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EVS 116

Wildlife and Human Relationships in America and How They Need to Change for US to Have a Future

Humanity has had an irreversible impact on Earth and her inhabitants. Rapid development and intense resource extraction by humanity have led the Earth into a new geological era that many call “The Anthropocene.” The Anthropocene is a new geological epoch in which human activity dominates Earth's bio-geochemical composition and processes(Anthro Encyclopedia, 2024). Our domination has led to the devastating reality that human development has drastically impacted other species by decimating populations that used to coexist within our ecosystems. With an estimated 20% of its species lost in the past century, American species are continuing to deteriorate, with 34% of plants and 40% of animals at risk of extinction and 41% of ecosystems at risk of system-wide collapse(NatureServe, 2023). Human activity continues to alter ecosystems, and unless humanity refrains from activities of ecological exploitation and invests in coexistence with biodiversity, we risk the loss of our Earth’s biodiversity permanently. Therefore, in this paper, I will explore and analyze the challenges American wildlife navigate when facing urban development, the possible solutions humans can implement to alter the trajectory of US wildlife, and how sustainable communities are formed through coexistence with wildlife.

In the past century, the human population in America has tripled from 92,228,531in 1910 to 331,449,281 in 2020(US Census Bureau, 2020). Increased populations demand greater food production and urban development to manage

economic and national development. Humans have benefited greatly from urban development, eliminating natural ecosystems that have resulted in biodiversity suffering.

Conversion of ecosystems to farmland was necessary to meet the increase in demand for food production. The Great Plains are nicknamed “The Breadbasket of the World” due to their large-scale wheat production. The agricultural industry solely values the Great Plains for its economic use rather than its cultural and ecological value. Its natural temperate ecosystems are viewed as ideal conditions for crops. In 2022 alone, over 1.9 million acres of temperate grassland were destroyed and converted to farmland. While there is improvement from previous years, prior to 2022, the US averaged a loss of 2.6 million acres of grassland annually(WWF, 2023). With only half of the Great Plains grasses remaining, many fauna have been severely impacted by habitat fragmentation and the destruction of natural resources that hindered their ability to be healthy and stable.

The reduction of habitat has led to heightened competition among its inhabitants for natural resources as species niches overlap that utilize the same resources. Ecosystems are complex systems composed of the relationships living organisms have with each other and their surrounding environment. Species that may have been able to coexist within larger ecosystems with more widely available and spread-out resources are now limited in their range and compete for the same resources. This predicament causes a cascade of consequences. Many ecosystems do not have the resilience to continue being viable once they have experienced such a sudden reduction in size and changes in their interactions, resulting in ecosystem degradation and collapse. Overlapping niches within an ecosystem result in resource depletion as species attempt

to out-compete each other and place stress on finite resources. Limited availability of resources creates a domino effect, where the ecological principle of competitive exclusion would occur. The competitive exclusion principle states that two species with similar food requirements cannot coexist in the same ecosystem while depending on the same limiting resource since one species will be out-competed and driven to extinction(Li, Lecture 6). Habitat loss and fragmentation reduce the extent of available ecosystems, fostering shifts in interaction and stress on natural resources that drive many species to extinction, decreasing biodiversity.

Deadly competition is not the only consequence of habitat loss that leads to the decline of America's biodiversity. As habitat loss occurs, the original extent of the ecosystem is divided into several smaller isolated ecosystems. The isolation of these ecosystems disrupts fauna populations into smaller sub-populations that cannot freely move between habitats, significantly reducing or eliminating altogether the gene flow between populations. Gene flow is a significant factor in adaptations and evolution. Gene flow is the introduction of genetic material from one species population to another, diversifying the gene pool composition of the receiving population(Britannica, 2023). With the introduction of new genetic material, the additional genetic variability within a population increases the adaptability of a species because of the concept of the "biological insurance hypothesis." The biological insurance hypothesis states that the more genetic variability within a species population, the more resilience the species has, as it increases the chances of at least some individuals surviving in the face of environmental changes and disturbances(Patel, 2020). Species in fragmented habitats with no access to one another must resort to inbreeding in their population, increasing their susceptibility to extinction due to a loss of genetic material that decreases their

ability to adapt evolutionarily. Although there are current pockets of conservation, it is essential to understand how human intervention has significantly impacted their stability and that many populations are in decline. Humanity has disrupted a sensitive system that was continuous from the land to the sea, spatially limiting it and not anticipating its impacts.

Even though the impending doom may not be evident to the average American, they have been culturally shaped to believe they exist outside of ecosystems. Humans must realize their place in and impact on ecosystems to understand and heal the destruction perpetuated historically.

Climate change is an irrefutable part of our future. As our environment changes, communities will continue to experience heat waves, droughts, and severe storms that often cause displacement of community members. Just as other species face threats and challenges as their environment degrades, humans are also endangered. Like other species having to adapt or face the risk of extinction, humans must be willing to adapt behaviorally and institutionally. The word “sustainable” is constantly mentioned as people come together to find solutions to build the resilience of communities. However, people must understand that the only way a community can be sustainable and resilient for the future is if they behaviorally adapt to coexist with its ecosystems and their fauna biodiversity. The separatist view that wildlife needs to stay in their “native” habitats is a European colonialist view that only recently came to North America. For thousands of years, America was inhabited by Indigenous tribes that held a kincentric and radical relational practice, identifying as an integrated part of the ecosystems around them. Kincentricity is an Indigenous view that humans and nature are both in an extended ecological family that shares ancestors and origins and a

relationship of familial value associated with wildlife(Pellow, 10/08/24). Radical relationality is the idea that all entities on Earth are so interconnected and interrelated that they have no intrinsic separate existence by themselves; they depend on the existence of other entities for their own existence(Pellow, 10/08/24). The colonization of America disrupted this coexistence and shifted to an exploitative relationship between species. As American society violently expanded westward, they purposefully hunted animals, maliciously committed ecocide, killed animal food resources that indigenous tribes largely depended on to starve them, and developed the mindset of human supremacy.

Colonialism shaped how American communities continue to relate to the world today, as the neglect of radical relationality for the self-serving view of an anthropogenic world leads us to our current predicament with climate change. Only by returning to pre-colonial behaviors can communities across America be sustainable. Wildlife ancestrally roamed the land in its entirety and functioned within human habitats and communities. The realization that our backyards and streets are part of the native habitat forces us to acknowledge how we have denigrated the wildlife habitat that remains to where wildlife must expand their range beyond nature's bounds to survive.

American communities benefit every day from the ecosystems that are regulated by wildlife biodiversity. Although we don't consciously acknowledge it, ecosystem services fuel our everyday lives as they are the resources, goods, and services that ecosystems and wildlife provide to humans(Dowdy,10/01/24). Communities depend on water, food, water cycling, pollination, and photosynthesis to function. Without these provisions, they couldn't sustain themselves. Radical relationality is sustainable, and humans must take responsibility for the health of our ecosystems to ensure survival.

Without a biodiverse wildlife presence in ecosystems, their collapse can no longer provide humanity with the ecosystem services that sustain them. With the progression of climate change, the only way America can survive the upcoming environmental catastrophes is by strengthening communities by restoring our wildlife ecosystems to be continuous through our habitat, fostering the resiliency of ecosystems and communities. The idea of service to ecosystems is that human communities foster a reciprocal relationship with our ecosystems. That as benefits are derived from ecosystem services, we also contribute services back to support, maintain, and improve ecosystem health and function. Services to ecosystems include controlled fire burns that improve soil health, reforestation to create cooler micro-climates, and the adoption of urban food forests to prevent soil erosion and encourage pollination act as examples of these beneficial practices.

America can take the first steps towards communities providing services to ecosystems by addressing the most pressing threats to wildlife in urban human habitats: Roads. The expansive landscape and scale of America make cars a necessary purchase for any American. There are almost four million miles of public roads that span the United States, and every single one poses a threat to wildlife(Federal Highway Administration, 2000). Roads are a boundary for wildlife that disrupt the continuous nature of ecosystems. Slow-moving turtles and lizards are at high risk of becoming roadkill as they try to cross the boundary that splits their habitat. Wide-ranging large carnivores also face an elevated risk of road collisions, as they naturally need more space to function and cross more roads. In 2024 alone, vehicles on California roads killed 48,000 deer, thousands of newts, 100 mountain lions, and thousands of other animals (Kerlin, 2024). We have transgressed into their habitat and left wildlife with the

increasing risk of getting hit by a vehicle and dying for them to have access to their natural ranges. Wildlife crossing on the roads does not only lead to their deaths but ours as well. Annually, an average of two hundred motorists are killed and thousands more injured as a result of animal-vehicle collisions(Federal Highway Administration, 2000).

Thousands of humans travel purposefully to National parks to bask in what they consider “untouched” ecosystems. The truth is that National parks are far from untouched, as every single park contains roads. In 2024, Yosemite National Park recorded 20 bear collisions, three of which were killed(National Parks Service, 2024). With most bear deaths in Yosemite caused by car collisions, they have adopted strict speeding limits and created an awareness campaign that educates the public on the dangers that cars pose to bears.

One of the most proven solutions that reduce the number of wildlife interactions with cars is fencing the boundaries of the road in combination with wildlife crossing structures. While wildlife crossings have been touted as the main solution to protect America's wildlife, they’ve been found to increase the roadkill rate by 23% (Bettermann, 2017). While wildlife crossings may be built to reduce road strikes, they inadvertently encourage wildlife to approach roads. Without the direction of where the crossing is, they will attempt to cross with previous knowledge of where they were able to cross before. Well-designed wildlife crossings paired with road fencing were comparably found to significantly lower road-kill rates by as high as 80%(Shield, 2024). By adding fencing to the roads, wildlife is stopped from attempting to cross the road anywhere other than the wildlife crossing, being essentially guided toward the safe crossing option. America and its communities must acknowledge the tradeoffs they face when

considering the opportunity to take action and address this pressing issue of roads and wildlife. Wildlife crossings and fencing require a higher initial investment; however, they are the most proven ways to reduce roadkill. If no action is taken, species will continue declining until ecosystems collapse and biodiversity wanes. Without healthy functioning ecosystems, communities can not continue to exist without their resources. To avoid future downfall and foster a genuinely sustainable community composed of wildlife and humans, we must now start investing in these measurements to coexist with wildlife and ensure mutual benefits for our futures.

Growing up in West Covina, California, coyotes were viewed as a part of life. Everyone in West Covina knows to be careful at night when coyotes prefer to wander the streets. When pets went missing, people would automatically assume that coyotes had eaten them. However, people never saw coyotes as a significant danger to themselves. We understood that as long as you didn't purposely bother them, the coyotes would leave you alone. Yet, my community always viewed coyotes as pests. I would frequently hear people being annoyed that they were wandering the streets, and they would purposely chase them away because they believed that coyotes didn't belong in our neighborhoods, although we were located in the hills that coyotes have inhabited far longer than we have. My community held the anthropogenic perspective that humans can own a space and that other species, like coyotes, should be excluded. Recently, my family moved to Glendora, a city where even more wildlife roams. We are neighbors to the San Gabriel Mountains, connected to the Angeles National Forest. The city of Glendora is frequently visited by coyotes, mountain lions, black bears, and even peacocks. The Glendora community retains the same anthropogenic perspective that my community in West Covina has, a perspective that sees these species as pests in human

space. The Glendora government's stance on wildlife is severely lacking involvement. Glendora's current wildlife management can be summed as giving advice to all residents to be mindful of their pets, not to leave food outside, and to report wildlife sightings to the city(City of Glendora, 2024). With the Glendora community providing little information on how to coexist with wildlife, it's clear why residents don't view themselves and the city as part of an ecosystem. However, my new Glendora community must shift from this separatist perspective to an interconnected perspective, as wildlife is here to stay for as long as we continue to exist.

Therefore, I am writing to my city in the hopes that they have read and understand the reasons for my concern for our city's wildlife and their stability. Through research, I have found that Glendora is involved with the Regional Coyote Management Framework (City of Glendora, 2024) constructed by the San Gabriel Valley Council of Governments. As an environmentalist, I am a massive supporter of the framework, as its main strategy is a mixture of public education, enforcement, and reporting. Public education programs take place at town halls, community meetings, and coyote management workshops to educate residents about reshaping coyote behavior, decreasing attractants, and creating reasonable expectations of normal coyote behavior(City of Glendora, 2024). The framework outlines strict enforcement of the prohibition of the feeding of coyotes and a general outline for a coyote-human interaction reporting system left up to the cities. While I support everything this framework outlines, I can't help but criticize Glendora's lack of commitment to the framework and the fact that it neglects consideration of wildlife other than coyotes. There is a severe lack of accessibility of information and guidance concerning the coyote program in Glendora, which no online searching can seem to provide, which implies

that this program lacks the support and urgency that is needed. I urge the city of Glendora to dedicate themselves to converting Glendora into a sustainable community with wildlife coexistence. I also urge Glendora to take action beyond the framework to make a more effective program.

Glendora should expand its education program to include discussions of all of the most common wildlife because there is a high biodiversity of species within the city. Additionally, incorporating a habitat corridor into the city that originates from the Angeles National Forest could provide several solutions and benefits and improve the relationship between the community and wildlife. Developing a habitat corridor would facilitate the movement of wildlife to be guided into the corridor and reduce the frequency of human and animal interaction. Wildlife would be attracted to the refuge that the corridor would serve as it would mimic their natural habitats, incorporating native plants that would attract prey animals, then drawing larger carnivores to stay within the corridor. Wildlife would benefit from an extended ecosystem by being provided access to food, shelter, and mates, while the Glendora community would gain a sustainable balance between development and wildlife habitat. This would be a large step toward shaping Glendora as a sustainable community that practices true reciprocity with our ecosystem.

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