

About This Report

IFAW, alongside many people and organizations around the world. believes that animals and their habitats have inherent value above and beyond an economic one. We understand that animals are critical to human well-being, from supporting communities through eco-tourism to anchoring key ecosystem services such as pest control and pollination. However, when we formulate public policy, the intrinsic value of animals is often ignored completely or considered an afterthought to human-focused development concerns. Therefore, it is incumbent upon animal welfare and conservation organizations to demonstrate to policy makers and their constituencies that animal welfare and conservation are important to people and communities, primarily by identifying the linkages between animal and human welfare. We must connect our work to well understood efforts to promote community development in order to show how those efforts build measurably better human and animal well-being when combined.

Perhaps the most widely accepted framework for community development and human well-being today is the United Nations' 2030 agenda, more commonly known as the **UN Sustainable Development Goals (SDGs)**. Agreed to by all 193 member states of the UN, the goals outline international priorities to achieve sustainable human development. As the preeminent guidance on human development, these goals inform the policies of governments, non-governmental organizations, and the UN system.

While the SDGs are certainly more comprehensive than purely economic measures of progress such as the Gross Domestic Product (GDP), they place limited emphasis on the value of the natural world. Despite this, animals and their habitats are interwoven in the fate of human development. All species, big and small, imperiled and ubiquitous, have an important role to play in building a healthy, prosperous, and sustainable future for humans. This report will examine these connections and the value of animal welfare and habitat conservation in achieving each sustainable development goal. As we will see, effective animal welfare and conservation can contribute significantly to the achievement of these goals, and promoting animal welfare provides an important avenue to improve both human and animal lives. IFAW seeks to enhance awareness of the connections between animal welfare, conservation, and human development to inspire greater collaboration through which to achieve a shared goal of improving conditions for all species and the planet.

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Foreword

One of the fundamental tenets that underlies the philosophy of The International Fund for Animal Welfare (IFAW) is the fact that animals and their habitats possess intrinsic value above and beyond that which can be defined by conventional economics.

Individuals matter in conservation and because each individual is part of a collective whole, we take a holistic approach to protecting animals and the places they call home. Humanity is undeniably linked with our fellow species. Despite society's overall trend toward urbanization and detachment from the natural world, the inherent makeup of the relationship between humans and nature remains critical.

It is this relationship that draws continued relevance within the context of the United Nations (UN) Sustainable Development Goals (SDGs) developed in 2015, a framework for both human development and well-being that reflects fundamental characteristics that go beyond economic measures. Successful goals for sustainable development must effectively embrace people, animals, and the planet as a whole; the recognition of the relevance of animal issues within that balance is essential. A world of peaceful species coexistence cannot be achieved unless human development and animal welfare agendas ultimately overlap.

Animals live in every environment on earth and their presence or absence affects key well-being issues such as food security, employment, public health, and others. Humankind remains not only interconnected to the ecosystem at large but also highly dependent on the health of the natural system and its animals. Regardless of humanity's ability or desire to control nature, animals and habitats do not conform to national boundaries, which gives them key relevance in issues involving international development and ultimately how much of society defines development itself. From tourism to world health, our fates are intertwined with the natural world.

As we strive for a world of peaceful coexistence between humans and the natural environment, we at IFAW are committed to incorporating the SDGs as part of our work and spreading the message of the shared struggle for survival between humans and animals across a stage fraught with complex political, economic, cultural and ecological pressures. I welcome you to take this next step with *Thriving Together: Achieving the Sustainable Development Goals and Increasing Well-Being for Animals and People*, a natural extension of the previous 2016 IFAW report: *Measuring What Matters*. It invokes a fundamental shift that not only better encapsulates the holistic approach to development that is critical in this globalized world, but also provides us with an enriched perspective through which we can ultimately define true progress.

Sincerely,

Azzedine Downes
President and CEO

SUSTAINABLE GEALS DEVELOPMENT GEALS





































The UN Sustainable Development Goals

In 2015, the United Nations (UN) developed a set of 17 Sustainable Development Goals (SDGs) that would serve as a guiding framework for policy and for funding provided by the UN, as well as provide a set of priorities for governments and civil society, through the year 2030. The goals span many social and economic development issues, and each goal includes several measurable targets. Going further than its predecessor, the Millennium Development Goals, the SDGs ambitiously encourage comprehensive action in developed and developing countries to address the needs of all people with emphasis on the underprivileged. It is transformational in its understanding of development, envisioning a world not only devoid of widespread poverty, but one in which the structural inequalities and root causes that lead to poverty and inequality are resolved.

The SDGs reflect a holistic approach to development that recognizes the need to incorporate non-economic measures of growth and well-being. Informed by the Multidimensional Poverty Index (MPI) and the Gross National Happiness (GNH) framework, the goals incorporate many aspects of human life in order to end poverty in its various forms everywhere. In addition to traditional measures of economic growth such as Gross Domestic Product (GDP), areas covered by the SDGs include health, education, gender equality, and the environment. These areas are especially important considering the harmful consequences of GDP-focused development, which has often exacerbated inequalities and environmental degradation.

Human Well-Being, SDGs, and Animals

For thousands of years, human interaction with animals has shaped the ways we eat, work, relax, and worship. Not only is humanity fundamentally linked to other species, some evidence suggests that our relationship with animals has shaped humans' evolutionary path itself.1 We owe the development of our species and civilization to animals. While an increasing number of people live detached from animals and the natural world, this relationship remains critical. Indeed, our relationship with the natural world has never been more important than it is at this moment, as demonstrated by unprecedented global climate change and environmental degradation. Therefore, in order to achieve sustainable human development that works for people and our planet, intergovernmental development initiatives such as the SDGs must recognize the relevance of animal issues to their mission.

Animals factor into the achievement of several SDGs. While few of the goals directly reference animals, ecosystems, or the natural world, most of the goals indirectly rely on or benefit from animal welfare and wildlife conservation. Animals live in every environment on earth, including artificial environments created by humans, and they affect critical issues such as food security, employment, public health, and climate mitigation. Despite the unique human ability to control our environment to a certain extent, we remain connected to the ecosystem, and we rely on the services provided by healthy natural systems and animals.

In addition to affecting a range of areas of development, animal welfare and wildlife conservation issues are especially relevant to international development forums because animals and their habitats do not conform to national boundaries. Animals are also critical to several global networks. They are relevant to international tourism, world health outcomes, transnational organized crime, and even terrorism through poaching and trafficking. These are not issues that can be comprehensively resolved at the national level, and they will require significant international cooperation.

IFAW and the **SDGs**

This report builds upon *Measuring What Matters*, an IFAW report that discusses the necessity of reevaluating the metrics used to measure development to include animals,² which advocates for the adoption of holistic measures such as the Gross National Happiness (GNH) framework in place of purely economic indicators and elucidates how animals contribute to the GNH domain. Moving from the GNH to the SDGs framework is a natural progression; the SDGs were informed by the same holistic approach that led to the development of the GNH framework, which was enshrined in Bhutan's constitution in 2008. Although both frameworks recognize the necessity of economic activity, they include it as a component amongst multiple other human needs and values rather than as the singular goal of development.

Therefore, IFAW is committed to incorporating the SDGs as part of our work. We strive for a world of peaceful coexistence between humans and the natural environment, and a world where animals are both respected and protected. Such a world cannot be reached unless the human development and animal welfare agendas overlap. We have taken steps to integrate into our projects the communities that live closest to wildlife. This initiates a cycle in which the community benefits, leading to more successful conservation outcomes, ultimately producing additional long-term benefits for the community. Our efforts have covered several SDGs, some of which will be highlighted in this report, which have benefited people and animals around the world.

This report reviews a selection of SDGs and how they are intimately connected within the welfare and conservation of animals both domestic and wild. We review specific IFAW case studies that incorporate these connections, demonstrating that wildlife conservation, animal welfare, and human well-being are indeed interwoven and can be improved side by side.

Healthy and cared-for domestic animals as well as healthy populations of wild animals support the agricultural and natural processes that promote food security and mitigate global hunger.

SDG 2: Zero Hunger

Despite modest improvements in global hunger, 790 million people still lacked adequate food in 2016.³ SDG 2 aims to end hunger and achieve food security through sustainable agriculture and other methods. In order to make progress on this goal, SDG 2 targets the agricultural productivity of small-scale farmers and the sustainability of food production systems.

Healthy and cared-for domestic animals as well as healthy populations of wild animals support the agricultural and natural processes that promote food security and mitigate global hunger. Perhaps the most direct relationship between animals and hunger is their role in agriculture. Animal agriculture contributes to 40 percent of the global value of agricultural output and supports the livelihoods of 1.3 billion people.4 Currently, poor animal welfare, especially in factory farming conditions, puts unnecessary strain on food production. When animals are healthy and well cared for, they are more productive and provide a higher quality of food.5 Animals that are kept in inhumane, crowded enclosures (a characteristic of factory farming), or whose medical needs are ignored, are more likely to get sick and spread disease to other animals. Widespread diseases disrupt food production networks and negatively affect food security.6 This is particularly important considering animals provide a key source of protein for people around the world.7

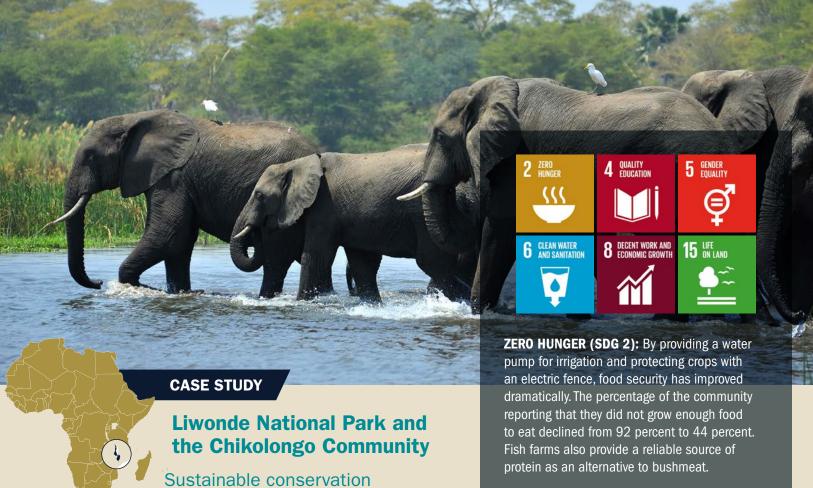
Factory farming undermines food security by contributing to fundamental changes in the climate that in turn disrupt food availability. A September 2018 report from the United Nations determined that "climate change, climate variability and extremes are among the key drivers behind the recent uptick in global hunger and one of the leading causes of severe food crises. The cumulative effect of changes in climate is undermining all dimensions of food security—food availability, access, utilization and stability." Animal agriculture makes up 14.5 percent of all human-generated CO₂ emissions, 53 percent of nitrous oxide emissions, and 44 percent

of methane emissions, which are many times more powerful than ${\rm CO_2}$. This extreme contribution to global warming would not be possible without concentrated, intensive animal agriculture. 10

In addition, factory farming is a barrier to achieving food security in structural ways. Factory animal agriculture feeds its livestock grain, and every one kilogram of beef produced requires at least six kilograms of grain. Food resources that could potentially be used to feed people are directed into factory farming. It is estimated that the US alone could feed up to 800 million people with the grain that livestock eat in industrial agriculture.¹¹

Furthermore, agriculture relies on ecosystem services provided by healthy, robust wildlife populations. Wild birds and bats act as natural enemies to agricultural pests and provide biological control services in agroecosystems. ¹² Using natural pest control lowers costs for farmers, which leaves more capital available to invest in productivity. Wildlife also supports crop pollination. Seventy-five percent of global crop species rely on animal pollination to reproduce and a global loss of pollinators would hamper agricultural production. In addition, because developing countries tend to produce more horticultural and stimulant crops (which require animal pollination), ¹³ developing countries are disproportionately burdened by the effects of biodiversity loss when many already struggle with food security.

Finally, conservation initiatives have the opportunity to achieve food security in underdeveloped communities by replacing the protein obtained through unsustainable bushmeat hunting with more sustainable livelihoods and food sources. Not only does bushmeat hunting contribute to species extinction and biodiversity loss, but the loss of species hunted for bushmeat ultimately degrades the broader environment that communities rely on for food, water, and work. It is important to note that understanding the role of animals in agriculture, as well as improving animal welfare and conserving wildlife, are critical to efforts to reduce global hunger.



Liwonde National Park's ecosystem features abundant biodiversity, including a significant population of African elephants. It is also surrounded by economically impoverished human settlements that rely on the park for resources, which has led to human-wildlife conflict and park degradation. To reduce human-animal conflict while improving food security and nutrition, IFAW partnered with Imani Development and other partners in 2013 to build an electric fence to prevent elephants from raiding village crops, in addition to a water pump for irrigation, drinking water, and a new fish farm. Since then, there has been a dramatic drop in poaching

development in Malawi

efforts rely on sustainable human

of elephants for food and a significant decrease in the percentage of villagers reporting that they do not grow enough food to eat. The number of people killed by crocodiles or hippos from retrieving water from the river also dropped to zero. Women and girls especially benefited, as they are traditionally responsible for the often dangerous task of collecting water and now have more time to invest in

education.



QUALITY EDUCATION (SDG 4): Improved access to fresh water means girls no longer have to walk to the river to collect water, and now have more time to go to school.

GENDER EQUALITY (SDG 5): The water pump has made women and girls safer as they are no longer at risk of animal and human attacks when collecting water.

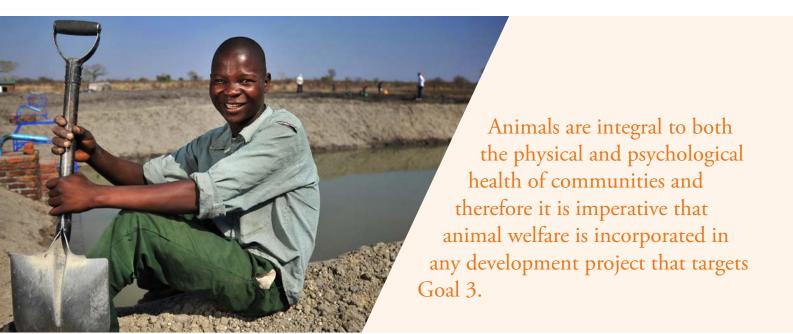
CLEAN WATER AND SANITATION (SDG 6):

A clean water pump and storage tanks improve the ease and expediency of water collection.

DECENT WORK AND ECONOMIC GROWTH

(SDG 8): Animal husbandry and beekeeping have expanded, and surplus crops are being sold to the park lodge. Moreover, jobs have been created to guard the electric fence against poachers.

LIFE ON LAND (SDG 15): Reduced poaching and habitat degradation will allow wildlife populations and important ecosystem services to recover. Elephants are a keystone species in the African Savannah; they help to distribute seeds, as well as maintain healthy soil conditions by overturning the earth as they walk.



SDG 3: Good Health and Well-Being

Goal 3 is to promote both the health and well-being of all people regardless of age or location. It covers a wide variety of health issues, ranging from epidemics to maternal and reproductive care. The field of public health has witnessed one of the biggest successes in the human development agenda; cases of AIDS have been cut by 45 percent since 2015 and childhood vaccinations against Hepatitis B increased by 55 percent from 2000 to 2015, but there are still significant challenges. ¹⁴ Epidemics and preventable chronic illnesses remain a serious public health concern.

Animals contribute to achieving SDG 3 targets relating to both communicable and non-communicable diseases. Inhumane conditions for trafficked wildlife and livestock contribute to the emergence and spread of communicable diseases due to the overcrowded, hot, and unsanitary conditions to which they are often exposed. These conditions can create ideal conditions for pathogens to multiply. On overcrowded factory farms animals are routinely fed low levels of antibiotics to prevent disease; however, this practice has led to an uptick in antibiotic resistant pathogens and reduced efficacy of antibiotics to combat human diseases.¹⁵ The spread of zoonotic diseases is exacerbated as wild habitats are destroyed and wildlife comes into closer contact with domesticated animals and human beings. 16 Likewise, trade in wildlife products can expose humans to zoonotic disease.¹⁷ Illicit wildlife trade likely caused the outbreak of SARS in Guangdong Province, China, where trafficked bats became infected and came into contact with humans.¹⁸ Similarly, the Ebola virus was traced to the trade in non-human primates, bats, forest antelopes, rodents, and shrews.¹⁹ Perhaps most compelling, scientists have traced HIV to its original roots in chimpanzees²⁰ and gorillas,²¹ and believe that the virus first jumped to humans via the bushmeat trade.

Animal welfare also supports long-term human health. A significant body of research demonstrates the positive effects of pet ownership on chronic illness recovery and prevention. A 2017 Swedish study found that dog owners who live in multi-person households had an 11 percent lower risk of death and a 15 percent lower risk of death from cardiovascular causes.²² Results were even more pronounced (33 percent and 36 percent, respectively) in single person households. Furthermore, owning a pet has been directly linked to stronger immune systems and lower rates of allergies in children.²³ Not only has pet ownership been suggested as a component of treatment for chronic physical illnesses, recent research suggests that pets could be helpful in treating mental illnesses as well.24 Animals are integral to both the physical and psychological health of communities and therefore it is imperative that animal welfare is incorporated in any development project that targets Goal 3.

SDG 6: Clean Water and Sanitation

SDG 6 aims to ensure that clean water and sanitation are available for all. The increasing demand for water resources has increased the risks of pollution and severe water stress. Today, more than two billion people live in countries with high water stress. Specifically, people without access to water live predominantly in rural areas and these areas will require substantial acceleration of progress in order to achieve SDG 6.26 For many of the world's poorest and most vulnerable people, the clean water necessary to meet their most basic needs is becoming increasingly scarce and expensive.

Animals play a vital part in achieving this goal through their role in maintaining ecosystems. According to UN Water, "all freshwater ultimately depends on the continued healthy functioning of ecosystems, and recognizing the water cycle as a biophysical process is essential to achieving sustainable water management." Wildlife species are integral parts of the natural infrastructure of all of the ecosystems they inhabit, but water resources are particularly affected by wildlife. For example, beavers create wetlands in an otherwise

dry forest by building dams and felling trees. Wetlands recharge groundwater aquifers and provide nutrients to plants that filter and store freshwater. These ecosystem services support a major source of freshwater. For instance, one-third of India's water supply comes from floodplain recharge. Water systems are also affected by soil erosion, which deteriorates as more land is converted from natural habitats that support biodiversity to poorly-managed agricultural areas. Soil erosion carries away 25–40 billion tons of topsoil every year, which significantly reduces the soil's ability to regulate water. 30

The conservation of individual species can also have important effects on the availability of freshwater. For example, the loss of tadpoles from a tropical ecosystem results in the overpopulation of algae and poor stream respiration and nutrient circulation.³¹ Large animals such as ungulates, hippos, and crocodiles also improve water quality by mixing the water when they walk through it, which prevents the formation of low-oxygen zones.³² In the end, clean water is highly dependent upon healthy ecosystems and the wildlife that call them home.

According to UN Water, "all freshwater ultimately depends on the continued healthy functioning of ecosystems, and recognizing the water cycle as a biophysical process is essential to achieving sustainable water management."

Through tourism, agriculture, and other industries, animals form the backbone of economic growth and livelihoods in many communities.

SDG 8: Decent Work and Economic Growth

While economic growth is not the definitive metric of human development in the SDG framework, the SDGs recognize that employment and economic growth are necessary components of human well-being. Goal 8 seeks to promote economic growth in a sustainable way with a focus on productive, inclusive, and decent work for all.

Perhaps the most visible example of an industry dependent on the conservation and welfare of wildlife is nature tourism. The economic benefits of nature tourism are remarkable; this is especially true in the developing world. Eighty percent of trips to Africa are for wildlife viewing.³³ In fact, one live elephant in a viewing camp in Africa can generate USD 1.6 million for the global economy over its lifetime.³⁴ This phenomenon is not limited to the developing world; in the US, the public's interest in viewing the Yellowstone wolves alone generates USD 70 million per year and nature recreation and tourism support 612,000 jobs.³⁵ Robust wildlife populations and healthy ecosystems are critical to the economic well-being of both developed and developing regions.

Animals also support the livelihoods of many of the world's poorest people, often serving as the single biggest store of wealth they own. More than 650 million (of the one billion poorest people on the planet) rely entirely on animals for a living.³⁶ Animal welfare measures not only ensure that working animals are treated humanely, they also create more value for the poor who rely on them. For example, donkeys that are used in the brick industry in south Asia have a life expectancy of eighteen months when they are not well cared for, but when simple animal welfare practices are introduced, they can support the business for up to eight years before being sold as a healthy animal.³⁷ Through tourism, agriculture, and other industries, animals form the backbone of economic growth and livelihoods in many communities.



At the Ifrane National Park in Morocco, Barbary macaque welfare and conservation is intertwined with community development

Barbary macaques (Macaca sylvanus) are the only non-human primates left in Africa north of the Sahara. They are listed as Endangered on the IUCN Red List of Threatened Species due to precipitous population declines in recent years. It is estimated that the species has declined by more than 50 percent over the last three generations (24 years), with fewer than 10,000 individuals remaining. Major threats to the species include habitat destruction and degradation due to illegal logging, charcoal-burning, firewood-collecting, overgrazing, and land clearance for agriculture; as well as illegal live trade



(Barbary macaques were listed on Appendix I of CITES in 2016). It is estimated that around half of the remaining Barbary macaques in the world live at Ifrane National Park (INP) in the Middle Atlas Mountains of Morocco, where poaching also takes place. Specifically, poachers target baby and juvenile Barbary macaques to be sold as exotic pets notably to European consumers. Apart from the illegal live trade, regional challenges for the species include tourism (which can cause health issues through artificial feeding, human-macaque conflict, disease or parasite transfers, and can also increase susceptibility to poaching) and human-wildlife conflict with the local communities (which can result in the killing of the animals in response to cropraiding).

Born to be Wild is a project ensuring the sustainable protection of the endangered Barbary macaque. The project is funded by the Dutch Postcode Lottery, initiated by AAP Animal Advocacy and Protection, and executed together with IFAW in close cooperation with the Moroccan government. Apart from protecting the species from poaching, the project also aims to reduce unsustainable resource exploitation in the INP and improve coexistence by reducing humanmacaque conflict. The project features anti-poaching, animal rescue, advocacy, monitoring, education, and law enforcement and judiciary capacity-building. For example, during the 2015 pilot community scouting project, seven scouts from the local community operated in INP during the peak poaching season which resulted in zero poaching incidents in that part of the park. The community scouting project not only helps reduce poaching, it also strengthens surveillance, which acts as a deterrent for various illegal activities such as illegal logging and charcoal burning.

GOOD HEALTH AND WELL-BEING (SDG 3):

By promoting responsible tourism and discouraging artificial feeding of Barbary macaques (which can cause disease transmission), the project helps protect the health of park visitors and reduce wildlife conflict with local communities.

DECENT WORK AND ECONOMIC GROWTH

(SDG 8): Protecting the Barbary macaque preserves and promotes conditions that drive tourism to INP, which in turn generate important income for the local community. This project also employs scouts from the local community to protect the species from poaching and other illicit activities.

SUSTAINABLE CITIES AND COMMUNITIES (SDG 11): Protecting the INP and the macaques ensures that these vital resources will be there for future generations to support local communities.

LIFE ON LAND (SDG 15): The project not only helps protect the macaque, but also aims to improve the condition of INP and surrounding environs by reducing unsustainable practices. A healthy ecosystem is essential for the sustainability of local communities.

In order to ensure sustainable cities and communities, it is imperative that both the benefits and drawbacks of animal populations in and around cities are fully addressed.

SDG 11: Sustainable Cities and Communities

In 2017, more than 54 percent of the world's population lived in urban areas, and the UN predicts that this number will rise to two-thirds of the global population by 2050.³⁸ This shift in population means that urban sustainability is paramount to human development in the 21st century. In recognition of the reality of urban migration, the UN has designated a stand-alone SDG to make cities and human settlements inclusive, safe, resilient, and sustainable.

Sustainable cities include urban green spaces, which not only provide essential habitat for wildlife, but are important to human health and well-being as well.39 An increasing body of research suggest a positive correlation between access to urban green spaces, including natural ecosystems, and better physical and mental health.⁴⁰ As the urban environment expands and habitats are degraded or even destroyed, wildlife is increasingly forced into contact with humans. While some species adapt to thrive alongside people, others present dangers or contribute to undesirable conditions. For example, many communities struggle with displaced wildlife that can make some citizens feel unsafe. This is the case in rural communities in northern Canada living with polar bears forced out of their hunting ground by climate change⁴¹

and in cities in Mexico that have expanded into jaguar habitat. Both cases are unsafe for people and the aforementioned species alike. 42 The growth of urban areas and the resulting presence of predators near human settlements calls for new ways to ensure coexistence.

Finding ways to coexist alongside the animals that draw tourists to nearby cities naturally has a positive effect on the cities themselves (i.e., wildlife tourism). For example, tourism-based development projects in Madagascar led to the development of 60km of new roads, two enhanced ports, improved public utilities, and an expanded hospital.43 Furthermore, wildlife tourism drives the revitalization of urban areas that were once in decline. In Iceland, Reykjavik has become a vibrant city with abundant restaurants, green spaces, and cultural centers to accommodate the flood of tourists passing through the harbor to go whale-watching.44 No city or community exists without animals, both wild and domestic. In order to ensure sustainable cities and communities, it is imperative that both the benefits and drawbacks of animal populations in and around cities are fully addressed.



🗥 In Playa del Carmen, Mexico, the welfare of dogs and jaguars is intertwined with human well-being

Playa del Carmen is a rapidly expanding tourist destination on the Yucatan peninsula, just south of Cancun. As the city has expanded inland, it has grown deeper into the jungle and into jaguar habitat. Habitat fragmentation and reduced prey availability has affected the jaguars, and the highly adaptable predator has instead turned toward resources brought by the human settlements: domestic dogs.

In Playa, as in much of Latin America, many people allow their dogs to roam outdoors at night. Jaguars find these dogs to be easy prey, and the presence of such an accessible meal has attracted jaguars closer to human settlements, with dangerous consequences for both humans and jaguars. Indeed, even the sighting or threat of a jaguar attack has led to calls for killing jaguars.

IFAW launched its Casitas Azules—Little Blue Houses—program in 2017 to help community members keep their dogs, their communities, and their wildlife safe. The program aimed to build 100 blue doghouses, which represent both physical safety for dogs and owners who are aware of how to keep their animals safe and healthy. Dogs kept at home are less likely to become jaguar prey, and healthier dogs reduce any chances of transmitting diseases to jaguars and other wildlife. As ambassadors, recipients of Little Blue Houses encourage their neighbors to take responsible care of their own animals. The casitas, built by local carpenters from wood donated by the Convention on Biological Diversity, promote dog guardianship in a visible and enduring manner that reduces negative jaguar-dog-human interactions.

GOOD HEALTH AND WELLBEING (SDG 3):

Many people consider dogs to be another member of the family. The casitas help reduce dog injury and death from jaguar predation events, reducing the pain and suffering caused by the loss of a beloved pet.

DECENT WORK AND ECONOMIC GROWTH

(SDG 8): By making the city safer and protecting biodiversity, the project preserves and promotes conditions that drive tourism to Playa del Carmen. The project also employs local carpenters to build the doghouses.

SUSTAINABLE CITIES AND COMMUNITIES

(SDG 11): Jaguar predation in the city contributes to human-wildlife conflict. By encouraging guardianship of dogs and reducing jaguar predation, the Casitas Azules program makes Playa del Carmen a safer place for people and animals to live.

SUSTAINABLE CONSUMPTION AND

PRODUCTION (SDG 12): By using recycled wood to build the doghouses, the project reduces waste generation.

LIFE ON LAND (SDG 15): Removing a source of attractants that drive jaguars to enter urban areas helps conserve a key predator that contributes to the forest ecosystem and keeps populations of prey species in check.



SDG 12: Responsible Consumption and Production

In order to achieve long-term sustainability and well-being for all, the structural production and consumption practices that impede human development must be reevaluated. SDG 12 promotes using natural resources in a responsible manner and reducing waste in order to ensure sustainable production and consumption patterns.

Because animals and their habitats are intertwined with most aspects of human life, maintaining their health has an important role to play in changing the production and consumption patterns affecting development. This is particularly evident in the production of food and other animal products. Not only are practices such as intensive animal agriculture harmful to animal welfare but they also perpetuate unsustainable resource use and waste.

Intensive animal agriculture, also known as factory farming, produces industrial levels of waste. Unlike small scale agriculture, which can repurpose manure, factory farms produce so much manure that it is usually stored in large, open-air waste lagoons.

This practice pollutes the air and water surrounding factory farms. In fact, animal agriculture is the biggest source of ammonia pollution in the US.⁴⁵ Furthermore, due to the fact that animals in factory farms are often given antibiotics in order to remain healthy in unsanitary and cramped conditions, these antibiotics leak into the environment as a pollutant through their manure, which is likely to reach neighboring crops and waterways.⁴⁶

Factory farming also relies on unsustainable use of resources. A pound of beef requires 1,800 gallons of water to produce (mostly to grow) the grain to feed non-grass fed cows in factory farms.⁴⁷ In a water stressed world, this directs a valuable resource away from more efficient purposes. It is also an unsustainable source of carbon emissions.

Achieving responsible consumption across the world is only possible when taking into account the role of animals in agriculture. The goal of a globally sustainable production and consumption process can only be achieved by promoting better conditions for domestic animals.

From disaster planning to the key role of wildlife in climate mitigation, no climate-related action should be undertaken without considering both domestic animals and wildlife populations.

SDG 13: Climate Action

SDG 13 represents an increasing awareness in the development community of the devastating effects of climate change on human well-being, and it strives to support swift action to combat climate change and its effects. In addition to broad targets to integrate climate resilience and mitigation measures into national planning, the goal also includes a target to enhance disaster preparedness, which will become increasingly important as natural disasters such as hurricanes and wildfires become more frequent and magnified due to climate change. ⁴⁸ In this regard and others, SDG 13 overlaps significantly with the goals set by the 2015 Paris Climate Agreement ⁴⁹ and underscores the need for the continued inclusion of climate considerations in sustainable development.

Though much is known about the effect of climate change on ecosystems and animal welfare, it is important to note that poor animal welfare and extinction events can also exacerbate the effects of climate change and hasten climate change itself. Thus, climate change will continue to worsen if biodiversity is not protected, especially because animals play a key role in maintaining critical ecosystems that mitigate the damaging effects of CO² emissions. About 40 percent of the world's carbon is stored in tropical rainforests, and effective climate mitigation relies on healthy forest ecosystems to serve as a carbon sink.50 In order for these ecosystems to be healthy and resilient, the wildlife populations that inhabit them must also be robust. For example, forests depend on large herbivores to propagate seeds and regenerate the forest; some species of hardwood trees are so specialized that they cannot reproduce unless their seeds pass through the stomach of an elephant.⁵¹ Focusing on species conservation is important for protecting the species themselves, but it is also vital

to mitigating climate change.⁵² In other words, global losses in both species and populations of wildlife have cascading consequences throughout ecosystems, which in turn make humans more vulnerable to the dangers of climate change.

One of the most pressing dangers presented by climate change is its escalating effect on natural disasters. Climate change increases the frequency and intensity of severe natural disasters.⁵³ Factory farms contribute to this growing risk, not only because of their emissions, but also because they may heighten the severity of disasters for surrounding communities. Hurricane Florence, which struck North Carolina in September 2018, caused catastrophic flooding, inundating manure lagoons on the state's hog farms, spilling waste into waterways and neighboring properties, and threatening public health and the environment.⁵⁴

Despite some improvements in disaster risk reduction strategies, disaster-related mortality rates continue to rise.55 One of the reasons for the high number of disaster-related deaths is that many people do not or cannot evacuate their homes before a disaster. Many families will not abandon their pets in their homes during an emergency. Forty-four percent of those that refused to evacuate during hurricane Katrina, which flooded the US Gulf Coast in 2005, did so mostly because they refused to leave their pets behind. 56 Thus, a lack of animal shelters as well as the widespread absence of animal considerations from disaster planning processes endangers families with pets during natural disasters. From disaster planning to the key role of wildlife in climate mitigation, no climate-related action should be undertaken without considering both domestic animals and wildlife populations.



Safeland Disaster Risk Reduction in Myanmar

Many impoverished farming families depend on animals for their livelihood, and the cattle lost in seasonal flooding has devastating effects on entire communities

Myanmar is located in the monsoon region of southeastern Asia where flooding is common, especially during the annual rainy season of June through September. The country routinely experiences catastrophic floods and cyclones. In 2008, Cyclone Nargis, the worst natural disaster in the recorded history of Myanmar, killed more than 136,000 people and highlighted deficiencies in government disaster preparedness plans.

In 2015, record flooding affected regions across Myanmar, and because agriculture is the nation's main industry, animal losses were devastating to local economies. As one of the first international animal welfare organizations to work in Myanmar after many years of totalitarian rule, IFAW partnered with Giving a Future Animal Aid (GAF)—a non-profit animal welfare organization—and the Myanmar Veterinary Association (MVA). Together they worked alongside the Livestock, Breeding and Veterinary Department (LBVD) to assist farmers in the Ayeyarwady Region with emergency veterinary care and supplemental fodder. Cows are used in traditional farming for rice production, but because of their size, they suffer in the floods as they cannot use stilted structures to stay out of the flood water, unlike smaller animals.



After the disaster, IFAW returned to the affected communities to explore opportunities to develop long-term disaster preparedness plans to mitigate predictable future natural disasters. The area selected for the pilot project was Ingapu Township, the most damaged area of the Hinthada district. With the support of IFAW and collaboration of the LBVD, the local community formed an Animal Disaster Risk Reduction Committee and embarked on a project to build an earthen platform where cows could take refuge during floods. It was named the Safeland. Construction began in January 2016 and was completed in June, ready to be tested during the monsoon season. The team made modifications to the design in 2017, and in 2018, IFAW completed two additional Safelands in Myanmar. Notably, LBVD adopted the project and completed an additional Safeland in the same timeframe. Farmers feel secure knowing that they can keep their cows safe in future floods. For 2018-2019, LBVD has budgeted for and will begin Safeland projects in several additional townships throughout the Ayeyarwady Region. The project is expected to begin in early 2019.

GOOD HEALTH AND WELL-BEING (SDG 3):

Cows are vital in many Myanmar villages; most villagers own one or two cows, which are considered to be family members. The platforms not only have helped reduce death from floods, but have also helped reduce the pain and suffering caused by the loss of a beloved animal.

DECENT WORK AND ECONOMIC GROWTH

(SDG 8): The Animal Disaster Risk Reduction Committee employed and will continue to employ local workers to build Safelands, providing continuous work for the local community.

INDUSTRY, INNOVATION, AND INFRASTRUCTURE

(SDG 9): IFAW and its partners fostered innovation and helped build resilient infrastructure through the creation of the earthen platforms, which promote inclusive and sustainable industrialization for the region's future development.

SUSTAINABLE CITIES AND COMMUNITIES

(SDG 11): By constructing earthen platforms in townships such as Ingapu, IFAW and its partners were able to make these cities and human settlements more sustainable, inclusive, safe, and resilient during the monsoon seasons.

When marine and coastal species are healthy and their habitats protected, they contribute to key ecosystem services that support the functioning of the ecosystem.

SDG 14: Life Below Water

The world's oceans provide numerous services to people, and they are home to an extraordinary amount of biodiversity. However, the ocean environment is also in severe danger. Pollution, overfishing, and ocean acidification impede the healthy functioning of the ecosystem that billions of people rely on for food, livelihoods, and overall well-being. These forces also endanger marine life and biodiversity, which fuels a vicious cycle of ecological degradation. To address these serious concerns, SDG 14 seeks to conserve and sustainably use the oceans, seas, and marine resources for sustainable development.

The importance of marine life in conserving the oceans cannot be overstated. When marine and coastal species are healthy and their habitats protected, they contribute to key ecosystem services that support the functioning of the ecosystem. Sea otters, for example, maintain kelp forests by preying on the sea urchins that would otherwise overgraze the kelp. Kelp forests prevent coastal soil erosion by lessening the effect of waves hitting the shore, which prevents coastal property damage. They also help prevent ocean acidification and

global climate change; healthy kelp forests have the capacity to absorb billions of kilograms of carbon and help regulate ocean pH.⁵⁸ Thus, sea otter conservation not only protects biodiversity but it also maintains an ecosystem that humans rely on for valuable services.

Whales also have important affects on ocean ecosystems. By feeding deep in the ocean and emerging to breathe at the surface, whales circulate nutrients back to the surface, which supports a variety of other species. They also help low-latitude ecosystems that lack nutrients to flourish when they migrate there to breed and calve.59 In fact, healthy whale populations yield more fish for fishermen to catch. When combined with the economic benefits of whale-watching, a whale provides far greater value as a member of a healthy ecosystem than as a hunted commodity.60 Marine species are integral to the ocean-based resources upon which many communities absolutely depend. Conserving them is not only important for the species themselves. but it is absolutely essential to the sustainability of the marine environment itself.





Whale conservation's positive effect extends onshore in Iceland

Commercial whaling is an unsustainable and cruel practice that severely disrupts whale-watching tourism, which is one of Iceland's most profitable and important industries. Not only does whaling remove whales from the population, it also causes whales to fear whale-watching boats. In 2011, IFAW started the Meet Us Don't Eat Us campaign to inform and educate tourists about the facts of whale meat consumption (whale meat in Iceland is primarily eaten by tourists, not locals) and encourage political leaders to make whaling hotspot Faxaflói Bay a protected sanctuary. Surveys indicate the campaign has helped reduce tourists' whale consumption by half since 2011.

By protecting the whale population, our work supports sustainable livelihoods in the whale-watching industry that also protects Iceland's natural heritage. Whale-watching also indirectly supports related industries such as hospitality. Furthermore, a growing whale-watching tourism industry has led to the revitalization of Reykjavik's harbor district, reinvigorating the harbor area with restaurants and gift shops.

DECENT WORK AND ECONOMIC GROWTH

(SDG 8): Protecting Faxaflói Bay allows the whale-watching industry to thrive, creating jobs and contributing to Iceland's largest industry: tourism. When whale-watching brings tourists to Iceland, supporting industries also witness growth.

SUSTAINABLE CITIES AND COMMUNITIES

(SDG 11): To accommodate the flood of tourists brought into Reykjavik's harbor district to whalewatch, the area has transformed into a booming and vibrant neighborhood full of green spaces, restaurants, and cultural centers.

SUSTAINABLE CONSUMPTION AND

PRODUCTION (SDG 12): Commercial whaling. perhaps the 20th century's greatest example of unsustainable consumption and production, drove many whale species to the brink of extinction. As slow-breeding mammals, many whale populations have yet to recover and today face many other threats in addition to whaling. Protecting whales by ending commercial whaling helps ensure that the gentle giants are there for future generations.

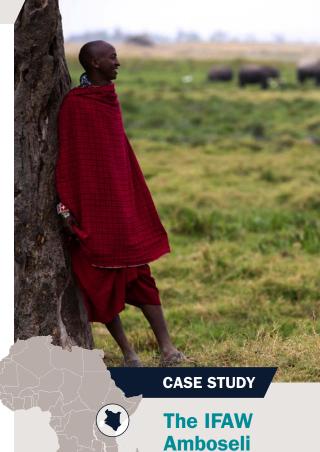
LIFE BELOW WATER (SDG 14): Healthy whale populations benefit the marine ecosystem. Whales provide nutrients for phytoplankton that are critical to maintaining a healthy ocean and extracting carbon dioxide from the atmosphere.

SDG 15: Life on Land

Without a healthy environment, sustainable progress on the other goals is impossible. Humans rely on the terrestrial ecosystems in both subtle and obvious ways, some of which we may not realize until it is too late. To prevent the dire consequences of ecosystem degradation for development, SDG 15 calls on the international community to protect, restore, and promote the sustainable use of ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. In order to achieve this, SDG 15 incorporates targets across a variety of key ecosystems and urges the inclusion of the natural world into human development planning.

Wildlife conservation is central to SDG 15. Not only are preventing biodiversity loss and halting the extinction of endangered species explicitly mentioned in several targets, conservation also contributes to the larger ecological goals of this SDG. When wildlife habitats are protected, ecosystems thrive and destructive forces such as desertification are mitigated. For example, wildlife fertilize and overturn the soil in fragile ecosystems, and apex predators keep the population of grazers in check. When habitats are overgrazed as pasture lands, or when critical ecosystem services are limited due to wildlife population decline, soil erosion can occur, leaving the landscape without necessary nutrients and at risk for desertification. 61 For example, there is a strong correlation between prairie dogs' burrowing behavior and groundwater recharge and soil productivity in the American Southwest. 62 Similarly, elephants overturn soil and dig up water holes in times of drought, making the ecosystem more resilient to increasing drought conditions due to global warming.63

Paying close attention to these kinds of ecosystem services is especially important considering that the planet is currently experiencing its sixth mass extinction event. Due mostly to human activity, the current rate of extinction is estimated to be 100 to 1,000 times higher than the expected background rate. 64 Even more startling, the number of wild animals on earth is estimated to have been halved since 1970.65 Since wildlife plays a critical role in maintaining ecosystems, this decline in biodiversity has severe ecological consequences. Currently, 58 percent of land on Earth is experiencing unsafe levels of biodiversity loss. 66 As wildlife populations decline, ecosystems of all kinds are less resilient and therefore at risk. Without resilient ecosystems, all agriculture, water management systems, and industries (such as tourism) are left significantly more vulnerable. It is now more important than ever to incorporate life on land into development planning.



Project

Amboseli National Park in southern Kenya is home to some of Kenya's largest elephant populations (est. 2,000); however, the park cannot support the migratory species' ecological needs alone. Elephants and other wildlife depend on the surrounding 5,700 km² of Maasai community land for dispersal and spend up to 80 percent of their time on these community ranches. Specifically, the elephants use these community group ranches as crucial corridors for migration to other protected areas, such as Tsavo to the east in Kenya, and Kilimanjaro Park to the south in Tanzania. In 2008, the main stakeholders and owners of the land—the Maasai group ranches that surround the park, and the Kenyan government through the Kenya Wildlife Service (KWS) as custodians of the park—recognized that the threat of habitat loss, degradation, and fragmentation would lead to the loss of livelihoods and revenue from tourism. They opted to take steps to safeguard the land and to ensure sustainability of the ecosystem by establishing the



Amboseli Ecosystem Management Plan 2008–2018. IFAW identified with this initiative and partnered with one of the group ranches, the Olgulului Olalarashi Group Ranch (OOGR, which surrounds 90 percent of the park), the KWS, and other secondary stakeholders to secure critical elephant corridors and dispersal areas for elephants in OOGR community areas in the Amboseli landscape. To achieve this goal, IFAW implemented a multi-year commitment to securing the Amboseli-Tsavo-Kilimanjaro landscape through several methods; the most notable of which are described below:

- → In a direct effort to win space for elephants, IFAW has secured 26,000 acres of the Kitenden Corridor (one of the last remaining elephant migratory corridors connecting Kenya and Tanzania) and dispersal area for wildlife by signing separate lease agreements with 1,600 indigenous landowners to protect the corridor. The long-term strategy for this leased land is to develop the Kitenden Community Wildlife Conservancy that will continue to offer a three-pronged benefit to: (i) wildlife and its habitat, (ii) the local community through eco-friendly, compatible tourism, and enterprise projects, and (iii) investors through tourism development and investment. In 2017, IFAW worked with the local Maasai community to register the Kitenden Conservancy Trust. Registering this trust was an important step toward securing this portion of land as a community-owned conservancy that supports sustainable livelihoods while providing safe passage for elephants traveling between Amboseli National Park and West Kilimanjaro.
- → In collaboration with the KWS, IFAW works with community game rangers to secure the integrity of corridor habitat by promoting human wildlife conflict mitigation and awareness within the OOGR community. IFAW has facilitated the professional training of 50 OOGR community game rangers at

- the Kenya Wildlife Service Law Enforcement Academy each year since 2013.
- → Human-wildlife conflict is a great challenge in the Amboseli region. In 2008, IFAW partnered with the Amboseli Ecosystem Trust and the KWS to facilitate human-wildlife conflict mitigation and implement the Amboseli Ecosystem Management Plan (AEMP). The AEMP separates land use areas for conservation, livestock grazing, farming, and settlement. IFAW provided financial, technical, and administrative support in the various stages needed to acquire the necessary approvals. As of today, Amboseli is the only ecosystem in Kenya with an official ecosystem management plan. Since the initial ten-year term of the plan expires in 2018, IFAW is part of the committee spearheading the extension of the plan to ensure that the progress made in the last ten years is sustained.
- → A primary driver of human-wildlife conflict in the OOGR is the access to clean water for humans, livestock, and wildlife. Therefore, in September 2012, IFAW conducted research and helped the county government secure funding to rehabilitate the Northern Water Pipeline, which supplies water to communities living in the north of Amboseli. When the project is completed in 2019, it will reliably provide water to 300 homesteads, 3,000 people, and more than 6,000 herds of livestock.
- → In 2015, IFAW initiated an education scholarship to offer financial support to 60 students to pursue studies in high school, tertiary colleges and universities, as well as 30 community wildlife scouts and their new camp. In addition, IFAW is facilitating the construction of a community service center that will house a boarding secondary school for girls, a wildlife school, and a health clinic. IFAW is also

- working with local women to develop markets for income-generating activities such as beadwork and livestock management.
- → From 2012 to 2018, IFAW partnered with the KWS, OOGR, and the School for Field Studies (SFS) to deploy tracking collars on 18 elephants in the Amboseli ecosystem. The data received via the GPS-enabled satellite collars helps in mapping wildlife corridors, settlement areas, and potential wildlife threats, which all contribute to spatial planning and zoning of the Amboseli landscape. The collar information is also used by the Kenyan government to guide spatial planning at national and local levels.
- → Finally, IFAW provides the necessary infrastructure and equipment to aid in the efficient and effective administration and management of the park as well as community group ranch conservation initiatives aimed at securing critical elephant corridors and dispersal areas.

IFAW's commitment to reducing human-wildlife conflict and securing land for both elephants and people has led to increases in elephant population numbers. In the Tsavo Conservation Area, for example, elephant numbers increased by 14.7 percent from 2014 to the latest census in June 2017.

GOOD HEALTH
AND WELL-BEING

















GOOD HEALTH AND WELL-BEING (SDG 3): By establishing the Amboseli Ecosystem Management Plan, which separates land use areas for conservation, livestock grazing, farming, and settlement, human-wildlife conflict will significantly decrease, therefore ensuring ensuring the local community's well-being. In addition, the development of a health clinic in the region will ensure good health within the community.

QUALITY EDUCATION (SDG 4): By providing education scholarships to financially disadvantaged local students, IFAW ensured inclusive and equitable quality education and promoted lifelong learning opportunities and alternative livelihoods for the local community.

GENDER EQUALITY (SDG 5): By creating a boarding secondary school for girls and facilitating income generation among women, the project promotes gender equality and empowerment of all women and girls in Amboseli.

CLEAN WATER AND SANITATION (SDG 6): By rehabilitating the Northern Water Pipeline, the project will ensure availability and sustainable management of clean water and sanitation for hundreds in the Maasai community.

DECENT WORK AND ECONOMIC GROWTH (SDG 8): By making Amboseli safer and protecting biodiversity, the project preserves and promotes the conditions that drive tourism to Amboseli. The project also employs local community rangers as well as scouts to provide security services for the local wildlife.

INDUSTRY, INNOVATION, AND INFRASTRUCTURE (SDG 9):

To support the administration of the Amboseli National Park and the OOGR conservation initiatives, IFAW has helped build resilient infrastructure, which promotes inclusive and sustainable industrialization while fostering innovation within the local community.

SUSTAINABLE CITIES AND COMMUNITIES (SDG 11): By mapping wildlife corridors, settlement areas, and potential wildlife threats, the project secures wildlife migratory routes and corridors as well as dispersal areas for the benefit of people and wildlife in Amboseli, thereby making human settlements more inclusive, safe, resilient, and sustainable.

LIFE ON LAND (SDG 15): By securing the Kitenden Corridor, IFAW has helped to formally establish a community conservancy that helps protect, restore, and promote the sustainable use of the Amboseli ecosystem while reversing land degradation and halting biodiversity loss.

PEACE, **JUSTICE**, **AND STRONG INSTITUTIONS (SDG 16)**: By partnering with the OOGR and the KWS, the project

ensures community engagement and promotes peaceful and inclusive societies for the sustainable development of the local community and even provides a model to follow for other communities. Additionally, IFAW trains and equips rangers who improve the safety of the community by reducing poaching.



SDG 16: Peace, Justice, and Strong Institutions

The SDGs can only be implemented successfully where peaceful and just societies provide the stability and resources for human development to flourish. Violence, crime, and corruption prevent progress on the other goals and cause direct harm to millions of people. In recognition of the invaluable role of strong institutions, SDG 16 seeks to promote peaceful and inclusive societies for sustainable development; provide access to justice for all; and build effective, accountable, and inclusive institutions at all levels.

Violence against animals can be linked to both violence against people and illicit financial flows through poaching. Studies have found a significant relationship between animal cruelty and crimes such as interpersonal violence and sexual offenses.⁶⁷ Animal abuse is also one of the four main predictors of domestic violence;⁶⁸ research has found that 83 percent of women that enter domestic violence shelters report that their abuser also abused or killed the family pet.⁶⁹ This strong connection means that efforts to prevent animal abuse, especially when conducted in tandem with domestic violence experts, can also help identify and prevent domestic violence.⁷⁰

Another widespread form of cruelty to animals is the poaching and trafficking of animals. In addition to decimating wildlife populations, 71 wildlife trafficking also threatens public safety as its proceeds are often reinvested to finance further criminal networks

(such as human and drug trafficking) and/or terrorist organizations. For instance, in India, militants affiliated with al-Qaeda and based in Bangladesh are suspected of sponsoring the poaching of tigers, rhinos, elephants, and other vanishing breeds at India's Kaziranga National Park in order to support terrorist activities. The Illegally poached ivory has also funded the work of the Lord's Resistance Army (LRA), led by Joseph Kony, who ordered his fighters to kill elephants for profit. The Inally, there is a connection between illegal wildlife trafficking and the terrorist group Boko Haram; it is estimated that around 25,000 elephants were poached from one region of Gabon alone in order to fund their activities from 2007 to 2017.

The scale of illegal wildlife trafficking is extensive, ranging from the slaughter of elephants for their ivory, to the sale of great apes and exotic birds as pets, to rhinoceros horns used for carvings and traditional medicines. The sense of the most lucrative types of organized crime, wildlife trafficking relies on sophisticated networks of bribery, money laundering, and violence. These networks run shell companies, bribe officials, and exploit the poor in surrounding communities in order to obtain their product. Overall, the presence of wildlife trafficking creates unsafe conditions by enriching various kinds of criminal enterprises and degrading the rule of law. In order to move toward peace, justice, and strong institutions, wildlife trafficking and animal welfare must be addressed.



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About IFAW

Founded in 1969, the International Fund for Animal Welfare (IFAW) is a global non-profit organization that protects animals and the places they call home. With offices in 15 countries and projects in over 40, we rescue, rehabilitate and release animals into secure landscapes around the world. In collaboration with both governments and local communities, our experienced campaigners, legal and political experts, and internationally acclaimed scientists pioneer lasting solutions to some of the most pressing animal welfare and wildlife conservation issues of our time.

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