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WCS's Species Conservation Program 2022–2030

EXECUTIVE SUMMARY

World-wide, more than one million species are threatened with extinction in the coming decades. All of the Wildlife Conservation Society’s Global Priority Species are under immense pressure due to ongoing habitat losses and fragmentation, unsustainable harvesting for both legal and illegal trade, disease, and more. Despite some major successes in conserving those species in areas where we work, some are still seeing major declines in their populations and decreases in geographic ranges. We are at a crossroads for many of these species, and actions by WCS and our partners over the next ten years will be critical if these species are to survive, recover their populations and range, and regain their full ecological function.

Conservation of species, and the ecosystems that they collectively form, is critical to restoring the balance, stability, and resilience of the planet, thereby addressing the climate change crisis and reducing the risks of emerging pandemics. Acting now to conserve species is critical if we are to ensure the future of all life on earth.

Within this context, WCS’s global species work over the next ten years will focus on reversing the declines of our priority species and place them firmly on the path to recovery. Building on lessons learned in our more than 125-year history, our aim is not just to prevent species extinctions, but to support their comebacks, resulting in viable, ecologically functional populations across their indigenous ranges. We have measurable ten-year goals for each of our priority species, so we can track progress towards their recoveries.

WCS has unparalleled expertise in conserving species around the world, and an extensive track record of success. Our species teams have the full range of skills necessary for conservation success because they are made up of specialists including researchers and strategic planners, curatorial and husbandry experts with expertise in small population management, veterinarians, and individuals highly skilled in reducing human-wildlife conflict, liaising with local communities, and combating illegal hunting and illegal wildlife trade.

This report summarizes the need for urgent action to conserve species and provides background on WCS’s Global Priority Species, including the reasons for their importance, as well as on many other species which we strive to conserve, and gives an overview of our successes in species conservation efforts. We provide our overall WCS vision for species conservation, including ten-year goals and actions to achieve both the overall vision and to conserve individual priority taxa. Overall, this report presents a vision and action plan for how we aim to conserve critically important species over the next ten years, thereby contributing to restoring the balance of the planet.



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CURRENT PICTURE

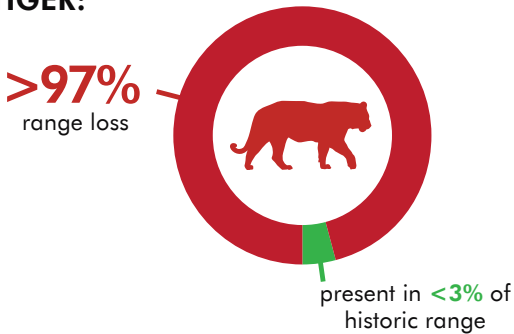
2.1 THE NEED FOR URGENT ACTION

World-wide, more than one million species are threatened with extinction. Despite some recent successes in areas where WCS works, many of our priority species are still in decline in major parts of their ranges. Almost all are experiencing range shrinkage, and all are still under immense pressure due to ongoing habitat losses and fragmentation, unsustainable harvesting for both legal and illegal trade, disease, and more. We are at a crossroads for many of these species, and actions by WCS and our partners over the next ten years will be critical if these species are to survive, recover their populations and range, and regain their full ecological function.

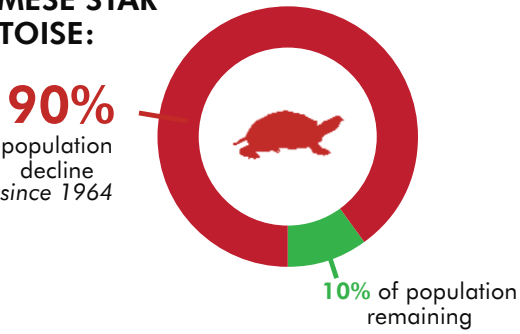
Species and the interactions between them are the critical primary building blocks of ecosystems, individually and collectively securing the conditions for all life. Species are the basis of soil formation, decomposition, water filtration and flow, pollination, seed dispersal, pest control, and climate regulation. They are the primary source of income, food, and other resources for hundreds of millions of people around the world. Species are an essential part of the history, culture, tradition, and folklore of every culture on Earth, and their aesthetic values and spiritual roles provide comfort, inspiration, and cultural well-being, as well as opportunities for recreation. Species and their diversity make nature accessible to people.

EXAMPLES OF SPECIES DECLINES

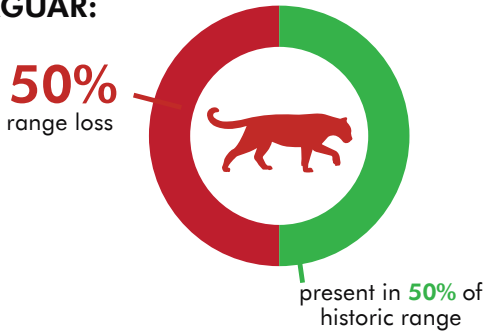
TIGER:



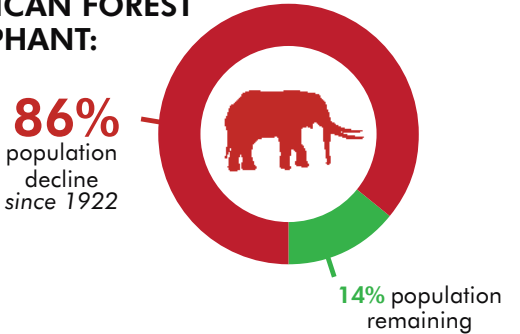
BURMESE STAR TORTOISE:



JAGUAR:



AFRICAN FOREST ELEPHANT:



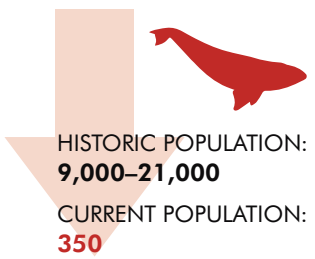
AMERICAN BISON:



STRAW-HEADED BULBUL:



NORTH ATLANTIC RIGHT WHALE:



Numbers are as understood in December 2022.

It is cost effective to engage in meaningful species conservation sooner rather than later. The costs associated with population recovery are much lower than the costs of conserving species once they become locally extinct or worse.

Acting now to conserve species, and the ecosystems that they comprise, is critical if we are to restore the balance of the planet and ensure the future of all life on earth.

2.2 WCS’S GLOBAL PRIORITY SPECIES

Historically, many of the species which have been the focus of WCS’s work are those which are critical to the functioning of ecological systems, and also which act as umbrellas for other species. By mitigating threats and saving the top predators and ecosystem engineers in a system, we are conserving their habitats with their full ecosystem functions, benefitting the multiple other species within these habitats across large swaths of the lands and seas. We have historically focused on species that are iconic and charismatic, garnering public support for conservation through them.

WCS’s Global Priority Species are defined, therefore, as species which are important for ecosystems and people, are powerful icons of nature, require conservation action, and for which WCS is positioned to “make a difference.” Conserving those species is critical for their own sake, and will also result in the conservation of countless sympatric species, as well as entire ecosystems in which they occur.

WCS’s Global Priority Species currently are: American bison, apes, big cats, crocodilians, elephants, great whales and coastal dolphins, sharks and rays, and tortoises and freshwater turtles.

WCS’s Global Priority Species, by definition, are biologically and culturally important with critical roles in ecosystem function, e.g., as top predators, ecosystem engineers, or major fruit dispersers. They are iconic species, capable of garnering conservation attention and support, as well as critical to the way people interact with the natural world.

Healthy populations of these species are indicators of healthy ecosystems. They typically require large areas of relatively intact habitats to support viable and ecologically functional populations. In addition, their size and sometimes valuable body parts means that they are frequently heavily hunted, while, for some species, conflict with humans leads to them being killed in retaliation. Hence, they tend to be the first species to disappear when wild areas become accessible, fragmented, or depleted.

In the WCS 2030 strategy, species remain a core mission element: “WCS saves wildlife and wild places worldwide through science, conservation action, education, and inspiring people to value nature.” Species are the unifying element across the whole organization.



Species have been central to WCS’s mission and work since our founding as the New York Zoological Society in 1895, when our mission was:

“First, the establishment of a free zoological park containing collections of North American and exotic animals. Second, the systematic encouragement of interest in animal life...amongst all classes of people. Third, cooperation with other organizations in the preservation of the native animals... and the encouragement of the growing sentiment against their wanton destruction.”

2.3 OTHER TYPES OF SPECIES WORK

WCS works to conserve a wide range of other species in terrestrial, freshwater, and marine ecosystems around the world. Many are protected as a byproduct of our efforts to protect Global Priority Species, but many others are not, especially if they are subject to different threats, or occur in different ecosystems or geographies. In addition to our work with Global Priority Species:

We work across flyways and oceanic migration routes.



We work in areas with the highest species diversity in the world, especially tropical forests and coral reefs.



We work in areas with the highest species biomasses, including savannahs, grasslands, and coastal upwelling marine zones.



We work to curtail illegal and/or unsustainable trade of threatened species including pangolins, songbirds, helmeted hornbills, turtles, amphibians, sharks, and rays.



We work in our four zoos and aquarium to provide assurance colonies of species in the wild, and to raise awareness and support for conservation.



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Julie Larsen ©WCS

Julie Larsen ©WCS



SPECIES CONSERVATION EXAMPLE: **Cuban crocodile**

The Critically Endangered Cuban crocodile once ranged throughout Cuba and the Caribbean, but its range is now restricted only to the Zapata Swamp on the Zapata Peninsula in Matanzas Province, Cuba. The estimated 2,000 remaining crocodiles now occupy the most restricted range of any crocodilian on the planet. They face immense pressure due to habitat loss, poaching, and hybridization with the American crocodile. The challenge of hybridization has been exacerbated by the formation of human-made canals that now connect the coastal American crocodile habitat with interior freshwater habitats favored by Cuban crocodiles.

WCS has been working with partners in Cuba for more than 20 years to improve the status of the Cuban crocodile. Most recently, in 2017, WCS co-hosted a workshop to bring international attention to the challenges faced by crocodiles in Cuba and the work being done in Cuba to mitigate these challenges. One project currently underway aims to reintroduce farm-raised Cuban crocodiles to historic habitat from which all crocodiles had been extirpated. WCS helped to establish a collaborative effort with other U.S. zoos and the Zapata Crocodile Farm (ZCF) to support the reintroduction of healthy crocodiles to this protected habitat.

Since the workshop, approximately 100 crocodiles have been reintroduced. Additionally, radio telemetry trackers have been deployed for the first time on established wild crocodiles in the Zapata Swamp to aid in ecological studies. Large-scale health assessments have been conducted on the crocodiles in ZCF to ensure that animals intended for release are in good health. Significant improvements have been made to ZCF's incubation facilities to regulate temperature more effectively, to ensure that both male and female crocodiles will be available for reintroduction.



SPECIES CONSERVATION EXAMPLE: **Walrus**

Recent estimates suggest that, since the late 1970s, the Arctic has been warming at four times the rate of the rest of the globe. This has had profound repercussions, particularly to the dynamics of snow and ice. In turn, this has serious consequences for species that rely on these frigid resources.

Sea ice seasonally advances south each fall and winter, and retreats each spring and summer into the Arctic basin. Pacific walrus, particularly females and their calves, have traditionally stayed close to the ice edge year-round, while many of the males remain close to land during summer. From the ice edge in summer, females could historically rest and feed their young as they drifted over highly productive benthic habitats, rich in clams and other foods. Now, sea ice has contracted so much in summer that it only lies over very deep water—unattainable depths for walrus to feed. In response, females and their calves have now shifted to land during this period, where they join with males in massive aggregations, reaching 100,000 animals in one area on the Russian coast and up to 50,000 on the Alaskan coast. While this represents a successful adaptation by walrus to the lack of ice, these vast aggregations are highly susceptible to human disturbance that can lead to tragic stampedes.

Since the 1960s and continuing until today, WCS staff have studied walrus: their needs, where the vast herds spend their time, and how to protect them while on shore. WCS also identifies important marine habitats for walrus by detecting them acoustically, while also monitoring levels of ocean noise in these areas. Across Beringia spanning from eastern Russia to Alaska, we work closely allied with Indigenous partners such as the Eskimo Walrus Commission, who are at the forefront of transboundary efforts to protect this species. Successful conservation interventions include new local ordinances that limit disturbance to walrus while on land, advisories for vessel traffic and aircraft to maintain distance from haul-outs, and the necessary coordination between Russian and American interests to effectively manage this transboundary species.



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SPECIES CONSERVATION EXAMPLE:

Tonle Sap birds

The Tonle Sap Great Lake in central Cambodia is the largest freshwater lake in Southeast Asia. It is one of the most productive freshwater ecosystems in the world and is extremely important for Cambodian people as a source of food and income. Prek Toal, the most important of three core areas, is the last significant breeding stronghold in mainland Southeast Asia for many globally threatened large waterbird species, and is the only remaining breeding site in mainland Southeast Asia for the spot-billed pelican and milky stork. It is also the largest remaining breeding site in the region for six more globally threatened or near-threatened species, namely the Oriental darter, lesser adjutant, greater adjutant, black-headed ibis, painted stork, and grey-headed fish eagle.

In 2001, a comprehensive monitoring and protection program was started in Prek Toal by WCS in collaboration with the Ministry of Environment (MoE) of the Royal Government of Cambodia. Management of Prek Toal is now led by the Department of Freshwater Wetlands Conservation within MoE, with financial and technical support provided by WCS.

Since the start of the program, large waterbird populations at Prek Toal began recovering, and are continuing to do so. This is due to more than fifteen years of nest protection by teams of dedicated rangers protecting and monitoring the birds while stationed on tree-top platforms.

SPECIES	NUMBER OF BREEDING PAIRS IN 2004	NUMBER OF BREEDING PAIRS IN 2020	PERCENT INCREASE
Spot-billed pelican	1,024	1,534	50%
Milky stork	2	5	150%
Oriental darter	1,125	6,008	434%
Lesser adjutant	158	364	130%
Greater adjutant	56	207	270%
Painted stork	1,089	1,740	60%
Asian openbill	688	10,026	1,357%

2.4 SITES FOR CONSERVING WCS’S GLOBAL PRIORITY SPECIES

WCS works to fulfill its mission of saving wildlife and wild places by identifying and conserving nature’s strongholds on land and at sea. These are “large, intact natural systems, managed for conservation, maintaining their ecological integrity and providing essential ecological services, and are high in biological diversity and/or biomass. These wild places also encompass many of the last sites for a set of iconic Global Priority Species.”

WCS’S GLOBAL PRIORITY SPECIES PLAY THREE CRITICAL ROLES:

- 1

They help us to identify sites in which to focus our conservation actions. Their healthy presence in an area is indicative of intactness, ecological integrity, and connectivity of the area. Identifying multiple sites in different ecological settings across the indigenous range of each of the priority species ensures conservation of a suite of sites with a range of faunal and floral assemblages and ecosystem services, as well as ensuring conservation of the priority species themselves.
- 2

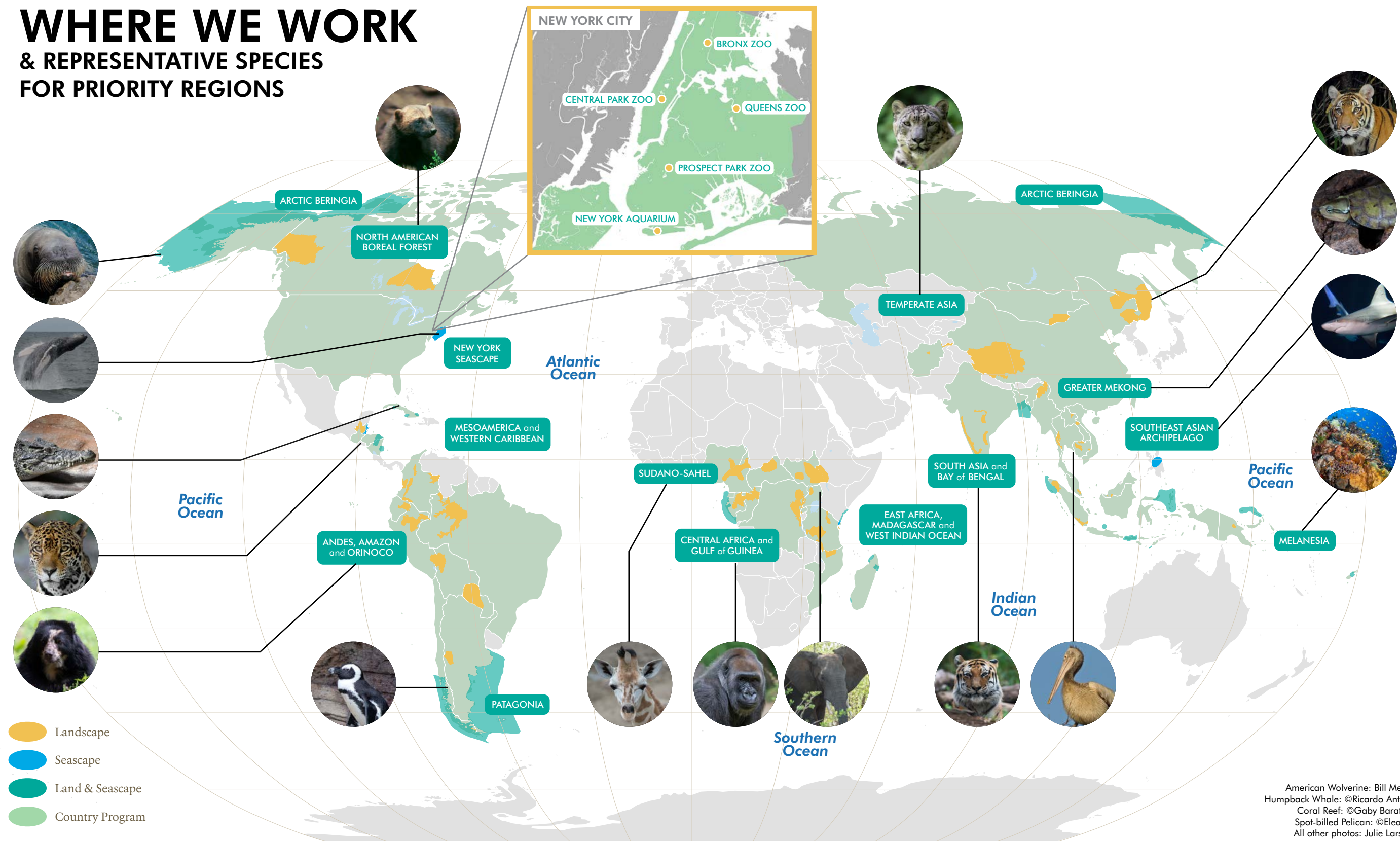
They help us to determine the minimum sizes and boundaries for sites that contain viable, fully ecologically functional populations of all the Global Priority Species in the area, and all of the resources they need to survive for their entire life cycle. The area needs to be large enough to support species populations that are demographically and genetically resilient to environmental shocks and perturbations. The outcome will be conservation of sites that are truly resilient ecological entities in the long term, with their full array of biodiversity and all of their ecosystem services.
- 3

Changes in the population status of Global Priority Species indicate the intactness of the wild places where we work, and hence the impact of our conservation efforts. Declines in the species indicate unaddressed threats and/or poor management and a reduction in intactness and ecological function of the sites; loss of the priority species will result in cascading losses and effects across the whole biological community. Species recoveries and maintenance at high population levels show that conservation is succeeding. Correlating species population trends with our conservation interventions at a site allows us to learn what is working, and what is not, and to adapt our strategy accordingly.

Ensuring conservation of Global Priority Species, with their full range of ecological functions, can also require actions beyond the sites. For example, we act along wildlife trade routes from sources to markets to protect species threatened by unsustainable trade, and in the policy realm to ensure that appropriate legal, regulatory, and fiscal frameworks are in place to support appropriate landscape and seascape planning, protection, and species conservation.

WHERE WE WORK

& REPRESENTATIVE SPECIES
FOR PRIORITY REGIONS



American Wolverine: Bill Meng ©WCS
Humpback Whale: ©Ricardo Antunes/WCS
Coral Reef: ©Gaby Barathieu/WCS
Spot-billed Pelican: ©Eleanor Briggs
All other photos: Julie Larsen ©WCS

2.5 WCS'S EXPERTISE IN CONSERVING SPECIES

WCS has unparalleled expertise in conserving species around the world. Our species teams have the full range of skills necessary for conservation success because they are made up of specialists including researchers and strategic planners, curatorial and husbandry experts with expertise in small population management, veterinarians, and individuals highly skilled in reducing human-wildlife conflict, liaising with local communities, and combating illegal hunting and wildlife trade.

WCS AREAS OF EXPERTISE:



RESEARCH
We undertake cutting-edge and often long-term species-specific research so that we understand species' ecological requirements and how best to ensure their persistence.



INTERVENTIONS
The core pillar of our species conservation work is designing and implementing activities that directly reduce the threats to species in the wild.



COMMUNITY-BASED CONSERVATION
We work with Indigenous Peoples and local communities to find and apply wildlife conservation solutions.



c



TRADE
We focus on addressing local and international trade in species.



POLICY
Using our evidence-based approach, we work with decision-makers at local, national, regional, and international levels to set and implement policies to support species conservation.



HEALTH
We are the only large wildlife conservation organization with an embedded health program and are at the forefront of the interaction between wildlife, livestock, and human health.



ANIMAL CARE
We have world-class expertise in establishing and maintaining ex situ populations of a wide diversity of threatened species.

2.6 A TRACK RECORD OF SUCCESS

WCS’s long-term, focused Global Priority Species programs see significant successes, often in contrast to regional or global trends.

From 2009 to 2016, tiger populations at WCS sites grew by an average of 4.0% per year, whereas populations at non-WCS sites over the same time period experienced an overall net loss of 2.2% per year.

In Indonesia, manta rays are threatened by international trade. In 2014, the Indonesian Government declared them protected species and, with support from WCS, conducted a community outreach and livelihoods program in East Nusa Tenggara, the site of the world’s largest documented manta fishery. From 2013 to 2018, total manta ray mortality declined by 86%.

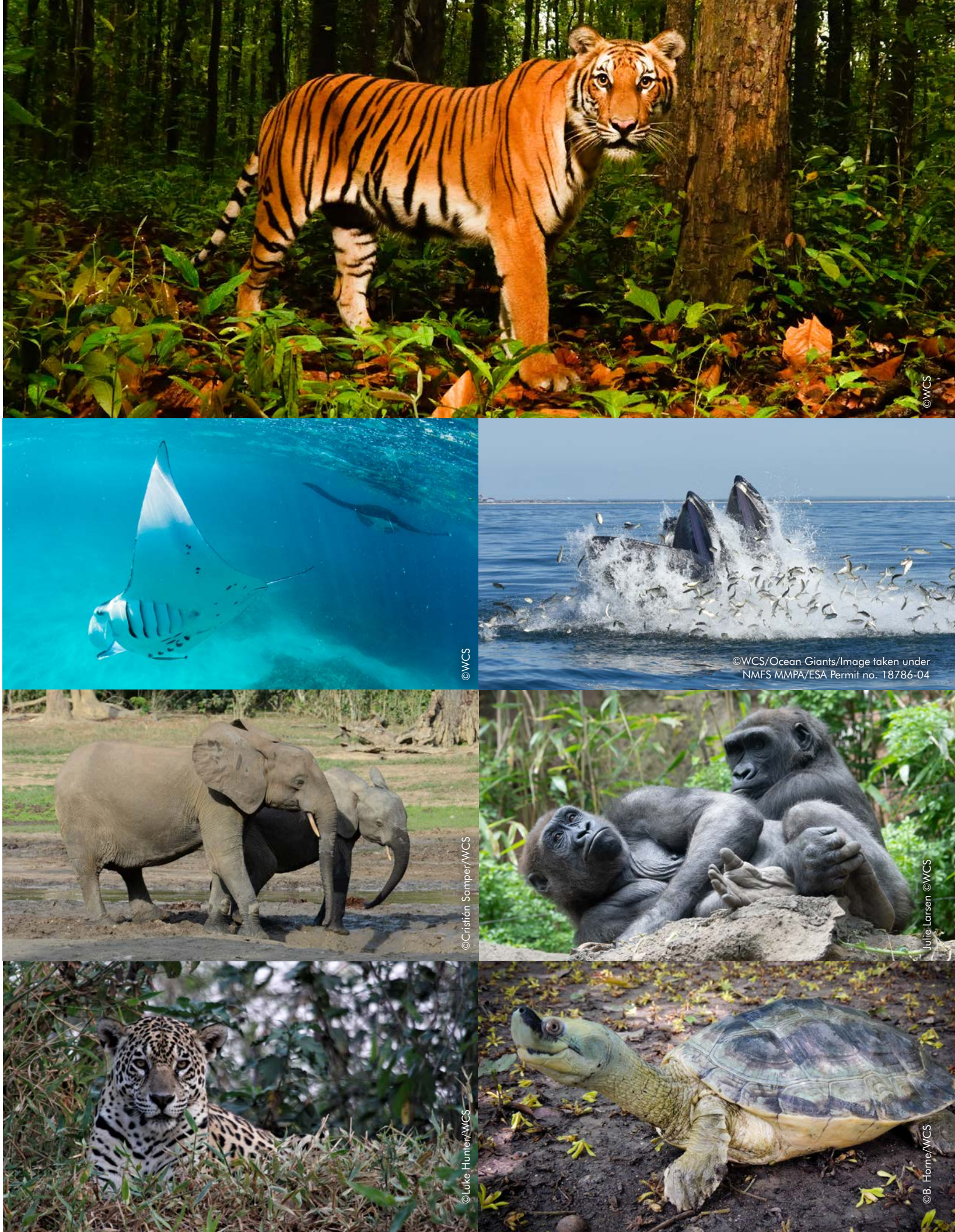
Populations of the two breeding stocks of humpback whales on which WCS has focused its actions have recovered to 70–90% of pre-whaling levels.

Even for African forest elephants, which have suffered such dramatic declines across much of their range, populations at sites where WCS has been involved in management continuously for at least 16 years are stable or increasing.

At all sites where WCS has had continuous presence for at least 16 years, African ape populations are stable or increasing.

From 2002 to 2016, jaguar populations in WCS sites increased by an average of 6.1% per year, compared to a rate of 3.6% in non-WCS sites.

The Burmese roofed turtle was reduced to about 12 known animals. Due to our assurance colonies and protecting nests laid in the wild, we have more than 1,000 juveniles with some of the first hatchlings now starting to lay eggs as 13-year-old adults.





FROM CRISIS TO RECOVERY

3.1 OVERALL VISION

WCS envisions **a world where wildlife thrives in healthy lands and seas, valued by societies that embrace and benefit from the diversity and integrity of life on earth.**

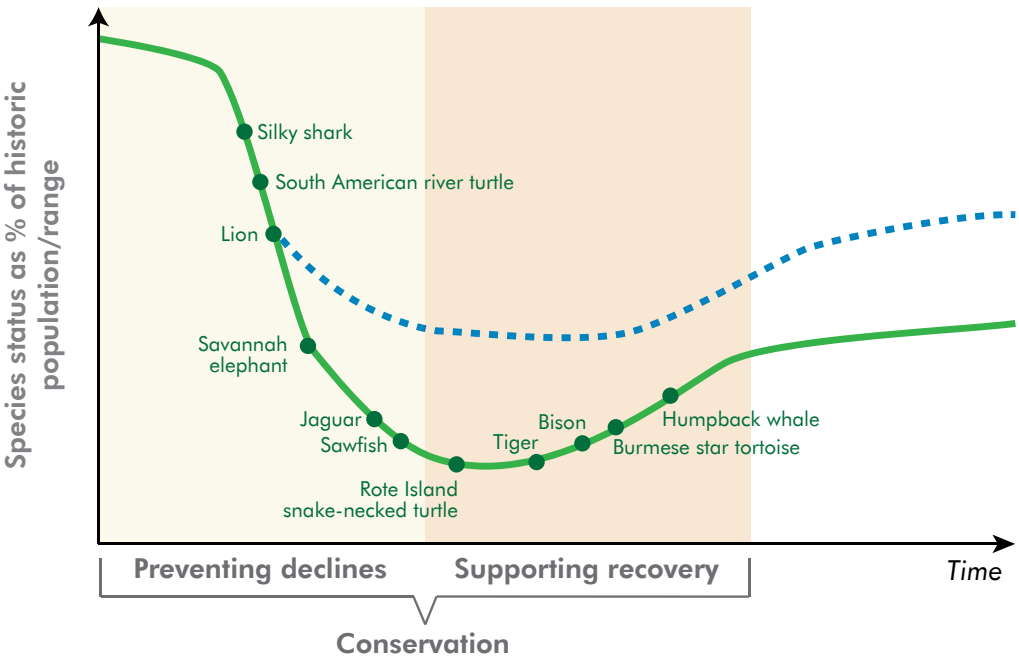
Our species work focuses primarily, but not exclusively, on the charismatic megafauna that are critical to maintaining ecological integrity on land and in the ocean, and that tend to be most vulnerable to threats. In addition, these species are important focal points for engaging people in wildlife conservation and conservation actions.

Our aim is not just to prevent species extinctions but to support their recoveries with viable, ecologically functional populations across their indigenous ranges (Figure 1). That means that not only do species have healthy, self-sustaining population(s), they are also fulfilling their full ecological role across their geographic range, contributing to healthy, intact ecosystems range-wide.

The exact downward and recovery trajectory is species-specific, depending on many factors including the initial population size and geographic range, as well as the breeding biology of the species. A species with high fecundity and a generation time of one year will recover much more rapidly than a species with low fecundity whose generation time is 20 years or more.

By undertaking conservation programs before the species is well down the curve, we aim to reduce the extent of the loss and potentially even lead to greater overall recovery. Engaging now means we can avoid loss of genetic diversity and ecosystem function. It also saves money—it is less costly to prevent losses than to recover a species, especially when recovery might involve different combinations of captive breeding programs, habitat recovery programs, reintroductions, and translocations.

Figure 1. Trajectory of species over time from declines to recoveries, with some examples of approximately where different species sit on the curve. The dotted blue line shows the potential changed trajectory of the recovery curve by taking immediate conservation action.





3.2 HALT AND REVERSE: TEN-YEAR GOALS AND ACTIONS TO ACHIEVE THEM

Over the next ten years, WCS, working with our partners, has two core goals for WCS Global Priority Species.

GOAL 1:

To prevent further declines of the WCS Global Priority Species on the downward part of the curve.

We will do this in two ways:

IN OUR SITES

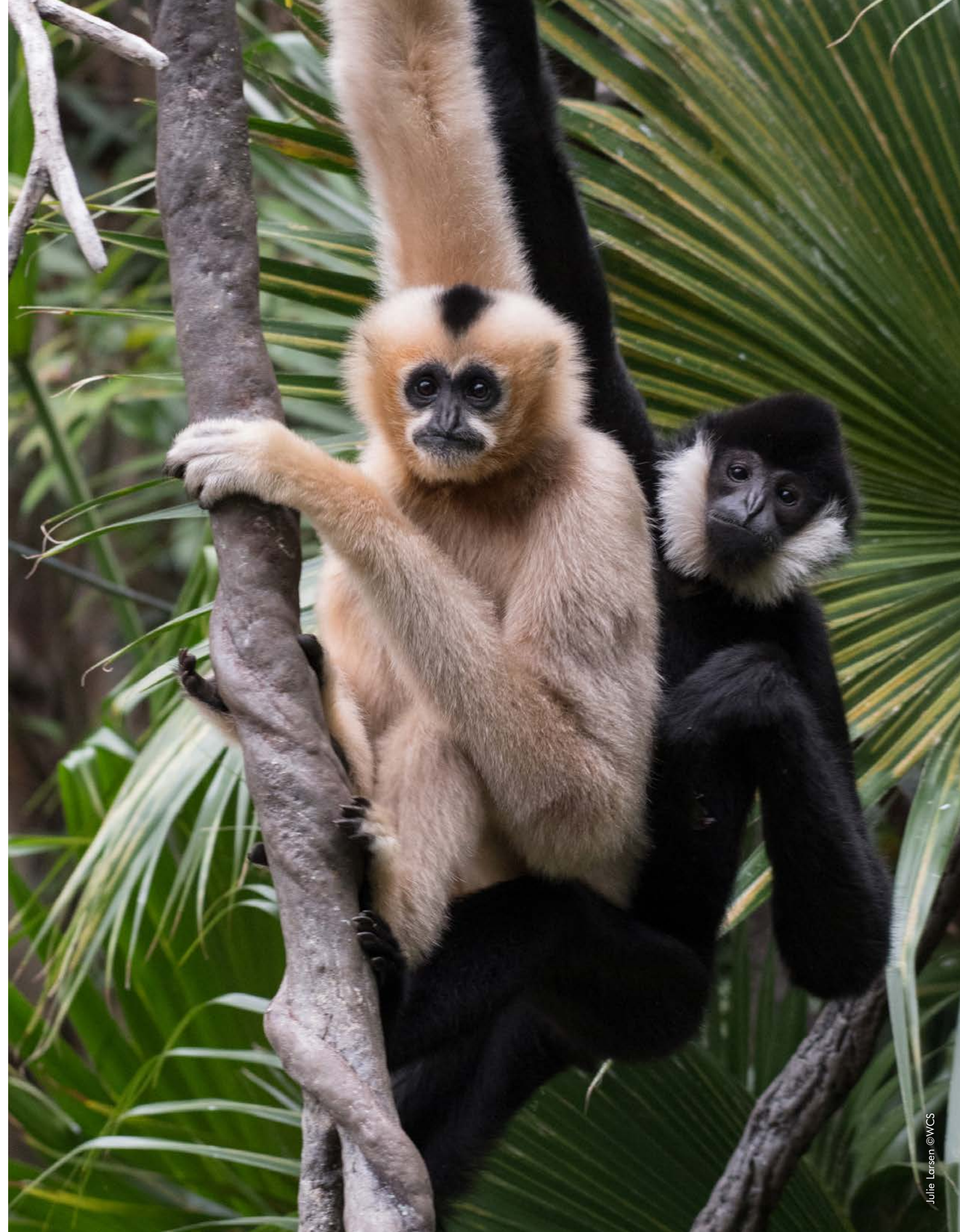
We are committed to, and responsible for, protecting populations of all Global Priority Species within our sites. This involves a broad range of activities, determined by site- and species-specific needs, but often includes:

- supporting the establishment of protected and conserved areas.
- anti-poaching patrols and other anti-poaching work.
- training local rangers and others, such as the judiciary.
- reducing human-wildlife conflict.
- conducting outreach to, liaising with, and supporting local community partners and ensuring their sustainable livelihoods.
- reducing the impacts of infrastructure development and agricultural expansion.
- supporting the tenure, rights, and livelihoods of Indigenous Peoples and local communities to ensure sustainable use of land and resources.

BEYOND OUR SITES

As a global organization, we contribute to the conservation of Global Priority Species across their range by:

- developing examples of best management practices and disseminating them widely.
- advocating for the species across their range.
- mitigating threats including, but not limited to, wildlife trafficking, human-wildlife conflict, infrastructure development, unsustainable fisheries, and underwater noise, as well as conducting disease surveillance.
- influencing conservation of the species range-wide through policy interventions at national and multilateral levels, e.g., CITES, CBD, CMS, IUCN, IWC, World Heritage.
- inspiring people to care about and support wildlife conservation.





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GOAL 2:

To bring about the eventual full recovery of WCS Global Priority Species across the whole recovery curve.

We will do this in two ways:

IN OUR SITES

We ensure recoveries of Global Priority Species if they are below carrying capacity, thereby also restoring full ecological function. This involves the same general suite of activities for sites as under Goal 1. In addition, it might include:

- working through governments and other partners to expand protected area establishment and management, including in areas linking existing protected areas.
- habitat restoration where appropriate.

BEYOND OUR SITES

We support the recovery of Global Priority Species across their indigenous range. Actions here vary greatly by species, and include different combinations of:

- intensive ex situ and head-starting programs.
- reintroductions.
- veterinary and husbandry support for animals confiscated from trade.
- in situ conservation programs at release and recovery sites.
- mitigating threats including, but not limited to, wildlife trafficking, human-wildlife conflict, infrastructure development, unsustainable fisheries, and underwater noise.
- supporting partners by providing models of best practice and disseminating them widely.
- policy interventions at national and international levels.

3.3 SPECIES-SPECIFIC TEN-YEAR GOALS

Given their very different biologies and ecologies, targets and metrics for the Global Priority Species are species-specific.

For each of our Global Priority Species and other focal species, progress will be assessed by monitoring species populations through species-appropriate and state-of-the-art measures, and by monitoring their habitats, largely through different methods of remote sensing.



For almost all terrestrial mammal Global Priority Species, the 10-year goal is for populations at all WCS sites to be at or approaching carrying capacity.



For most of the reptile species, for which hands-on actions are needed to recover critically small wild populations, the ten-year goal is to reintroduce and/or increase the number and population levels of supported wild populations.



For the marine mammals, the goal is to stabilize current declining populations within WCS strongholds and to reduce ocean noise and ship strikes in key areas.



For the different shark taxa, the goal is to have strong protections and appropriate fisheries management in place, including halting over-fishing and achieving no let loss through bycatch, in the ten shark focal regions of the world.



HOW TO HELP

With the world's species and their habitats in such peril, everything that we can do to help makes a difference. And we can all help! Here are a few initial things that you can do.

Be an informed consumer. Your buying choices matter.

- o Don't buy any wildlife or wildlife products unless you are absolutely sure they are from a legal and sustainable source. And recognize that most of them are not!
- o Only buy timber from certified, sustainable sources such as FSC. Illegally and/or unsustainably produced wood is a major driver of habitat loss for countless species.
- o Reduce the amount of beef that you consume. Clearance of forest for cattle ranching is another major driver of habitat loss for numerous species, as well as contributing greatly to climate change.

Support local conservationists and naturalists working to protect species and their habitats in your home region.

Reach out to your local government representatives and urge them to enact and support measures to conserve wildlife and wild lands and seas, on whichever issues are most pressing and topical for your region.

Support WCS and our programs to conserve wildlife and wild places. As you have seen in this document, WCS conservationists are working on the ground around the world to save some of the most spectacular and imperiled wildlife on the planet. We need your help to continue this important work. Please go to: wcs.org/support



