

RESILIENT AWARE

CONSERVATION & PHOTOGRAPHY
SEP / OCT 2021



The Coyote
Biodiversity
and a
Resilient Species
By Peter Hudson

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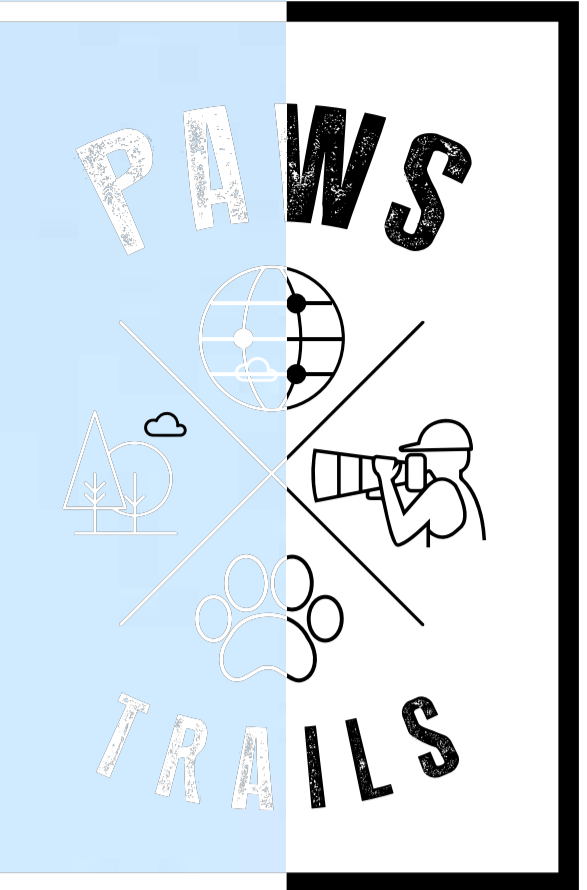


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Publisher: Paws Trails Explorers **Editor:** Raghul Patteri **Conservation Director:** Peter Hudson
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Raghul Patteri
Editor W

Over many of our past editions, we have covered a variety of species that are threatened with extinction. From that perspective, this edition is different as we focus on a species that is doing really well – the Coyote. Do not let the term “doing really well” fool you, the Coyote is one of the most persecuted species ever and more than half a million are killed every year. And yet, how is the species thriving and even expanding its traditional range?

Dr. Peter Hudson takes you through the fascinating biology of these hardy canines. This edition is not just an account of the success of the Coyote in the face of heavy odds, it is also an eye-opening narrative on the intricacies of ecological balance.

A species that is little known outside North America, the Coyote’s biology has some amazing coping mechanisms which help to rebound the populations in no time when their numbers are depressed. Their abilities to adapt to urban areas and extend their ranges east, while spelling success to the Coyote, might actually be impacting the ecological balance in these regions by disrupting the patterns of predation.

As always, we are thankful for the amazing photographs contributed by our photographer friends from across the world. Your images are instrumental in telling the amazing stories of different species from a variety of places and helps us to realize our goal of using community photography for conservation.

Our next edition will focus on the Indian rhinoceros, so be ready to upload your images of these amazing species.



Photo by: Peter Hudson

EDITOR'S DEN

FOUNDERS' NOTE

Welcome to this edition of PT Aware.

The edition focuses on the Coyote – a canine common to North America. This species is an ideal example of how misconception or the lack of information can lead to ruthless persecution of a species by humans. The persecution of the Coyote started with the misconception that they were serious predators of large game and cattle when they were in reality only scavenging on dead animals.

That is why awareness building is one of the key drivers for conservation efforts today. Awareness building to aid conservation is one of the main goals of PawsTrails and through PT Aware we have been bringing to you the stories of species from around the globe in the hope that our readers will use the information to aid the cause of these marvelous beings.

There is no better way than to experience nature firsthand to understand the marvelous creatures that surround us. The MaraTrails lodge in Maasai Mara is our initiative to welcome the discerning visitor to this wildlife paradise. This is the time when the Mara ecosystem stages one of the biggest spectacles on the planet – the great migration. Between the months of July and October, big herds of Wildebeest, topi, zebra, and Thomson's gazelle migrate into and occupy the Mara reserve, from the Serengeti plains and Loita Plains. August – September are considered the best months for sightings and photography. Book your MaraTrails safari today and be a part of this phenomenon.

We thank all the wonderful photographers who have contributed the inspiring photos that you enjoy in this edition. We are proud to be able to associate with so many dedicated and gifted photographers who chose to use their images to aid conservation efforts. We salute your spirit and remain committed to taking the fruits of your labor to maximum viewership across the globe.

Contact us for the best safari experience

Hermis Haridas & Nisha Purushothaman

Founders - Paws Trails Explorers





THE STORY

The Coyote

Biodiversity and a Resilient
Species

By Peter Hudson,
Conservation Director, Paws Trails
with Hayden Kissell and Shreya Menon

Images by: Peter Hudson & Nisha Purushothaman



Canon
IMAGING PARTNER

Peter Hudson is a scientist, photographer and conservationist. He undertook his first scientific expedition to Africa at the age of 21 and has been a regular visitor ever since. Passionate about nature, he manages his own 36-hectare nature reserve in Pennsylvania which is home to bears, bobcats and other animals.

In his professional career, Peter is the Willaman Professor of Biology at Penn State University. The focus of his research has been the infectious diseases of wildlife and in particular how new diseases emerge. For the past 11 years he has been working on how and why viruses move from bats to humans in an attempt to predict when viral spillover occurs. He has also been studying the wolves in Yellowstone, tortoises in the Mojave Desert and bighorn sheep in Idaho.

Peter is the Conservation Director at Paws Trails and uses his skills as a scientist and educator to increase awareness about conservation issues. He is supported by two interns at Paws Trails: Hayden Kissel and Shreya Menon. He is also heavily involved with the Random Good Foundation that undertakes story telling for social change. He is an adjunct Professor at The Nelson Mandela African Institute of Science and Technology based in Arusha, Tanzania and a Fellow of the Royal Society.

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We are facing a biodiversity crisis and yet some species are amazingly resilient and continue to do well, despite heavy persecution. Here we look at one of these species – the Coyote – a species now expanding and invading our cities.

Global Biodiversity Loss

In 2019, an international group of scientists published the most comprehensive report ever produced on the status of biodiversity and concluded that almost one million animals and plants are facing extinction. The primary driver is extensive habitat destruction as we chop down forests, drain wetlands and fragment habitats with roads and buildings. In parallel, the IUCN (The International Union for Conservation of Nature), who keeps an audit of the status of all known species, identified that 26% of all mammals, 14% of birds and 41% of amphibians are currently threatened globally. Yet another report, this time by the WWF, found that population sizes of birds, mammals, fish, amphibians, and reptiles have declined, on average, by 68% between 1970 and 2016. One thing is clear, the rate of decline in abundance and loss of species is now much greater than it has ever been before, with some estimates placing the rate of extinction 1,000 times greater than the expected background level. Indeed, some have recognized that we are entering a new geological epoch, called the Anthropocene, as a period in which climatic and biodiversity losses are

driven by the behavior of just one species: humans.

This sounds truly cataclysmic and while there is no reason to be complacent, we need to be careful about how we interpret these statistics. One issue is that we all tend to think that the average case applies to all species, and this is not the case. While some species are indeed on the very verge of extinction, others are adapting to urban life and increasingly to city life. As with many situations in biology, the importance is in the variation and not the average. At first, this may sound like some good news, but not necessarily since the species that can adapt are often replacing other species that are being wiped out, and we must look to see how the very nature of our animal and plant communities are changing. For example, replacing arctic foxes with red foxes is not really a good outcome, since we are still going to lose arctic foxes and red foxes exist elsewhere and since they are bigger, will change the patterns of predation in the arctic.

The central issue is that there is a biodiversity crisis, but there are many important questions about the details that we need to examine in detail. Which species are being lost? Will new communities be healthy and desirable? Will the rapidly changing ecosystems be able to deal with climate change? Where should we focus conservation activities? And why is it that some species appear



Photo by: Peter Hudson







Photo by: Peter Hudson

so sensitive to disturbance while others have a resilience to bounce back?

Over past issues we have been focusing on threatened species and examined the reasons why numbers have declined. In this issue we look at a species that has been one of the most persecuted species ever and yet is doing really well – the Coyote (*Canis latrans*).

The Coyote –surviving despite persecution.

Historically the level of persecution against coyotes in North America has been truly remarkable and it could still be called “the most hated animal in America”. Even today, more than half a million are killed each year and yet, the species is spreading and appears more successful than has been recorded throughout history.

This persecution arose with the arrival of Europeans into North America. The Native Americans saw the coyote as both a trickster and a type of deity who provides instruction about human behavior and the way we should behave in a social setting. A century ago, the coyote was an animal of the west, and it wasn't until Lewis and Clark travelled beyond the Missouri River that we started receiving the first observations of what was then called the Prairie Wolf. By the 1920s, the USA government established the Bureau of Biological Survey, whose task was to solve the “predator issue”. Initially the focus was on killing and wiping out wolves from the USA and once that species had







Photo by: Peter Hudson

been wiped out from the USA, they switched their attention to the coyote and called it “the arch-predator of our time.” The coyote was seen as the enemy of agriculture, and they used every means to encourage farmers and others to eradicate the coyote. In 1931, Congress gave the agency 10 million to find the means to eradicate the coyote and over a nine-year period, they killed about 6.5 million coyotes. The coyote learned rapidly that it was not good to eat carrion that was surrounded by dead animals and so avoided baited carcasses. Then they developed poisoned baits with delayed mortality, so coyotes and other animals died at distance from the baits. What is astonishing was the assumption that coyotes were serious vermin that were killing large game and cattle while there had been no detailed studies of diet. When such studies were undertaken, they found coyotes feed predominantly on rodents and would eat carrion - not animals they had killed but dead animals they were scavenging. These findings came all too late, and the smear campaign against the coyote was damning. Even now most people living in rural areas believe coyotes need to be controlled, otherwise they will kill lambs, calves and the fawns.

A series of of things started to change the public opinion on the coyote, not least of all the effect of Hollywood. Walt Disney did a series of films on the life of the coyote and the Warner Brothers developed the Looney Tune cartoons in which Wile. E. Coyote used ingenious means to capture the





fast-running Roadrunner, and yet he always failed. By 1962, Rachel Carson's book *Silent Spring* (1962) had been published and the public were made aware of the many issues with non-selective poisoning and so large-scale coyote poisoning was largely ended by the early 1970s. At the same time, the scientific community started to be aware of the lack of information about the coyote and that when predators selected sick animals, they can be benefitting the health of the prey community and not necessarily reducing it. An idea I developed in the mid-eighties that came to be called the "healthy herds hypothesis".

The secrets to Coyote Resilience and success

Not only has the coyote survived the relentless persecution it suffered for

more than a century, but also has invaded eastern USA and colonized every large city in North America. Cities like Chicago, Vancouver and New York now have well established populations of urban coyotes that feed predominantly on rabbits, rats, fruit, insects and small dogs and cats. Intriguingly, these city dwelling coyotes live longer than their rural counterparts and have become remarkably well adapted to city life.

The key to the success of the coyote appears to be flexibility in their behavior, so they explore and adapt to novel situations. For example, in Chicago, the coyotes have become streetwise and only attempt to cross busy roads during periods when traffic is light. City coyotes are no longer persecuted and have become bolder and exhibit more exploratory behavior than their rural cousins although this boldness has become a

major issue in some areas. In Stanley Park in Vancouver, there has been more than 40 attacks on people this year alone, four times previous years and has resulted in 6 coyotes being euthanized. Local authorities blame the people who have been providing food for the coyotes in the park and assume that this makes them bolder and is why they have started nipping the legs of visitors and while this may be right, we really don't know the fundamental cause.

Another great attribute of the coyote is its ability to bounce back fast from persecution. Apparently, females increase their litter size when numbers are depressed. Indeed, once persecution ceases the population appear to increase rapidly with more immature coyotes being recruited both through breeding and immigration. Allegedly, a population reduced by 70% can bounce back

the next year to previous densities. This is something that elephants and other large animals could never achieve.

As they have moved east, coyotes have encountered remnant wolf populations in upper New England and eastern Canada and started inter-breeding. These "coywolves" in the east are now 70% coyote and significantly bigger than their western cousins.

The coyote is a remarkably resilient species and has persisted despite decades of heavy persecution and has now adapted to a new urban life in cities. Certainly, species that can adapt to urban living will do well although the real worry is how these invading species will alter the local ecological community and accelerate the reduction in overall biodiversity.



Photo by: Peter Hudson















Photo by: Nisha Purushothaman

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