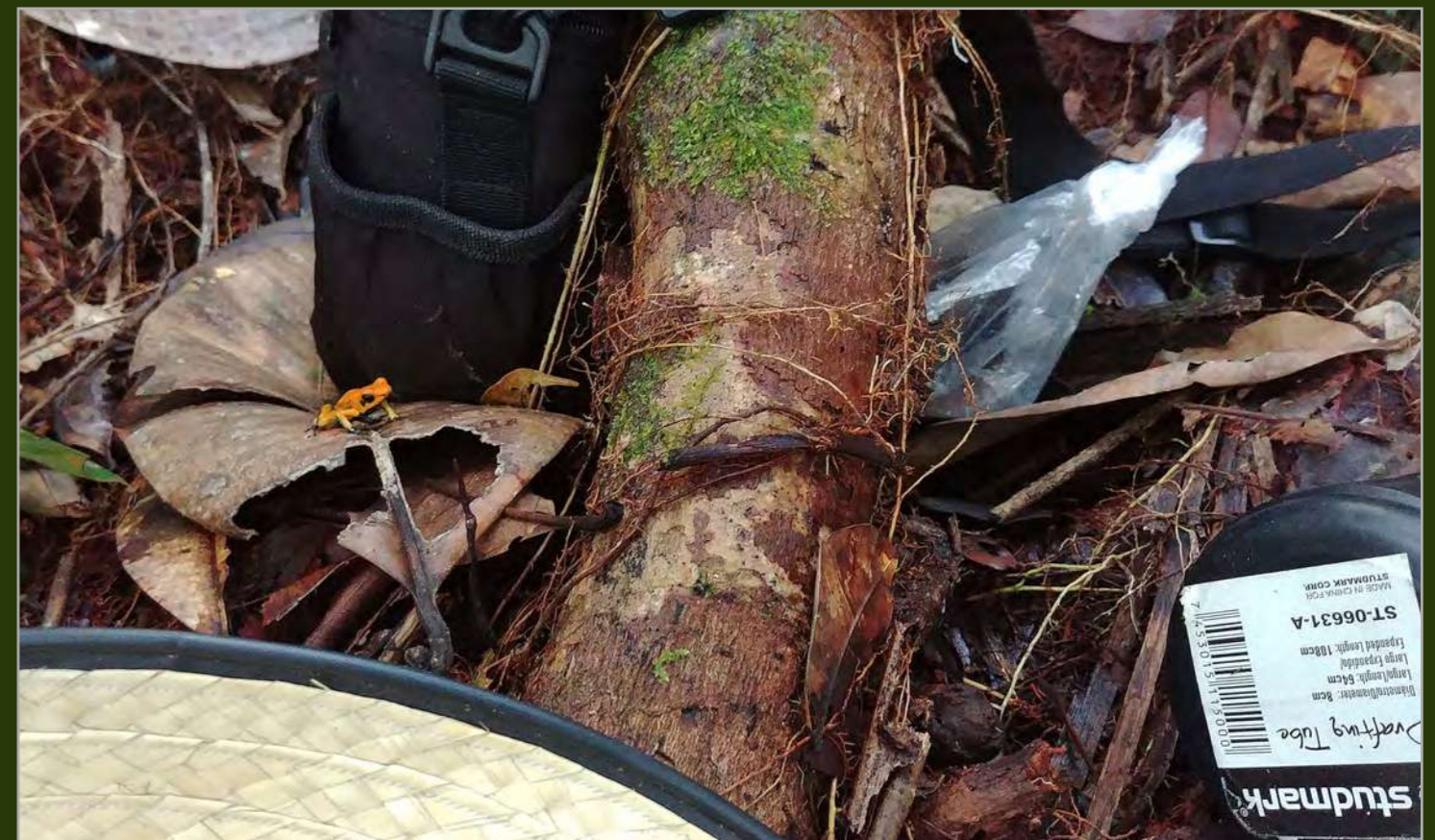
Is the Kokoi frog endangered?

As bright and mystic as it is, the kokoi has called the attention of many collectors since its discovery. All anuran terrarists want to have it in their collections, like zoos and private collections. This is meaning that the species is endangered by overcollection? Well, no. Fortunately, they breed very well in captivity, and are sold legally across US and Europe for around 50 US dollars a frog, or even less. With the bonus that they have no venom! So, why risking to go to one of the most dangerous areas in Colombia to collect one of the most toxic animals in the world (just some accidental touching could be fatal!), and then travel with them to Europe, for not much money? In any case, there is the mysterious incident of the Russian who apparently was there trying to collect poison frogs in the general area. No one wants to talk there... Guerrilla? Common crime? An accident? The truth is that he disappeared and left no clue. Apart some anecdotal collection, which should not affect the general population, the real threat is the continuous destruction of the area to cultivate illicit crops. We saw from the air how much forest is being cut down. And to me, the most preoccupant is how the glyphosate fumigation could affect them (and other forest species). On the other hand, and as a positive epilog, all the time there are more new sightings in other departments, and the distribution of the kokoi appears to be wider than expected. Long life to the Kokoi!

Acknowledgements

I am deeply thankful to Raul Nieto for his invitation, and very especially to Venancio Florez for his enthusiastic guidance and empiric knowledge. Cristian Porras was the best field companion.

Right, top: one the few snakes we saw in the area was a large *Chironius grandisquamis*, a fast and aggressive hunter that lives beside creeks. Right, bottom: while making a filmed interview to Venancio, a juvenile Kokoi arrived and hopped around our equipment, totally oblivious of our presence.



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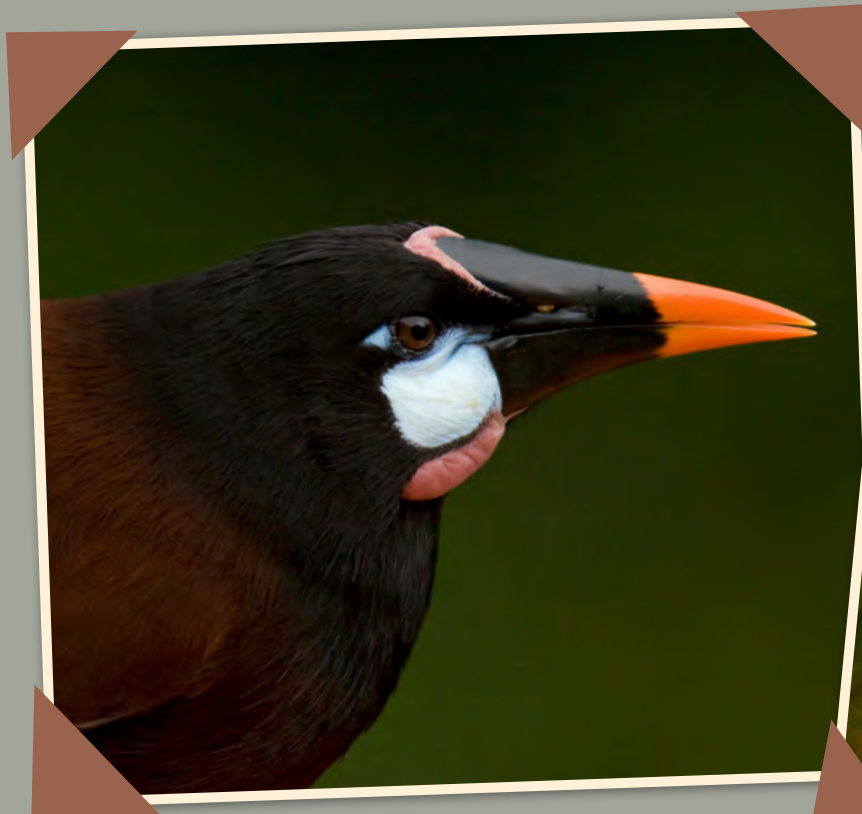
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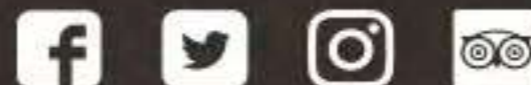
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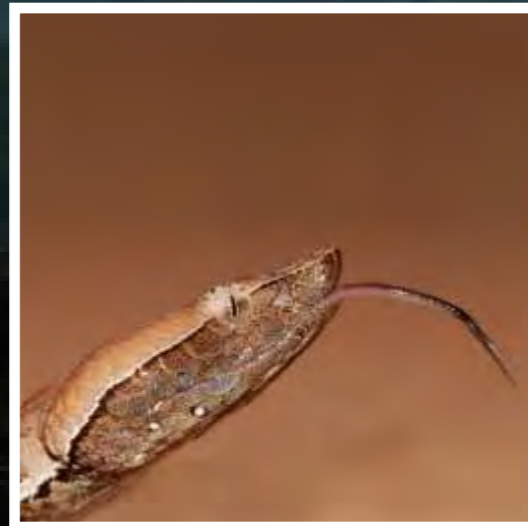
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Trip Report

BANCO CHINCHORRO'S AMERICAN CROCODILES

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DIVING WITH DINOSAURS

Our contributor Don Silcock reports on snorkelling in Mexico to photograph the imposing - and intimidating - American crocodile *Crocodylus acutus*



American crocodile *Crocodylus acutus*

The American crocodile *Crocodylus acutus* is categorised as a relatively large species, with males reaching maximum lengths of 5 to 6m when fully mature, while females are generally smaller at around 3 to 3.5m. These are very imposing and potentially dangerous animals.



Photographing the American crocodile *Crocodylus acutus*
 Never take your eyes off the crocodile - give them space, but don't allow them to command it. This is done by using the large wooden stick as a vertical barrier.

TEXT AND PHOTOS
 BY DON SILCOCK

The pursuit of unusual and compelling photo-opportunities has led me on some interesting journeys over the last few years, but few come close to the raw excitement of photographing the American crocodiles of Mexico's Banco Chinchorro. I have come to realise that photographing big and charismatic animals underwater actually borders on the addictive, because the more of those trips you do, the more encounters you hear about and the "must-do list" just keeps on growing... So it was when a conversation over an après-dive adult beverage led to the subject of in-water encounters with crocodiles. Being an Australian citizen, my thoughts were immediately drawn to the Salt-water crocodiles *Crocodylus porosus* of the Northern Territory, an animal that hits the headlines quite regularly because of its deadly attacks on humans...Although, in the animal's defence, it must be said that those attacks are often on either foreign tourists, who have completely ignored the very prominent "No Swimming" signs, or local guys out fishing who fail to understand

the basic link between excessive alcohol and poor judgement around dangerous wild animals. "Salties", as we affectionately refer to them Down-Under, take their name from the fact they are not limited to murky fresh-water rivers and lakes that most crocodiles are found in. Instead they have developed a tolerance for salt-water which allows them to prowl coastal waters and occasionally swim quite far out to sea. Thoroughly dangerous, there appears to be no way to safely photograph salties underwater, or even get close to them, except perhaps by using some form of motorised cage. As I was to learn, the less well known American crocodile *Crocodylus acutus*, is infact a cousin of the Australian apex reptilian predator which has also developed a tolerance for salt-water. But unlike its antipodean relative, they are not considered to be aggressive to humans and only a few (unverified) cases of fatal attacks have been reported. As its common name suggests, *Crocodylus acutus* can be found all the way from the Everglades on the southern tip of Florida, throughout the

continued on page 95 ➤



American crocodile *Crocodylus acutus*

Like all reptiles they are cold-blooded and breath air, so they are most comfortable in warm shallow waters and the extensive mangroves of Cayo Centro at Banco Chinchorro offer an almost perfect environment. They are apex predators, and any aquatic or terrestrial animal they encounter in freshwater, riparian and coastal saltwater habitats is potential prey.



American crocodile *Crocodylus acutus*

American Crocodiles are currently on the IUCN Red List as “Vulnerable” principally because its skin is a commercially viable product which led to significant hunting of the animal from the 1930’s through to the 1970’s. Their overall population declined by at least 20% during that period, but habitat destruction is now considered as their greatest threat.



Banco Chinchorro

The Banco Chinchorro biosphere is formed by rings of coral reef with shallow lagoons on the inside with steep drop-offs on the outside and is part of the Mesoamerican Barrier Reef.

Caribbean and Central America, down in to northern end of South America in the countries of Ecuador, Colombia and Venezuela, with the largest known population inhabiting the land-locked hypersaline Lake Enriquillo in the Dominican Republic. But by far the best place for reliable and up-close underwater encounters with the American crocodile is Banco Chinchorro, in the south-east of Mexico, near the border with Belize. Some 12 months on from that après-dive drink, a lot of Googling and flurries of emails saw me sat in a van driving south from Cancun airport on Mexico's Yucatan peninsula (after the obligatory marathon journey from Asia...) with a small group of like-minded characters I would come to know quite well over the next few days.

Banco Chinchorro

Although hardly a household name, Banco Chinchorro is in fact one of the largest coral atolls in the Northern hemisphere and a UNESCO Biosphere Reserve. Covering an area of almost 800 km², and located some 35 km offshore, the reefs of Banco

Chinchorro are very healthy and a real joy to dive. But if it's the crocodiles you're after, Cayo Centro is where you need to be! Although only just under 6 km² in size, Cayo Centro is the largest of the three islands on the atoll, and it is home to a permanent estimated population of between 300 to 500 American Crocodiles. It also hosts a small seasonal population of local fishermen who have built a scattering of about 10 huts on stilts, called *palafitos*, above the shallow waters of the lagoon on the east shore of the island and a similar number onshore called *cabañas*. Quite how and when the crocodiles took up residence is not clear, but the dense mangroves of Cayo Centro offer the perfect habitat for them, with the rich waters around the island providing plenty of sustenance. The crocodiles and the fishermen have an almost symbiotic relationship, tolerating each other's presence in this remote location with the main signal for interaction being the noise of the chopping tables. The fishermen fillet their catches on tables above the lagoon at the *palafitos* and at the water's edge at the *cabañas* and the crocodiles will

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American crocodile *Crocodylus acutus*
The American crocodile *Crocodylus acutus* is a species of crocodylian found in the Neotropics. It is the most widespread of the four extant species of crocodiles from the Americas, with populations present from South Florida and the coasts of Mexico to as far south as Peru and Venezuela.



Fishermen and bait

The highly invasive Lionfish *Pterois volitans* - a serious threat to the local fish ecosystem - is present in great numbers on the reefs and it is proving of great use as crocodile bait.

immediately gather when they hear the knives on the chopping boards. For the crocodiles it's snack time, while for the fishermen it is automated waste disposal.

How it Works...

In-water encounters with the American Crocodiles of Banco Chinchorro are done on snorkel, as it is too shallow for scuba near the palafitos, plus it's easier to manoeuvre when unencumbered. Positioning and visibility are the key to safe encounters and our *palafito* had some prime real estate just in front of its main porch in the form of a large sandy patch, that stretches out to the left of the hut. Most of the lagoon has a rich coating of seagrass on the bottom, which the crocodiles blend in perfectly with when they submerge, making them hard to spot from the surface. The sandy patch makes it very easy to see who/what is there, and the basic concept is to keep the humans on the sandy patch and the crocodiles on the seagrass. By mooring the boat alongside the *palafito*, one direction is blocked and the sandy patch means that any crocodiles sneaking in can be spotted and by feeding them from the front of the boat the "encounter zone" is quite well defined and controllable. The actual control in the water is done with a wooden stick, albeit a large one... but a

stick none the less. It is used by the wrangler to warn and calm the crocodile when it gets excited or aggressive and as a vertical barrier if it advances on to the sand. Despite my initial doubts on its usefulness, it turned out to be remarkable effective.

Eyeball to Eyeball

Of course, all those eminently sensible logistics were far from mind as the time came to get in the water for the first encounter and I was very nervous as I descended the ladder at the back of the boat that first time. Then, suddenly in front of you is a serious looking piece of reptilian hardware that is watching you as intently as you are watching it. Inscrutable is the word that comes to mind... Underwater encounters with big animals are rarely if ever static – they move, often constantly and occasionally very fast. Whereas the American crocodiles of Banco Chinchorro remain completely still, but with a coiled-up energy that is unleashed when they attack. The problem is that there is virtually no way of knowing when they will attack, so there is an intense tension as you manoeuvre closer to get good images knowing that should that trigger happen you are very reliant on that wooden stick and the reaction time of the crocodile wrangler.

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American crocodile *Crocodylus acutus*
According to those who have worked with them in the waters of Banco Chinchorro, young individuals are by far the most dangerous because they are unpredictable. The big crocodiles may look fierce and very threatening, but they are not particularly aggressive and tend to be much calmer than the young ones.



American crocodile *Crocodylus acutus*

Adults have no natural predators. Interestingly, they are known predators of lemon sharks, and sharks avoid areas with American crocodiles. An estimated 1,000 to 2,000 American crocodiles live in Mexico, Central and South America, with 500 to 1,200 in southern Florida.

Final Words...

Is it dangerous? Probably and possibly are the best descriptors as there is no doubt that they could inflict serious harm, but nobody has been attacked yet. Is it special? Yes, for sure it is – being so close to such large and potentially dangerous reptiles is something else. Plus, the whole experience of staying in the fisherman’s *palafito* hut with no running water and just a small generator for power is very different! Was it worth the marathon journey? Australia is a long way from everywhere, but a really long way from Chinchorro, but yes, it was definitely worth the long-haul. Would I do it again? Probably.... ●

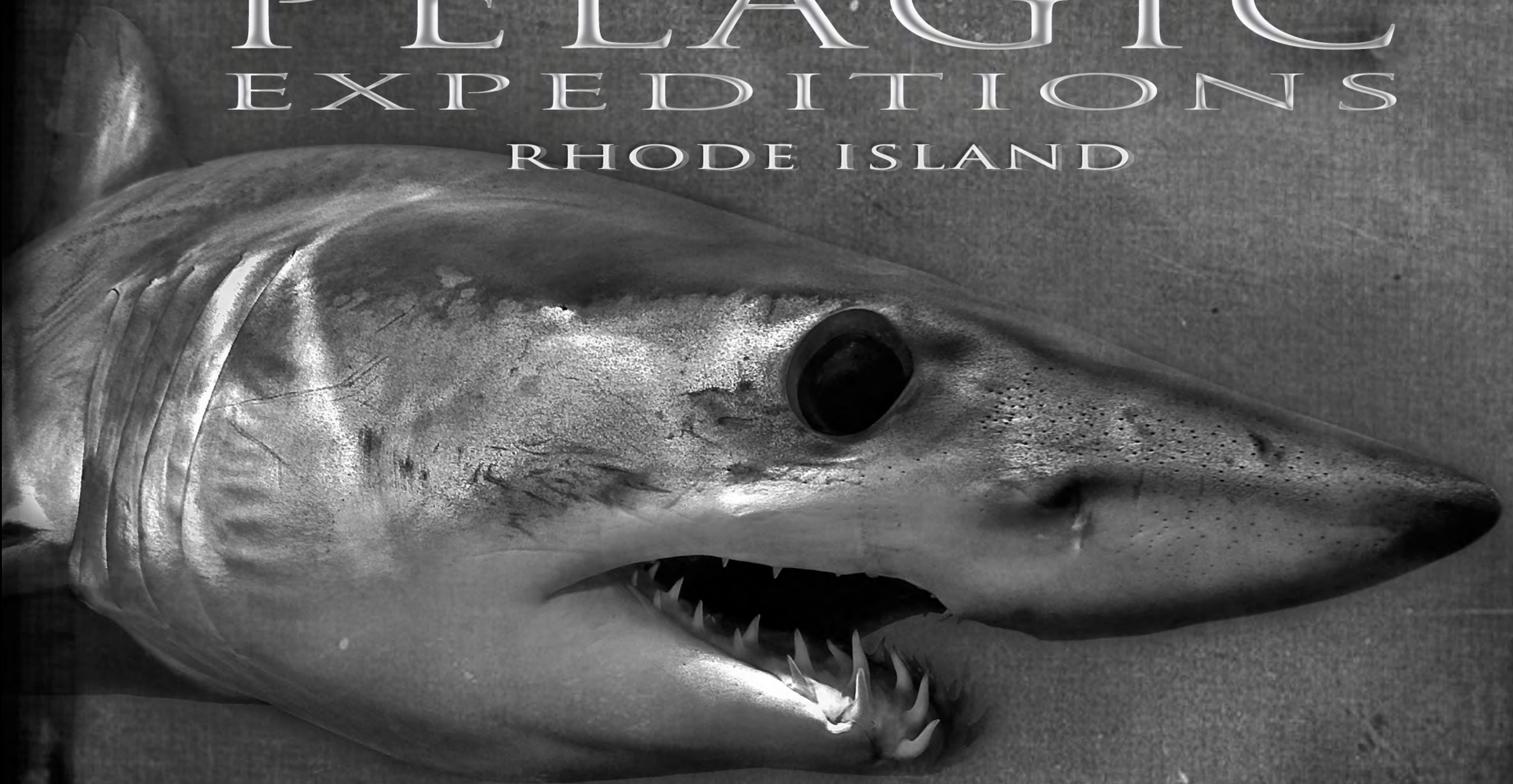
Don is based from Bali in Indonesia and his website www.indopacificimages.com has extensive location guides, articles and images on some of the best diving locations in the Indo-Pacific region.



American crocodile *Crocodylus acutus*

The habitat of the American crocodile consists largely of coastal areas. It is also found in river systems, but tends to prefer salinity, resulting in the species congregating in brackish lakes, mangrove swamps, lagoons, cays, and small islands. They can be found on beaches and small island formations without any freshwater source.

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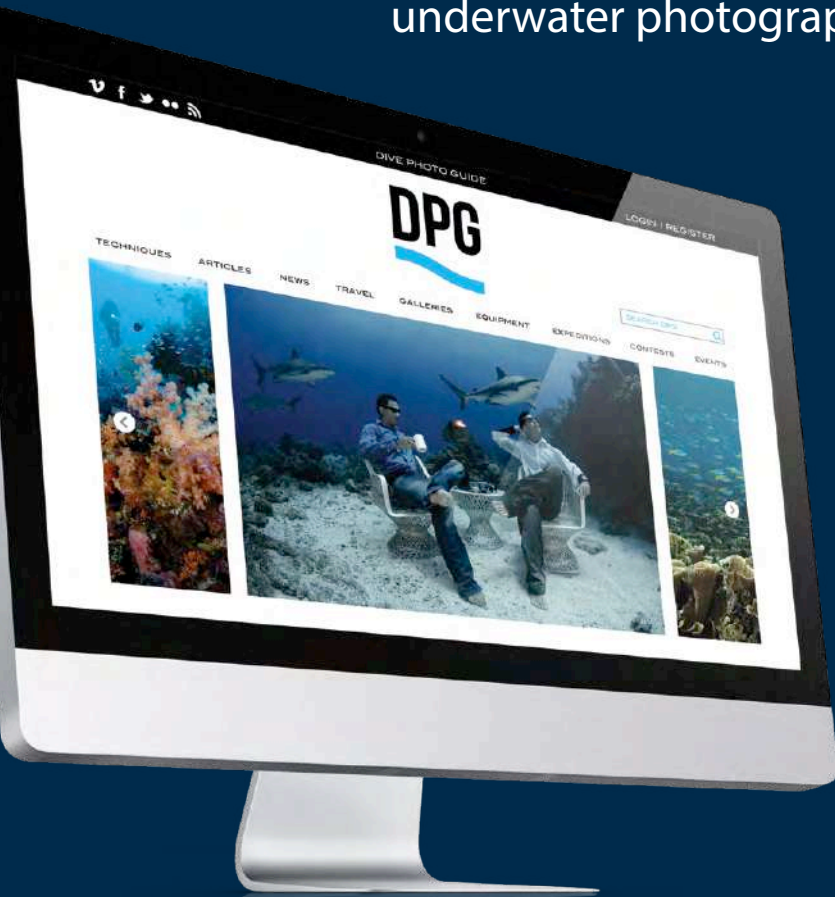


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The Parting Shot



Back in the 1980s, Flamboyant cuttlefish *Metasepia pfefferi* were quite an unknown quantity - in fact, semi-legendary creatures. I cannot remember having seen more than a couple of bad, blurry photographs of one, not to mention videos. Yet, its existence was well known to divers, and those visiting the sand and silt bottoms of the Coral Triangle between Indonesia, Borneo and the Philippines were constantly on the lookout for it. I still remember with great cla-

rity our first encounter with one in Borneo - Kapalai didn't exist yet as it was just a few wooden pillars stuck in the sand, and we were having lunch at Mabul when our dive guide ran excitedly to us, announcing that a Flamboyant had just been sighted at Kapalai reef. Spitting boiled rice all over the place, we left our table in a frenzy, running to our boat and our dive equipment - without forgetting our camera, obviously! A brief speed boat ride and down we went,

but it took us quite a few minutes to spot that incredible little fellow ambling on the sand, as it had decided to look like a rock at the moment. And yet, as our guide pointed to it with his stick, lo and behold!, it magically transformed itself into a glowing, pulsating Christmas neon light, flashing waves of blinding white, yellow and purple all over its tiny body as it slowly ambled on the muck. What an incredible sight it was, and what an unforgettable dive! ●

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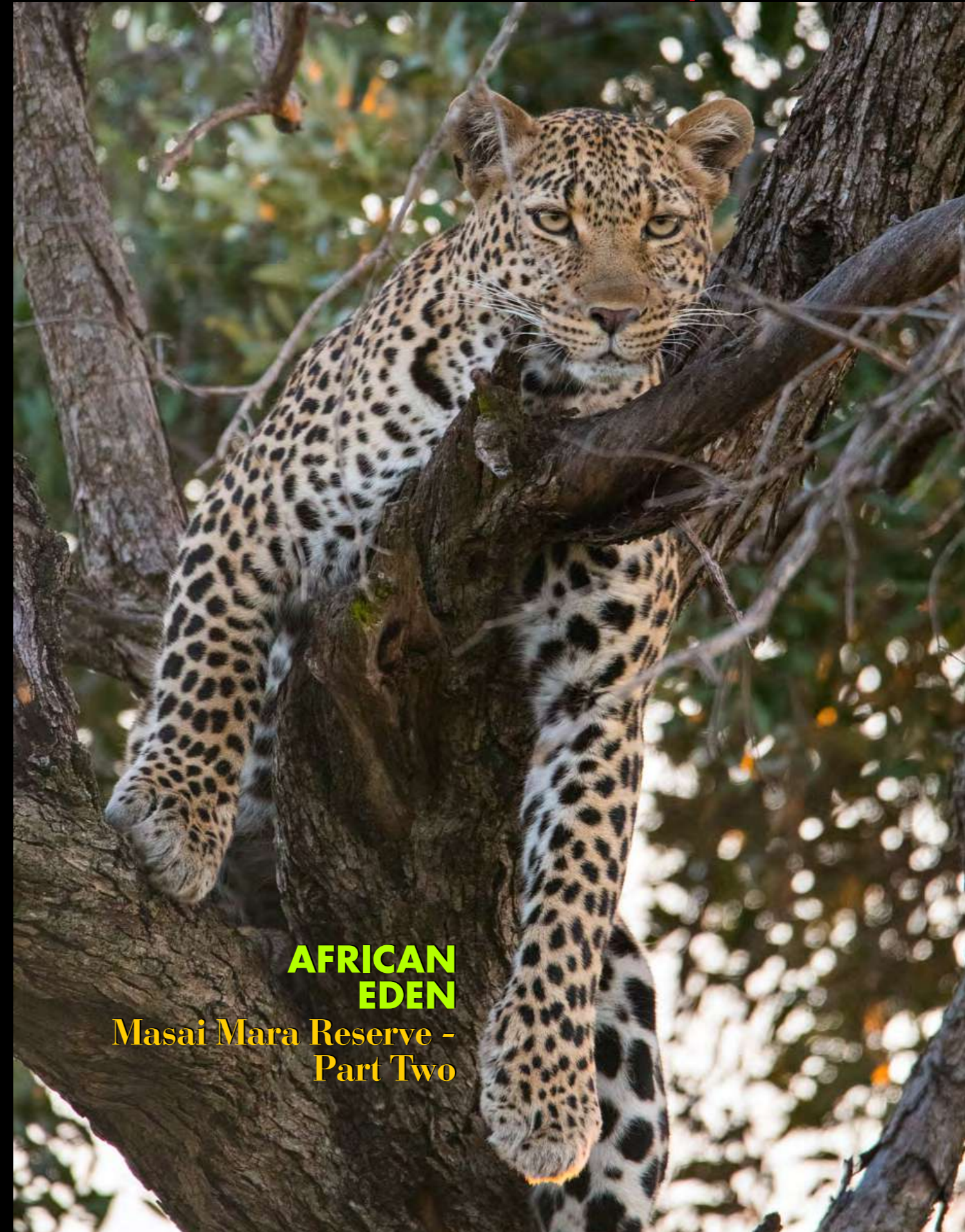
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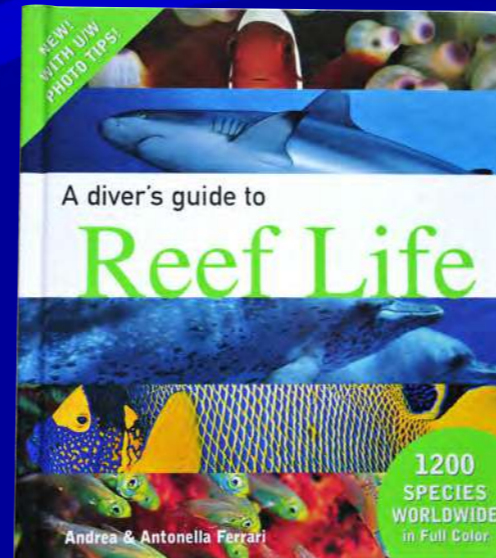


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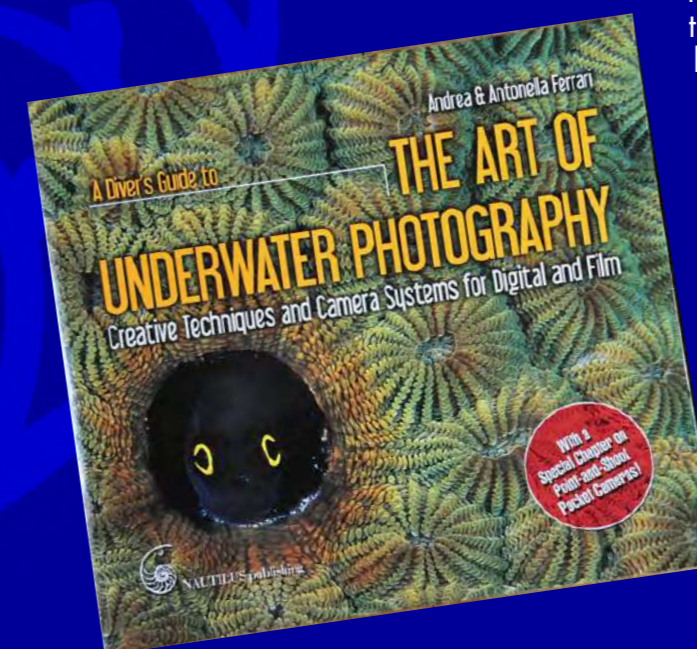
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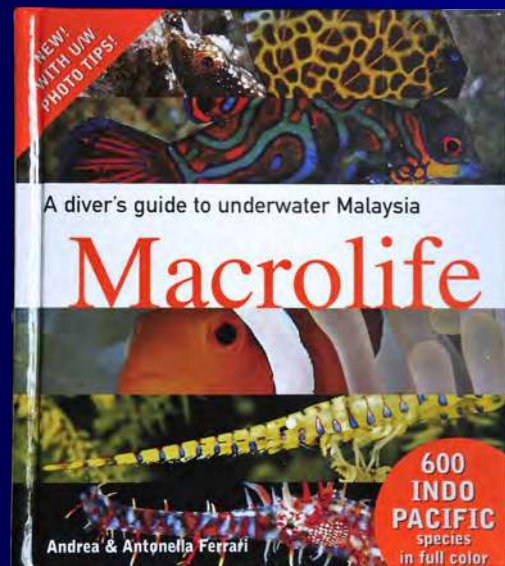
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