HUMAN – ANIMALS BOND

info@karunaveg.com

https://karunaveg.com/

History of the Human-Animal Bond

According to a report, the human-animal bond has evolved for more than 15,000 years, and it began as a working relationship. Animals provided protection and service to people; this could have been while hunting, farming, or performing other tasks necessary for day-to-day life. Dogs would track and herd. Cats usually lived outside, and would hunt and kill rodents that, otherwise, could spread disease and damage food or other materials.

As the human-animal bond has evolved throughout time, it makes sense to think that it will continue to develop as the relationships people share with different animals also change. The health benefits of owning companion animals and interacting with different types of working animals are making major impacts in the lives of many people.

Hunter-gatherer societies dominated early human civilization, creating opportunities for human involvement and interactions with the animals in their environment. It is likely these first interactions were centered on humans obtaining resources from animals, such as meat, bones, and skins. However, as humans continued to coexist with animals, humans found similarities between themselves and the animals they encountered. Humans also became more invested in the activities of animals, such as identifying migratory patterns, food sources, and behaviour. Animals were eventually included in cultural ceremonies through worship, sacrifice, and symbolism.

The increased interaction with animals led to anthropomorphizing, or ascribing human characteristics to animals, which was reinforced by physical appearances such as facial features (i.e., eyes, mouth) that were attributed to human emotions. Anthropomorphism contributed to domestication, especially with animals that demonstrated a connection through gaze or facial features. Humans formed closer bonds with animals, specific traits such as docility, manageable size, and juvenile features were desirable, and those animals were permitted to join human encampments. Humans soon learned they were capable of selecting specific animals to breed and propagate these traits, transforming species of animals to meet human wants and needs.

While human relationships with animals continue to evolve, there is a wealth of knowledge gathered from the historical and scientific aspects of the human-animal bond. Acknowledging these aspects increases the strength of the human-animal bond and improves the ability of the veterinary team to provide the highest quality patient care.

According to the Human Animal Bond Research Institute (HABRI), the human-animal bond is “a mutually beneficial and dynamic relationship between people and animals that is influenced by behaviours that are essential to the health and well-being of both.”The emotional, psychological, and physical connections people have with animals and the environment are also incorporated into the definition of the human-animal bond. Relationships between humans and animals vary, ranging from non-pet animals used in production and service to the most doted upon family pets, with the majority of animal owners in the middle of this range. Therefore, relationships and attachment can vary among people and the animals in their lives.

Humans desire secure connections and will seek attachment from inanimate objects and/or living organisms. Although human attraction toward living entities may vary, people are still interested in learning more about animals. One explanation of this interest and attraction is the biophilia hypothesis, introduced by American ecologist E.O. Wilson in 1984. Biophilia is defined as the human inclination to fixate on various aspects of natural life, combining emotional tendencies for living beings and nature. Biophilia is a complex, multifaceted concept, influenced by environment and culture. Humans learn to assign value to certain aspects of nature based on ecology and co-evolution with flora and fauna. Animals offer a direct link to nature, piquing human attraction and interest. Humans may express a variety of emotions toward animals, including positive emotions such as joy, negative (or undesirable) emotions such as apprehension, and neutral emotions such as indifference. Despite the variety of emotions, the appeal of becoming more connected to nature through animal encounters encouraged early humans to develop an assortment of relationships with the creatures in their environment.

Domestication involves the human intervention of breeding animals with those desired traits while discouraging breeding of animals without those desired traits.This biological process changes the frequency of those traits, impacting the genetic profile of the animal. However, there are characteristics that are not altered in the domestication process. Physiological and behavioural processes such as gestation period and social patterns are similar among canine species despite variations in size and appearance.

Characteristics such as size, physical features (i.e., coat colour and texture), and aggression could be manipulated over several generations. Animals bred for desired traits resulted in better companions for work, comfort, and food sources.

The introduction of domestication created new roles for animals beyond sustenance. Dogs are the earliest known domesticated animals, and hunter-gatherer societies used early canid species to assist with hunting and taking down prey. The introduction of agriculture animals fulfilled utilitarian roles, providing work, service, and means of renewable food and materials. Since domesticated animals served a purpose beneficial to humans and their communities, care was taken to successfully rear and nurture each generation.

As humans continued to invest in the propagation of domestic animals, the roles of some animals changed from utilitarian to companionship, introducing the concept of a pet. Pets are generally considered animals that are not primary food sources, yet provide pleasure and/or companionship. This companionship fosters attachment, fulfilling an innate human need to bond.

While the majority of these owner-pet relationships are positive for both the human and the animal, there are consequences to this increased bonding. Companion animals have a tendency to decipher human cues and signals, and are able to discern between recognizable and unrecognizable humans. For example, dogs raised in a single home from an early age create strong bonds with their owners, but may have a reduced ability to appropriately interact with other humans they do not recognize. Dogs may develop strong attachments to their owners and experience separation anxiety when the owner is removed from the environment. If pets regard humans as conspecific, there may be conflict resulting in threatening behaviors such as biting.

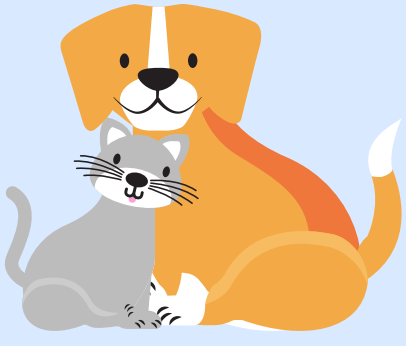
The historical perspective of human-animal relationships provides a foundation to further continue the understanding of the human-animal bond. As society and human-animal relationships continue to evolve, there has been an increase of knowledge regarding the science of the human-animal bond. Positive psychological, physical, and physiological outcomes have been associated with close human-animal interactions. Conversely, negative outcomes have also been associated with those same human-animal interactions.

Animals have been used in therapeutic environments in areas such as psychology, physical development, and physiology long before the advent of current animal-assisted therapies. Animals were assisting the blind in the 19th century, and Florence Nightingale alluded to the soothing and pleasure patients could gain from animal companionship. Animal-assisted interventions (AAIs) have been utilized to address psychological conditions such as depression and social/developmental conditions such as autism. For example, withdrawn patients were able to connect with dogs, encouraging communication and improving interactions with healthcare staff. Animal interaction has also been associated with a decrease in blood pressure, increase in exercise, and improved mood. However, additional research is still necessary to provide valid data to support the data gained from previous studies.

Juvenile appearances were desired for several reasons. Young animals tend to share features related to young humans, such as large eyes on a small face, larger foreheads, and a softer appearance. Juvenile animals also retain underdeveloped features such as smaller teeth, horns, and composition of fur. Neoteny, or the retention of juvenile appearances in adults, drove the selection of these traits for fiscal and social purposes. Food animals such as cows and pigs yield higher meat and fat on bodies that preserve juvenile characteristics. The playful behaviour of young animals improved manageability of carnivorous mammals; therefore, retaining those “cute” appearances such as small stature was desired for companionship.

The introduction of domestication created new roles for animals beyond sustenance. Dogs are the earliest known domesticated animals, and hunter-gatherer societies used early canid species to assist with hunting and taking down prey. The introduction of agriculture animals fulfilled utilitarian roles, providing work, service, and means of renewable food and materials. Since domesticated animals served a purpose beneficial to humans and their communities, care was taken to successfully rear and nurture each generation.

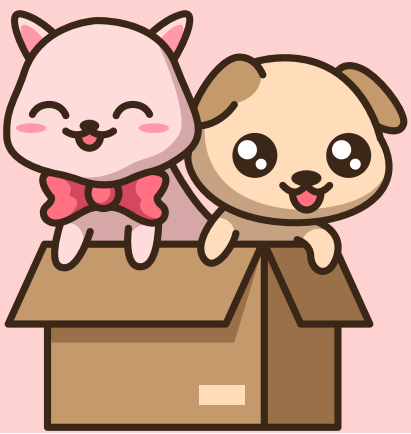
As humans continued to invest in the propagation of domestic animals, the roles of some animals changed from utilitarian to companionship, introducing the concept of a pet. Pets are generally considered animals that are not primary food sources, yet provide pleasure and/or companionship. This companionship fosters attachment, fulfilling an innate human need to bond.



While the majority of these owner-pet relationships are positive for both the human and the animal, there are consequences to this increased bonding. Companion animals have a tendency to decipher human cues and signals, and are able to discern between recognizable and unrecognizable humans. For example, dogs raised in a single home from an early age create strong bonds with their owners, but may have a reduced ability to appropriately interact with other humans they do not recognize. Dogs may develop strong attachments to their owners and experience separation anxiety when the owner is removed from the environment. If pets regard humans as conspecific, there may be conflict resulting in threatening behaviours such as biting.

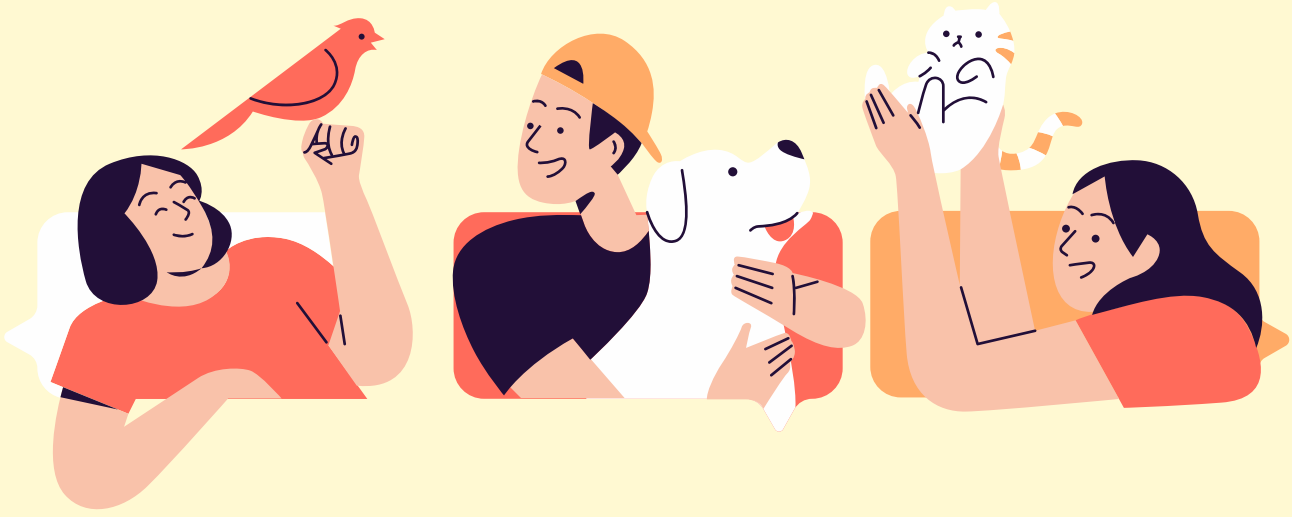
While AAI is an exciting and innovative strategy to improve human health outcomes, there are consequences resulting from close animal interactions. Animal safety and welfare have to be considered when using AAI strategies. The enjoyment of the interaction needs to be mutual, where both the human and animal benefit. Animals used in AAI should undergo a thorough behavioral assessment and be examined by a veterinarian. The other areas of concern are zoonotic risk and safety for both the human and animal, such as disease transmission and allergies.

The science of the human-animal bond is not limited to human benefits and consequences. Pets benefit from lower heart rates, reduced stress, and improved mood.4 Pets that are well cared for benefit from improved nutrition and availability of food. However, the availability of food occasionally becomes detrimental when the pet owner overfeeds, increasing the pet's risk for obesity and associated ailments. Pet owners may alter the pet's food so that it becomes more similar to theirs, such as vegetarian and vegan diets.



Finally, artificial selection has resulted in detrimental modifications to breed characteristics such as exaggerated brachycephaly, negative behavior, and disproportionate anatomy.

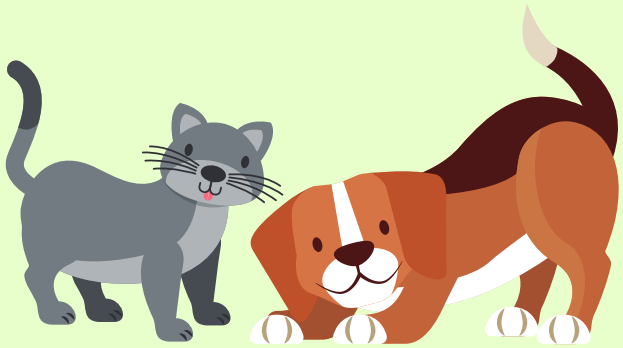
Historically, humans have displayed an interest in and connection to nature, forming relationships and eventual bonds with animals in their environment. While early human-animal relationships were more utilitarian, the role of animals changed, evolving to include companionship. Varied opportunities for human-animal interaction led to deeper connections between humans and animals, and the resulting bonds fulfilled the human desire to build stronger ties with animals. The science behind the human-animal bond highlights the psychological, physical, and physiological aspects of the bond, improving and promoting positive health outcomes. However, the increased interaction with animals puts humans and animals at risk for illness and injury. The veterinary nurse acknowledges the variety of human emotion and bonds between species, and uses that knowledge to create a sense of teamwork and empathy, improving patient care. Furthermore, the veterinary nurse understands the science of health benefits and disadvantages of the human-animal bond, and is able help educate the patient's caretaker. There are several opportunities for veterinary nurses to improve their knowledge of the human-animal bond and promote best practices.



Friendships between humans and non-human animals were once dismissed as sentimental anthropomorphism. After decades of research on the emotional and cognitive capacities of animals, we now recognize human-animal friendships as true reciprocal relationships. Friendships with animals have many of the same characteristics as friendships between humans. Both parties enjoy the shared presence that friendship entails along with the pleasures that come with knowing another being. Both friends develop ways of communicating apart from, or in addition to, spoken language.

Having an animal as a best friend can take the form of relationship known as the "pet", but it can also take other forms. People who work with animals often characterize their non-human partners as friends. People who work with search-and-rescue dogs, herding dogs, or police dogs develop and depend on the closeness of friendship.

The same holds for equestrians, as horses and riders must understand each other's bodies and movements intimately. In some situations, animals provide the sole source of affection and interaction in people's lives. Homeless people who live on the streets with animal companions experience togetherness 24/7.



Animals are the building blocks of the ecosystem

An ecosystem is a geographic area where plants, animals, and microorganisms interact with each other and non-living things to create a bubble of life.
The way the living parts of an ecosystem interact and have adapted is a reflection of and dependent upon the non-living components, for example, the amount of rainfall, temperature, or soil type an area might have.
Animals in ecosystems are the building blocks of an ecosystem. They develop different ecosystems and maintain them throughout their life.
An ecosystem consists of all living organisms in a habitat and the physical environment around them. The living organisms interact with the physical environment to create an ecosystem.

There are various types of animals living in an ecosystem. Out of all species living on the earth, 75% are animals.
Animals can be classified into two groups: Vertebrates and invertebrates.
Vertebrates are the animals with a backbone while invertebrates do not have a backbone.
Vertebrates are further broken down into five classes:

- Amphibians
- Birds
- Fish
- Mammals
- Reptiles

Animals live under different conditions and create different ecosystems. Living things in an ecosystem adapt and evolve to the environment around them. This process will change between species depending on the location of an ecosystem.
Animals are important to an ecosystem because they help protect the ecosystem. The role of an animal in an ecosystem cannot be easily replaced by humans. From Polar bears of the Arctic, to the bees on a flower, every animal has an important role to play as part of the ecosystem.
They make sure that the environment is running smoothly for all living organisms that inhabit an environment.

Some animals such as insects act as pollinators. They help with the reproduction process in plants by transporting pollen from one flower to another.
Additionally, Animals are a good source of fertilizers which contain biomolecules that are essential for growth of a plant. Animals in an ecosystem act as consumers and rely upon producers for food. Animals that feed on plants stimulate new growth and replace the old plants. This helps regulate the plant and animal life of a region.

In agriculture, animals perform pest control services and make sure that the diseases stay away from humans.
Any disturbance in the population of species can be harmful for the entire ecosystem depending on the type of habitat. Even a small bee plays an important role in maintaining the entire ecosystem.
The role of a species in an ecosystem is to be a producer, consumer, or decomposer. Species benefit one another and maintain the ecosystem.
Species have specific roles in an ecosystem. Each species has a specific trait which defines its role in the ecosystem.

The classification of species can be broken down into producers, consumers, or decomposers. All of the living organisms on earth make up the primary classifications. These roles provide a way to break down plant and animal life of a region.
Producers are the base of a wider food chain. They consume energy from sunlight and biomolecules, to convert them into complex ones. This process is known as Photosynthesis. Any change to producers in an environment can have the most impact on an ecosystem.

Species that are above the producers in a food chain are called consumers. They consume the biomolecules prepared by the producers and turn them into energy.
Decomposers break down dead organisms through a process called decomposition. They play an essential role in maintaining the food cycle.

Animals are great help to humans

From the dog sitting on your couch to the near-mythical narwhal in the depths of the Arctic ocean, animals play a key role in environmental protection and human wellness. Let's take a look at some of the miraculous ways animals help us:-

1. Bees are powerful pollinators

One-third of the world's food depends on pollination. Many of the earth's plants—about 30% of the world's crops and 90% of our wild plants—depend on these little heroes. As they buzz from plant to plant, bees are powerful pollinators and play a vital role in the ecosystem.

We need bees. We may take them and other pollinators like butterflies and hoverflies for granted, but they're vital to stable, healthy food supplies and key to the varied, colourful and nutritious diets we need (and have come to expect).

Bees are perfectly adapted to pollinate, helping plants grow, breed and produce food. They do so by transferring pollen between flowering plants and therefore keeping the cycle of life turning.

The vast majority of plants we need for food rely on pollination, especially by bees: from almonds and vanilla to apples and squash. Bees also pollinate around 80% of wildflowers in Europe, so our countryside would be far less interesting and beautiful without them.

But bees are in trouble. There's growing public and political concern at bee decline across the world. This decline is caused by a combination of stresses - from loss of habitat and food sources to exposure to pesticides and the effects of climate breakdown.

More than ever before, we need to recognise the importance of bees to nature and to our lives. And we need to turn that into action to ensure they don't just survive but thrive.

Many bees have different characteristics that make them suited to pollinate certain plants. For example, the Early bumblebee's small size and agility allow it to enter plants with drooping flowers such as comfrey.

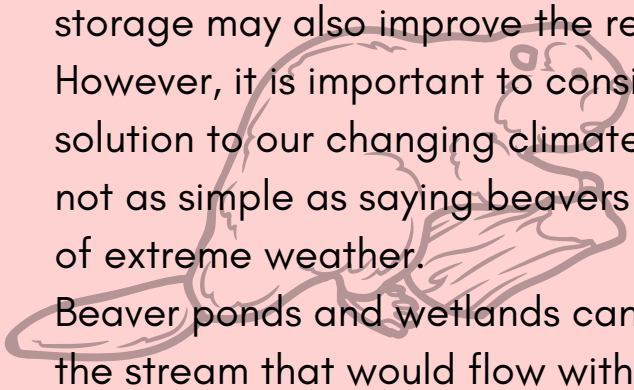
Garden bumblebees are better at pollinating the deep flowers of honeysuckle and foxgloves than most other species because their longer tongue can reach deep inside them.
Many farmers rely on a diversity of bees to pollinate their produce. For example, commercial apple growers benefit from the free pollination services of the Red mason bee. This species can be 120 times more efficient at pollinating apple blossoms than honeybees.
There is evidence that natural pollination by the right type of bee improves the quality of the crop - from its nutritional value to its shelf life. For example, bumblebees and solitary bees feed from different parts of strawberry flowers. In combination they produce bigger, juicier and more evenly-shaped strawberries.

Some bee species have an affinity to particular plants, so need particular natural habitats. For example, in the UK the scabious bee, our largest mining bee, needs the pollen of field scabious or small scabious to provision its young. These plants grow on sandy or chalky open grassland, an important habitat for a variety of bees and wildflowers that is under threat from changing land use. The loss of particular habitats like this is the main driver of bee decline.
Bees are a fantastic symbol of nature. That they are in trouble is a sign that our natural environment is not in the good shape it should be.
By keeping the cycle of life turning, bees boost the colour and beauty of our countryside. Some 80% of European wildflowers require insect pollination. Many of them such as foxglove, clovers and vetches rely on bees.
Pollinators allow plants to fruit, set seed and breed. This in turn provides food and habitat for a range of other creatures. So the health of our natural ecosystems is fundamentally linked to the health of our bees and other pollinators.
Maintaining our native flora also depends on healthy pollinator populations. This includes wild flowers such as poppies, cornflowers and bluebells, as well as trees and shrubs. The close relationship between pollinators and the plants they pollinate is evident in the parallel declines seen across the UK and Europe: 76% of plants preferred by bumblebees have declined in recent decades, with 71% seeing contractions in their geographical range.

2. Beavers combat climate change

These woodland creatures have proved incredibly adept at naturally regulating ecosystems. Their gnawing and damming reduce flooding and wildfire damage, preserve fish populations, and conserve freshwater reservoirs—key to combating the effects of climate change. So when it comes to much-needed river ecosystem regulation, leave it to the beavers.

The beaver is a unique ecosystem engineer that can create a landscape that would otherwise not exist, thanks to the animal's ability to build dams. As we experience more frequent heatwaves and drought, the potential role of beavers in safeguarding against these risks has captured widespread attention. Beaver habitats are claimed to lower local stream and air temperatures, and by maintaining water supplies, provide insurance against drought. Greater water storage may also improve the resilience of a landscape towards wildfire. However, it is important to consider the significance of beaver habitats as a solution to our changing climate from both human and wildlife perspectives. It's not as simple as saying beavers can protect human society against the effects of extreme weather.



Beaver ponds and wetlands can cover wider areas and store more water than the stream that would flow without them. However, beavers are restricted to relatively small streams.

To achieve a water capacity large enough to supplement human supplies, beavers would have to construct an unrealistically large number of ponds across the same catchment. Even then, the water storage would be dispersed across many shallow ponds, making extraction for use in a water supply network unrealistic.

What an increase in beaver ponds can do is provide more refuges for wildlife at a local level, while allowing the slow release of water downstream during dry periods. Such refuges can be critical for wildlife during a drought, and so help preserve an area's biodiversity.

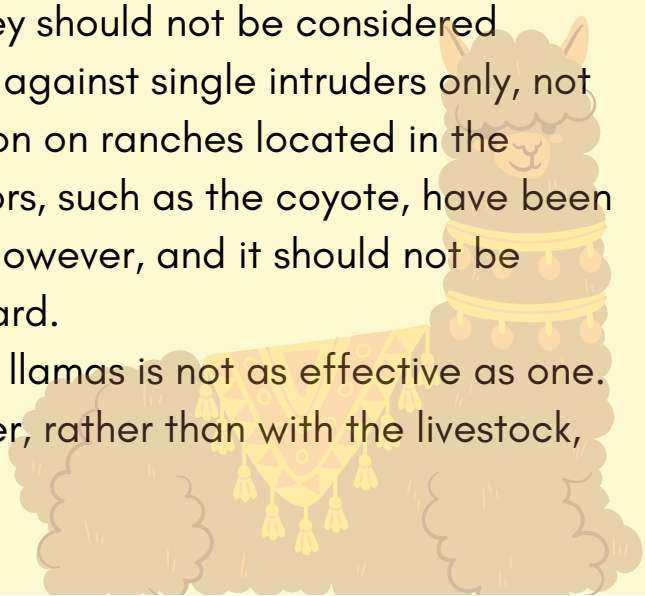
Greater water storage will also increase an ecosystem's resilience to climate change. This has been demonstrated during this summer's drought. Beaver wetlands in Devon's River Otter have irrigated the surrounding area and kept vegetation alive, preserving a habitat that many animals depend on.

According to new research, beavers are among the world's most effective practitioners of climate adaptation and resilience, something biologists have known for years but have recently documented through field study.
Experts from the Northwest Fisheries Science Center and the California State University Channel Islands say that as droughts and floods become more acute with global warming, dam-building beavers are helping stave off the worst impacts by holding back essential water that otherwise would run off or dry up.
Beavers are not only a particularly remarkable animal, but these rodents are true ecosystem-engineers whose value cannot be overstated. They help mitigate flooding, improve water quality, and capture more water for agriculture in the face of climate change. They also help provide habitat for endangered or lost fish species and can trap polluted sediments in rivers.
Beavers transform landscapes; and these remarkable rodents can help us fight drought, wildfire, biodiversity loss, and climate change.

3. Llamas patrol farms

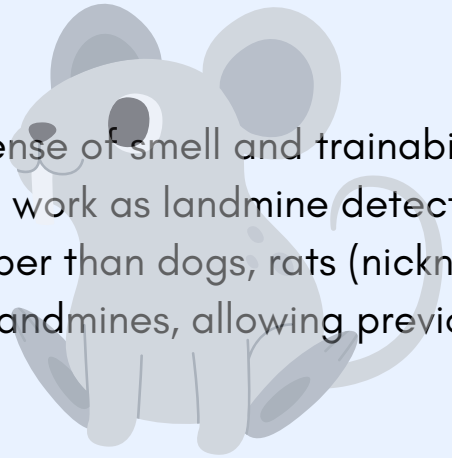
In addition to being a farm animal with a particularly low environmental impact and a sweet tooth for invasive weed species, llamas have also been found to be incredibly effective guard animals. Yes, guard llamas. These sociable creatures bond with herd animals, which makes them instinctively protective against predators and an invaluable asset to shepherds and ranchers.

Guard llamas may defend against predators in many ways. Llamas are instinctively alert and aware of their surroundings, and may draw attention to an intruder by making a startling alarm call that sounds like a rusty hinge. They may walk or run toward an intruder, and chase or kick or spit at it. Others may stand apart from the group and watch the intruder. Although llamas have been known to kill predators (such as coyotes), they should not be considered attack-animals. They are generally effective against single intruders only, not packs. Guard llamas have been most common on ranches located in the Western United States, where larger predators, such as the coyote, have been more prevalent. Not every llama will guard, however, and it should not be assumed that because it is a llama it will guard.
Research suggests the use of multiple guard llamas is not as effective as one. Multiple males tend to bond with one another, rather than with the livestock, and may ignore the flock.



A gelded male of two years of age instinctively bonds with its new charges and is very effective in preventing predation. Some llamas appear to bond more quickly to sheep or goats if they are introduced just prior to lambing. Many sheep and goat producers indicate a special bond quickly develops between lambs and their guard llama and the llama is particularly protective of the lambs.

4. Rats detect landmines



Rats get a bad rap but with their keen sense of smell and trainability, they've been found to be exceptionally suited to work as landmine detectors. More efficient than metal detectors and cheaper than dogs, rats (nicknamed HeroRats) are being trained to sniff out landmines, allowing previously unusable land to once again be productive.

Though they have terrible eyesight, the rats are ideal for such work, with their extraordinary sense of smell and their size – they are too light to trigger the mines. When they detect a mine, they lightly scratch atop it, signalling to their handler what they've found.
Magawa the rat, who was awarded a gold medal for his heroism, sniffed out 71 landmines and dozens more unexploded items in Cambodia.
Magawa was trained by the Belgium-registered charity Apopo, which is based in Tanzania and has been raising the animals – known as HeroRATs – to detect landmines since the 1990s. The animals are certified after a year of training. The rats are trained to detect a chemical compound within the explosives, meaning they ignore scrap metal and can search for mines more quickly. Once they find an explosive, they scratch the top to alert their human co-workers. Magawa is capable of searching a field the size of a tennis court in just 20 minutes – something Apopo says would take a person with a metal detector between one and four days.

5. Squirrels help trees take root

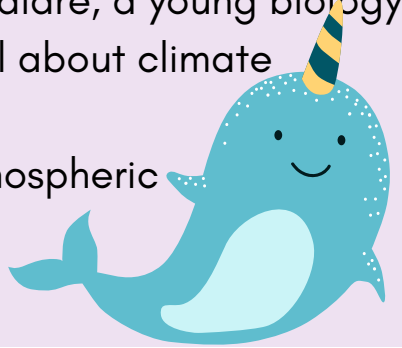
Squirrels' natural habitat is the forest where they play a major role as nature's tree planters. These forgetful little creatures' nut-gathering and storing have a big impact when their forgotten nut stashes take root and grow into the trees and forests that sustain our ecosystem.

Members of the squirrel family include tree squirrels, flying squirrels, ground squirrels, chipmunks, prairie dogs, and woodchucks. Squirrels dig holes in lawns and gardens in search of roots, stems, bark, shoots, leaves, flowers, fruit, and nuts. These cute critters also like to “cache” or hide supplies, burying nuts and seeds to help them survive harsh winters.
Squirrels traditionally spend most of their time in trees foraging for food, bearing their young, taking shelter from the weather, finding food, and escaping from predators. Because humans have altered the landscape so extensively, squirrels have been forced to use almost anything that resembles a tree to hide from predators, take shelter from the elements, store food, and raise their young.
Squirrels don’t always remember where they stored their supply of seeds and nuts for the winter. Because squirrels often fail to reclaim the buried food, abandoned seeds and nuts often take root, establishing trees and other plants in new locations. Thus, squirrels play a vital role in sustaining and expanding plant communities and ecosystems. Just imagine how many trees have sprouted because of squirrels’ short memories.

6. Narwhals assist scientists

Otherwise known as the “unicorns of the sea,” these deep divers are instrumental to NASA scientists’ tracking of temperature changes in Greenland’s arctic. Researchers have employed narwhals, fitted with radio transmitters, to collect data from the hard-to-reach depths of the Arctic on water salinity, temperature, and impact of the increasingly warm ocean water on Greenland’s glaciers.

The narwhal, a mysterious creature that lives in the high Arctic Ocean, is helping scientists gather vital information about global warming.
Peer under the frozen surface of the Arctic Ocean, and if you're lucky you might see the "unicorn of the sea." Narwhals became the source of the unicorn myth when their single, 9-foot tusks showed up on ancient trade routes.
Scientists know very little about the narwhal, but Kristin Laidre, a young biology professor, is collecting vital information from the narwhal about climate change that would otherwise be hard to get.
Laidre's work is funded by the National Oceanic and Atmospheric Administration's Office of Ocean Exploration.

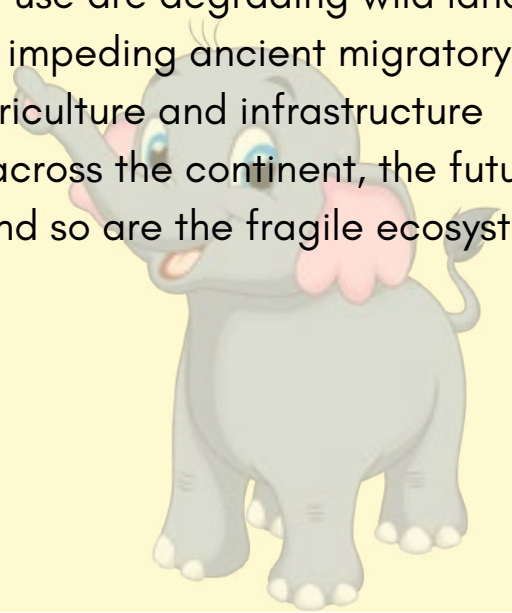


"Narwhals are one of the most reliable platforms we can use up here," Laidre said. "They are cheap, they predictably go to the bottom of the ocean, and they always find the surface because they need to breathe! They live in waters that are 98 percent covered with sea ice for six months of the year in complete darkness."
Narwhals are tricky to find, so Laidre lives and works six months a year with the experts on the region -- the Intuit Indians.

7. Elephants create a source of water for other species

Not only are they major tourist attractions for many countries who depend on this economic boost, the elephant is also one of the most intelligent animals on the planet and key to the biodiversity of its ecosystem. During dry seasons, elephants use their large tusks to dig for water—providing some much-needed relief from the heat for other animals.

As the largest of all land mammals, African elephants play an important role in balancing natural ecosystems. They trample forests and dense grasslands, making room for smaller species to co-exist. Elephants also create water holes used by other wildlife as they dig dry riverbeds when rainfall is low. Herds travel over vast rangelands, and they disperse seeds in their dung, which helps generate new green growth. But threats to this giant of the forest are numerous. African elephants are most threatened by the poaching crisis.
An estimated 35,000 are killed every year for their tusks; the natural growth rate in most elephant populations has yet to overtake the rate of killings. Many elephants are also the victims of retaliatory attacks after they venture into human settlement and farm areas.
Meanwhile, climate change and human land use are degrading wild lands, breaking up essential elephant habitats and impeding ancient migratory corridors. With the growth of commercial agriculture and infrastructure development, as well as extractive industry across the continent, the future of this keystone migratory species is at risk — and so are the fragile ecosystems that depend on it.



8. Birds balance nature

The ecological handyman, birds really do it all: from reforestation and seed pollination to pest control and soil fertilization. Whether in a forest, on a farm, or simply in a garden, these feathered friends play a vital role in keeping nature balanced and indicating when it's not.

It might be a little extreme to say that we'd be wading knee-deep in invertebrates if birds disappeared - but maybe not that extreme. A recent study has shown that birds eat 400-500 million tons of insects a year. In China, two-thirds of the diet of House Swift Apus nipalensis consists of agricultural pests, and in forests across the Americas, Evening Grosbeak Hesperiphona vespertina becomes a superhero during outbreaks of Spruce Budworm, providing biological control worth $1,820 per square kilometre. Birds are so efficient that nest boxes have become a pest control practice throughout Europe.

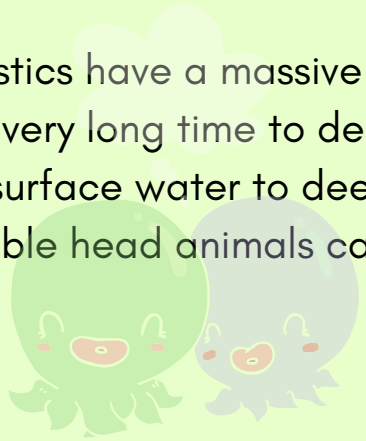
When birds travel, they take the seeds they have eaten with them and disperse them through their droppings. They bring plants back to ecosystems that have been destroyed, and even carry plants across the sea to new land masses. Birds have helped to shape the plant life we see around us - and around the world. In New Zealand's forests, 70% of the plants have seeds dispersed by birds such as Tui Prosthemadera novaeseelandiae. An even greater duty is borne by Micronesian Imperial-pigeon Ducula oceanica; as one of the largest birds in the Palau archipelago: it is one of the main seed dispersers across the entire island chain.

From the technology of flight, to the invention of zippers modelled on the barbules of feathers, humans have drawn inspiration from birds for centuries. Some of these advances have been huge: Darwin's studies of finches in the Galápagos proved instrumental in shaping his thoughts on evolution through natural selection.

9. Octopi are avid recyclers

An unlikely ally, octopi are resourceful creatures with a talent for recycling. They put their tentacles to work reusing and reducing waste through their creative use of glass containers, coconut shells, and other debris to create shelters. And while one man's trash is an octopus' treasure, we can all learn a little something about "reduce, reuse, recycle."

Commercial waste such as bottles and plastics have a massive impact on water pollution. Materials like these take a very long time to decompose and account for 80% of all marine debris from surface water to deep-sea sediments. Luckily, these eight-legged, bubble head animals called octopus have a knack for recycling.



10. Dogs do it all

Dogs are considered by many to be humanity's best friend for many reasons. From astute service dogs guiding those with visual impairments to loyal friends providing emotional support to search and rescue canines saving lives, this animal has broad positive effects on our world and well-being.

One of the crappier aspects of human friends is that, generally speaking, they remember all of the times you've wronged them and will hold it against you for the rest of their lives. Dogs, on the other hand, have the "gift" of poor memory. That means you can mess with their tail, play keep away with their food, and tug on their ears to your heart's content, even if it annoys them. You get to have your fun, and your dog will forget all about it and treat you like their best bud within a couple minutes! It's truly one of the only win-win scenarios in life. While your pooch will forget you pulling on their tail, they won't forget the connection they share with you, and, if you are good to them, you will leave a lasting impact on them that they'll never shake off.

In case you're afraid that using your dog as a dishwasher will lead to them becoming overweight, fear not. Dogs prefer being active, at least when they're younger. Make use of their abundance of energy and take them on walks, or, if you are super ambitious, runs! They'll be tuckered out and supremely amused, and you'll be on track to becoming a healthier person!

Ever make plans with a human friend, only to find out that they canceled at the last minute? Well, no need to worry about that when you have a dog. They don't know how to use phones, as far as I know, so there's no reason to fear them calling up the neighbor's poodle to see if they want to hit up some local bars, abandoning you to your TV and a paltry, lonesome microwave dinner. They're there for you, and you alone!