Elephants Never Forget

Scientists estimate that there are fewer than 550,000 wild elephants in Africa and as few as 39,000 in Asia, where they are considered in danger of extinction. A century ago, there were at least twice as many wild elephants on our planet.

© IFAW/J. Hrusa

The first thing people notice about elephants is that they're big—*really* big. In fact, elephants are the largest land animals on the planet. But there's much more to these enormous animals than their size and power. They are also clever and sensitive. Elephants care for their families and live by complex social rules. They appear to remember long-lost relatives and grieve for loved ones long after their deaths. These majestic animals, which can live as long as you and I, are a fascinating mix of strength and gentleness. They are impressively huge, but also incredibly vulnerable. Despite their tremendous power, many populations of wild elephants are fighting to survive.

Elephants, Then and Now

Elephants are the only living members of a group of mammals that includes the **extinct** American mastodon and the woolly mammoth. Among living mammals, manatees and hyraxes are considered elephant relatives because of the ancestors they share.

Today's elephants fall into two main groups—African and Asian—which are easy to tell apart if you know what to look for. Until recently, scientists considered African and Asian elephants the only two **species** of living elephants. Then **DNA** studies suggested that there may be two different species of African elephants—forest and **savannah**—bringing the total number of living elephant species to three. Savannah elephants are larger than their forest cousins, and they have larger ears as well as tusks that are more curved.

All elephants are **herbivores** that eat grasses, bark, twigs, leaves, and fruit. They can spend 18 hours each day eating. Because their bodies only make use of about 40 per cent of the food they eat, they must eat large portions. An adult elephant might eat almost 400 pounds of food in one day. They need 30–50 gallons of water each day and will travel long distances to find it.

© IFAW/J. Hrusa

© IFAW/M. Booth

Elephants in Africa	Elephants in Asia
About 10 feet tall at shoulder	8–10 feet tall at shoulder
Males weigh up to 13,200 pounds	Males weigh up to 11,000 pounds
Huge ears cover shoulders	Large ears don't reach shoulders
Flat back with a dip in the middle	Rounded back
Trunk has two finger-like tips for grasping	Trunk has one finger-like tip for scooping
Long tusks on both males and females	Shorter tusks, only found on some males; females may have very short, blunt tusks called *tushes*
Skin is more wrinkled and brownish-grey	Skin is less wrinkled; grey to brown, with pink patches
Relatively flat crown of head with no dent in middle	Domed crown of head with dent in middle
Lives up to 70 years in the wild	Lives up to 60 years in the wild

© IFAW

© IFAW/D. Willetts

Believe it or not, these animals are relatives of elephants!

Big Is Just the Beginning

Elephant bodies are unusual not only for their size, but also for their many unique features. Among these, their trunks and tusks may be the most noticeable—elephants use these body parts as tools for many purposes, from eating to communicating. The ears and feet of an elephant are also unusual for their size and usefulness. Overall, elephant bodies are very well adapted for life in their wild homes.

Besides having amazing bodies, elephants have impressive brains. One thing their brains help them do is work well together in groups. Elephants live in family groups that include female elephants from several generations, along with young elephants of various ages. Females stay in their groups for life. Males usually leave between the ages of 12 and 17 years old to live alone or together in small herds. After this, they get together with females only for the purpose of mating.

A **matriarch** leads each family group, and this matriarch is clearly in control. She keeps her group together, ensures its safety, and helps group members find food and water. She makes the group's major decisions, such as when to charge and when to flee from danger. This matriarch also educates other females about caring for their young and sets an example of leadership for another group member to follow after she dies.

Elephants signal friendship by resting their trunks on each other's foreheads.

© IFAW/D. Willetts

Elephants have remarkable memories. They remember other elephants even after decades of separation. When they are reunited, they sometimes turn in circles, raise their heads high, flap their ears, and trumpet loudly. Elephants also remember places to find food and water. A herd might well survive a drought because the matriarch remembers the location of a faraway water hole.

Ears: Elephants use their ears to cool down—they can pump blood to their ears and release body heat when they fan them. Their ears also help them hear faraway sounds, shoo insects, show feelings, and look bigger when facing enemies. This Asian elephant has big ears; African elephant ears are even bigger.

Hair: Elephants, like other mammals, have hair, but not very much!

Tusks: Some elephants don't have tusks. But those that do use these overgrown teeth to carry things, pull bark off trees, clear paths, dig for roots and water, fight enemies, and impress other elephants. Tusks keep growing through an elephant's lifetime.

Skin: Elephants have sensitive skin that is strongly affected by sunburn and insect bites. For this reason, they roll in mud or give themselves dust showers to get extra protection. Water on their skin cools them when it gets trapped in wrinkles.

Tail: Like other large animals, elephants use their tails to shoo insects. A young elephant will sometimes follow its mother by grasping her tail with its trunk.

Mouth: Elephants' molars, or back teeth, are the size of bricks.

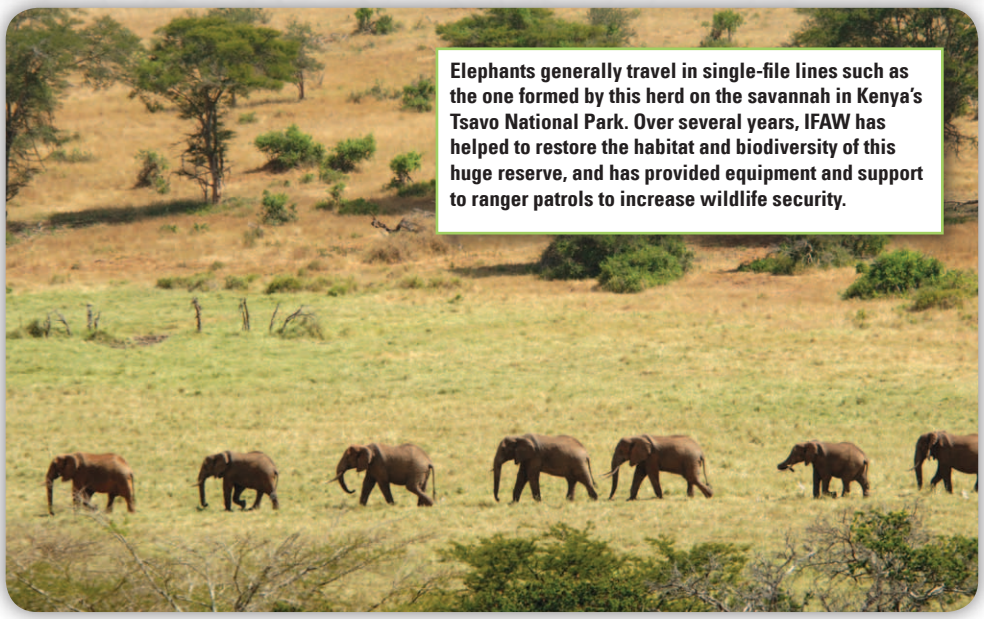
Trunk: A trunk combines an elephant's nose and upper lip. It has nostrils that run inside its entire length. This useful body part helps an elephant to smell, feed itself, scratch, greet friends, and move or throw objects. A trunk also allows an elephant to give itself a shower of dust or water and to breathe while under water.

Feet: Thick padding on an elephant's feet softens the blow of each heavy step. Elephants can also 'listen' by feeling vibrations in the ground with their feet (and trunks).

© IFAW/R. Janes

© IFAW/Dusty Foot Productions

Elephants have complex emotions, and the females in a group share strong bonds. They appear to celebrate the birth of a calf with trumpeting and rumbling. They may take turns shielding an injured calf from bright sunlight or circle around it when a lion is near. Elephants express affection by kissing or wrapping trunks. They play games, such as throwing around objects, either alone or in groups. Elephants may bury dead relatives with leaves and twigs, and people have seen them visit their bones even years after a death.



© IFAW/D. Willetts

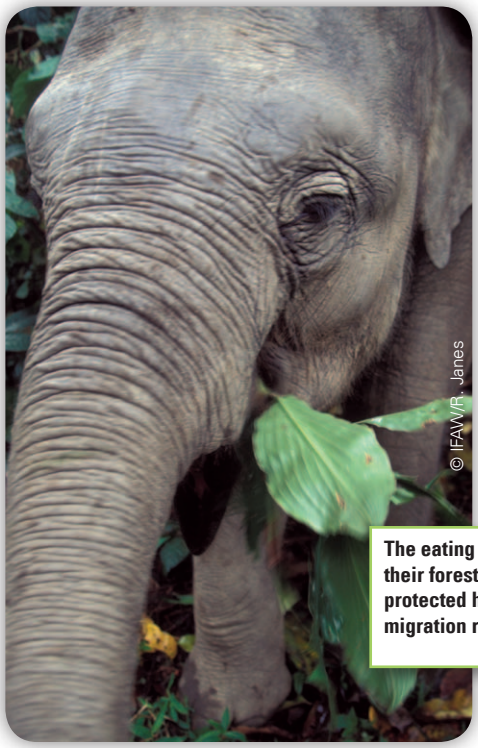
Elephants generally travel in single-file lines such as the one formed by this herd on the savannah in Kenya's Tsavo National Park. Over several years, IFAW has helped to restore the habitat and biodiversity of this huge reserve, and has provided equipment and support to ranger patrols to increase wildlife security.

Key Roles of Elephants

Scientists consider elephants to be **keystone species** because they play important roles in the **ecosystems** in which they live. They help to support the **biodiversity**, or variety of life, in their living areas.

The eating habits of forest elephants (both in Africa and Asia) create gaps in the vegetation. These gaps allow space for new and different plants to grow, and create pathways for other animals to reach remote areas. In West Africa, forest elephants are the only animals big enough to eat and spread the seeds of large tree species. Many of these trees would not be able to reproduce without the help of elephants. The seeds pass through the elephants' digestive systems and are dropped in their dung, which fertilizes the seeds as they grow into new plants. Scientists predict that at least 30 per cent of these tree species would disappear if elephants disappeared.

Savannah elephants eat the sprouts of woody plants, preventing trees and shrubs from growing out of control. If those woody plants were left alone, their leaves and branches would eventually block sunlight from reaching the grasses, so the grasses would die. Antelopes and other animals that graze on the grasses would disappear without this food source, and so would the **carnivores** that depend on those grazers for food. Also, during the dry season, savannah elephants use their tusks to dig water holes that benefit other animals. These water holes may be the only sources of water in the area.



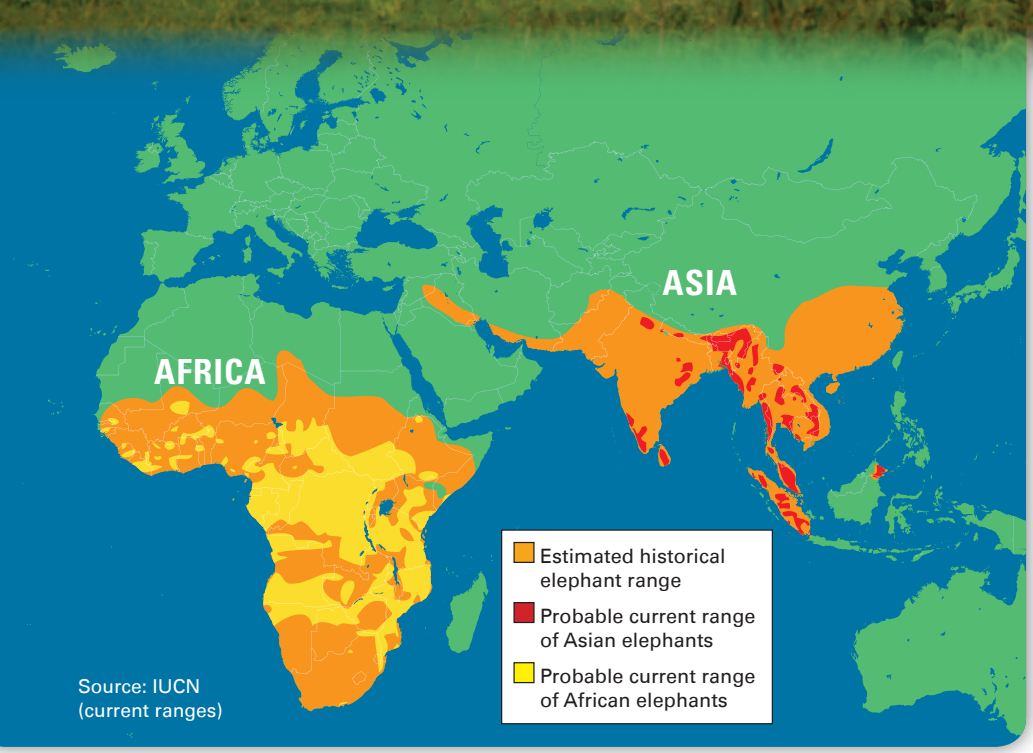
© IFAW/R. Janes

The eating habits of elephants help support the biodiversity of their forest habitat. To help elephants move from one patch of protected habitat to another, IFAW recently conserved an ancient migration route in India used by more than 1,000 elephants.

Long-Distance Communication

Elephants communicate by touch and smell as well as through vocalizations—grunting, whistling, bellowing, rumbling, trumpeting, and more. Some elephant vocalizations are infrasound—sounds too low in pitch for the human ear to sense. Other elephants may hear these sounds from more than 5 miles away. This may help separated groups coordinate their movements for weeks at a time without losing communication. Also, female elephants are only ready to breed every few years, so they may use infrasound to let males know when they're available.

Elephants also communicate over long distances by stomping. These sounds may travel 20 miles or more through the ground. Researchers believe that elephants may create these vibrations as warnings about faraway dangers.



Room to Roam

Centuries ago, elephants roamed throughout most of Africa. As increasing human populations use more land for farming and living space, the **range** of elephants has decreased significantly.

In the past century alone, wild elephants have disappeared from at least three African countries where they used to roam. Their range is now limited to savannah, forest, and bush in 37 countries south of the Sahara desert.

The range of Asian elephants has also been greatly reduced due to human activities. Scientists believe they once roamed from Iran to the Indian subcontinent, south-east Asia and China. But wild elephants have been extinct in West Asia, Java, and most of China for many centuries. They now live in small patches of disconnected habitat in 14 Asian countries.

Because of **habitat fragmentation,** elephant **migration** routes get cut off by roads and railways or take herds through new farms and settlements. This can prevent herds from getting to food, water, and other elephant groups.

One of the dangers of separating the groups is that the elephants have a more limited choice of mates. Having a variety of choices for mating is important to the health of a population because **genetic diversity** helps a species resist illness and other health problems.

Conservation groups in both Africa and Asia are working to protect elephant habitat and migration routes. They are also conserving strips of land—or **elephant corridors**—that allow elephants to move from one patch of habitat to another.

Between 2001 and 2004, surveys in India identified 88 elephant corridors in use. More than three-quarters of these are near human settlements and are at risk of being affected by settlement expansion. So conservation groups have stepped up their actions to protect these areas.

Elephants and Us

Elephants have played a significant role in the history, lives, and culture of people for many centuries. Elephants have been employed to do heavy lifting, especially in the logging industry in Asia. People have kept elephants for zoos and circuses.

Elephants are worshipped as gods in some religions, celebrated at festivals, and featured in weddings. They have also been mounts for royalty and religious leaders. Safaris use them to carry people and to frighten away predators. And elephants have been trained and used in warfare in China, India, and Thailand, among other places. The ancient general Hannibal reportedly took 37 war elephants when his army crossed the Alps to fight the Roman Republic in 218 BC.

In India and other Asian countries, elephant keepers called mahouts domesticate and train elephants to carry people and other loads. The elephants shown here help patrol for poachers in India's Kaziranga National Park.

Climate Change

Protecting elephant habitat isn't just good for elephants—it's good for the entire planet. When land is cleared, there are no trees to soak up carbon, which contributes to climate change. Therefore, conserving forests for elephants helps protect all the plants and animals that live there and can help reduce climate change impacts.

In Africa, scientists predict that global warming will cause some dry regions to become even drier. This will increase the likelihood of terrible droughts that threaten both elephants and people as water supplies dry up and food becomes scarce. Habitat fragmentation only makes matters worse, preventing elephants from migrating to regions where resources are more plentiful.

IFAW

In Conflict

In recent years, habitat loss has brought elephants and people into increasing conflict. In Africa, for example, only about 16 per cent of elephant habitat is in protected areas. This puts elephants in competition with people for space, food, and water. Elephants sometimes wander into villages and onto farms to find food. Farmers drive elephants away to protect their farms, often killing or injuring elephants in the process. People may also be killed by elephants during these clashes.

In some areas where disappearing habitat puts elephants in direct contact with humans, people may resort to culling, or selective killing, to control elephant populations.

Culling may target individual elephants or entire families. Given elephants' sensitivity and complex emotions, culling is very disturbing when they witness the slaughters and then survive. 'Cull orphans' may suffer from depression, avoidance of other elephants, and increased aggression.

To the Rescue

Near India's Kaziranga National Park, a wildlife rescue and **rehabilitation** centre helps Asian elephant calves that have been separated from their herds before they are old enough to survive on their own. The calves may be in need of help due to injury or illness, being orphaned as a result of poaching, being stranded due to floods, or falling into drainage ditches. In addition, some calves have been rescued from illegal wildlife traders. Without rehabilitation, these calves would most likely die or face lives in captivity.

Workers try first to bring a separated calf back to its original herd. When that isn't possible, orphaned calves are hand-raised at the rehabilitation centre until they are one to two years old. Then they are radio-collared and taken to Manas National Park, where they are released into a protected wildlife reserve. As of January 2011, 13 orphaned elephant calves had been released back to the wild.

© IFAW/R. Janes

One possible solution is to connect existing large protected areas to create what are called 'mega-parks' that would allow elephants to move from place to place without interacting with humans. Although there are no easy fixes, elephant experts are working to find solutions that will stop human-elephant conflicts *before* they happen rather than reacting to these conflicts as they occur.

Jumbo Move

Malawi, in southern Africa, is one of the poorest countries in the world and the site of many human-elephant conflicts. In the summer of 2009, IFAW, in partnership with the Malawi government, relocated 83 elephants—including the young calf and its mother pictured below—to Majete Wildlife Reserve. The elephants now have a safe, secure home, and they're living proof that human-elephant conflicts don't have to end in violence.

© IFAW

China's last rain forest, Xishuangbanna (shee-shuang-bahn-nah), is home to fewer than 300 Asian elephants—the last remaining elephants in China. Elephants in China face challenges due to farming, deforestation, and other human activities. In 2003, working with the local government, IFAW began offering small loans to help local people develop new ways to earn money so they wouldn't need to farm in elephant habitat. IFAW also sponsored an elephant festival in the area to teach local people about elephant conservation.

© IFAW/L. Aidong

The Trouble with Tusks

Millions of wild elephants once roamed the continents of Africa and Asia. But elephant populations have declined by more than 50 per cent in the past century. As few as half a million elephants remain in the wild.

One of the biggest reasons for this is the killing of elephants for their ivory tusks. Ivory has been used by people for thousands of years. It is used to make piano keys, billiard balls, fancy chopsticks, Asian stamps, and other luxury trinkets. But the **only** way to get ivory is from a dead elephant.

By the 1980s, scientists believed that the killing of elephants for their ivory was putting the survival of the elephant species at risk. So, the international trade in elephant ivory was banned following an agreement among governments in 1989.

Unfortunately, elephants are still **poached** because of the high demand for ivory, the lack of protected habitat, and weak law enforcement in many poor countries.

During the first few months of 2011, at least 50 elephants were killed just for their ivory in Chad, a country in West Africa. Due to poaching, the number of elephants in Chad has dropped by more than 37% in recent years, from 4,000 in 2006 to 2,500 elephants counted in 2010.

Conservation and animal welfare organizations are working on many fronts to protect elephants from poachers. They work with governments to enforce the ivory trade ban, train and equip anti-poaching rangers, and raise public awareness to reduce demand for ivory products.

DNA research is one of the newest weapons in the fight to end elephant poaching. Scientists are now able to examine illegal ivory that has been seized to find out where it is coming from. They compare the ivory with DNA samples from different populations of African elephants to identify areas of high poaching activity and popular **smuggling** routes. The information makes it possible to focus anti-poaching patrols and money where they're needed most. And the countries where poaching is most common are being pressured to do more to stop the killings.

Ivory and the Law

In 1989, a treaty called the Convention on International Trade in Endangered Species (CITES) gave all wild elephants the highest level of international legal protection. This effectively banned all international sales of African and Asian elephant parts, including trade in ivory, leather, skin, meat, and hair.

However, a 1997 change allowed **stockpiles** of ivory from four African nations to be sold. The ivory supposedly came from elephants that had died of natural causes, but many suspect that they had been victims of culling. A second sale of stockpiled ivory took place in 2008.

Selling stockpiled ivory deeply concerns conservationists, who are convinced that it creates the chance for poachers to smuggle illegal ivory into legal markets.

It's impossible for people to tell the difference between legal and illegal ivory. Conservation groups like IFAW believe the trade in ivory must be completely stopped for African and Asian elephants to survive, because legal trade increases demand for ivory, which encourages more illegal poaching.

© IFAW/R. Sobol

A villager in Africa carries a large tusk of poached elephant ivory on his shoulder.

Internet Trading

The Internet has become an easy place for illegal wildlife trade. Recent IFAW investigations have revealed a shocking amount of illegal online trade in wildlife and wildlife products. IFAW discovered that close to three-quarters of wildlife products offered online in 11 countries were made from real elephant ivory, like the trinkets pictured here. As a result of these findings, the Internet auction site eBay banned the sale of ivory at the start of 2010—proof that businesses can join the effort to save elephants. Individuals can help as well, through their choices about what to buy and not buy.

Saving Elephants

If the ivory trade is allowed to flourish and habitat continues to decline, elephants will continue to be in serious danger. Conservation groups argue for a **holistic** approach to saving elephants. They support proactive activities—actions that work to address problems before they become too large.

Governments, organizations, businesses, and communities must work together to safeguard elephant habitats, reduce human-elephant conflicts, stop the ivory trade, and protect elephants from poachers. Like tigers and other species, elephants are flagships for conservation: protecting elephants means that wider biodiversity and ecosystems will also be conserved.

The extinction of elephants would be a catastrophe for many other species and a tragic loss of one of the wisest and most beloved of all animals.

This African elephant mother and calf roam at the foot of Mount Kilimanjaro in Amboseli National Park, Kenya, where IFAW works with renowned elephant scientist Cynthia Moss. Moss has followed these elephants since 1972. Her findings have provided incredible insights into elephant society, intelligence, and ecology. IFAW also supports community conservation projects with local Masai groups and partners with the Kenya Wildlife Service on anti-poaching efforts.

Glossary

biodiversity: biological diversity; a measurement of variation in species, genes, and living communities in an area

carnivores: meat-eating animals

conservation: the protection or careful use of something, such as a species or a natural resource

DNA: a type of cell material that passes genetic code from parents to children

ecosystems: interacting communities of plants, animals, and the nonliving components of the environments in which these plants and animals live

elephant corridors: pathways that elephants travel between habitat areas

endangered species: species that are in great danger of dying out completely

extinct: no longer living (as in a species that no longer lives on Earth)

genetic diversity: variety in the code for inherited traits of an entire species

habitat fragmentation: the process of breaking up a habitat into smaller and more disconnected patches

herbivores: animals that eat only plants

holistic: addressing the whole of something, rather than just a part of it

keystone species: species that strongly affect the structure and function of an ecosystem, as a keystone in an arch affects its strength

matriarch: the female leader of a family group

migration: the movement of animals from one place to another

poached: hunted and killed illegally

range: the entire area where a type of wild animal lives

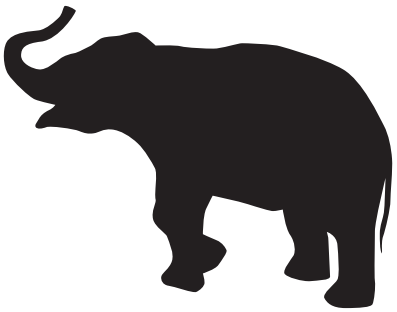
rehabilitation: restoration to a state of health or normal activity after a period of difficulty

savannah: a flat grassland without many trees

smuggling: illegally moving goods into or out of a country

species: a group of living things that are similar and can have babies

stockpiles: large, stored-up supplies



IFAW