

TRACKS



THE INFLIGHT MAGAZINE FOR COP12

JANE GOODALL:

"We are stealing
the planet from
future generations"

RENEWABLE ENERGIES:

Friend or Foe
to Migratory
Animals?

ANIMALS AROUND THE WORLD:

12 Fascinating
Stories from
the Field

THEIR
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OUR FUTURE



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Uninhabited islet in the Sulu Archipelago of the Philippines with extraordinary biodiversity.

Photo by Yann Arthus-Bertrand



Roy A. Cimat
DENR Secretary of the Philippines

For the first time in Asia, the Philippines will host the triennial Conference of the Parties (COP) of the United Nations’ Convention on the Conservation of Migratory Species of Wild Animals (CMS). This is the 12th CMS COP Meeting, which will be held from 23 to 28 October 2017 at the Philippine International Convention Center in Manila.

CMS provides the international legal framework for the conservation and sustainable use of migratory animals and their habitats. Our country became a Party to CMS – also known as the Bonn Convention – in 1994. Today, the Philippines is the only ASEAN Party State to the Convention.

This is a great opportunity for our country to contribute to the long-term ecological health of our planet through the conservation of key species. Out of the 17 megadiverse countries, nine are Parties to CMS: Australia, Brazil, the Democratic Republic of the Congo, Ecuador, India, Madagascar, Peru, South Africa, and the Philippines.

In this CMS COP 12, the protection of no less than 34 species will be on the negotiating table. Among these 34 are well-known species such as the Whale Shark (*Rhincodon typus*). Our country is supporting the listing of the Whale Shark on CMS Appendix I (Threatened Migratory Species), to cloak this species with immediate and strict protection. The Philippines will also push for the inclusion in Appendix I of the Christmas Island Frigatebird (*Fregata andrewsi*), and in Appendix II of the Black Noddy (*Anous minutus*, subspecies *worcesteri*), the White-spotted Wedge-fish (*Rhynchobatus australiae*), and the Yellow Bunting (*Emberiza sulphurata*). The Philippines is part of the migration range of these species.

We will also press for the promotion of marine protected area networks in the ASEAN region and the conservation of critical intertidal and other coastal habitats for migratory species, and for a resolution on sustainable tourism and migratory species. As the major output of the CMS COP 12, we will look forward to the crafting of the Manila Declaration on Sustainable Development and Migratory Species, attuned to the conference theme “Their Future is Our Future: Sustainable Development for Wildlife & People.”

On this note, I strongly urge all stakeholders, especially our partners, to contribute their best towards the success of CMS COP 12. As conference hosts, let us do all we can to make our planet’s future not only sustainable, but also more vibrant, replete with the vitality that only biodiversity can bring.



Amina Mohammed
UN Deputy Secretary General

The 2030 Agenda and the Sustainable Development Goals are universal, transformative, interconnected, indivisible and inclusive. They are relevant to all people in all countries – parliamentarians, policy-makers, academics, business people, civil society organizations and citizens everywhere. Delivering the Goals requires enhanced leadership, coordination, trust and accountability with a focus on tangible benefits for all people, especially those furthest behind.

I applaud the Convention on Migratory Species for embracing universality and interconnectedness in its COP12 slogan. Sustainable development is indeed for wildlife and people. Only by ensuring a healthy planet can we achieve the SDGs. Nature conservation and the sustainable management of the environment can and must go hand-in-hand with social and economic progress.

Far from being an “either/or” choice, conserving our natural heritage is part of a virtuous circle that we must nurture. The resources dedicated to conservation are too often meagre, yet the benefits that wildlife generates are vast, from wildlife tourism to ecosystem services, such as pollination, seed dispersal and pest control. Let us therefore work to reinforce the environmental dimension of sustainable development for the benefit of all by investing more in the conservation and sustainable management of species and ecosystems, particularly at the country level.

I am pleased that the membership of the Convention on Migratory Species continues to grow, and that the Parties see it as an effective means of achieving conservation objectives for species belonging to the world’s shared natural heritage. This illustrates that governments have confidence that the Convention can and will deliver on its conservation objectives.

Examples of recent successes include: an increase in the number of Mountain Gorillas in the Great Lakes region of Africa; robust protection by Malta of migratory birds in the Mediterranean; the recovery of the Ganges River Dolphin; the stabilization of Harbour Porpoise populations in Europe; and the reintroduction of the Arabian Oryx to the wild. It is worth noting that, in many cases of conservation success, the engagement of multiple stakeholders, particularly local communities, is instrumental.

I wish you a successful COP12 and count on you to continue to convert words into action for the sustainable development of wildlife and people.



Dr. Barbara Hendricks
German Minister for the
Environment, Nature Conservation,
Building and Nuclear Safety

Economic cooperation with developing countries and species conservation are not incompatible, but can join to form a vital link. Eradicating poverty, combating hunger and resolving military conflicts are key goals for many developing countries. In the face of such massive challenges, many see concern for endangered species as something of a luxury.

Nevertheless, the conservation of wild animals and their diverse habitats can form a basis for addressing these primary issues. The commendable work of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) focuses on wildlife conservation, and its success depends on society’s recognition of this very positive commitment.

Local populations rely on many species listed in the annexes to the CMS for their livelihoods, and some animals have a high potential for regional economic development. The African Elephant, Mountain Gorilla, cetaceans and sea turtles are examples of invaluable resources for building a sustainable tourism industry.

The sustainable use of many other species generates income and hence creates incentives for supporting their conservation. The rapid global decline in biodiversity makes it clear that the conservation of wildlife is far less a luxury than it is a strategy for human survival. Conservation and use, therefore, should not be seen as competing interests but as two sides of the same coin. As such, they are a key element of German development cooperation.

I am pleased that the CMS is highlighting the close connection between wildlife and sustainable development, lending useful momentum which will drive forward the symbiotic relationship needed between humans and the environment.

I wish the CMS and the 12th meeting of the Conference of the Parties every success and good progress on the road to greater sustainable development for wildlife and people.

Can it really be three years ago, that the Parties assembled in Quito for COP11? A great deal has been achieved since then, but the challenges remain as daunting as ever. We face a tough fight to obtain the attention and resources that the environment and migratory species deserve and need – but our COP theme stresses the linkage between the Sustainable Development Goals and conservation – how working for one helps deliver the other.

My reaction to the number of proposals made by Parties to add further species to the Convention's Appendices was, I must confess, rather mixed. On the negative side, it shows that there are even more species with an unfavourable and deteriorating conservation status, suggesting that the pessimistic view that we are witnessing the sixth mass extinction may be right. On the other hand, I am heartened that more and more countries are joining the Convention and see it as the most effective global vehicle to affect the changes that are needed if the problems afflicting migratory wildlife are to be solved.

I am delighted that CMS has gained some important new Parties – including Brazil and the UAE – and we are engaging with further potential recruits. The Convention has also benefitted from the continuing strong support of Parties and partners alike.

We must maintain the momentum and secure the necessary resources so that the Secretariat can deliver the programmes agreed by the Parties. We must also develop the concrete activities with partners that protect migratory species and ensure that where they are used, they are used sustainably.

“Tracks” is a new departure for CMS – we have never produced a magazine of this type before and considering the air miles that some of the bird species on the CMS Appendices clock up on their migrations, what more appropriate format to emulate than that of an inflight magazine!

We would like to thank the German Ministry of Environment (BMUB) for providing the voluntary contribution to make this special publication possible. We are also grateful for the expert guidance provided by the experienced team at Territory (they usually produce magazines for airlines) and for all the creative content we have received from an army of contributors – authors, artists and wildlife photographers from around the world.

DR. BRADNEE CHAMBERS is the Executive Secretary of CMS since 2013 and a known expert on international law and governance. He previously headed the Law and Governance Branch of the Division of Environmental Law and Conventions at UN Environment's Nairobi Headquarters.

Photo by Aydin Bahramlouian





Illustration of Jane Goodall. CMS interviewed her in the series Heart & Pulse. She talks about her lifework and shares thoughts on the COP.

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Photo by Yann Arthus-Bertrand

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Photo by Bernard Radwaner/Getty Images; Jonathan Harrod/Minden Pictures/Getty Images

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JANE GOODALL

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Fighting the Good Fight – and Winning!

The East Asian–Australasian Flyway is travelled by over 50 million waterbirds. Expanding infrastructure threatens birds and their habitats.



This year, the COP will be held in Asia for the first time. The COP logo refers to its host country featuring the Philippines' flagship species: the Whale Shark, proposed for listing on Appendix I. The slogan "Their Future is Our Future" highlights countries' dependency on migratory species.

The mountain *ghost*



The **SNOW LEOPARD** inhabits mountain terrains of twelve Range States in Central and South Asia. With an estimated population of 4,080–6,590 remaining in the wild today, Snow Leopards are one of the most endangered big cats in the world.



Photo by Sebastian Kennerknecht/Panthera

BY TANYA ROSEN

The Panthera Snow Leopard Program works in seven of the Central Asian countries where this cat, known as the ‘mountain ghost’, lives. It focuses on reducing conflicts with humans while supporting community-based conservancies, which help increase Snow Leopard prey, build informant networks to detect poaching and illegal wildlife trade, and reduce trafficking of the cat and its quarry by training dogs for tracking. The most representative community in terms of Snow Leopards and Argali Sheep is the Ali-chur village conservancy, Burgut, at an elevation of 4,000m in Tajikistan. The initiative was deemed necessary due

to the very low number of Argali Sheep (less than 100), and due to a prolonged absence of spotting Snow Leopards. Almost five years after the initiative was set up, the population of Argali Sheep grew to over 500 and in 2016, three Snow Leopards were caught on the program's camera trap. Yet not only are these species benefitting from the project; ibex and carnivores such as wolves, lynx and brown bears are too.

The principal actors in the program are former traditional hunters who have abandoned hunting to take up conservation. They live off subsistence mountain agriculture and remittances from relatives. The local conservationists are trained by *Panthera* to do surveys and to use GPSs, maps, and camera traps for anti poaching purposes. They patrol the area on their own with *Panthera* undertaking an annual survey to draw up a report for the authorities. The specific conservation activities are predator-proofing of corrals (which have reduced conflict between herders and Snow Leopards); development of informant networks leading to seizures of wildlife products and live Snow Leopards; and the use of a variety of creative tools for antipoaching (camera traps and needles hidden in the dirt to block poachers in their vehicles) amongst others.

Panthera helped negotiate the legal steps needed to establish the conservancy and encouraged the members to view tourism and sustainable use as a means to manage wildlife and improve the lives of the people in the community. With the profits from hunting and tourism, they hope to build a better hospital, invest in energy-efficient heating and cooking, and obtain more resources for the teachers and the school, as well as funding scholarships for students.

The program has achieved success, though naturally there was some opposition, namely from neighboring hunting concessions which viewed the conservancy as competition. However, *Panthera* mediated and overcame their opposition by persuading them that they were in fact allies in opposing poaching. Now the Alichur conservancy is supported by such concessions and is prospering - a positive step in the quest to conserve the elusive and magnificent mountain ghost. ♦

Sustainable Development through *Saiga Antelopes*

BY E.J. Milner-Gulland



The SAIGA ANTELOPE lives in the semi-desert steppe and arid grasslands of Central Asia. Because of their nomadic grazing, the herds play an important role in these ecosystems. The elephant-like snouts act as air filters and allow them to breathe in cold, sandy environments.

The Saiga Antelope is a perfect example of how sustainable development can intertwine with the conservation of migratory species, and of how challenging it is to achieve win-wins for people and wildlife in the real world.

An ungulate of the Eurasian steppes, the Saiga historically undertook seasonal migrations of up to 1,000 km tracking greenery in a harsh climate. The species is found in Kazakhstan, the Russian Federation, Uzbekistan and Mongolia, though it used to venture into Turkmenistan in harsh winters, and was also found in China until recently.

Having been nearly extirpated by hunting in the 19th century, the species recovered to number 1-2 million individuals by the time of the break-up of the Soviet Union. Political upheaval led to rampant poaching, causing the loss of around 90 per cent of Saigas within 10 years. International action to conserve the species included the development of a very successful Action Plan under the Convention on Migratory Species, which brought governments, NGOs and scientists together. The vision of the Action Plan is "to restore the species to the point that sustainable use can again be envisioned". This reflects its status as a species which could again be hunted for food and trade, supporting local livelihoods and Range States' national economies (SDG12).

Photo by Victor Tyakht/Getty Images/Stockphoto

Realizing the Saiga's place in a sustainable future requires trade-offs and choices for Range States. Linear infrastructural development necessary for economic growth (SDG9), represents a threat to the Saiga's future by blocking migration and potentially promoting poaching. Climate change (SDG13) is already shifting Saiga distribution northwards in Kazakhstan; the species' habitats must be maintained in an open state to allow the species to adapt. The species may also be more vulnerable to disease; in 2015 a bacterial infection linked to changes in temperature and humidity killed 60 per cent of one population in a few weeks.

This has happened before, but survivors' numbers were high enough for the species to bounce back. Saiga conservation ac-

tions can positively influence the lives of the people sharing their range. By promoting environmental education and understanding of natural and cultural heritage (SDG4), alternative livelihoods for women through embroidery (SDG5), and employment for men as rangers, productive work can be brought to these areas (SDG8) and inequality can be reduced (SDG10), while also reducing poaching (SDG15). By working with governments, local leaders, women's groups, teachers and wildlife authorities, the actions taken to implement the Saiga Action Plan are building partnerships. These partnerships (SDG17) are at the same time fulfilling the SDG vision of transforming our world towards peace, prosperity and a brighter future for nature and people. ♦



A Mission in Life



YANN ARTHUS-BERTRAND

has had a varied career having at different times been the manager of a nature reserve, reporter, photographer, film-maker and even a hot-air balloon pilot. He created the Goodplanet Foundation, an organization dedicated to raising awareness of sustainable development issues. A lifetime of environmental activism led to Yann being made Goodwill Ambassador for UNEP's Earth Day.

You are known for your stunning works as photographer, filmmaker and environmentalist. Furthermore you are a UNEP goodwill ambassador, reporter and activist. With which of these roles do you most closely identify and why?

None of these roles is more important than any of the others – but what is important is to be a human being and to be successful in one's life as a person. You can have a successful career but it is much more difficult to be a successful person. I like to give meaning to what I am doing – that can often involve having doubts, but also taking opportunities and speaking out about the problems we face today. I can do this by appearing on TV, making films or writing books. As a journalist, I see my role as acting as a bridge – to capture an idea and convey it.

Which of your projects are you most proud of and why?

The most satisfying film I have made is "Human". It is not so much about the environment, but about the love of life, although loving life entails loving the environment. Now I think that ecologists

have not made enough of the fact that we must love one another. The message of the papal encyclical on the environment is that protecting the environment can be seen in terms of loving people and loving life. At the moment, the project that has my attention most is "Woman" in the world as a follow-up to "Human". I also hope that I will be proud of "Woman".

What first motivated you to become involved in conservation?

Humans are part of nature and we cannot treat humans separately. We are insufficiently aware of the destruction going on around us – and of how important biodiversity is for us. When I was born, there were two billion people – now there are 7.4 billion devouring the planet. Our way of life might have been sustainable with a population of two billion but it is not any more.

Can you relate to the CMS COP 12 theme "Their Future, Our Future"? How does it relate to your own personal work and efforts regarding wildlife conservation?

What makes me deeply despondent is the lack of interest about species extinction. Animals should be regarded like national treasures, like something that no one should be allowed to touch, enjoying absolute protection. But we are in denial by turning a blind eye to what we are doing. **Your work has shown your "commitment to arouse a collective and responsible conscience" (according to your website). How do you find examples of said conscience being achieved?**

There are no ready-made solutions that we can simply take "off the shelf". Today every single one of us should act. We should not wait for politicians or even Conferences of the Parties to come and go, nor for businesses to get involved or even our next-door neighbours. Get involved yourself. I think that each of us has a mission on Earth, which gives meaning to our lives. Don't expect politicians to provide all the answers. We have the politicians we deserve, if we want bold and strong politicians, we must be bold and strong ourselves. We need to back them.

A collective and responsible conscience for our environment is the very basis of successful international cooperation.

How successful has international cooperation been, in your eyes, in protecting migratory wildlife and the planet? How should governments step up their efforts?

It is me who is responsible for my life and it is me who can do something about it – it is about taking responsibility. This is what my work is all about. The COP is very important but if citizens do not support the policies agreed, it won't do any good. The ordinary citizens have to support these policies, and my task is to try to convince them. Governments do not have all the solutions – people do. We all are part of the solution.

What progress would you like to see in the next few years?

You should not view the world too cynically – look at the world with love. If you love the world, then it goes without saying that you want to protect it. What we need much more is love – that's all. ♦

» IF YOU LOVE
THE WORLD
THEN IT GOES
WITHOUT SAYING
THAT YOU WANT TO
PROTECT IT «

RENEWABLE ENERGIES – FRIEND OR FOE?



So-called "SHUT-OFF ON DEMAND" turbines helped to reduce the number of killed Vultures by half.



Wind farms kill 250,000 BATS every year in Germany as bats collide with wind turbines while hunting.



To stop GLOBAL WARMING, hydro-, oceanic, wind and solar power must be used instead of fossil fuels.

Photo by Prisma

RENEWABLE ENERGIES - FRIEND OR FOE FOR BIRDS?

The deployment of new technologies to deliver the world's energy needs from renewable sources are essential if we are to reduce our dependency on fossil fuels. To stop or reverse global warming and to provide the world's growing human population with the energy it needs, then hydro-, oceanic, wind and solar power must be part of the mix.

But renewable energy is not the silver bullet that will help us overcome the barriers to building a cleaner, better and sustainable future. Regardless of how it is produced, electricity must be transmitted from where it is generated to the homes, offices, factories, hospitals and schools where it is needed. And this requires a substantial infrastructure of pylons and cables, which leave their mark on the landscape, and, of great concern to those dealing with nature conservation, can have detrimental effects on wildlife habitats and migration routes.

Cape Town hosted the first meeting of the Multi-Stakeholder Task Force on Reconciling Selected Energy Sector Developments with Migratory Species Conservation in November 2016. Convened by CMS, the Task Force brought together a range of key players from governments, development agencies, industry and conservation interests.

With the greatest expansion of electricity networks expected to take place in Africa in the coming years, there is an opportuni-



Where these turbines were implemented in Spain, the number of **VULTURES KILLED**, dropped by half for a loss of power generation of less than 0.1%.

ty to ensure that the new infrastructure is built in an environmentally friendly way. The dangers, if this chance is missed, are real and could sound the death-knell of the continent's already beleaguered wildlife, under pressure for disease, poaching and habitat degradation.

One solution is "shut-off on demand" requiring turbines to be deactivated at the most sensitive times for wildlife – such as the migration season or during periods with low wind speeds, which is when bats, for in-

stance, are more active. As the turbines are also at their least productive at such times, the amount of potential electricity lost is insignificant. Where this was implemented in Spain, the number of Griffon Vultures killed, dropped by half for a loss of power generation of less than 0.1 per cent.

In 2010 the African-Eurasian Migratory Waterbird Agreement and RWE Rhein-Ruhr Netzservice signed a historic Cooperation Agreement to support an independent review and the development

20% OF ELECTRICITY in the UK comes from renewable sources.

In May 2016, in one day **45.5 GW OF ENERGY** were produced from renewable sources in Germany, only just falling short of national demand for power (45.8 gW).

of guidelines for mitigating and avoiding the conflict between migratory birds and electricity power grids in the African-Eurasian region.

Although many countries have already passed specific legislation on protecting birds from fatalities on the electricity power grid, the magnitude of the bird-power grid conflict is still poorly understood on the larger scale of the African-Eurasian region.

The international review was made possible through the support from RWE Rhein-Ruhr Netzservice, a daughter company of RWE, one of the largest energy companies in Europe. The company has specialized in fitting preventive "bird-reflectors" to high-voltage powerlines using a helicopter as a measure to try to reduce the collision of large birds with the powerlines.

Designing the location, route and direction of power lines based on national zoning maps, avoiding, where possible, habitats of conservation importance, such as important bird areas, protected areas, Ramsar Sites and other critical sites is an essential component of environmental impact assessments. Major bottleneck sites on animals' migration routes must be excluded from the outset. ♦

ROBERT VAGG of the Secretariat's Communications Team has been consultant editor with CMS since 2006. He regularly attends Standing Committee and similar meetings as rapporteur. Along with Stanley Johnson, he co-authored the award-winning book, *Survival: Saving Endangered Migratory Species*.

Photo by Rost-9D/Getty Images/Stockphoto

Climate change is highly debated, expected to hit everyone directly or indirectly, and a source of enormous economic and societal development challenges. But when it comes to assessing nature's response to climate change, and how this may affect us, what do we actually know?

Even though climate change is generally perceived as a synonym of global warming, an increased average temperature on Earth is not the only consequence to be expected: changes in seasonal rainfall and temperature patterns, in the frequency of extreme events, ocean acidification and in greenhouse gas concentrations are also to be anticipated. Responses of species to such changes will thrive, adapt or go extinct.

While much work has been done on identifying those species with increased conservation concern, little coordinated research has been done on species likely to be forced to colonize new environments, potentially changing how recipient systems function. In some situations, these moves could pose a substantial, yet quite understated, challenge to human society.

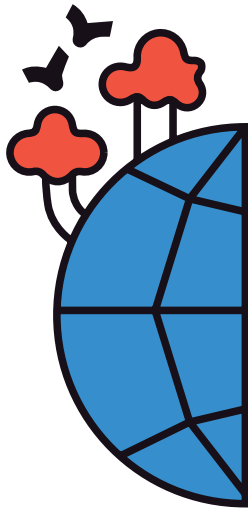
Shifts in species distributions, including migratory species' ranges, are already happening, leading to serious consequences for the economy, food security, and human health: tropical fish are expanding their distribution towards the poles, destroying for example economically important kelp forests in Australia. Ticks are more commonly found in northern latitudes, leading to more Lyme disease cases in these regions. More broadly, terrestrial species have been shown to move poleward by 17 km on average each decade, while marine species move by 72 km.

The arrival of new species in established communities can create chaos, disturbing predation, herbivory, host-plant associations, competition, and mutualistic interactions, ultimately reducing the delivery of ecosystem services. Moving species could indeed lead to changes in the local supply of food and other products humans use from nature; in some cases, this may mean reduction or even disappearance of the locally exploited species, either because these had to shift their distribution, or because new species have moved in and driven the local exploited

Species RESPONSES TO CLIMATE CHANGE: some will thrive, some will adapt if able to change their ecology, and some will go extinct.

Shifts in the ranges of migratory species are leading to **SERIOUS CONSEQUENCES** for the economy, food security, and human health.

WHERE THE WILD THINGS WILL BE NEXT



species to extinction. Changing distribution of species within and between countries, and between national borders and the global commons will require increased international cooperation combined with adequate resources.

A global redistribution of much of the migratory wildlife is likely, but research is currently needed to identify (i) those species most likely to redistribute and (ii) those redistributions likely to most affect ecosystem services delivery. Without it, deciding on the best way to conserve this unique component of biodiversity will be as good as guess work. ♦

NATHALIE PETTORELLI is a researcher and ecologist at the Zoological Society of London. Her research focuses on biodiversity monitoring, and assessing and predicting the impact of global environmental change on biological diversity and ecosystem services.

BUFFERING THE STORM WITH EARTH-CENTERED DEMOCRACY



We have lived by the assumption that our political system will naturally evolve for the better. We were wrong. A massive storm is coming; a converging crisis, unlike anything we've experienced before. The combined forces of climate change and political upheaval will be a tempest of our making, at a time in human history when our knowledge prevents us from pretending we didn't see it coming.

While society focuses on the human costs, the natural world is lurching. The current rate of species extinction is already one thousand times the pace if humans were not a factor. Last year the International Union for the Conservation of Nature reported, of the 85,604 species assessed on their 'Red List', 24,307 are threatened with extinction. In the near future, rapid shifts, caused by climate change, will exceed the ability of many species to migrate or adjust.

The current rate of species extinction is already **1000 TIMES THE PACE** if humans were not a factor.

Achieving just and diverse conservation requires **A NEW DEMOCRATIC DIRECTION** that elevates local voices to the decision-making table.

If we continue as we now are, the dawn of the next century will grieve the loss of icons—gorillas, polar bears, lions, tuna, warblers and orangutans, and with them the silent demise of thousands of species hardly known. Each of these species shares a landscape and seascape with human communities. Their cost will be our loss.

For some, our vistas are forests. Others look out to the sea and some on endless frozen horizons. These are not empty places. They are alive with wildlife, with which we commune. But, decisions about these local spaces are now made in an international political space. Globally centralized pronouncements strip the choice of association away from all of us, replacing them with mono-culture market environmentalism. If we remain on this path, we will fail to protect the diversity of what we need and cherish. The desperate grip on the current world order, with power vested in the hands of a few, will become the lifting force that feeds the thunderhead. We will have a perfect storm.

There is another way – conservation rooted in equity and the cooperative engagement of local custodians, rather than a percentage of territories set aside for protection or high-end tourism ventures. SDG 16: Peace, Justice and Strong Institutions and CMS Resolution 11.11: Enhancing the Relationship between the CMS Family and Civil Society have opened the door for this opportunity, but more is needed.

Involving communities is more than hiring local park rangers or eco-tour guides to monitor and blow the whistle on illegal hunting. Achieving just and diverse conservation requires a new Earth-centred, democratic direction that elevates local voices to the decision-making table. How we prepare and what we do will dictate what survives the approaching storm. We can choose to save birdsong, but the choice must be a conscious one. ♦

MARGI PRIDEAUX is the Policy and Negotiations Director for Wild Migration, and an international wildlife policy writer. She has worked in conservation for 27 years. She wrote an essay on the role for CMS in Global Environmental Governance and Wildlife.

Travels and Travails of a *CMS* *Ambassador*



Migratory species constitute those 8,000 to 10,000 of the world's 1.8 million known species that travel at regular intervals, mostly between feeding and breeding grounds. Sometimes thousands of miles separate these areas but in other cases the distances are relatively short, straddling national boundaries. Migratory species range in form from gorillas and leopards to fish, turtles, bats and birds. They vary in size from elephants to featherweight insects such as the Monarch Butterfly.

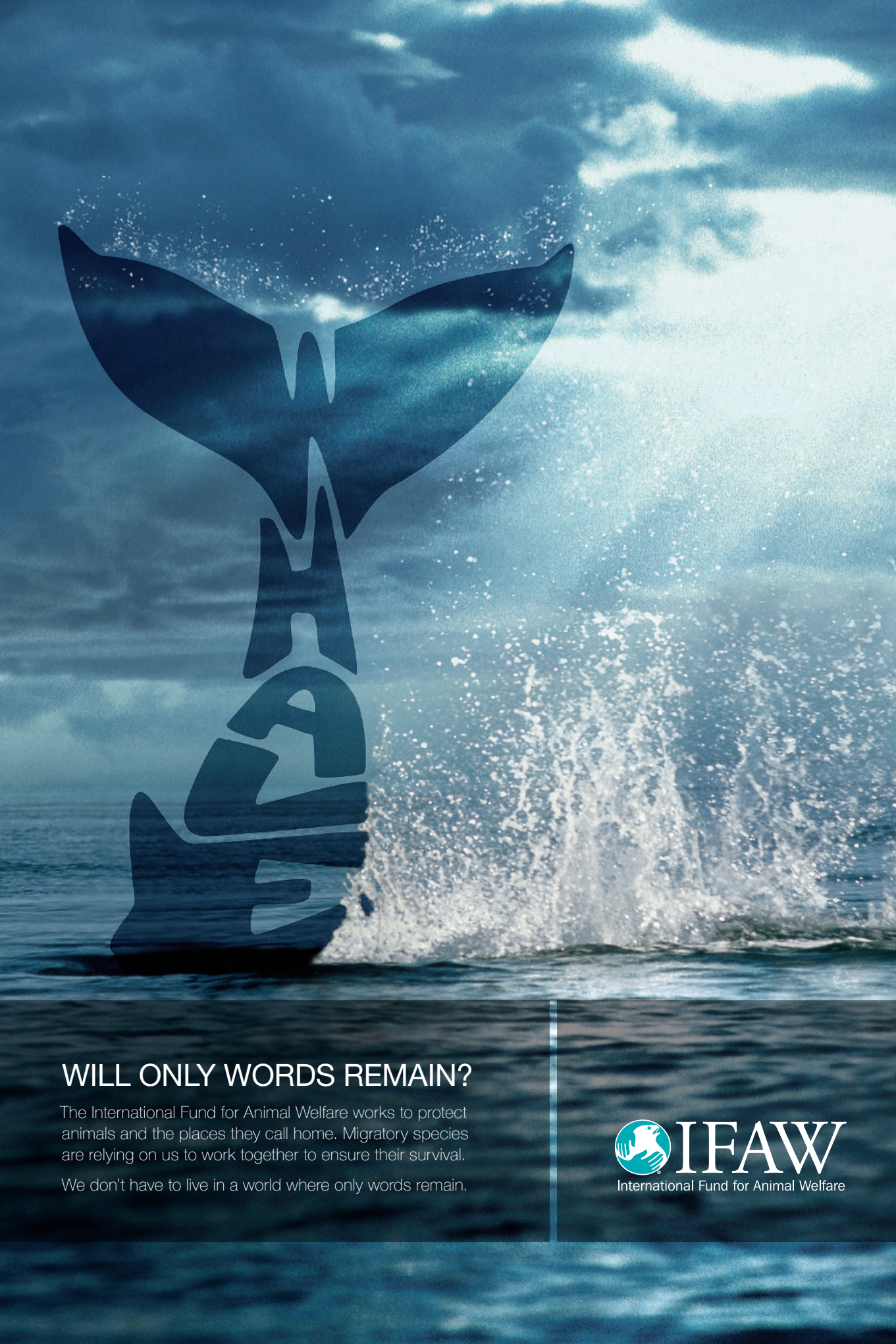
The world's biodiversity is declining at an alarming rate. Measured across the globe, population sizes of vertebrate species – mammals, birds, reptiles, amphibians and fish show a decline of 58 per cent between 1970 and 2012. If current trends continue, the decline could reach two-thirds by 2020. Current threats to biodiversity include habitat loss and degradation, species overexploitation, pollution, invasive species and disease and climate change. Migratory species may be especially vulnerable, in the sense that no one country can secure their survival on its own. International cooperation is an absolute prerequisite for their conservation and this adds further complexity and vulnerability.

I have had the honour to serve as an Ambassador for the United Nations Environment Programme's Convention on Migratory Species for the last ten years. Over this last decade, I observed and supported the efforts being made by CMS and others around the globe to ensure that this vital international cooperation takes place.

In my journeys around the world, the sheer enthusiasm, knowledge and dedication has struck me with which Parties of CMS and its agreements, and the supporters in the scientific and NGO community, approach their vital work. Still, the challenges remain immense. I am confident that CMS will continue to play an important role in ensuring the successful confrontation of those challenges. ♦

STANLEY JOHNSON has been an Ambassador for CMS since 2007. He was awarded the RSPB Medal for services to conservation and the WWF Leader of the Living Planet Award. He is the co-author of *Survival: Saving Endangered Migratory Species*.

Photo by Aurora Creative/Getty Images



WILL ONLY WORDS REMAIN?

The International Fund for Animal Welfare works to protect animals and the places they call home. Migratory species are relying on us to work together to ensure their survival.

We don't have to live in a world where only words remain.



“We can be *the first* generation to succeed in ending poverty; Just as we may be *the last* to have a chance of saving the planet.”

AGENDA 2030 DECLARATION

A QUESTION OF COLLECTIVE WILL

This sentence from the Agenda 2030 declaration reflects the call for action for Sustainable Development, and the second, more sobering part could not better encapsulate the challenge we are all facing to protect the many animals that share this home with us. The theme for the 12th CMS COP, *Their Future is Our Future – Sustainable Development for Wildlife and People*, challenges us to confront the task of delivering the Sustainable Development Goals by protecting migratory wildlife.

The slogan “Their Future is Our Future” can sound glib, but it has never been more prescient. Plant and animal life, ecosystems and everything they provide for us are so fundamental to achieving sustainable development that we have no hope of achieving it unless we protect nature. Their future is in our hands. And ours is in theirs.

Where we find intense animal suffering or loss, we also find people struggling for their survival. It is imperative that those concerned with wildlife protection understand the needs of communities living alongside wildlife, and partner with those communities to protect it.

Conservationists often speak of the need to manage animal populations. But we forget that these are wild and often unpredictable animals. The only thing we have a hope of managing is human behaviour. Whether it is working with commu-

nities to protect critical elephant corridors across national boundaries, or protecting whales and sharks in the ocean, the challenge remains the same: How do we as humans live peacefully alongside the animals that share our home?

Creating secure environments for wildlife while also ensuring the safety of the people living close by will require large-scale cooperation among international organizations, national governments and local communities. First and foremost, however, it is a question of collective will. Nations must agree that they want to share the planet with animals.

Wildlife is part of our shared global heritage. We derive quantifiable benefits from animals that help maintain healthy ecosystems and support tourism. And we derive difficult-to-quantify but equally important benefits from the joy that animals bring to our lives. Animals, and migratory animals in particular, are so important to so many societies that the world would be immeasurably poorer if we lost them. A world without wildlife and wild places would be a bleaker place for us all. ♦

AZZEDINE DOWNES is President and CEO of the International Fund for Animal Welfare (IFAW). He has 25 years of international experience in the management of non-profit and government agencies and has managed several operations in several countries.

Marine Communities



The coasts of Ecuador, the Canary Islands, Vanuatu and Indonesia provide important habitat for many aquatic species, from sharks to dugongs. These areas provide protection, food and habitat and must be protected to ensure these species' future.



Photo by Bernard Radwaner/Getty Images

BY ALEXANDRA VAN HOEK
Community-based conservation of marine species is a challenging yet vital component of preserving wildlife and nature. The specific choice of measures depends on local circumstances and the species concerned. The mobilization of coastal communities can be very effective, as without their active participation, the likelihood that any legislative changes will be effective and bring benefits to the target species is greatly lessened. “Effective conservation happens when decision-making is informed by scientific data and a clear understanding of relevant social factors, to ensure the most suitable measures for protecting a species are selected”



The Vanuatu Archipelago consists of more than 80 islands in the Southwest Pacific. It forms the easterly border of the DUGONG'S natural range.



The world's largest population of oceanic MANTA RAYS migrates from habitats in Ecuador to birthing habitats in Peruvian waters.

states Isabel Ender (Peru Manta Project). Where communities do not comply with conservation measures, this rarely stems from a disinterest in protecting the animals. Rather, conservation loses out to more pressing concerns such as putting food on the table – and fishing, for instance, contributes much needed additional income. It is therefore of utmost importance to work with communities to find alternative livelihoods that can substitute the income. Conservationists need to engage the people within these communities when developing solutions. The following four examples demonstrate successful community conservation efforts across the world.

PERU MANTA PROJECT

Manta Rays and their smaller cousins, the Mobula Rays, are threatened by a rapid expansion of fisheries on a global scale, resulting from a growing desire for their gill plates used as a pseudo-medicinal tonic. Due to additional pressure from bycatch, all species have been listed on CMS Appendix I and II. The largest manta population migrates seasonally from its protected habitats in Ecuador, to unprotected birthing and nursery habitats in Peruvian waters. The Manta Trust, WildAid and Planeta Oceano thus joined forces in a collaborative project for the conservation of manta rays in Peru.

The Peru Manta Project combines scientific research, education and outreach, and a novel programme that supports alternative livelihoods for fishermen (away from fishing and towards ecotourism), to generate local and governmental support for Manta Ray conservation in Peru. Manta Rays have an annual tourism value of US\$140 million compared with \$5 million in fisheries. The Manta Project provides training to fishermen, previously resistant to changing their ways and learning new skills, so they can learn how to generate income through manta-related ecotourism.

At the end of 2015, Peru declared Manta Rays nationally protected, due to the efforts by this project and this legislation has

been socialized along a 1,200km coastline. Governments must remember that enforcement is difficult, thus a community-driven approach to conservation is not only essential to effective implementation, but also ethically and culturally required. The Peru Manta Project serves as a role model that combines sound scientific research, community engagement, training of local “ambassadors”, and close communication with resource managers to achieve positive outcomes for its animals. *by Isabel Ender*

DUGONG AND SEAGRASS CONSERVATION IN VANUATU

Vanuatu, a small remote archipelago of eighty-three volcanic islands in the South Pacific, lies at the very easterly border of the Dugong’s natural range. The majority of the human population leads a subsistence lifestyle with governance via the chiefly system. A long history of management of natural resources and more traditional methods such as placing a taboo on harming or killing Dugongs are in place. Most of the islands are remote and lack infrastructure. Nonetheless, development is starting to affect the coast and in combination with the uncertain effects of climate change, the future of both seagrass meadows and Dugongs is in doubt.

Most local people are aware that Dugongs are a draw for tourists and can bring income to the community. The Vanuatu Environmental Science Society (VESS) is working alongside these communities to give them the tools and knowledge to conserve and monitor their seagrass meadows, which in turn will benefit the Dugongs and Green Turtles that depend on them. As seagrass meadows serve as nursery grounds of important fish resources, help to stabilize sediments and absorb and store carbon, their conservation will also bring benefits to the communities.

VESS, in partnership with the Department of Environmental Protection and Conservation and the Vanuatu Fisheries Department, is helping Vanuatu fulfill its commitment to the CMS Dugong MOU.

Photo by Alex Churilov/Adobe Stock



VESS is also assisting communities to ensure that any fishing methods and tourist activities are Dugong-friendly and that any interaction with Dugongs is a positive experience. Vanuatu has twice been voted the happiest place on Earth. The aim of VESS is to make it the happiest place for Dugongs as well. *by Dr. Christina Shaw*

ANGELSHARK PROJECT

The Angelshark is one of the most endangered species of marine fish in the world and in 2014 was identified as the second most threatened of all the world’s sharks

and rays by the IUCN. Today, Angelsharks can still be regularly sighted in the Canary Islands, but here too, they are under threat and urgent action is required to protect them in their last remaining stronghold. There are no protected areas where Angelsharks can feed and breed without incidental threats from fisheries. Overfishing, human intrusion, natural system modifications and pollution are associated with the rapid growth in the Canary Islands’ tourism industry, threatening the Angelshark’s survival.

The Angelshark Project (ASP) is a collaborative initiative between the University of Las Palmas de Gran Canaria, the Zoological Research Museum Alexander Koenig and the Zoological Society of



100km west from the coast of Morocco, the Canary Islands are rich with over 1,500 km² of coastline where the ANGELSHARK is still frequently encountered.



The **ANGELSHARK PROJECT** was launched to safeguard the future of Angelsharks through data collection, conservation, and awareness-raising.



Some of the greatest marine bio-diversity can be found at the archipelago Raja Ampat, New Guinea. It is best protected through community-based conservation.

and address the major threats to Angelshark populations. Organizations or individuals are welcome, encouraging increased conservation action for the Angelshark in the archipelago. *by Eva Meyers*

COMMUNITY-BASED
CONSERVATION IN RAJA AMPAT,
INDONESIA

Raja Ampat in Western New Guinea, Indonesia, is part of the Coral Triangle with the highest species richness of marine life on Earth. The widely scattered diverse coral reefs are best protected through community-based conservation at a local scale.

Two distinct approaches are evident in the community of Sawinggrai. Examples of the first community approach include locally agreed “no take areas” affecting the subsistence fisheries and limiting fishing efforts to five days a week. Local people are easily trained to monitor their own resources. The results obtained show them that exercising restraint can be profitable in the medium to long term. In addition, communities also agreed to stop shark finning and blast fishing.

The second community approach is based on activities controlling access to charismatic species: for one, areas for a display for ‘Birds of Paradise’ were identified for tourists to have the unique opportunity of watching these magnificent animals. Tour fees are paid directly to the local guides. Second, a site frequented by Manta Rays was being disturbed by speed boats and groups of divers. Now access to the area is controlled by villagers.

Ecotourism has contributed to the protection of both marine and terrestrial habitats by the local communities. However, while it remains a challenge to balance the disturbance and the desired income, cooperation within and between communities has proven to be a key component to the conservation success of Raja Ampat. What is quite clear is that, in concert with national and international Agreements, community-based conservation can play a crucial role in effective environmental protection. ♦ *by Christoph Parsch*

Photo by aquapix/Adobe Stock

The Sustainable Seas Program in Mozambique

BY Sabrina Weiss

Sustainable fishing practices are critically needed, as fish stocks have been declining over the last 10-15 years, and at the same time, Whale Shark and Manta Ray sightings have decreased.

The Marine Megafauna Foundation (MMF) was created in 2009 to undertake research into, protect and conserve the populations of threatened marine megafauna around the world. ‘Megafauna’ are large marine species such as sharks, rays, marine mammals and sea turtles.

For many coastal communities in Mozambique, fishing is a primary source of food and income. Traditionally, fishermen used rods and lines, but due to overfishing, they have had to resort to gill nets to sustain their catch. These nets are placed perpendicular to the coastline and catch any species using inshore regions for feeding, cleaning or migration. Unfortunately, satellite tagging has shown that Whale Sharks, Manta Rays and other megafauna spend most of their time exactly where these nets are placed.

Gill nets have been identified by the MMF as the main factor attributable to humans in the shocking decline of regional shark and ray populations. Although dependent on the ocean, some fishing communities have little understanding of the impacts of unsustainable practices, so it is hoped that education can reverse the negative trends while maintaining sustainable livelihoods.

The Sustainable Seas Program was ini-

tiated as a response to the threats of overfishing and the use of gill nets causing bycatch of Whale Sharks and Manta Rays. Sharks and rays are the main attraction in Tofo in Mozambique, bringing employment and financial benefits. Since 2015, MMF has engaged with community leaders, fishermen and other key stakeholders through regular workshops on reducing fishing pressures, and explaining the reasons why fish stocks are declining and the benefits of sustainable management. In combination, these activities have proved fundamental to MMF’s bottom-up approach and MMF is ready to facilitate a Locally Managed Marine Area (LMMA), where coastal communities take responsibility for their own stretch of ocean.

In 2016, MMF activities, including interactive workshops and ocean festivals, gained enthusiastic support from fishermen and local authorities. This resulted in the first, multi-stakeholder agreement for a six-month temporary reef closure (no fishing, no diving). MMF is currently monitoring the impact of the reef closure in a once overfished area. The protected reef is expected to recover with a measurable increase in the biomass of both non-commercially important species and those species relied upon as a community food source.

Alternative livelihood options for communities are also being developed, focusing on three income streams: ecotourism, pig rearing and chicken rearing. MMF is also going to trial additional, rotational reef closures. This will serve to diversify community income opportunities and increase food security, whilst reducing the pressure on marine life.

Continued dialogue has built a level of respect in the local communities. Threats have been diminished with the introduction of closure areas and implementation of alternative livelihoods. MMF has the vision of a world where marine life and humans thrive together. The Sustainable Seas Program supports this by ensuring local communities learn to live in harmony with the ocean, whilst supporting their right to greater food security and to earn a living. ♦

WWW.MARINEMEGAFAUNA.ORG



Mozambique is a **WHALE SHARK** and **MANTA RAY** hotspot but sightings have declined in the last 15 years due to unsustainable fishing practices.

The **MARINE MEGAFAUNA FOUNDATION (MMF)** was created in 2009 to undertake research into to protect and conserve the populations of threatened marine megafauna around the world. ‘Megafauna’ are large marine species such as sharks, rays, marine mammals and sea turtles.

The Wonders of *the Wilderness*



SIMON J. PIERCE

A member of IUCN's Shark Specialist Group, Simon Pierce grew up near New Plymouth, New Zealand. He is a biologist specializing in Whale Sharks, conservation scientist and underwater photographer. He is also the co-founder and principal scientist at the Marine Megafauna Foundation.

Which of your roles – marine scientist, conservationist, wildlife photographer and author is most important to you and why?

All these roles are interconnected. I get huge personal satisfaction from publishing scientific papers that impart useful knowledge, but – aside from other scientists – not many people read them. These days, we're lucky in that we can distill the key results and create content around those, by writing in blogs, social media posts, producing videos, or creating infographics. Most research is focused on the continued development and improvement of conservation initiatives, so it's important to ensure that people understand and engage with the work. Taking photos of our study sites, the animals themselves, or the team in the field helps us to show the process, humanize our findings, and build trust in our recommendations. That whole process is important to me, but the outreach part of the job is definitely one I want to keep improving at.

What first motivated you to become involved in conservation?

Conservation is part of the national conversation in New Zealand – even our namesake species, the kiwi, are threatened. Growing up, I was exposed to some fantastic books and documentaries about inventive and effective conservation work, which successfully helps species recover from the edge of extinction. I found that incredibly inspirational – people created the problems in the first place, sure, but people were out there solving them too. I wanted to be part of that.

What linkages are vital for conservation efforts on Whale Sharks and other marine species?

It's vital to keep in mind that conservation can help to improve people's lives, in a very tangible way. We're often working in places with limited economic opportunities. Fishing or marine tourism can be vital to food security, or as a source of income. It's important to work with local communities to identify the reasons for adopting unsustainable fishing practices, and to find practical ways to improve the situation. It's not easy but, for long-term change, it's critical.

Do you think that ecotourism could be an appropriate tool to further the conservation of the Whale Shark?

Ecotourism has long been a well-justified rationale for Whale Shark conservation efforts. In some cases, e.g. Western Australia, tourism is directly used to fund Whale Shark management and research initiatives. In other places, e.g. Honduras, Whale Shark tourism was explicitly used as a justification for species-level protection. There is a caveat, in that the sharks can be a victim of their own popularity; I think we need to ensure that the sharks themselves benefit from tourism. That said, sustainable Whale Shark ecotourism has been a positive force for conservation overall. It's a multi-million-dollar industry that can help both people and sharks.

How does the CMS COP 12 theme "Their Future is Our Future" relate to your own work and efforts regarding wildlife conservation?

"Their Future is Our Future" speaks to both the global ecosystem we're all part of, but also to how people respond to nature on an individual, emotional level. Personally, I always feel clearer-headed and healthier after I spend time in wild places. Professionally, I want to get better at expressing the raw wonder that so many of us feel in the wilderness. My hope is to inspire people to seek out these experiences for themselves, and to become invested in their guardianship.

What are your personal hopes for COP12?

I hope that the Whale Shark is approved for listing on CMS Appendix I. I helped to write the IUCN Shark Specialist Group's reassessment of the species' conservation status for the Red List, which led to

its being categorized as endangered. That really brought home to me just how many we've lost – their populations have halved, or more, over recent years. Action is needed to reverse those declines. Several CMS Range States – including some where we work have no specific protection in place for Whale Shark or their habitats, despite being global hotspots for the species.

What progress would you like to see in the next few years?

Juvenile whale sharks tend to feed in a few consistent areas around the world. Safeguarding those special places, many of which are in CMS Range States, will have a positive impact for Whale Sharks while also creating employment and opportunities for the people living around them. As a Whale Shark scientist, my main goal is to work out the finer details of their breeding populations, to prioritise the most effective conservation actions, and to help other countries protect and promote their own marine treasures. ♦

» SHARKS CAN BE
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KILLING FOR PROFIT

Photo by Reiner Snijders/EyeEm/Getty Images



100,000 AFRICAN ELEPHANTS were killed in 2010-2012, out of a population estimated at less than 500,000 – populations of Savannah elephants have fallen by 50% in Mozambique and 60% in Tanzania.



Wildlife Crime does not only focus on African mammals such as **RHINOS** or elephants but also threatens different species of birds, fish and reptiles who are highly susceptible to extinction.



The insatiable demand for **RHINO HORNS** does not stop at the fences of protected reserves. In the last few years, several break-ins in international museums have taken place.

KILLING FOR PROFIT

BY Robert Vagg

In the film, the “Thomas Crown Affair”, Pierce Brosnan plays the role of millionaire socialite breaking into a gallery to stealing great art work that he coveted. The Head of Interpol’s art crime department dismissed the film as Hollywood fantasy, but art galleries are constantly being targeted by sophisticated criminal gangs, and there is clearly a market where they can sell their ill-gotten gains. And it is not just art galleries that the crooks have in their sights.

In the past ten years, there have been a number of break-ins in museums, where

The legalized removal of rhinos’ horns is a common practice in parks housing rhinos to discourage poaching (South Africa, November/ 2014).

thieves have stolen valuable exhibits and artefacts made of rhino horn – the Iziko Museum, Cape Town (2009), the Museum of Science, Coimbra, Portugal (2011), museums in Hamburg, Bamberg and Gifhorn, in Germany (2011), in Florence, Italy (2011) and the Gothenburg Natural History Museum, Sweden (2011). Auction houses such as Gorrings’ in Lewes, UK have also fallen victim.

Reports of elephants and rhinoceroses being massacred for their tusks or horns often make the headlines. The statistics are alarming – these species’ numbers are a fraction of what they were a few decades ago. The seemingly insatiable demand for rhino horns does not stop at the walls of museums or the fences of protected reserves. In a new and worrying development, thieves broke into Thoiry Zoological Park, near Paris in March 2017, shot a four-year-old rhinoceros, named Vince, and sawed its horn off. As a precautionary measure, one zoo in the Czech Republic then decided to remove the horns from all the animals in its captive herd that same month.

But this is just the tip of the ice-berg – the same fate is being shared by other less charismatic animals – birds, fish and reptiles too – and they are just as susceptible to extinction, meaning further pieces of the jigsaw of life on Earth are lost – forever. As a chain is as strong as its weakest link, international efforts to manage wildlife sustainably are undermined unless all countries are committed. The inconsistent application of laws encourages nationals of one country to go on organized hunting trips in another to take advantage of lax legislation and/or inadequate enforcement.

It is hard to imagine that the Passenger Pigeon was once the commonest bird on Earth with flocks so large that they blotted out the sun; but it is now a hundred years since the last individual died alone in Cincinnati Zoo, after the species suffered cataclysmic declines at human hands. We should learn the lessons of the mistakes that led to this and several other species’ extinction. But evidence suggests that they are going to be followed by many more, unless steps are taken to ensure that appropriate wildlife legislation is put in place, understood by the public and properly enforced. ♦

Photos by Érico Hiller



→ FACTOIDS

- Weight for weight, rhino horn is more valuable than gold or cocaine, so for instance as little as one kilo of rhino horn was worth about \$54,000 on the black market in 2015 while the gold price per kilo went down from approximately \$45k to \$36k that same year.
- Rhino poaching in South Africa increased almost 90-fold between 2007 and 2015 – from 13 rhinos killed in 2007 to 1,175 in 2015.
- In 2012 the illicit small arms market was estimated to account for between 10 and 20 per cent of the global arms trade – so somewhere between \$6 billion and \$12 billion.
- 100,000 African Elephants were killed in 2010-2012, out of a population estimated at less than 500,000 – populations of Savannah Elephants have fallen by 50% in Mozambique and 60% in Tanzania.
- Environmental crime is estimated at \$213 billion annually – illegal trade in wildlife at \$15 billion to \$20 billion.
- UN report stated that “the global drug trade generated an estimated US\$321.6 billion in 2003”, the equivalent of 1% of the world’s GDP.
- Protected wildlife is the fourth largest form of criminal traffic in the world behind drugs, counterfeiting and human trafficking, according to the World Wildlife Fund.

After the trauma of losing their parents, some orphaned rhino calves can become aggressive but these rhinos stayed calm (Kenya, June/2014).

→ KEY PLAYERS

INTERPOL is the world’s largest international police organization, with 190 member countries. Founded in 1923, its headquarters are in Lyon, France. Its role is to enable police around the world to work together to meet the challenges of fighting crime.

CITES: The Convention on International Trade in Endangered Species of Wild Fauna and Flora was established in 1975. It regulates international trade in more than 30,000 wild animal and plant species to ensure their survival is not threatened.

ICWC: The International Consortium on Combating Wildlife Crime is a collaboration among five inter-governmental wildlife law enforcement agencies. The partners are CITES, INTERPOL, UN Office on Drugs and Crime, World Bank and World Customs Organization.

Prince William: Fortright in his condemnation of wildlife crime, the Prince is patron of a charity calling for a ban in trade of all ivory products. He and former footballer David Beckham launched a campaign to stigmatize the purchase of ivory and rhino horn.



CMS & CITES: A COMMON CAUSE

CITES is a legally binding international agreement that regulates international trade in wildlife. Recognized in *The Future We Want* adopted at Rio+20 as standing at the intersection between trade, the environment and development, it promotes the conservation and sustainable use of biodiversity and ensures that trade in wildlife does not threaten the survival of species. CITES neither encourages nor discourages trade, but regulates it when it does take place to ensure that it is legal, sustainable and traceable.

With varying trade restrictions depending on the status of the species concerned, CITES regulates trade in 36,000 species of plants and wild animals. Over one million trade transactions are reported to the CITES Secretariat each year by the Convention's 183 Parties.

CITES works to combat illegal trade in wildlife in partnership with others in the International Consortium on Combating Wildlife Crime alongside CMS, Interpol and the UN Office on Drugs and Crime. This highly destructive trade undermines the Convention and has severe impacts on people, livelihoods, economies, security and the rule of law; and it fuels corruption.

CITES Parties have recognized the benefits that legal, sustainable and regulated trade has for people's livelihoods and for the species concerned. Examples of such beneficial trade include that in the wool of the Peruvian Vicuña, the meat of the Caribbean queen conch, Malaysian and

CITES regulates trade in 36,000 species of plants and wild animals with varying trade restrictions depending on the status of the species.

Vietnamese python skins and bark of the African cherry tree.

CITES and CMS cannot succeed in isolation. The Parties to both Conventions have consequently set their own targets within the framework of the 2030 Agenda and its 17 Sustainable Development Goals (SDGs). CITES intersects with many of the SDGs, both environmental and socio-economic. For instance, its role in combating illegal wildlife trade is specifically addressed through two targets under Goal 15.

The nexus between the SDGs and CITES was the subject of a Ministerial meeting, hosted by South African Minister Edna Molewa immediately before the last CITES Conference of the Parties in Johannesburg in 2016. It was observed that species, biodiversity and ecosystems provide foundational environmental resources, goods and services that are essential to achieving our sustainable development agenda and that, only by working together, can we face the difficult task of making the connections between the different global goals.

We need a joined-up approach if we are to succeed. CITES and CMS are in the frontline of this effort. ♦

JOHN E. SCANLON has been the CITES Secretary-General for more than seven years. He has experience in environment and sustainable development policy and worked, among others, as Principal Advisor to the Executive Director of UN Environment in Nairobi, Kenya.

A SMART APPROACH

Poaching of wildlife is one of the greatest crises facing our planet's biodiversity; however, many areas lack enforcement capacity and systematic monitoring programmes capable of adaptively informing their management, despite such programmes being critical to achieving conservation goals. Conservation practitioners and protected area managers need information on the distribution in time and space of threats, wildlife and protection efforts, in order to make informed decisions on how to deploy the limited resources at their disposal. In response to these needs, a partnership of conservation organizations developed the Spatial Monitoring and Reporting Tool – SMART.

Since its release in 2013, SMART has been implemented in more than 500 sites in 46 countries, becoming the global standard for enforcing conservation law and monitoring protected areas. SMART has enhanced law enforcement effectiveness, improved morale of protection teams, and reduced threats to wildlife at many sites around the world. At the heart of SMART is a powerful database, which aggregates data relevant for landscape management, and the 'SMART Approach', a suite of best practices for enhancing conservation and management effectiveness. SMART is accessible to users with a wide range of technical abilities and puts powerful data capture, analysis, mapping and reporting tools in the hands of users on the frontline of conservation. SMART aims to improve conservation effectiveness at site level, and is designed to

SMART was developed by:

- Frankfurt Zoological Society
- Global Wildlife Conservation
- North Carolina Zoo
- Panthera
- Peace Parks Foundation
- Wildlife Conservation Society
- World Wildlife Fund
- Zoological Society of London

convert field data into useful management information easily and quickly.

The conservation of migratory species is particularly challenging due to the great expanse of geography involved in animal movements. SMART was designed for use within protected areas, but these are often too small to safeguard migratory species effectively. However, SMART can potentially be used across much larger landscapes (e.g., for wildebeest or elephants which may travel long distances), and with the new cloud-based version, SMART Connect, there is a greater opportunity for data to be shared. Pilot initiatives are underway among countries in Southern Africa with trans-frontier landscapes where SMART is being implemented.

The continued involvement, support and guidance of SMART users, donors, and other stakeholders, ensures that SMART continues to meet the emerging and expanding needs of the conservation community. The SMART Partnership is committed to helping conservation professionals around the world put critical information and protection management systems in place to facilitate tactical and strategic approaches to managing conservation areas. ♦

PETER ZAHLER is the Asia Regional Director at the Wildlife Conservation Society and has over 30 years of experience in wildlife conservation. Conservation biologist Drew T. Cronin is Program Manager for the SMART partnership and researches in central Africa.

A DANGEROUS CALLING

BY Robert Vagg

For many biologists and zoologists, a job working in conservation is a dream come true – international travel, a worthwhile cause, a vocation rather than just a job. Some of the fieldwork can be perilous, in inhospitable and remote terrain and many of the animals being studied or protected would not hesitate to devour their human benefactors.

The worst that policy-makers on the international conservation conference carousel have to endure is the inconvenience of living out of a suitcase, lost luggage at airports and sessions of the budget committee that stretch into the small hours. This downside pales into insignificance compared with the dangers faced every day by those on the frontline of the conservation battle – rangers in the nature reserves trying to protect wildlife from ruthless poachers and political activists who risk their lives by crossing powerful economic interests as they campaign to protect the environment from damaging developments.

Being a park ranger or a conservationist in some parts of the world means having one of the most perilous jobs. The International Ranger Federation reports that 565 park rangers have been killed in the line of duty (2009 – 2016) – often outgunned by well-equipped adversaries with top of the range vehicles and modern weaponry, financed by the ill-gotten profits from their illicit activities.

Difficult to calculate because of its very nature, illegal trade in wildlife alone is estimated to be worth US\$15-20 billion annually, ranking it alongside trafficking

- 185 conservationists and environmental campaigners killed in 2015
- Just 17 countries account for 116 of such murders in 2014

Heavily armed park rangers patrol around the fences of African properties every night, searching for poachers who use poison or electrocution to kill rhinos.

WORLD'S OTHER MOST DANGEROUS PROFESSIONS:

- Lumberjack
- Police Officer
- Fire Fighter
- Deep Sea Fishermen
- Miners
- Metal Foundry Worker
- Astronaut
- Mountain Guide
- Stuntman
- Bomb Disposal Expert

of drugs, arms and humans as one of the most lucrative sources of income for organized criminals. The budgets of State institutions are under pressure, so the rangers and other law enforcement agencies cannot keep pace with the criminals, keen to safeguard their investments.

The NGO Global Witness has taken on the macabre task of monitoring the number of environmental activists killed each year for standing up for causes in defense of conservation and the rights of indigenous

Photo by Érico Hiller



people. In the past decade, over 900 such activists have been killed, the rate is accelerating and the culprits are rarely brought to justice. Central and Southern America have seen the most such murders, followed by South-East Asia.

Such chilling statistics demonstrate the commitment required of people who dedicate their life to conserving the environment. They fight the fight for us all, protecting the future of the planet, out on the front lines.

VICTIMS OF VIOLENCE AGAINST CONSERVATIONISTS:

- WAYNE LOTTER, elephant conservationist and co-founder of the PAMS Foundation, shot in Dar es Salaam in 2017
- CMS Ambassador KUKI GALLMANN (portrayed in "I Dreamed of Africa") shot and injured in an ambush at her Laikipia Nature Conservancy in Central

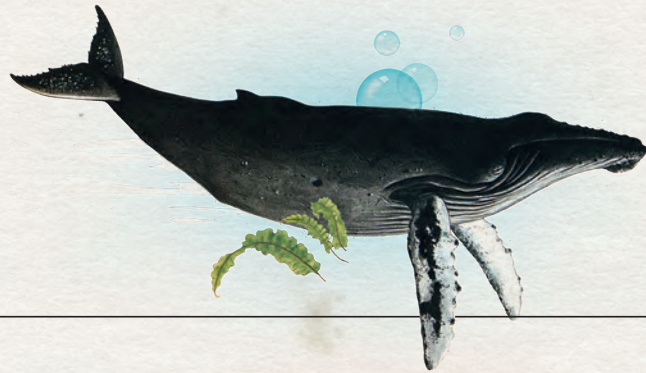
- Kenya in 2017
- EMMANUEL DE MERODE, director of the Virunga National Park in the Democratic Republic of the Congo, shot and wounded in 2014
- Twenty-six-year-old JAIRO MORA SANDOVAL (Costa Rica) murdered by poachers in 2013 while working on turtle conservation
- GEORGE ADAMSON (of "Born Free" fame)

- murdered by Somali bandits in 1989 in the Kora National Park
- FRANCISCO ALVES MENDES FILHO, an advocate for preserving the Amazon Forest and human rights of peasants and indigenous people killed in 1988
- DIAN FOSSEY (feat. in the film "Gorillas in the Mist") killed in her cabin 1985 possibly because of her efforts to combat poaching

The CMS

Humpback *Whale*

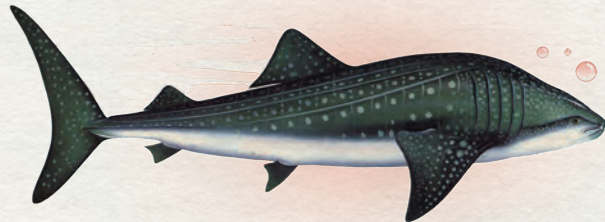
Species: *Megaptera novaeangliae*
Size: 14 – 19 m
Weight: 40 t
Age: 30 – 40 years
Diet: Omnivore
Speed: 27 km/h
Habitat: All major oceans from Equator to subpolar
Migration: 25,000 km
IUCN Red List: Least Concern
CMS: Appendix I



MAMMALS

Whale *Shark*

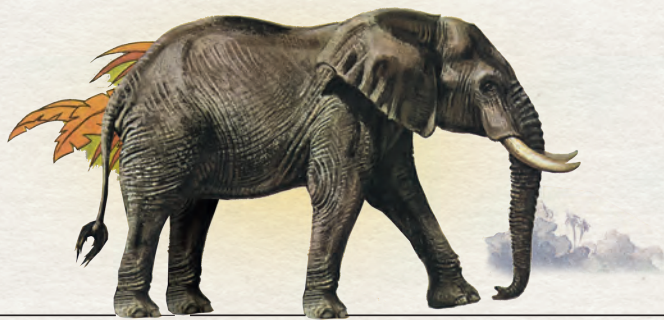
Species: *Rhincodon typus*
Size: 5 – 10 m
Weight: 20 t
Age: 70 years
Diet: Carnivore, filter feeder
Speed: 5 km/h
Habitat: Tropical, subtropical seas
Migration: 13,000 km
IUCN Red List: Endangered
CMS: Appendix II



FISH

African *Elephant*

Species: *Loxodonta africana*
Size: 2.4 – 4 m
Weight: 2.5 – 7 t
Age: 70 years
Diet: Herbivore
Speed: 40 km/h
Habitat: Africa, south of Sahara
Migration: 100 km
IUCN Red List: Vulnerable
CMS: Appendix II



MAMMALS

Dugong

Species: *Dugong dugon*
Size: 2.5 – 3 m
Weight: 220 – 500 kg
Age: 70 years
Diet: Herbivore
Speed: 10 – 25 km/h
Habitat: East Africa to Australia
Migration: 150 km
IUCN Red List: Vulnerable
CMS: Appendix II



MAMMALS

Mountain *Gorilla*

Species: *Gorilla beringei beringei*
Size: 1.2 – 1.8 m
Weight: 130 – 200 kg
Age: 35 years
Diet: Omnivore
Speed: 32 – 40 km/h
Habitat: D.R. Congo, Rwanda, Uganda
Migration: 30 km
IUCN Red List: Critically Endangered
CMS: Gorilla Agreement



MAMMALS

Illustration by Valero Doval

Fleet

BIRDS



Siberian *Crane*

Species: *Leucogeranus leucogeranus*
Size: 140 m
Weight: 5 – 8 kg
Age: 80 years
Diet: Omnivore
Speed: 70 km/h
Range: Western Siberia to China
Migration: 6000 km
IUCN Red List: Critically Endangered
CMS: Appendix I+II

REPTILES



Green *Turtle*

Species: *Chelonia mydas*
Size: 80 – 150 cm
Weight: 70 – 300 kg
Age: 80+ years
Diet: Herbivore
Speed: 56 km/h
Habitat: Tropical, subtropical seas
Migration: 2,600 km
IUCN Red List: Endangered
CMS: Appendix I+II

MAMMALS



Saiga *Antelope*

Species: *Saiga tatarica*
Size: 60 – 80 cm
Weight: 26 – 70 kg
Age: 5 – 10 years
Diet: Herbivore
Speed: 80 km/h
Habitat: Central Asia
Migration: 1000 km
IUCN Red List: Critically Endangered
CMS: Appendix II

BIRDS



Egyptian *Vulture*

Species: *Neophron percnopterus*
Size: 47 – 65 cm
Weight: 1.5 – 2 kg
Age: 35 years
Diet: Carnivorous scavenger
Speed: 48 km/h
Range: Southwest Europe, Africa, India
Migration: 80 km
IUCN Red List: Endangered
CMS: Appendix I

INSECTS



Monarch *Butterfly*

Species: *Danaus plexippus*
Size: 9 – 10 cm
Weight: 0.7 g
Age: 6 – 8 months
Diet: Herbivore
Speed: 18 km/h
Habitat: Northamerica to Mexico
Migration: 2,700 km
IUCN Red List: Data Deficient
CMS: Appendix II

* Migration distances are indicative only.



- | | |
|----------------------|-----------------------|
| ① WHALE SHARK → | ⑥ SIBERIAN CRANE → |
| ② HUMPBCK WHALE → | ⑦ SAIGA ANTELOPE → |
| ③ AFRICAN ELEPHANT → | ⑧ EGYPTIAN VULTURE → |
| ④ DUGONG → | ⑨ GREEN TURTLE → |
| ⑤ MOUNTAIN GORILLA → | ⑩ MONARCH BUTTERFLY → |

*Some of the migration routes on this map are based on tracks from individual animals, and do not represent population movements. For many species, migration remains poorly understood. For others, only examples of some known routes have been included. This map serves as an artistic interpretation of selected movements for educational purposes.



H. S. H. Prince Albert

Principality of Monaco
and Head of the Principality
House of Grimaldi

Nature is fascinating, full of mysteries. And mankind is trying to solve these mysteries in order to find out about life and also to be better able to protect it. Migratory species symbolize this mystery; why do certain living creatures cover incredibly long distances as part of their life cycle, spanning generations?

Migratory species are, in my opinion, at the same time fascinating, unifying and essential for maintaining the equilibrium of our environment. Fascinating – because some of them, be they terrestrial or marine, cover thousands of kilometres in order to reproduce and thereby ensure the continuation of their species. The European Eel (*Anguilla anguilla*), for example, undertakes one of the longest migrations known in the marine environment travelling some 5,000 kilometres from the Sargasso Sea, where it spawns, to reach Europe.

Unifying: because migratory species do not recognize the borders they cross between our countries both great and small, both coastal and land-locked. The lives – and the survival – of these species depend on people exercising their common responsibilities in each place that the animals cross. These species bring us together for one objective, namely their protection through our acting together for both their future and ours. That is what we are doing on the tiny territory of the Principality, where one cliff has been chosen as a refuge by birds such as the Mediterranean Crested Cormorant, the Grey Heron and the Peregrine Falcon, the hatching of two of which was recently observed.

But migratory species are also essential. In fact, they play a major role in the conservation of our natural heritage. They act as pollinators and seed dispersers, helping safeguard biological diversity which benefits food security for people. They regulate the balance of ecosystems by hunting their prey along their migration routes. They are also a source of revenue for many human communities.

Migratory species contribute significantly to the implementation of the Sustainable Development Goals. That is why for me acting to protect them has been the obvious thing to do for several years.

To achieve this I have set a clear course for my Government and for my Foundation with regard to the conservation of biodiversity. The Principality of Monaco has become involved particularly over the past few years in safeguarding endangered species. Evidence of this are the measures taken regarding the Mediterranean Red Tuna, the Bearded Vulture, the

» MIGRATORY SPECIES ARE FASCINATING, UNIFYING AND ESSENTIAL FOR MAINTAINING THE EQUILIBRIUM OF OUR ENVIRONMENT «

European Eel, cetaceans and, more recently, the Angelshark. This commitment also has a bearing on the creation of migration corridors or Marine Protected Areas which I see as essential tools for the conservation of ecosystems, in particular for marine biodiversity for which Monaco, a country which looks towards the sea, attaches particular importance.

In addition to the measures taken for the benefit of threatened species, we have also undertaken longer-term actions that support activities for species conservation within the framework of international conventions and agreements, in particular, the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

For 20 years now, the Principality of Monaco has supported the Agreement of the Conservation of Cetaceans of the Black Sea, the Mediterranean and the contiguous Atlantic Area (ACCOBAMS) by hosting its Secretariat, as well as in the implementation of its activities. In this regard, I am pleased to have been the patron of one of the first international campaigns dedicated to cetaceans – the Year of the Dolphin in 2005.

This unwavering support has led my Government to be granted the title of CMS Champion. While being awarded such a title is recognition in itself, my satisfaction is even greater knowing that the contribution of Monaco has allowed us to participate in the implementation of many priorities of the Convention's action programme.

For my part, I would also like to pay tribute to the important work carried out by the CMS Family, which is committed to the daily task of highlighting the challenges faced by migratory species. I would like to thank all of you too.

»WE NEED COMPANIES TO ACT AS ANIMAL AMBASSADORS IN A WAY THAT WE HAVE NOT SEEN BEFORE«

The Sustainable Development Goals are so monumental because they bring countries, scientists, and Non-Governmental Organizations together in one centralized location (even if often times it is digitally), and we have never seen such a willingness to take part. They allow for collaboration, sharing, and more importantly, they facilitate tough conversations. This is essential to addressing any problem, but more importantly – global problems. In terms of Goals 14 and 15, we can see the successes of UN Member States and then use them to address the problems facing many animals including migratory animals.

If we look at the history of our relationship with animals – migratory ones, in particular – the world has seen them as



Twenty-three-year-old Zach Beaudoin, native of Buffalo and senior at the State University of New York at Fredonia, will graduate with degrees in English, International Relations and a minor in political science. His focus is on sustainability issues & the 2030 Agenda with its 17 SDGs.

commodities to use and exploit. We kill them for our food, use them for our clothes, and integrate them into every part of our consumerist lifestyle. Not only do we make them into products, but we disrupt their delicate ecosystems for construction, agriculture, and transportation.

This disregard for the species' delicate ecosystems has been extremely detrimental not only to animals but also to the environment. Many reports and articles focus on keystone species and how they are the staple to the ecosystems within which they exist, but migratory animals are generally considered umbrella species that also contribute to the conservation of other species.

Without the preservation of these animals, we will not have salmon delivering essential nutrients to grow other organisms that rely on the organic materials that are dispersed from such a migration. We will increase desertification from a lack of soil disruption from large mammals; we will deplete our oceans of fish and other organisms that are crucial to the health of the oceans, economies, and the planet.

It is easy to see how these problems can have such an impact on the Earth and exacerbate climate change, but with the SDGs, we are on the path to finding collaborative solutions towards solving these problems. We have already discovered we have a problem, now we need to make a plan to address these problems. The targets for SDG 14 and 15 seemingly do that, at least as a good first step.

The next step is finding out what type of solutions are readily available or are needed to address a situation. That is where we need global commitments and participation. Most, if not all migratory animals travel across sovereign borders, which makes protecting them a multinational effort. We see some countries trying to protect these species, but it seems like a daunting task without actionable consequences. We need to include it into our climate agreements, but also free trade agreements a way to hold each other accountable.

A different approach would be to appeal to the market and conservation organizations and ask them to seek solutions to the problems. While that may seem antitheti-

cal in many ways, we are seeing a new era of corporate responsibility and technology. As we have seen so far, many companies have joined in the movement to address climate change and become carbon neutral. If marketed correctly, companies might like to join the conservation effort as well.

With the knowledge that conservation groups have, they can team up with companies that use sailboats to collect data in the oceans. They can integrate biomimicry and responsible features into their new designs that can aid the minimizing of our impact on migratory species. Big data companies can use their drones and other surveillance technologies to better pinpoint migratory routes and learn how to address these tough issues. Governments and companies can provide food sources along migratory paths so that bird species do not starve on along their journey.

However, the difficulty will be the appeal. The UN and associated partners will need to approach such companies, and in so doing, constructive ways to put pressure on governments to act can be found. As we have seen with some recent elections, conservation efforts in many countries can be repealed quickly, and this puts these animals at an increasingly significant risk. That is where educational efforts need to be improved within specific countries, which can be tied into commercials and products that companies are marketing.

We are seeing corporations adopting more socially responsible messages, business practices, and products. They are taking stands against climate change, social issues, and working to protect various environments, which has been attributed to the increasing demand by millennials. With this, we need to find an appeal to include migratory species in trade agreements, contracts, and business practices.

We need companies to act as animal ambassadors in a way that we have not seen before. We need them to oppose governmental actions and to pull funding from their own projects that could threaten essential migratory routes and encourage unsustainable habits and behaviors. We need to deliver the message that corporate and governmental irres-

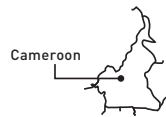
p responsibility will not be acceptable. It cannot be business as usual, and we need to include these problems into the all future international agreements relating to trade and climate, with the ability to supersede existing agreements that allow our current practices to continue without regard to biodiversity.

With companies assisting, this allows other government actors to participate or include these policies in trade agreements and partnerships that are being negotiated. We can have better leverage to demand protections for migratory species and some solutions to protect them. It isn't enough to ensure that these species do not go extinct, we need to ensure that their populations and ecosystems are healthy and sustainable for future generations. This is not just a problem that we can ignore, and the sooner we act, the quicker we can mitigate the consequences that seem all too likely. ♦

THE CMS SECRETARIAT AND THE UN ASSOCIATION OF THE USA...

...organized an essay competition to find out how the younger generation perceives the linkages between the SDGs and the conservation of migratory species. UNAUSA promoted the competition through its social media network, prescreened the entries and provided CMS with a short-list of the best ones, from which the CMS Secretariat has chosen the winner for publication, Zach Beaudoin, who has been invited to attend the COP to speak at the opening ceremony. In their essay, entrants were asked to present their views on the CMS COP12 theme *Their Future is Our Future – Sustainable Development for Wildlife and People* reflecting on the indispensable contributions of wild animals to sustainable development; the many socio-economic benefits people derive from them and the role of global treaties such as CMS in reconciling economic growth and conservation needs. United Nations Associations exist in several countries and their aim is to help raise public awareness of the work of the UN and help build the relationship between citizens of member countries and the United Nations.

African Communities



Recent declines of the Western Lowland Gorilla are due to poaching and ebola outbreaks. Thanks to an initiative that redirected locals from selling bushmeat to sustainably harvesting vegetables, the supply of gorilla meat in Cameroon is declining.



Photo by Jeff Jarrett/Adobe Stock

BY WINSTON FRU
The Limbe Wildlife Centre (LWC), located in the South-West of Cameroon, is a reputable sanctuary that cares for more than 200 primates (15 primate species native to Cameroon) that have been confiscated from the illegal trade in bushmeat and pet trade. These primates include gorillas, chimpanzees, drills, mandrills and other species of small monkeys, as well as some non-primate species such as duikers, crocodiles and the African Grey Parrot. The LWC works extensively with the local community to secure the long-term survival of the threatened and endangered wildlife of Cameroon. It focuses on raising awareness and changing attitudes

as well as creating alternative livelihood projects that are economically beneficial and promote the conservation of biodiversity.

The Green Leaf Vegetable Scheme and the Aframomum Project in Batoke, a hunting village about 11km from the LWC is one of such projects that have bridged the gap between conservation and sustainable livelihoods. For so many years the village of Batoke was a hotspot for the bushmeat and pet trade. Locals and tourists would visit to buy and eat bushmeat as a delicacy, from gorilla meat to the Gabon Viper. A well-coordinated hunters' syndicate of 40 members (Batoke Hunters Club) existed in the village to facilitate the bushmeat and pet trade as a means of making a living.

The Green Leaf Vegetable Scheme focuses on redirecting the local women from preparing and selling bushmeat to sustainably harvesting green leafy vegetables (e.g. cassava leaves) which are then sold to the LWC to feed the primates. The Aframomum Project contracts former hunters to harvest aframomum, a genus in the ginger family, which is widely eaten by primates. The plant is a perennial deciduous herb with a tufted leafy stem known to have anti-parasitic, antifungal, antibacterial, and antiviral properties, and helps maintain the gastrointestinal balance and is one of the most preferred browse by primates at LWC. It is used for enrichment as gorillas at LWC not only eat the plant but use it to make a nest for sleeping.

Aframomum is a wild plant that grows in secondary forests and does not need to be cultivated and therefore there is no need to slash and burn (a common farming practice in this village) the forest for farming. Harvesting is done sustainably, using a method that allows the stem to regenerate and becomes ready after 2-3 months for the next harvest. The project provides employment and has become the major source of income for the ex-hunters and their families. Today, the market for bushmeat has dwindled tremendously as most local women who own bushmeat restaurants now belong to the Green Leaf Vegetable Scheme. The Batoke hunters' clubs no longer exist as most of their members have been employed by the Aframomum Project. ♦



Elephants and Bees

BY Lucy King

The Elephants and Bees Project is conducted under the umbrella of the UK research charity Save the Elephants in association with the University of Oxford and Disney's Animal Kingdom and in partnership with Kenya Wildlife Service (KWS) in Kenya.

By deploying the novel Beehive Fence design to protect small farms from damaging elephant crop-raids, the project exploits African Elephants' fear of honey bees and promotes beekeeping as an alternative income. Beehive Fences are presently up and running in test sites in 11 African and 3 Asian Elephant Range States, and Kenya



THE TSAVO EAST NATIONAL PARK in southern Kenya is home to approximately 6,000 elephants. Farmers and free-roaming elephants share the same land, leading to conflicts due to crop-raiding and other damage. The construction of beehive fences has enabled them to live in harmony.

is testing the fences nationwide as a method to mitigate human-elephant conflict.

As elephants disperse from the fence-less Tsavo East National Park in southern Kenya in search of water and sustenance, they disturb front-line farms at night, breaking in to eat crops or stored grain. Elephants can destroy an entire crop in one single raid as well as endanger the lives of the farmers dependent on their crops. This is a major problem, as the farmers often retaliate by scaring off the elephants or throwing spears at them. This results in either people or elephants being wounded or killed. KWS rangers are frequently called to drive elephants off and several human fatalities have occurred, straining relations between the community and the overworked and under-resourced KWS.

Farmers using beehive fences are trained on both fence construction techniques and the principles of bee-keeping. They are also encouraged to plant crops less palatable to elephants on the perimeter of their fields, such as sunflowers and moringa.

Dr Lucy King's doctoral thesis has led to the construction of protective fences around farmers' fields, reducing human-elephant conflict, improving food security and providing additional income from honey. While a few farmers were wary of taking up bee-keeping, with guidance from the project team and donated protective suits they have become more confident, as beehive fences have an 80 per cent success rate for peacefully deterring elephants.

Across Africa, farmers and elephants share the same land, but elephants cannot easily be contained within national parks, because of their size and intelligence. Electric fences are too expensive, trenches can be filled in and crossed by elephants, and traditional thorn-bush barriers offer too little protection. Incidents of elephant deaths by shooting or poisoning are a concern, as is the sustainable livelihood of those farmers.

The project aims to change the attitude of people who have always seen elephants as dangerous pests. Ultimately, changes in the perception of these animals helps the communities understand the importance of elephants in the ecosystem and live together in harmony. ♦



Photo by Lucy King; Andreas Klotz

Resilient or *not resilient?*

BY Harriet Taberner

There are approximately 6,600 African Wild Dogs, *Lycaon pictus*, left which inhabit less than six per cent of their historical range. The species appears resilient, but will this resilience endure in the face of climate change? Studies are underway to investigate this very issue.

African Wild Dogs live in Southern Africa and the southern part of East Africa. They have a mottled brown coat of black, brown, red, white and yellow with no dogs possessing the exact same pattern. They have large ears which allow them to keep track of other pack members, and help with heat loss. The dogs are oppor-



On the surface, the AFRICAN WILD DOG seems impervious to high temperatures. Yet, recent research suggests the reproductive cycle is not.



tunistic predators, hunting antelopes, gazelles, impala and kudus and even tackle wildebeests as well. The pack is dominated by a monogamous breeding pair, the female of which produces a litter of two to twenty pups during the cooler months. The pups are then cared for by the entire pack. The young feed first at a kill, or when they are too young to be present, the older dogs regurgitate food. They also do this for old and sick pack members.

As global warming ratchets up the degrees in the Wild Dogs' range, the question is how will these social carnivores cope? They may fare quite well, as they are well adapted to high temperatures and dry climates, and do not need habitats with surface water. They can run for long periods without dehydrating, and tactically hunt during the mornings and evenings to avoid the heat of the day. Their bodies are also constructed in such a way that allows their body temperature to stay above the ambient one meaning they avoid sweating. Despite these natural advantages, the Wild Dogs' survival might not be assured.

While *Lycaon pictus* is water-independent, its prey - grazing animals - are not and are sensitive to droughts. If the prey species struggle because of global warming, so will the African Wild Dog. The dogs choose the coolest periods of the day to hunt, but with rising temperatures these periods are becoming warmer. As the grazers diminish in numbers, the competition increases amongst the carnivores that prey upon them. *Lycaon pictus* is already susceptible to kleptoparasitism (when a larger species steals the kill) as it is the smallest of the large carnivores. The dogs will be forced to hunt longer hours during the hotter periods of the day. It may also affect the reproductive cycle because these dogs rely upon lower temperatures to raise pups, and it is predicted that litter sizes will fall. Each of these factors will negatively influence the future of these animals.

The future does not look good for the Wild Dog of Africa, and the research into the exact effects of climate change on these animals is just beginning. Let us hope that the optimism of those that say the dogs may fare quite well, is well founded. ♦

Photo by Lonely Planet Images/Getty Images



Time keepers of nature – set your clock by migratory birds, we do!



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INTERNATIONAL COUNCIL FOR GAME AND WILDLIFE CONSERVATION

CIC – Conservation through the sustainable use of wildlife.

Protecting Primates *to Protect the Planet*



JANE GOODALL

The primatologist, ethologist, anthropologist and UN Messenger of Peace, Jane Goodall is synonymous with the cause of chimpanzee conservation having studied the species' social and family interactions for over half a century, having started her work in Gombe National Park, Tanzania in 1960.

Where does your passion and commitment for biodiversity and great apes come from?

I have always loved nature and animals - and from the age of 10, I wanted to go to Africa. My study of Chimpanzees began in 1960 in Tanzania's Gombe National Park. Later, I helped organize a conference bringing together scientists studying Chimpanzees. I was shocked at how fast Chimpanzee numbers were declining due to hunting for bushmeat, the live animal trade and habitat destruction. I went to the conference as a scientist but left as an activist. The main difference between us and Chimpanzees is human intellect. But it is bizarre that the most intellectual being to ever walk this planet is destroying its home. I hear "we haven't inherited this planet from our parents, we have borrowed it from our children." But we are stealing the planet from future generations.

What success stories could you share with us regarding wildlife conservation?

After the 1986 Understanding Chimpanzees Conference, I went to eight African countries to learn about the plight of the Chimpanzees. And I then realized the plight of the people living around Chimpanzee habitats and that only by improving those people's lives, could we save the animals. The Jane Goodall Institute (JGI) initiated the Lake Tanganyika Catchment Reforestation and Education (TACARE) programme in the 12 villages around the Gombe National Park. TACARE developed into a holistic programme, ranging from restoring over-used farmland and introducing water management plans and reforestation, to microcredit opportunities and scholarships to keep girls in school. We also introduced our Roots & Shoots programmes into schools. TACARE has

proved so successful that we have established partnerships in 52 villages, where volunteers monitor the health of their forests with smart phones. Similar methods are being used in six other Chimpanzee range countries.

Can you relate the CMS COP 12 theme "Their Future, Our Future" to your own work?

Climate change threatens nature and our own species and the number of climate refugees is increasing. For millennia, migratory birds have paused to seek food to sustain them on long journeys. Sea turtles have arrived on specific beaches to lay their eggs. Salmon have returned to the river of their birth to mate. Like human migrants, these species face a hostile reception at these traditional destinations. And the dangers along the way are constantly increasing. More stringent measures to protect wildlife will benefit our own species. We are part of the natural world, and our continued over-exploitation of non-renewable natural resources will destroy the future for the generations that come after us.

I hope that discussions at COP12 will lead to more solutions for the conservation of migratory species before it is too late. For some species, free movement between countries

» OUR CONTINUED
OVER-EXPLOITATION
OF NON-RENEWABLE
NATURAL RESOURCES
WILL DESTROY THE
FUTURE FOR
GENERATIONS THAT
FOLLOW «

and protection along the migratory route will decide on survival or extinction. So, listing Chimpanzees on Appendix I would certainly benefit the species. The Gorilla Agreement could be revised to benefit all African apes, with collaboration between eleven African countries. Successful outcomes from the meeting would improve the morale of those working as rangers and on conservation issues, especially through good media coverage..

What efforts are needed to arrest the declines in wild animal populations?

To halt the dramatic loss of wild animals, it is desperately important that we solve three seemingly insoluble problems:

1) Extreme poverty. People in rural areas will destroy the last trees in their desperate effort to grow food and those in urban areas will buy the cheapest food and clothes because they cannot afford to ask whether the product was obtained ethically. 2) Unsustainable life styles. The rest of us must start thinking about the consequences of what we buy and the cumulative effect of those small ethical choices will make a huge difference. More CEOs need to be concerned with environmental responsibility, too. 3) Human population growth. Family planning must be widely discussed. Girls' education is a priority: As women get better educated and have more control over their lives, their families tend to get smaller. Unfortunately, there seems to be a trend for the wealthy to have many children who will use up more resources than those in poverty.

What progress would you like to see in the next few years?

We need more public awareness about conservation, greater funding and growth in movements such as Roots & Shoots which began in Tanzania in 1991 with 12 students. Now present in 100 countries, it has members of all ages and 100,000 active groups. Each group decides on three projects to make the world around them a better place - for people, for animals, for the environment. The main message is "every individual matters, and every individual makes a difference - every single day." I wish all at COP12 fruitful discussions, wise decisions, and firm commitment to implementation. ♦

SUSTAINABLE DEVELOPMENT GOALS

BY Robert Vagg



The SDGs set the tone and direction for development and aid until 2030, advocating for sustainable management of environmental resources.

In September 2015 at an historic UN Summit world leaders adopted the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development. These Goals entered into force on 1 January 2016 and apply to all countries, which over the coming 15 years will try to end poverty in all its forms, to tackle inequalities and deal with climate change.

The SDGs are the successors to the Millennium Development Goals (MDGs) and renew the world's commitment to eliminating poverty. All countries, poor and rich alike are urged to protect the planet's environment while at the same time promoting increased prosperity. Eliminating poverty must complement actions designed to enhance economic growth and meet various social needs, such as education, health, social and employment, without neglecting the environment or ignoring climate change.

The SDGs of greatest relevance to CMS are goals 14 and 15 Life below Water and Life on Land. ♦

The stakes are high

Two years ago, the world adopted 17 Sustainable Development Goals (SDGs) to end poverty, protect the planet and ensure prosperity for all. This was one of the most historic agreements of our time and it has the potential to revolutionize the way we and other species on Earth co-exist. There has never been a more critical time to have these goals in place; huge chunks of the Great Barrier Reef in Australia are dying, we continue to see the mass extinction of animals, islands are disappearing and too many people still live in extreme poverty.

The stakes are high for everyone – we cannot afford to ignore climate change or extreme poverty nor shy away from the hard choices and investments. I have travelled from Dubai to Oslo, from Hanoi to Botswana. I've witnessed the impressive efforts by governments, private sector, innovators, and civil society to implement the Sustainable Development Goals. The results of these efforts give me great confidence that as a global community, working together, we can achieve the SDGs.

My home country, Kenya, is one of the world's most bio-diverse countries, with 80 major animal species, among them over 1000 species of birds and extensive coral reefs. Kenya hosts one of the largest regional migrations of the world, where 1.3 million wildebeest, 200,000 zebras and 18,000 Eland Antelopes make the journey from Kenya to Tanzania and back. Migratory birds move from Europe to the global south, finding refuge and food in Kenya.

As an important country for animal migration we recognize the crucial role we play in the world's biodiversity, which is precisely why we've invested heavily in clean forms of energy and conservation efforts. We want to ensure that ours is not the last generation to witness the

spectacle of great animal migrations across the continent.

We cannot do it alone; more countries, companies, organizations and people need to engage in this global journey towards fulfillment of the Sustainable Development Goals. Indeed, international cooperation will be an essential part of achieving the SDGs and we can look with confidence to the UN and multilateral environment agreements, such as CMS, to provide the forums that will devise the requisite means for the good of our planet, people and the prosperity of all. ♦

H.E. MR. MACHARIA KAMAU Ambassador and Permanent Representative of Kenya to the United Nations, appointed by the President of the UN General Assembly as the Special Envoy on Sustainable Development Goals Implementation and Climate Change.

Their path is our path

We are fascinated by them, we are inspired by them, and, most importantly, we need them. Migratory animals constitute a global resource that enriches the lives of everyone on Earth. Not surprisingly, then, the conservation of migratory animals is necessary to achieving a number of Sustainable Development Goals (SDGs). If we wish to end hunger (SDG2), we cannot do so unless we protect the migratory fish stocks that sustain millions of people (SDG14). If we aspire to combat climate change (SDG13) or halt the extinction of species (SDG15), we are obliged to con-

serve the forests and grasslands that sustain our migratory animals and, along with them, countless other, less mobile plants and animals. And because migratory animals do not recognize national borders, ensuring their well-being will, by necessity, require strengthened global partnerships for sustainable development (SDG17).

Given the importance of conserving the world's migratory animals, what are the key steps to take in the next few years? My recommendation is to maximize Income; Inventory; Connectivity; and Management and Enhancement of habitats for migratory species. Every nation should commit to inventorying the great migrations that occur within or across its borders, starting with birds, mammals and fish. Then, focus on maintaining and restoring the connectivity of habitats, thereby giving the migrants safe passage. Breakthroughs in technology now let us map the world's landscapes in unprecedented detail via satellites or track the movements of animals as large as a Blue Whale or as little as a bumblebee. We can finally figure out where the migrants are going and what habitats they need. A great starting point in this regard would be to commit to protecting or restoring "buffers" of native forest or grassland along the banks of all sizeable rivers and streams. These buffers will pay multiple dividends: they will facilitate the movement of migratory animals while also safeguarding water quality and protecting fisheries for downstream villages and cities.

Underlying all these actions, of course, is the sound management and enhancement of the habitats upon which migratory animals depend. If these habitats are protected, and if the migrants themselves are not subject to unsustainable exploitation, we will have taken a giant step toward meeting many of the Sustainable Development Goals. ♦

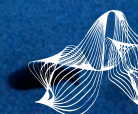
DAVID S. WILCOVE Professor of Ecology, Evolutionary Biology, and Public Affairs Princeton University, USA. Professor Wilcove has 32 years of experience with conservation and biodiversity, his research interests focusing mainly on these topics.

THREATS TO THE OCEAN

Photo by Simon J. Pierce



MARINE DEBRIS has impacted over 650 species, with more than 200 being migratory. Debris can result in entanglement in ghost nets and accidental consumption of small pieces of plastic.



Levels of anthropogenic **MARINE NOISE** have doubled in some areas, every decade, for the past 60 years. This increase in levels can become a life-threatening issue for many marine species.



COP12 will be addressing both the issues of marine noise and marine debris, to try to mitigate against harmful activities, and to **PROTECT SPECIES** from further types of debris.

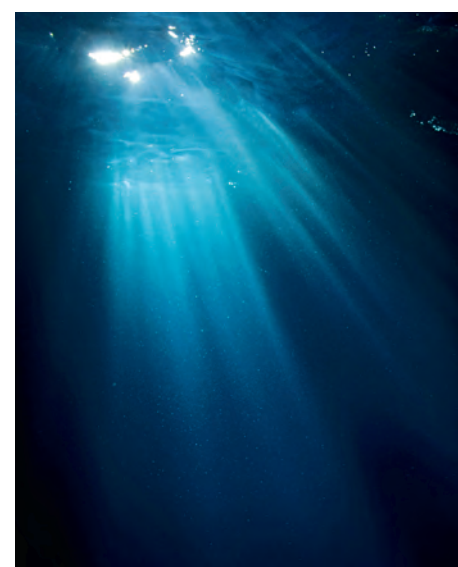
OCEAN NOISE - HAVE YOU HEARD (OF) IT?

BY Alexandra van Hoek

Underwater noise pollution has been continuously increasing, affecting all marine life with detrimental consequences. A major problem with this threat, however, is that humans are largely unaware of it while life underwater cannot escape it.

The most common and continuous underwater noise pollutant is caused by ships' engines. Ship traffic continues to increase, as over 90 per cent of today's world trade is transported on water, with noise doubling every decade since the 1950s. This is not the only pollutant. Next to sonar testing, sending high pitched signals in all directions, seismic surveying to locate underwater oil and gas deposits remains the loudest pollutant. To create this acoustic energy, some vessels pull several arrays each with up to 30-40 air guns per boat, blasting at 10-15 second intervals. Advocates of

As sunlight penetrates only 200 metres deep into water, marine wildlife relies on sound rather than sight for communication, prey and predator detection, and orientation.



these surveys claim the noise is comparable to naturally occurring marine sounds, such as seafloor volcanic eruptions or undersea earthquakes; opponents compare it to a jet engine at take-off. Yet, the frequency of seismic surveys is not comparable to naturally occurring sounds. In some areas, seismic surveying was recorded on 80 per cent of days for over a year and can be heard almost 4,000 km away.

Naturally, noise pollution influences the behaviour of marine species. Reef fish abundance can decrease by 78 per cent during seismic surveying. Additionally, studies have found communication changes in North Atlantic Right Whales, where older recordings included deeper sounds than the more recent high-pitched ones, more audible over the deep humming of ship engines. Next to habitat displacement and communication changes, studies have also found a direct correlation between the amount of ship noise and the physiology and stress levels in marine animals, where less noise is directly correlated with less stress-related hormones. Effects of seismic surveying can be found in all marine animals down the food chain from whales to plankton. Experimental air gun signal exposure was found to cause a two- to threefold increase in dead adult zooplankton.

Awareness of this pollution is slowly rising. In 2008, at CMS COP9, the issue was addressed, "recognizing that marine noise can have severe impacts on a wide range of biota". It has been agreed, noise-related considerations are necessary as early as the planning stages of activities, using Environmental Impact Assessments (EIA) to evaluate effects of marine noise on CMS species and their prey. COP12 is being presented with draft guidelines for EIAs, which provide tailored advice to Parties applicable in domestic jurisdictions, helping decision-makers by ensuring that they are presented with sufficient information about impacts of any proposed activity. These guidelines will represent a major advance in international policy.

Even though the noise we produce under water is muted to our ears, we cannot ignore the damage it causes. Not all the harm we are doing can be seen. Just like plastics and chemicals, noise also pollutes. ♦

Photo by Zena Holloway/Getty Images; Flip Nicklin/Picture Press

THE COSTS OF PLASTIC DEBRIS TO MIGRATION

BY Pia Ricca

Predictions estimate that by 2050, there will be more plastic than actual fish in the sea. Everyone, every day, will encounter plastic in the form of packaging of our food, or drinks, or many other common everyday items. Single-use plastics present a huge problem to our ecosystems, as they are excessively utilized and improperly disposed of. Approximately 32% of plastic packaging worldwide does not make it to collection systems, and can likely end up in the ocean.

Any species that spends time in and around the marine environment is likely to be affected by marine debris. This includes all migratory species of fish, marine mammals, marine turtles and shore- and seabirds. Many suffer lethal consequences. The biggest risk for marine species is entanglement in discarded fishing gear, also called "ghost gear", which is estimated to make up around 10% of the marine debris in global seas. Although abandoned, these fishing nets are still ultimately serving their purpose, entangling marine life, leading to injury and death.

Smaller pieces of plastics, either ones manufactured in that size or fragments from disintegrated larger pieces, are often mistaken for food. 90% of seabirds have ingested some form of plastic trash, and sometimes consume so much that they have no space for food in their stomachs. Filter feeders, such as baleen whales and whale sharks, can also ingest large amounts of microplastics when feeding.

These impacts are documented for over 650 species, over 200 of which are migratory and listed in the CMS Appendices. The situation is becoming critical, but awareness-raising has inspired action from the public to take their own steps to

decrease their use of plastics, but also to campaign to get the biggest contributors to take responsibility. Industries can be the biggest drivers of shifts in mentality, and addressing part of the solution by reducing the manufacturing of waste. Development of new technologies to create biodegradable materials, better designs of packaging, and introducing plastic bag charges are some of the solutions that countries and industries are embracing.

Additionally, the Convention is working towards mitigating the impacts of marine debris on migratory species by calling upon Parties to address abandoned gear and to promote debris prevention measures. With collaboration between CMS and other organizations, such as UN Environment and Regional Seas Programmes, it becomes possible to implement robust legislations and creates a multilateral approach to work with stakeholders on a much larger scale.



The transboundary nature of the problem makes it especially crucial to also engage those countries not yet Party to CMS and thus outside the influence of the Convention, as the source of the litter can come from far away, even outside the range of the species affected. With international cooperation and more engagement with countries, we may be able to address the damage to populations of migratory species by instigating change and remediating against this critical situation. ♦

CMS is proposing additions to its resolutions on **MARINE DEBRIS** management to reflect the significant increase in knowledge on marine debris sources, pathways and impacts.

A NEW WARNING DEVICE

BY Boris Culik,
Matthias Conrad,
Jérôme Chladek

HARBOUR PORPOISE BYCATCH

There are many reasons why Harbour Porpoises fail to detect gillnets in time. The murky water makes the nets hard to see. Toothed whales produce clicks to detect prey and obstacles, but thin nets only give a weak echo.

Increasing numbers of Harbour Porpoises are stranding along Germany's Baltic coast (150 reported in 2016 as opposed to an annual average of 30-40 at the turn of the century) with most attributable to gillnet by-catch.

Expanding protected areas and establishing fishery closures might please conservationists but would strongly affect the industry. Gillnet-fishing is size-selective and sustainable in relation to its target species; but is bad for by-catch.

Acoustic warning devices ("pingers") could help reduce Harbour Porpoise by-catch. They emit loud noises that keep marine mammals at a distance, but also exclude them from their habitat and feeding grounds. Pinger noise startles Harbour Porpoises, reducing echolocation activity, which may lead to higher by-catch.

NEWLY DEVELOPED WARNING DEVICE PAL

Harbour Porpoises interpret upsweep chirps as warnings. Based on this, the PAL has been developed and patented. It imitates Harbour Porpoise alarm signals at a frequency of 133 kHz, which is the one the animals use.

Unlike other pingers, the PAL floats and can withstand rough handling on board vessels, reaches a source level of up to 145 dB. Its batteries last 1½ years when continuously operating and are replaceable. The PAL hardware can be reprogrammed for different operating requirements. PALs have to be mounted on the net float lines every 200 metres and the method of attaching the devices to nets was improved in consultation with fishermen.

PAL FISHERY TRIALS

PAL was tested between 2014 to 2016 by the Thünen Institute of Baltic Sea Fisheries in the professional Danish and German gillnet fishery in the Baltic leading to a significant reduction in bycatch. In 1,000 trials, fishermen retrieved 6,400 km of nets and by-caught 22 Harbour Porpoises: 5 in nets fitted with warning devices and a statistically significant 17 in nets without them, showing that PAL could reduce by-catch in the Baltic by over 70%.

While results of tests in the Western Baltic Sea show that PAL effectively protects Harbour Porpoises from gillnets, the results of trials in the North Sea are not conclusive, requiring more tests and possibly research with alternative signals.

REACTIONS OF HARBOUR PORPOISES TO PAL

During trials in the Danish Belt Sea the reactions of Harbour Porpoises to PAL signals and customary pingers were compared, and the animals' response was recorded. The results show that Harbour Porpoises react to PAL by maintaining high levels of echolocation activity (twice in intensity compared with pingers), without being excluded from their habitat. Thus, by-catch reduction is probably due to echolocation activity, which allows the animals to detect the nets and avoid collision.

As part of a validation study, the Baltic Sea Info-Center is planning to deploy 1,680 PAL in Schleswig-Holstein. From that same region, already 220 fishermen engaged in the gillnet fishery entered a voluntary agreement to reduce by-catch.

Photo by Boris Culik; Thünen Institute for Baltic Sea Fisheries

PAL might also mitigate by-catch if deployed in Mecklenburg-Western Pomerania, on the Danish and Swedish Baltic Sea coasts and beyond.

FURTHER APPLICATIONS

PAL could be adapted for other populations and species - Mexican Vaquita and species susceptible to mass strandings e.g. Pilot or Sperm Whales.

Preliminary tests showed that specific signals attract Harbour Porpoises which focus their attention on the acoustic detector nearby, so another application could be to attract whale species for scientific research or to lure them away from hazardous areas.

Finally, PAL hardware could be adapted to deter marine mammals to protect them from sound or explosive injuries related to seismic studies, military exercises, construction work for offshore wind farms and harbour installations or controlled munitions' explosions.

WWW.F3MT.NET



As gillnets are thin, they do not produce a strong echo that can be detected by echolocation. As such, gillnets represent one of the biggest sources of bycatch for HARBOUR PORPOISES.

The PAL WARNING DEVICE works by replicating the Harbour Porpoise alarm signal, causing the porpoises to increase their echolocation activity, improving their ability to detect the nets.

PAL has proven very effective in protecting Harbour Porpoises from gillnets in the Western Baltic Sea, showing more than 70% REDUCTIONS in bycatch after a 2-year trial period.



Ecological Belts and Roads and *the Conservation of Migratory Species*



NGOs play a key role in the protection of migratory birds. CBCGDF is a leading NGO in China to work on preventing the illegal killing of birds.

Migratory species play an important role in biodiversity conservation. The protection of birds – and their habitats – is critical and birds do not recognize national boundaries when they migrate. This is why the China Biodiversity Conservation and Green Development Foundation (CBCGDF) and the IUCN North-East Asia Programme have jointly started an initiative called “Ecological Belt & Roads” (EBRs).

In late October 2016, the “Ecological Belt and Roads and CMS Workshop” was held by CBCGDF in Beijing. It was a great honour for the CBCGDF to welcome Dr. Bradnee Chambers, the Executive Secretary of CMS, to the workshop and he brought valuable insights to the dis-

cussions. Attendees included top officials from the Revolutionary Committee of the Chinese Kuomintang, and government officials from the Ministries of Agriculture and Environmental Protection, the State Forestry Administration, the State Oceanic Administration and other relevant ministries, as well as many experts on migratory species, and representatives from IUCN China, UNDP, UNEP and NGOs. The EBRs Initiative was announced at the workshop.

In March 2017, CBCGDF helped to draft a proposal advocating China’s accession to CMS to the country’s top political advisory body, the Chinese People’s Political Consultative Conference, CPPCC.

Current experience shows that NGOs play a key role in the protection of migratory birds. CBCGDF has taken various measures to combat poaching and illegal trading of migratory birds, including direct approach to combat poaching activities long-established in key locations on the migration routes, to promote legislation and the improvement of the legal framework protecting migratory species, to increase public awareness, to advocate ‘saying “No” to inappropriate wildlife releases’, to reduce the illicit demand for migratory birds and so on. These measures have had positive consequences.

The CBCGDF sincerely invites more people and organizations to join the EBRs and work together to protect migratory species along the Belt and Roads. ♦

ZHOU JINGENG, PhD, Secretary General of China Biodiversity Conservation and Green Development Foundation, a China based NGO participating at the leading edge of biodiversity conservation, environmental protection and sustainable development.

Photo by Linda Wong

Building a *Migration Atlas* for Mammals in Central Asia

Among the world’s greatest spectacles are overland mammal migrations – milling hooves, billowing dust, and congregating animals in the midst of bleats and bellows. While the best-known examples are the African Wildebeest and Alaskan Caribou, Asia has some of the most magnificent (and least-known) migrations, including some of the last great temperate ungulate herds on Earth – a million Mongolian Gazelle, the extraordinary Saiga Antelope, the high-plateau Tibetan Antelope, Tibetan and Goitered Gazelles, Asiatic and Tibetan Wild Asses, and the Wild Yak.

These ungulates provide a unique assemblage of large mammals supremely adapted to living in harsh, arid, and cold steppe and desert environments. While these great herds inhabit some of the last true wildernesses, growing threats – rampant and unsustainable poaching for food, skins, and the traditional medicinal market, along with extractive industries and the concomitant growth of linear infrastructure that blocks critical movement and fragments the landscape – imperil some of these great migrations.

In response, CMS is implementing the “Central Asia Migratory Mammal Initiative” (CAMI), its first regionally-driven collaboration for species protection. It covers 14 countries, 8 of which are Parties to the Convention. It also addresses 15 species, 11 of which are listed on the Convention’s Appendices.

To help deal with the specific and rapidly growing threat of linear infrastructure, the Wildlife Conservation Society (WCS), in partnership with the CAMI, is implementing a project entitled “Atlas of Range-wide Mapping and Priority Setting of CAMI Species (Distribution and Movement Corridors) and Linear Infrastructure Threats across Central Asia.” This project

is supported by the Federal Office of the Environment Switzerland (FOEN); German Federal Agency for Nature Conservation (BfN) with its International Academy for Nature Conservation; and the German Ministry of the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

The project addresses one of the most significant threats to large migratory mammals in Central Asia – the growing development of linear infrastructure (roads, railroads, fences, and pipelines) across the key habitats and corridors used by these species. A group of 25 leading experts on these species and the magnificent places where they live collected, collated, debated, and discussed data about the ten CAMI species in terms of range, distribution and movement patterns. This information was combined with data on linear infrastructure (both existing and planned) to identify the greatest threats to each of these species, and develop recommendations for avoidance and mitigation.

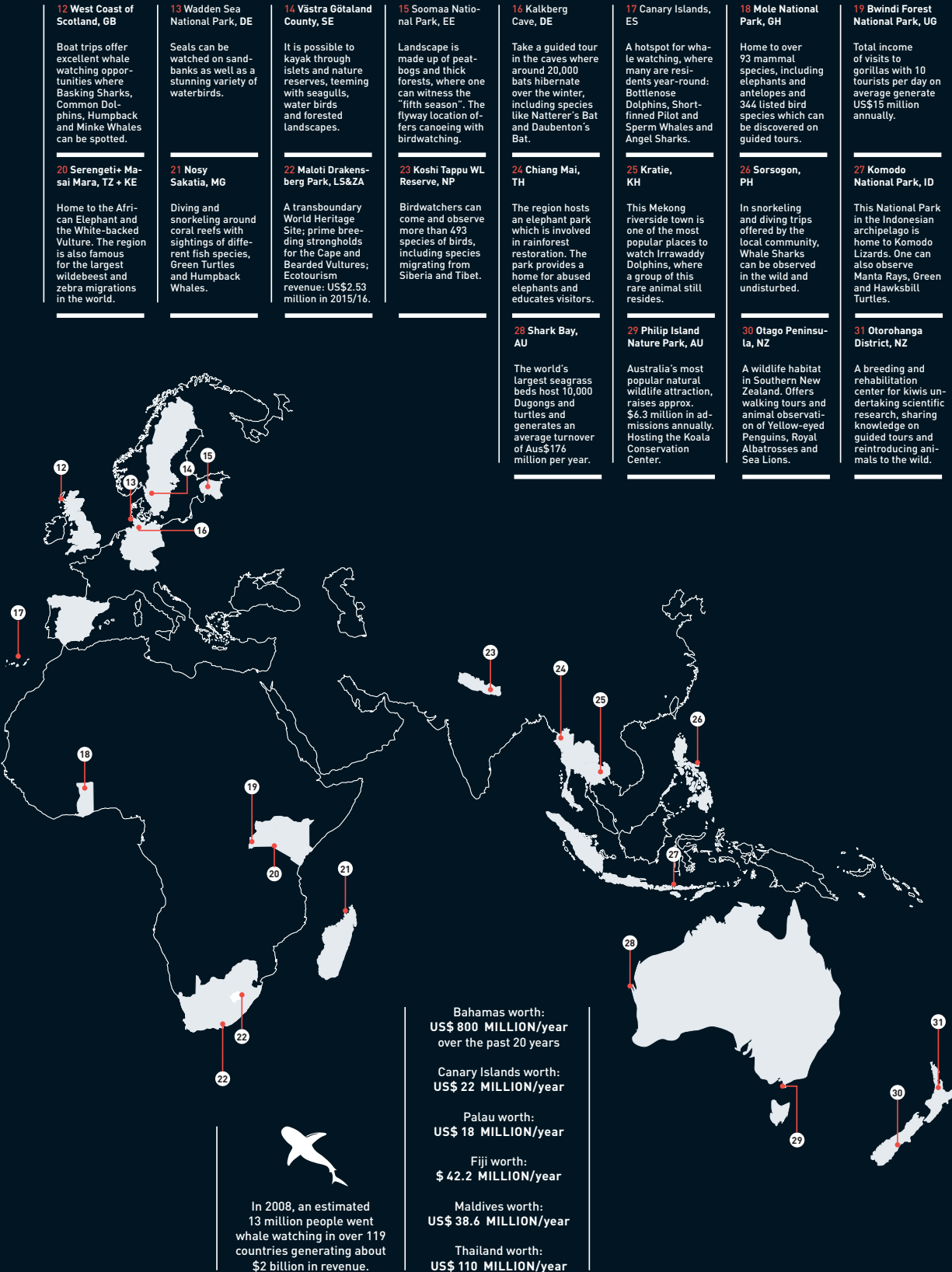
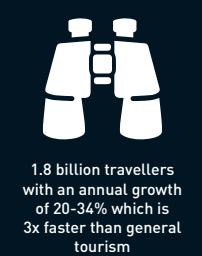
Compiled into a “CAMI Atlas” this living document will be available on the CMS website. It can then be used by multiple stakeholders (government, industry, international lenders, NGOs, research scientists, and local community members) to help avoid or mitigate the single greatest threats to movement – and thus ultimately survival – of migratory mammals across Central Asia. ♦

PETER ZAHLER, ERIC SANDERSON, KIM FISHER, CHRIS SPAGMOLI all work for the Wildlife Conservation Society, an NGO aiming to conserve the world’s largest wild places in 16 priority regions, home to more than 50% of the planet’s biodiversity.

ECO-TOURISM WORLDWIDE - WHERE TO GO, WHAT TO SEE



"Responsible travel to natural areas that conserves the environment and improves the well-being of local people" (TIES, 2005)
Key aspect: ecotourism should help protect wildlife and conserve nature, unlike "nature-based" tourism wrongfully labelled as ecotourism and possibly threatening nature conservation.



Marathon *journeys*



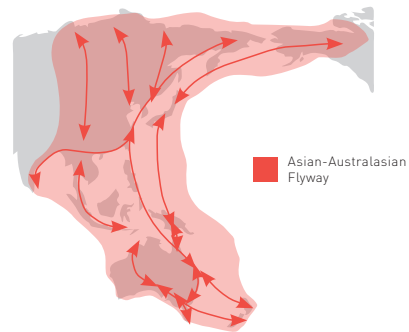
Vast journeys of the avian world typically connect breeding grounds in arctic regions with non-breeding sites in tropical areas. Research has identified eight flyways on this north-south axis, among which the East Asian-Australasian Flyway.

BY SPIKE MILLINGTON

Every year, 50 million migratory waterbirds undertake their marathon journeys through the East Asian-Australasian Flyway (EAAF). Some, such as the Bar-tailed Godwit, travelling almost 30,000 km from New Zealand to Alaska and back. Yet the landscapes encountered by these birds look very different today compared with only a few decades ago. New cities, ports and industrial complexes have replaced many of the coastal marshes and mudflats, leaving the birds dependent on a declining number of increasingly degraded and fragmented sites. This is especially the case in the once extensive intertidal areas of the Yellow Sea of China



Photo by Jonathan Harrod/Minden Pictures/Getty Images



The East Asian-Australasian Flyway is travelled by over 50 million waterbirds. Expanding infrastructure threatens birds and their habitats.

and the Korean peninsula.

The Philippines lies at the heart of the Flyway. Endangered Far Eastern Curlews and Great Knots from Australia rest on the sandflats of Cebu's Olango Island, on their northward journey. Other important wetlands throughout the country support thousands of migrating waterbirds and the remote Tubbataha Reef is a refuge for large colonies of terns and boobies. As the Philippines prepares to host the 12th COP to the Convention on Migratory Species, the challenges and opportunities to protect and manage migratory waterbirds and their habitats will be brought into focus. Coastal wetlands, such as those around Manila Bay, face huge pressures for development and freshwater marshes are threatened by drainage and agriculture.

Yet, the Philippines recently designated the Negros Occidental Coastal Wetlands Conservation Area as a Ramsar and EAAF Partnership Flyway Network Site, reinforcing its commitment to protecting vital habitat for migratory waterbirds. Protection of migratory waterbirds depends on international cooperation: these waterbirds represent a shared natural heritage with the other 22 countries of the Flyway. "Bottlenecks", or stopover areas, are critical, as huge numbers of migratory waterbirds depend on them. The intertidal zone of the Yellow Sea is the most important of these. Encouragingly, recognition of its importance has led both the Republic of Korea and China to propose the designation of intertidal areas as World Heritage Sites, which the Wadden Sea had already achieved, acting as similar refuge on the East Atlantic Flyway.

The theme of COP12 – Their Future is Our Future – is a timely reminder of not

just the interconnectedness of nature and people, but also of the need for individuals, communities and countries to work together to protect migratory species. For migratory waterbirds, we need to identify the areas where populations are most vulnerable and cooperate to address challenges and identify opportunities to improve benefits, for both birds and people. The EAAF Partnership brings together 35 governmental, inter-governmental and non-governmental organizations to conserve migratory waterbirds and their habitats. The CMS Secretariat is a founding Partner and jointly we have a strong cooperation in initiatives such as World Migratory Bird Day each May. COP12 represents an exciting opportunity and significant step forward in promoting international collaboration, and accordingly I wish it every success. ♦

Conservation of *Hima Anjar Zabad Wetlands*

The Conservation of Hima Anjar-Kfar Zabad Wetlands through community participation is a project in both the Anjar community on the eastern side of the Anti-Lebanon Mountains and the Kfar Zabad community living along the Anti-Lebanon Mountains from west to east, surrounding an agricultural valley. The two agricultural groups make up approximately 13,000 inhabitants who earn their living by farming, making handcrafts, and doing part time manual labour. The region in which they live possesses one of the remaining wetlands on the African-Eurasian flyways for waterbirds.

The Society for the Protection of Nature in Lebanon (SPNL) supports both these communities to implement the Hima management plan which works to conserve globally endangered species, such as the

Syrian Serin and the River Otter. The former was heavily hunted in the region and when it was discovered that the endangered River Otter also resided in the wetlands, it was considered doubly necessary to protect the site. The major threats to species in the region come from hunting, drought, loss of habitat, pollution of water resources and over extraction of these resources. Hence a strong reason why SPNL aids the communities is to conserve the Anjar springs, rivers and underground wells.

Over the last three years, there has been a great effort to make the communities more autonomous. SPNL has started to invest in several projects to raise the capacities of the youth group, Homat Al-Hima, with the hope that the group will be able to lead the management of the Hima sites and associated activities. Accordingly, the youth are currently leading

on the promotion and management of ecotourism as well as educational activities in the village, in addition to clean-up campaigns for the rivers and wetlands, the conservation of the mountains through regular maintenance and reforestation campaigns, and supporting the monitoring of wildlife species.

Predictably, there was major opposition to the conservation programme from hunters and grazers, as well as farmers. However, SNPL managed to involve opposing communities in participatory planning meetings, provided job opportunities under implemented projects and created a zonation plan. Indeed, the communities have been successful in the conservation of species in their region, as can be seen in the increasing population of Syrian Serin from less than thirty pairs in 2012 to over one hundred and forty pairs in 2016. ♦



The Hima Anjar Zabad Wetlands are one of the remaining stopover habitats for migratory Waterbirds travelling the African-Eurasian Flyway.



Photo by Asaad Saleh

EVERYTHING YOU NEED TO KNOW ABOUT CMS AND THE COP

The Conference of the Parties (COP) is the principal decision-making body of the Convention as set out in Article VII of the CMS text. The COP meets once every three years, and sets the budget and priorities of the following three years (the triennium). It also decides on amendments of the Appendices and considers reports submitted by the Parties, the Scientific Council and the Agreements established under the Convention.

Between sessions of the COP, the Convention is overseen by the Standing Committee, which is made up of regional representatives elected at the COP from among the Parties, the hosts of the next and previous COPs and Germany, which is both the Depositary country and host of the Secretariat.

Parties are entitled to attend the Conference and vote. Non-Party States are entitled to send observers, as are NGOs active in the field of conservation and other United Nations organizations.

There were approximately 50 delegates at the first COP in 1985 representing all 19 of the Parties at that time. Attendance has grown steadily since then and COP now attracts around one thousand delegates and observers representing non-Party States, United Nations agencies, Secretariats of Agreements established under the Convention, conservation NGOs, other international agencies active in the field of conservation and sustainable use and the media.

Factoids

- **Credentials:** Delegates from Parties must be properly accredited by their Governments and require “credentials” confirming that the delegate can represent the country at the COP and participate in the discussions and when necessary vote.
- **Bureau:** A group of officers of the Conference (the Chair, Vice-Chair, the Standing Committee and the Secretariat) is responsible for guiding the meeting smoothly through the agenda.
- **Committee of the Whole:** While it is the Plenary that makes the decisions (e.g. elects the Conference officers and adopts the resolutions), most of the detailed discussion takes place in the “Committee of the Whole” (COW).
- **Resolutions and Decisions:** Since COP1 in 1985, Parties have adopted 150 Resolutions and 37 Recommendations detailing agreed policies on a wide range of issues from budgets to conservation activities. COP12 will adopt Decisions for the first time.
- **Amendments to the Appendices:** Parties have also agreed to 300 amendments to the species listed on the Convention’s two Appendices. So far, all the amendments have added species or populations to the Appendices; none has yet been removed.

Seven Agreements

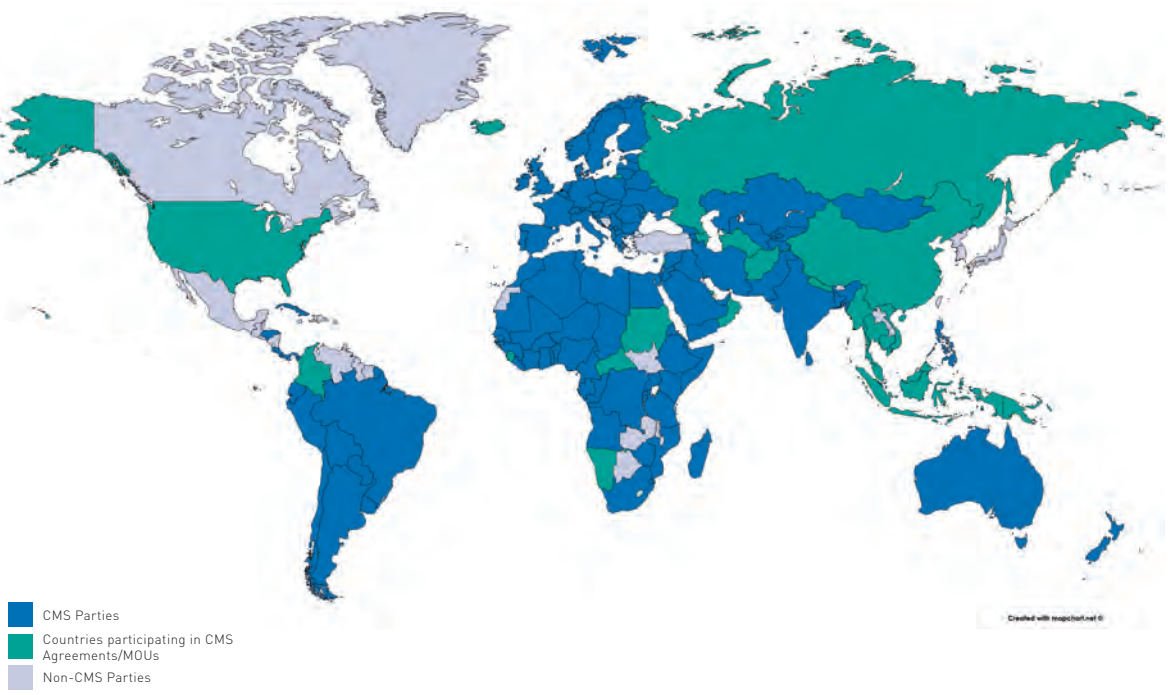
- Gorillas and their Habitats
- Albatrosses and Petrels (ACAP)
- Cetaceans of the Black Seas, Mediterranean and Contiguous Atlantic Area (ACCOBAMS)
- African-Eurasian Migratory Waterbirds (AEWA)
- Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS)
- Populations of European Bats (EUROBATS)
- Seals in the Wadden Sea

19 Memoranda of Understanding

- Southern Huemul
- Migratory Sharks
- High Andean Flamingos and their Habitats
- Migratory Birds of Prey in Africa and Eurasia

- Manatee and Small Cetaceans of Western Africa and Macaronesia
- Dugongs and their Habitats throughout their Range
- Mediterranean Monk Seal
- Southern South American Migratory Grassland Bird Species and their Habitats
- Ruddy-headed Goose
- Cetaceans and their Habitats in the Pacific Islands Region
- Saiga Antelope
- West African Populations of the African Elephant
- Aquatic Warbler
- Bukhara Deer
- Marine Turtles and their Habitats of the Indian Ocean and South-East Asia
- Middle-European Population of the Great Bustard
- Marine Turtles of the Atlantic Coast of Africa
- Slender-billed Curlew
- Siberian Crane

MEMBER STATES



The *Only Show* in Town for Migratory Species



These large carnivores require vast areas of connected habitat for survival. But cheetahs have been driven out of 91% of their historical range.

The mission of the Wildlife Conservation Society (WCS) is to save wildlife globally through science, conservation action, education, and inspiring people. We envision wildlife thriving in healthy lands and seas, valued by all societies that embrace and benefit from the diversity and integrity of life on Earth.

As Vice President for International Policy at WCS, my job is to contribute the Society's scientific, technical, and policy expertise, built up over 100 years in over 60 countries, to international discussions between governments and influence international policies and commitments that will benefit wildlife and wild places. WCS works on the conservation of many

CMS-listed species, including: whales and dolphins; cheetah; marine turtles; sharks and rays; and species of the African Savanna. Saving wildlife is our history and our future at WCS – as it is also CMS's history and more importantly, everyone's future.

In a rapidly changing world, wildlife species are threatened by a myriad of cumulative threats. Climate change, poaching and illegal trade, over-exploitation, habitat destruction and deterioration, oil and gas extraction, and infrastructure can particularly imperil migratory animals. CMS is the only international agreement devoted exclusively to these migratory species. Many would like to see CMS strengthened, with compliance measures, and greater funding for conservation priorities. But as it is, it's the only show in town for migratory species.

Conservation is inextricably linked to the well-being and sustainable development of local and indigenous communities. Sustainable development without conservation of species and their habitats will never succeed, nor can conservation succeed without the human dimension.

The agenda for the CMS COP in Manila is full, and many of the issues are a priority for us at WCS. I look forward to sharing our scientific and technical expertise on many issues, sharing our work with communities, discussing how delivering improved lives for people can benefit wildlife, and how wildlife conservation can benefit local communities. It will be an exciting week!

SUE LIEBERMAN, Ph.D., Vice President, International Policy with WCS has worked in biodiversity conservation for more than 25 years. Has extensive experience with wildlife trade and intergovernmental policy.

Photo by Westend61/Getty Images

Where are they *now*?

With the theme of the Conference being the future, it seemed appropriate to focus on the next generation and, in particular, on the army of interns that have worked at the Secretariat contributing so much to the Convention. We have contacted a number of former interns to find out what they are doing, how their careers are progressing and what memories they have retained of the time spent with the Secretariat in Bonn. Here are some of their stories ...



01-03
2017

Julio Ignacio Rodriguez Stimson,
EC, ES, US

BA History, MSc. Social and Cultural Anthropology

Following his internship, Julio worked as a video chronicler with Lindblad Expeditions on the National Geographic Islander cruise ship in Galápagos documenting the expeditions.



06-09
2016

Catherine Johnson,
US

History & Classical Civilization, USA

She interned for the Joint Communication Unit of CMS & AEWA during her BA studies which she went on to finish afterwards. Now she has accepted a fellowship from her University to move to Nanjing, China, and teach English at Ginling College.



07-12
2015

Chenxuan Jia,
CN

International Studies & Sustainable Development

After his 5 months' internship at the Capacity Building Unit in which he assisted in China's accession process to CMS, Chenxuan became Associate Consultant in China's sustainability consultancy.



03-08
2015

Lukas Bickhove,
DE

BA International Relations

Lukas stayed for 6 months with the Communication and Outreach Team at CMS. After his Bachelor's in International Relations, he decided to pursue a law degree.



05-07
2015

Brendan Shepard,
FR/US

International Affairs and Sustainable Development in Paris

He interned for AEWA before finishing his MA degree in France. There, he is currently interning at Ubisoft and preparing for the YPP exam to join the UN again.



05-08
2015

Aishwarya Bhattacharjee,
IN

Pursuing a PhD in Biology

Having finished her internship with the Avian Species Unit, Ash began a doctoral fellowship in Biology in New York. Currently her main research and dissertation topic focusses on Old World Vultures in the Chitwan-Annapurna Landscape of Nepal.



05-08
2015

Geoff Horsfield,
US

MA Public Policy

Geoff completed his Master's after interning for CMS and started working for WCS. Right now, he is at the American Society for the Prevention of Cruelty to Animals (ASPCA) where he helps to educate lawmakers on critical animal protection legislation.



12/14 –
03/15

Martin Bangratz,
AT

MSc Sustainable Urbanism

Martin is now working at Montag Stiftung Urbane Räume in Bonn, a foundation for sustainable neighbourhood development. Additionally, he is a freelancer in graphic design, urban design and illustration.



05-08
2014

Mengdi Wang,
CN

MA Global Studies

At the end of her Master's, Mengdi interned with the CMS' Communications Team. Currently, she is working in Beijing as public affairs manager at an Economic Development Agency.



11/13 –
01/14

Kirstin Ulrichs,
DE

MSc Agriculture, Denmark & MSc Environmental Science, Germany

After interning in the Science Unit, she also worked as a consultant for CMS until gaining employment for a German Wind Energy Company.



01-04
2013

Ellie Waters,
CA

BA International Relations, MA Human Rights

After her internship, Ellie finished her BA in IR and a MA in Human Rights. Now, she is a researcher at the UN University but will move back to Canada to work for the Government at Indigenous and Northern Affairs Canada as a Policy and Program Officer.



07-10
2012

Sarah Hepp,
DE

MA European Studies

In addition to her Bachelor's in Romance Language and Politics, Sarah did a MA in European Studies. Afterwards, she was employed as consultant for a German foundation in Stuttgart.



10-12
2010

Nayantara Ganesh,
IN

LLM in Environmental Law, UK

After her internship at CMS, she joined Greenpeace as a consultant. Currently, she works as a researcher for an NGO called Earthsight, which was set up by Sam Lawson, leading expert on illegal trade in timber.



01-04
2010

Vivian Lam Yan Yan,
CN

Mphil Ecology & Biodiversity, Hong Kong

Vivian interned with CMS before she became Marine Program Officer at the International Union for Conservation of Nature in D.C. Currently, she is doing a PhD in Biological Sciences at the University of Queensland, researching coral reef ecology.



10-12
2006

Melanie Klussmann,
DE

Studied Political Science in Berlin

Melanie stayed with CMS for another year as consultant after her internship, until she launched her career at the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, where she is currently Head of the Division International Affairs.

SURPRISING FACTS

The GIRAFFE

→ ... is the tallest mammal, reaching up to 5.5m. Humans are only as tall as its legs!

→ ... has a rough start in life by falling from a height of 1.5m as giraffes give birth standing up.

→ ... never gets blood rushing to its head while drinking as the blood is prevented from rushing to its head thanks to an adapted cardiovascular system.

→ ... is also called Camelopardalis which means "camel in the leopard's coat" in Ancient Greek. A fitting name!



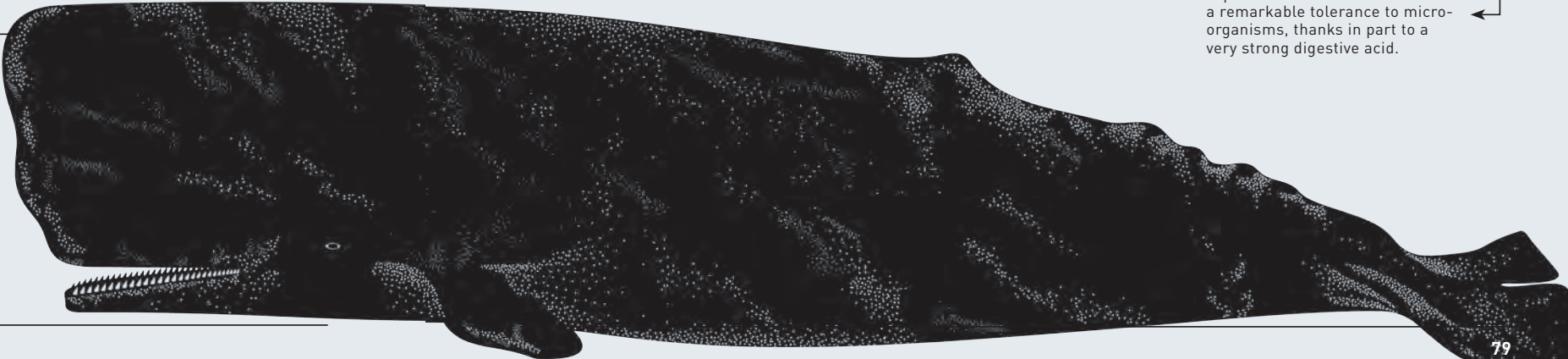
The SPERM WHALE

← ... weighs 35 to 45 tons. Its head alone accounts for 1/3 of its size.

← ... has wax-like substance in its head, possibly related to buoyancy or echolocation.

← ... is a gourmet eater, indulging in its preferred food: giant squid. It can eat up to a ton per day!

← ... in Herman Melville's novel Moby Dick was an albino!



The EUROPEAN EEL

→ ... does not take its travel lightly. It even gets bigger eyes and a silvery skin for its long journey.

→ ... does not feed during its journey, surviving only on energy reserves. What a tough diet!

→ ... is an ambitious fellow. Once hatched, the eel larvae begin their long way back to Europe, which can take up to three years.

→ ... is called "glass eel" as a newborn. It is so transparent that you can read a newspaper through it.



The WHITEBACKED VULTURE

← ... has a bald head for thermoregulation. It is not, as originally presumed, for hygienic purposes.

← ... is threatened by poisoning. In India and Pakistan, a devastating number of vultures died after feeding on carcasses of animals treated with diclofenac, poisonous to vultures.

← ... has a feeding hierarchy with other vultures. The largest species of vulture will feed first as it can tear through the toughest parts.

← ... prefers its meat fresh! It has a remarkable tolerance to microorganisms, thanks in part to a very strong digestive acid.

ACROSTIC

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
	15	26													21										

B																							
22	3	23	18	20	8	4	8	20	5	23	17	6	4	20	22	12	3	17	15	20	22	17	22
C																							
26	17	6	6	24	22	12	21	23	17	14	12	24	18	23	19	9	12	22	17	6	4		
				</																			

01. CMS is also known as? 02. Chelonia mydas is better known as? 03. CMS aims to conserve which kinds of species? 04. Acinonyx jubatus is better known as? 05. The 10th of May is the...? 06. Land degradation of dry areas can lead to? 07. It's one of the smallest marine mammals 08. The 2nd of June is the...? 09. Which bird features in the title of a Tchaikovsky ballet? 10. A critically endangered antelope 11. What is the generic term for whales, dolphins and porpoises? 12. What do you call the Agreement on the Conservation of Populations of European Bats? 13. What does MOUs stand for? 14. Panthera leo is better known as? 15. The world's largest extant fish 16. Short form for Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas

CROSSWORD

Contributors



MATT WILLEY
is the art director of The New York Times Magazine. He is co-founder of Port Magazine (2011) and Avaunt Magazine (2015) and was elected 'Designer of the Year' by Creative Review and member of the Alliance Graphique Internationale (AGI). Matt lives in Brooklyn with his wife and two children.



SOYEON KIM
Seoul born Graphic Designer and Illustrator. Since 2015 she is part of the design team at Munich-based agency Herburg Weiland. In close collaboration with Tom Ising and Marc Ritter she has illustrated the book *Size Matters* – a fact-bound and tongue-in-cheek book about size comparison.



ÉRICO HILLER
is a Brazilian documentary photographer since 2003. His career has led him to publish several photographic projects which became books and exhibitions, *The Journey of the Rhinoceros* is the result of a huge endeavor undertaken by the photographer over two years in several countries in Asia and Africa.



VALERO DOVAL
uses vintage imagery, nature and delicate handwork to produce collages full of rich narrative for editorial commissions, installations and personal work. He has been commissioned by *The New York Times*, *Le Monde*, *Kenzo* and *Timberland* and exhibited across Europe, USA, Australia and Canada.



BERTO MARTINEZ
is a versatile illustrator born in Barcelona in 1973. He strives to find the cohesion between text and illustration through realistic figuration and psychological portrait, creating images that tell a story. He works usually for *The Volkskrant*, *L'Optimum*, Amnesty International and others.



SEBASTIAN KENNERKNECHT
is a photographer focused on wild cats and imperiled species. He works with conservation organizations and magazines to increase the awareness of endangered species. Using digital SLR camera traps and conventional techniques, he also works closely with in-the-field biologists.



CRISTÓBAL SCHMAL
is a Chilean illustrator telling stories with images that are comfortable, funny and strange all at once. After working as an Art Director for studios and advertising agencies in Barcelona, he decided to move to Berlin 2008 where he now works across Editorial, Books, Cover Art and Advertising.



TRINE SKRAASTAD
is a picture editor based in Berlin. She works for renowned publishing companies and agencies, including the development and relaunch of magazines. She brings together young and reputable talents for editorial assignments and teaches seminars at Hyperwerk Institute for Postindustrial Design in Basel.



THE CALIFORNIA ACADEMY OF SCIENCE
the renowned scientific and educational institution in San Francisco's Golden Gate Park is the only place in the world to house an aquarium, planetarium, and natural history museum, as well as innovative programs in scientific research and education—all under one living roof.

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Fighting the Good Fight, *and winning!*

by Robert Vagg

They say “no news is good news”; but they also say good news does not make for dramatic headlines in the same way that bad news does. And indeed, looking over the past few years, the story highlighted on the CMS website attracting most media attention was the report on 2015’s mass die-off of Saiga Antelopes.

And the Convention – and the species it seeks to protect – are facing other challenges too – poaching of elephants, illegal hunting of birds, bycatch, climate change, noise, light and plastic pollution, and habitat degradation and loss.

It is therefore an encouraging change when there is good news to report proving that all the efforts undertaken across the world to protect endangered migratory species are worthwhile.

One of the people behind the first “Conservation Optimism Summit” held in April 2017 was Professor E. J. Milner-Gulland, Professor of Biodiversity at Oxford University’s Department of Zoology. She has experienced the roller-coaster ride of progress and set-backs in the conservation of the Saiga Antelope.

Speaking to German world radio station, Deutsche Welle, she said “You forget that there was a time when no-one was talking about conservation, there was a time when we did not talk to businesses about how to improve their sustainability, there was no such thing as the Sustainable Development Goals, so we have to remind ourselves how far we have gone.”

To counterbalance the news that last-ditch efforts are being made to save the few remaining Vaquitas in the Gulf of California, there is evidence to suggest that numbers of the Ganges River Dol-

phin are recovering and efforts to reduce the level of pollution in the river may well be paying off.

Rolex laureate, Kirsten Forsberg and her colleagues in Planeta Océano, have led efforts in Peru to save the Giant Manta Ray. They persuaded the Government to replicate neighbour Ecuador’s ban on fishing the species and now plan to help local fishermen diversify into tourism activities – Manta Ray watching is worth millions of dollars a year.

“Nothing succeeds like success” – and one of the best incentives to carry on is building on one’s accomplishments.

Manatee populations up 500% over the past 25 years.

The Arabian Oryx – extinct in the wild in 1970s – is now being successfully re-introduced from captive-bred populations – a similar initiative is also underway for the Scimitar-horned Oryx.

The new anti-poaching unit in Mali started in February 2017 – no elephant deaths due to poaching recorded since.

Despite civil unrest, poaching and encroaching human settlements, populations of Mountain Gorillas have been rising (from 620 in 1989 to 880 today).

Up to 140,000 Amur Falcons used to be killed in Nagaland, India, as a cheap source of protein. Thanks to an Indian Government educational campaign with support from the CMS Birds of Prey MOU, no birds were killed in 2013. ♦

Photo by Max Taylor/Gallery Stock





LOUD. LOUDER. LIFELESS.

Whales stranding, shoals of fish collapsing, sea turtles fleeing: extreme noise is harming marine life. Help us by joining the worldwide campaign SILENT OCEANS Get involved now at silentoceans.org.

