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Contentions at the Human-Wildlife Interface: An Analysis of Chicago's Coyote Management Plan

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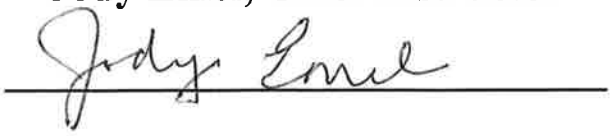

Abstract

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Ilanah Taves

Urbanization and habitat fragmentation cause animal species to either adjust to human-dominated landscapes or suffer population loss. This paper examines the municipal challenges associated with coyotes, an animal successfully adapting to cities throughout North America. The presence of predators in highly developed areas challenges conceptual and spatial attempts to separate cities from nature. This report's introductory sections critically examine the alienation of wildlife from the urban form. Theoretical perspectives from the discipline of animal geographies are employed to deconstruct problematic relationships between cities and animals, and reimagine a metropolis that considers the presence of nonhuman others. Engaging Jennifer Wolch's *transspecies urban theory* and concept of *Zoöpolis*, policy interventions concerning wildlife are explored using Chicago's response to well-established urban coyote populations. I used a participant observation method to collect data on coyote management planning, spending three months as a Mayoral Fellow with the city of Chicago. I rewrote Chicago's Coyote Management and Coexistence Plan during my internship. I use this experience to analyze the effectiveness of wildlife management plans in accomplishing the objectives outlined by theoretical contributions advocating for animal needs in the context of cities. If implemented effectively, the plan will play a role in shaping coexistence, however, more steps are needed in revitalizing urban relationships to wildlife.

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Introduction

Municipal government plays an integral role in shaping the interactions between humans and wildlife. Efforts on the parts of cities to address animal populations promote reshaped understandings of the human in relation to the natural, destabilizing socially constructed spatial separations between urban areas and natural spaces. This paper analyzes the role of city government in affecting coexistence between urban residents and wildlife and supporting multi-species urban theoretical perspectives and prefigurative politics. Focusing on municipal strategies to manage growing urban coyote populations, Chicago's *Coyote Management and Coexistence Plan* ("Plan" or "management plan" hereafter) is outlined and its effectiveness is examined. This study observes the extent to which municipal plan-making generates positive relationships between humans and wildlife. Theoretical concepts emphasizing a need for urban discourse on animals are described in the following paragraphs, followed by a case study and analysis of wildlife plan-making in Chicago.

Conceptual Framework

Urban networks represent a "notion of progress rooted in conquest and exploitation of nature by culture" (Wolch, 119). This tendency leads to practices that destroy ecosystems, causing environmental degradation. Unsustainable urban practices causing pollution and resource extraction run parallel to the expansion of cities. The problematic relationship between everyday urban life and the natural world is described by Wilson: "We thrash about, appallingly led, with no particular goal in mind other than economic growth, unfettered consumption, good health, and personal happiness. The impact on the rest of the biosphere is everywhere negative, the environment becoming unstable and less pleasant, our long-term future less certain" (date, 5). This relationship isolates human society as disparate from natural systems, and leads to a distancing between the "natural" and the "human".

North America has a history of "ecological cleansing" (Emel 1998) in which early settlements and foundations for urbanization expanded with the removal of local animal species. These early interactions with wildlife shape current separations between humans and animals and, subsequently, cities and wildlife. Urbanization leads to fragmentation and loss of habitat and is, in effect, one of the main causes of species endangerment [Czech et al 2000]. Isolated and fragmented landscapes resulting from development threaten biodiversity and alter the environment, directly affecting local wildlife populations. In the U.S. urbanization is the leading anthropogenic cause of species endangerment [Czech et al 2000].

Not all animal species, however, are adversely affected by urbanization. Some carnivorous wildlife is capable of adapting to human-dominated spaces. The creation of suburbs in postwar America located residential life closer to natural spaces, influencing a more recent

movement of wildlife to cities and challenging a traditional separation between the urban and wilderness [Sterba, 2012]. In recent years, mountain lion sightings in cities have become more common, bear populations are encroaching on densely populated Midwestern areas, and coyote populations are successfully adapting to cities across America (Grubbs and Krausman, 2009). These animals are making headlines nationwide, and confronting an ingrained separation between the lives of people and those of animals. The migration of wildlife into cities continues to blur the line between humans and nature. "Successful" animals in cities embody the characteristics of synurbanization – a term referring to wildlife that adjust to urban conditions [Luniak 2004]. These newcomers are producing unconventional interactions between humans and wildlife and, therefore, atypical spatial realities. Previously idealized notions of westward expansion, domination of nature, and distinct areas of human existence and experience are challenged by unpredictable wildlife, making a case for revitalized interpretations of urban spaces.

A recent movement in urban planning supports the idea of fusing natural elements into the urban, with the rise of green infrastructure, greenway planning, and a number of other initiatives in cities. Wildlife is, however, largely left out of urban planning discourse and contemporary attempts to incorporate natural elements back into the urban form (Hess et al 2014). Both traditional and modern planning efforts disregard local animal populations, sustaining a larger disconnect between city life and animal life (McCleery et al 2014). A case for animals is articulated by disciplines in academia, with the rise of animal studies and urban conservation biology. The first can be attributed to theoretical movements away from modern humanist understandings of society, categorically situating human beings at the center of the universe. *Posthumanism* and *biopolitics* are two of several theoretical developments considering

the importance of "nonhumans" and the natural world at large. The second is caused by a growing interest in urban wildlife and the recognition that cities are not only home to human animals, but to many others as well. Incorporating an understanding of animal populations into the discourse of urban planning is necessary to reshape urban theory [McCleery et al 2014; Wolch 2002].

Multi-Species Urban Theory: Negotiating Shared Spaces

In his book titled *Emergent Ecologies*, Eben Kirksey [2015] describes the rise of shared worlds emerging out of human domination and major anthropogenic change. Instead of articulating the many destructive tendencies of development, he describes burgeoning interactions and possibilities of shared worlds rising under such conditions. Similarly, Wolch and Emel (1998) theoretically engage with notions of borderlands, or burgeoning areas where both humans and animals share living space. They discuss the potential of these regions to break down the spatial delineations between human life and animal life:

> Traditional nature / culture dualisms have led to the creation of mutually exclusive spaces and places for wild animals (pristine wilderness) and humans (cities and towns). But there remain extensive, permeable border zones in metropolitan regions inhabited by both people and animals. This inquiry takes up the possibilities of such zones of potential coexistence and examines cases of negotiation/struggle over sharing space… [xviii]

The qualities of these interfaces are capable of reshaping human experiences with, and relationships to, animals in everyday life. These areas challenge societal disassociations with wildlife and promote a need for alternative coexistences. Michel expands on the possibilities of

such spaces, "… borderlands can be conceived as sites where we are not afraid to transgress, and we even recognize the interplay between socially constructed dualisms such as mind-body, rationality-animality, reason-emotion, or nature-culture" (162-3). These areas allow society to re-conceptualize and redefine the problematic dualisms that alienate and destroy animal populations in the name of human progression. Landscapes may not need to be distinctly "human" or "animal", they can encompass elements of both.

Wolch introduces the concept of a *transspecies urban theory*, considering the effects of urbanization on the environment, focusing on interactions between human and animal life [1995]. This reformed urban theory observes how urban changes in the landscape affect animals and seeks to understand the responses of urban residents to wildlife. It moves into an evaluation of how urban development and human attitudes combined shape the capacity of cities to support animal life. Wolch introduces *Zoöpolis*, a redeveloped urban identity considering nonhuman actors. She envisions a city where animal needs are considered and even guide planning efforts, as opposed to the current development paradigm that actively avoids the incorporation of nature. An animal oriented city will involve a shift in how wildlife is received by city dwellers - for the severing of existing divisions between wild and urban areas. Transspecies urban theory and Zoöpolis suggest, "to allow for emergence of an ethic, practice, and politics of caring for animals and nature, we need to renaturalize cities and invite the animals back in, and in the process re-enchant the city" (Emel & Wolch, page 124). E.O. Wilson uses the concept of "biophilia" to describe a central human desire to create relationships with nature and other living things. Wilson claims there is an innate human need to connect with nature and other species. Cities can support this relationship by accounting for animals and connecting residents to nature; "Paying attention to animals and nature around us, educating about their presence and making room for

them, and restoring and repairing urban habitats have the great potential to make cities magical" (Beatley, page 15). This more-than-human perspective is capable of developing coexistence between animals and humans and influencing interactions at the growing urban human-wildlife interface.

Research Design

This research relied on qualitative methods applied to a case study. In particular, I used a participant observation approach serving as an intern during a 2017 Mayoral fellowship with the City of Chicago. My role with the city was to assist with policy-related projects and research, engage with city staff, attend meetings with senior staff, and attend tours of city facilities and departments. Throughout the summer, I was assigned a broad range of projects based on my experience and interests. This work varied from assignments like a best practices analysis of governance and maintenance for Chicago's river trails network to mapping major economic developments for internal use. During this time, I was assigned the project of revising the city's coyote management plan. The participant observation involved formal and informal interviews, collective discussions, attendance at meetings, and producing an edited version of the plan.

In July of 2017, I was assigned the project of updating the Coyote Management Plan for the city of Chicago by the Department of Animal Care and Control. The fellowship project coordinator recommended my involvement in the project based upon my interest in urban coyotes and previous academic research on the subject. In the fall of 2016 I wrote a paper on the importance of wildlife management, in the particular case of Chicago's coyotes, (see Taves 2017) in the second round of the application process for the fellowship. This paper emphasized the importance of incorporating wildlife in municipal projects with the understanding that silence

on the part of the city may lead to problematic and dangerous encounters between Chicago residents and the growing local coyote population. The broader concept focused on a lack of wildlife-focused municipal responses and made a case for more considerations of nonhuman animals in city governance. Based on my interests, previous experience, and the subject of my policy paper, I was appointed the project of updating the Chicago Coyote Plan through the Department of Animal Care and Control. The project required regular updates to the department of my progress, meetings at the facility with department heads, and field trips to local sites where coyotes were spotted and complaints were filed.

I was provided with the first draft of the plan (*A Template Coyote Management & Coexistence Plan*), taken from an online template of urban coyote management plans provided by the Humane Society of the United States. At this point, I contacted the head of the Cook County Coyote Project, Stan Gehrt (Principle Investigator of the Cook County Coyote Project and Chair of the Center for Wildlife Research at the Max McGraw Foundation) and his team to seek guidance on my updates for the city. I was familiar with his research on urban coyotes (see Gehrt & Smith 2004; Gehrt et al 2007; Gehrt et al 2009; Gehrt et al 2010) based upon previous work in my undergraduate and graduate studies. We initially reviewed the plan provided and he supplied me with edits and up-to-date information on Chicago's coyotes in an interview in late July and over email correspondence. His insight was instrumental in guiding my own edits the plan, that were ultimately submitted to the city in September of 2017.

Ultimately, I reformatted the plan, added information about coyotes, and provided detailed management responses for the city. Literary works from the sub-discipline of animal geographies provide theories considering ways to renegotiate relationships with wildlife in cities – largely articulated above- and initiate a discussion about Chicago's management approach to

well-established coyote populations. I worked directly with Chicago's Department of Animal Care and Control for about four months to shape the management plan, engaging local research on Chicago's coyote population. I also examined other municipal and statewide wildlife plans from New York, California, Colorado, and Washington D.C. (see "Cited Plans") for guidance on planning for coyotes in the city.

Chicago was an intentional case study because of the Mayoral Fellowship. The Fellowship allows one to engage directly with policy efforts and assist the city in shaping responses to pressing urban issues. And despite the intentional focus on Chicago, the city turns out to be one of the leaders in wildlife planning, with initiative such as the recent development of the Burnham Wildlife Corridor and building infrastructure design accounting for the migratory patterns of birds [See information on Jeanne Ghang's Aqua Tower in Wolch & Owens 2017].

Background on Urban Coyotes

Coyotes are an example of a wildlife species successfully navigating and existing in urban networks due to flexible diets and adaptive species characteristics. Coyotes have expanded their range significantly since European settlement of the U.S, during the 19th and 20th centuries, moving through pathways established by development patterns. Major human alterations of landscapes, such as logging and agriculture, enabled coyotes to situate in areas across North America [Gompper 2002]. The decimation of coyote predators, most notably efforts

Coyotes Range Map by National Geographic Society

to eradicate the gray wolf in the northern U.S., removed a key predator and competitor allowing coyotes to persevere, replacing wolf presence and assuming their ecological role in many cases [Gompper 2002]. Initial forms of urban development largely alienated the coyote, as with many other forms of wildlife responding negatively to habitat fragmentation. In the latter part of the 20th century, however, resurgences in populations were documented in urban areas across California. Coyotes began moving east into cities such as Chicago, and are now finding homes in major metropolitan areas such as New York [Gehrt 2011]. Coyotes have made a remarkable comeback. "From their native range in the High Plains and southwestern deserts, these wily canines now roam from the northern tip of Alaska to the Panama Canal and across the continent to all but northern Quebec and the Canadian Arctic" (Sterba, page 282).

Characteristics of Urban Coyotes

Urban coyotes weigh, on average, between 30 and 35 pounds, resembling a medium-sized dog. Their diets mainly consist of small rodents, fruits, and birds. In some cases, coyotes will prey on larger animals such as deer, depending on the availability of food sources in a given area. Coyotes in urban areas have a typical life-span of about three years, often facing demise through motor-related accidents. Coyotes are present in urban areas as a result of urban sprawl and lack of predators in cities. Usually found in packs, they may reside in short ranges of two to five square miles in cities, compared to seven or eight square mile territories in rural regions. Coyote species are highly adaptive, as demonstrated by

"An Urban Coyote Steals a Newspaper from a Lawn" Jaymi Heimbuch

significant behavior changes in response to urban environments. [citation] Urban coyotes are known to adapt nocturnal characteristics and avoid areas during times of activity. Although most coyotes are fearful and elusive, there are a number of documented cases where individuals became more comfortable with humans because of intentional feeding. Urban coyotes normally roam in packs of between three and ten individuals, although some may wander alone. A natural apprehension toward people allows coyotes to navigate the urban network (often) undetected. Nocturnal adaptations of urban coyotes allow them to remain out of sight.

In a study taking place between 2000 and 2006, Stan Gehrt, professor and wildlife specialist at Ohio State University, and resident Chicago coyote expert, attempted to better understand the relationship between coyotes and the urban network. Live collaring of nearly 200 of Chicago's coyotes, the study monitored individuals to better understand how they navigate through urban spaces. The main goal was to articulate the qualities of the species and inform future management approaches (citation).

Behavior and movement patterns were recorded by attaching radio collars and GPS locators to about 200 coyotes living in Chicago. Aiming to determine whether coyotes were synanthropes, responding positively to the presence of humans, or misanthropes, animals negatively impacted by highly residential areas. Ultimately, Gehrt concluded that coyotes in Chicago tend to have a number of synanthropic characteristics, population growth and higher rates of survival, but are also misanthropic in their tendencies to continuously avoid humans even within urban regions. Gehrt's research shows that younger individuals experienced survival rates that were five times higher in metropolitan areas compared to rural parts of Illinois. Their movement patterns, however, suggested continuous efforts to avoid human interactions. A portion of the coyotes observed, concentrated in fragments, such as urban parks with smaller

ranges. Others moved rapidly through human-populated spaces, adapting nocturnal tendencies. These individuals had larger ranges throughout the urban matrix. The adaptation of nocturnal behavior coupled with varying movement patterns in the latter case suggests a vested interest in avoiding humans, a more common characteristic of misanthropic species. Coyotes are, therefore, animals benefitting from the urban landscape by means of improved survival and sustained population densities, while avoiding humans through altered movement patterns and nocturnal behavior [Gehrt 2011]. In conclusion, coyotes are naturally more apt to avoid human interactions and can vary in their ranges. Coyotes are successful in places such as Chicago due to their adaptability and presence as leading predators, and a lack of population control due to an urban hunting ban.

Dr. Stanley Gehrt observed the behavior patterns of urban versus rural coyotes (citations). The tendencies of urban populations show significant variations. The most notable shifts are range sizes, nocturnal capabilities, and dietary changes in response to greater presence of people. The differences between urban and rural coyote characteristics exemplify the adaptability of coyotes in new environments. This quality may ensure a prominent presence of urban coyotes for years to come.

Movement patterns of urban coyotes depend on a number of factors. A study conducted by Grubbs and Krousman between 2005 and 2006, observes the use of landscapes by urban coyotes in Tucson [2009]. The locality is highlighted: “coyotes selected medium-density residential areas, washes, and golf courses, but avoided high-density residential areas, natural areas, and commercial categories” (Grubbs and Krousman, page 7). An overall lack of coyotes in areas of high residency shows consistent avoidance of spaces with a large concentration of people. Time of day impacted behavior of coyotes, where those inhabiting shared spaces with

residents were most active at night or "during times when traffic was lighter and human activity was low" (Grub and Krousman, page 9). Movement patterns are impacted by mating seasons with "rate of movement was highest during the breeding season (Grubbs and Krousman, page 7). Avoidance of humans among urban coyotes, is a theme in most studies observing the behavior patterns of coyotes in cities.

The resiliency and adaptive qualities of coyotes are no small feat. Gehrt expresses their exceptionality in a 2016 National Geographic interview: "There's no other species that has experienced the level of persecution that we've posed toward coyotes", after the reporter remarked on the 400,000 killed every year by people [Dell'Amore, 2016]. The growing presence of coyotes largely produces fear in Chicago residents (citation?). Regarding Chicago's coyotes, researchers predict the continuation of successful population growth and high rates of survival [Anchor, Brown, & Gehrt, 2011]. Coyotes have no existing predators in urban spaces and adapt around human populations. Coyotes are an extremely resilient species, regardless of human attempts to manage them. Moreover, their inclusion in the Illinois Wildlife Code means that they are protected and can only be harmed or removed if there is proof of imminent danger to a human's life or property and, since coyotes tend to be elusive creatures, these cases are highly improbable [Illinois General Assembly]. They are most likely to stay in Chicago. Gehrt also comments, in another interview, on the unexpected nature of burgeoning urban coyotes, "We constantly underestimate them… We felt there were parts of Chicago too urban, with too many people, for coyotes to live – and we were wrong" (Dell'Amore, 2014).

Threat to Public Safety

Throughout the United States, the total number of documented attacks is 150, most occurring in California and Arizona, and two fatalities [Cook County Coyote Project]. Pet attacks also tend to rise in areas of high population density. 2014 coyote population estimates for Chicago were around 2,000, according to local coyote expert Stan Gehrt, with predictions of continued success. Surges in urban coyote populations raise issues for urban residents, although the likelihood for attacks on humans is extremely low. Even still, "Homeowners in the Chicago metropolitan area ranked coyotes as the wildlife species perceived as the greatest threat to human health and safety" (Gehrt, 2004, page 84). There remain no documented attacks in the Chicago area and researchers categorize the likelihood for conflict as low [Cook County Coyote Project], however, their presence evokes uneasiness and trepidation in many residents.

Chicago: A Case Study of Municipal Responses to Urban Coyotes

During the first stages of my plan updates and edits, I gathered background information on urban coyotes from scientific studies (see Gehrt 2011; Gommper 2002; Hess 2014 in particular) and management approaches from my correspondence with Stan Gehrt. The major issues with the Humane Society's template were a lack of Chicago-specific information, cited scientific research, and protocol for instances of problematic individual coyotes or conflicts. I both restructured the plan and added a significant amount of information.

There were some issues with the background information on urban coyotes, such as inaccurate range sizes and physical characteristics. The provided information stated general information about coyotes, failing to account for differences in characteristics of urban versus

rural individuals (see Poessel et al 2017 and Gehrt 2009). The original document stated an average range span of 36 square miles, whereas the average coyote in Chicago has a range of between 2-5 square miles in order to adapt to a more condensed urban environment [Gehrt 2017]. Another inaccuracy was the average size of coyotes, originally stated as between 25-35 pounds and updated to 30-35 pounds based on Gehrt's experience trapping and weighing coyotes in the Chicago metropolitan area (See Gehrt 2009). Incorporating information from Dr. Gehrt allowed for a more accurate depiction of the qualities of Chicago's coyotes.

One of the most significant faults of the early plan was its focus on community-based hazing programs to manage problematic individual coyotes. There is no research supporting the effectiveness of hazing programs in reducing violent tendencies of coyotes, and in cases where an animal has attacked or demonstrated threatening behavior (approaching, bearing teeth, etc.) other responses are necessary to ensure public safety. I incorporated hazing techniques into an expanded section on "Managing Chicago's Coyotes" (Page 7-10, Chicago Department of Animal Care and Control), but not as a final technique to combat threatening behavior. Lethal removal was criticized in the original plan document as being an ineffective approach for dangerous coyotes. While not ideal, hazing alone is not proven to reverse dangerous behavior, and a solution is necessary for extenuating circumstances. Relocation is another option in some areas, however, the state of Illinois prohibits the translocation of carnivores. Therefore, in cases of threats to human safety, lethal removal is the only viable option. An especially problematic section of the early plan was a diagram outlining the ways in which lethal removal increases the litter sizes of coyotes. This does not cite empirical research, and is misleading. Gehrt cautioned away from plan incentives that overemphasize sympathy toward animals (as he explained much of the animal rights-sanctioned management plans do), because they may lead to negative

interactions between residents and coyotes. I incorporated lethal removal as an approach only in cases where the coyote demonstrated especially threatening behavior that was documented and reported to Animal Care and Control. It is more common that one individual becomes habituated, often due to feeding, and expresses such tendencies; so, removing the culprit will most likely solve the issue [Poessell 2017 & Gehrt 2004]. The likelihood of this instance remains very low, with only one documented instance of removal for the Chicago metropolitan area in the year 2015 (Division of Wildlife Resources, 2016).

Human behavior modification helps ensure coyotes do not become habituated and comfortable around humans [Poessel 2017], and reduces the likelihood of negative interactions. This theme is highlighted in the "education and outreach" section of the updated document (page 7, Animal Care and Control). The information I provided was largely informed by the city of Broomfield, Colorado's coyote management plan (see Broomfield Open Space and Trails Division). The research on coyotes in urban areas emphasizes a natural tendency of the species to avoid humans through adaptations of nocturnal behavior and movement patterns reflecting avoidance of highly dense areas [Poessell 2017 & Gehrt 2004]. Encouraging responses of residents that support this fear may decrease the likelihood of future conflicts. My contributions focused on providing communities expressing concerns related to coyotes, through submissions of reports to the city, with guidance for hazing techniques and educational material for residents. Through educational material, people can understand the ways in which they alter the behavior of wildlife. Newsletters updating residents are also emphasized as a means of engagement. The Appendices section provides an "Incident Report Form", to be used in the case of coyote-human conflicts, and a "Coyote Audit Yard Checklist, for residents to follow [Animal Care and Control, pages 15-19]. I suggested the city create packets to supply community centers and direct

informational meetings. The act of hazing is a technique for people directly encountering coyotes, where the individual generates loud noises and threatening movements to instill fear in the animal. The goal is to scare the coyote and encourage a safe distance. I left most of the hazing information and added portions illustrating educational programs for communities and neighborhoods. Education and human behavior modification is highlighted as a primary response for areas where higher numbers of coyotes are spotted.

Another key contribution was a section suggesting multi-department oversight of coyote related issues. In Chicago, Animal Care and Control is responsible for wildlife-related issues. In other cities dealing with coyote populations, other departments also are involved with coyote management. For instance, Calabasas, C.A. Department of Public Works drafted the city's C*oyote Management Plan;* The Broomfield, C.O. Police Department responds to conflicts; and in Washington D.C. the Department of the Environment was the main agency involved in creating the *Wildlife Action Plan* (see the *Cited Plans* section under Bibliography). City department communication will ensure accurate understandings of locations of coyotes and effective responses in dangerous situations. Urban coyotes tend to navigate through parks and greenspace [Gehrt 2011], so coordination with the Parks Department will produce a heightened awareness of coyote presence among city employees. Chicago's Department of Animal Care and Control manages a large adoption facility, responds to 311 calls about nuisance wildlife, and is involved in policy initiatives for domesticated animals. Allowing open lines of communication with other departments will alleviate pressure on the department and expand the purview of other agencies.

These updates are outlined in the final draft of the plan submitted to the city in September of 2017. Perhaps the most notable element of my work on the plan was my communication with

Dr. Gehrt and his team. In the plan, I suggest a continued relationship between Animal Care and Control and the Cook County Coyote Project. Empirically-backed management plans are essential to effective management of wildlife. Research concerning animals is less common in urban municipal government, and citing informed wildlife research is essential in providing accurate information. Developing this relationship will aid in future management approaches by ensuring the city receives updates on its coyote population. The operating budget for municipal government in Chicago is often strained, and using information from funded research will relieve the city from conducting separate research on local wildlife. The purpose of Dr. Gehrt's project is to provide information for effective coyote management, and this work is meant to be used for projects like this. Bridging the gap between municipal agencies and the local scientific community is a central component of my contribution to the Chicago Coyote Management Plan.

My experience developing the Coyote Management Plan for the city of Chicago was informative and enlightening. The fellowship shaped an understanding of municipal governments, department coordination, funding-related road blocks, etc. was strengthened through my direct work with the city. Certain policy initiatives naturally take on higher importance and I learned that during the fellowship. The pressure on operating funds is a main concern, and the number of projects afforded to staff members is significant. My time on the Coyote Plan was not of major concern to the administration, and an overall focus on wildlife is not a priority. The main focus of mayoral staff at the time of my fellowship was emphasizing the major projects of the Emmanuel administration, strengthening his chances of re-election. Many of the mayoral staff I encountered had no idea coyotes even existed in the city. An obstacle I encountered during the project was the spatial isolation of the Department of animal Care and Control.

The other departments I worked with, such as the Planning Department, were all located in City Hall – making access convenient. Animal Care and Control is at least 20 minutes away, limiting my ability to meet directly with staff to discuss progress. Despite a lack of consideration for coyotes in most departments within the city and minor spatial impediments, however, I was able to access information and add significant changes to the plan. My work on the plan was invigorating because I had an opportunity to incorporate my own research, but the case for coyotes is still not a top priority for policy-makers.

Alternately, the city is environmentally focused and progressive, so it is possible that these objectives will shift to incorporate the needs of animals. Chicago, as a city, encompasses a considerable amount of greenspace. Though largely meant for recreation, these areas serve as potential habitat to many kinds of wildlife. The City's conservation of Peregrine Falcons demonstrates the potential for efforts that incorporate the needs of wildlife (see Chicago Field Museum link under resources for more information).

The Role of Management Plans in Shaping Wolch's Zoöpolis

When analyzing Chicago's coyote plan's effectiveness in achieving the objectives of Jennifer Wolch's *transspecies urban theory* and *Zoöpolis,* deficiencies become apparent. In order to "re-naturalize" the city, Wolch describes an agenda to "bring the animals back in" [Wolch 1998]. She articulates the necessary conceptual and physical changes and central questions at the heart of creating urban environments that begin to realize nonhuman animals:

> At one level, the challenge is to overcome deep divisions in theoretical thinking about nonhumans and their place in human moral universe. Perhaps more crucial is the challenge of political practice, where purity of theory gives way to a more situated ethics,

> coalition building, and formation of strategic alliances. Can progressive urban environmentalism build a bridge to those people struggling around questions of urban animals? (Wolch & Emel, 135)

She describes two central elements: Urban "thinking" surrounding animals; and political negotiations governing their existence in the urban context. This paper is centrally focused on municipal political action and its role in establishing coexistence between residents and coyotes. It is conceivable to imagine that Chicago's political efforts might encourage a redefined relationship to the wild animal, but a plan alone cannot produce this. Although a beneficial starting point, the plan itself is not fully capable of shaping Zoöpolis. The remaining paragraphs will articulate the shortfalls of the plan in fully realizing Wolch's multi-species urban environment, considering municipal challenges, and discuss further ways cities might encourage better relationships between humans and wildlife.

The central focus on "coexistence" within the plan is somewhat thinly veiled. The term aligns with the transspecies urban theory, but parts of the plan morally oppose the true meaning of coexistence and are somewhat contradictory. Lethal removal is not harmonious coexistence. In the context of Chicago, an alternative is not foreseeable due to a statewide ban on translocation of carnivores [Gehrt 2017], therefore eliminating alternatives in cases where a coyote is threatening the safety of residents. It is at this point, where the distance between theory and practicality become evident. Personally, I underwent a moral battle including the lethal removal in the plan. My theoretical understanding, grounded in posthumanism and concepts from animal geographies, does not support the killing of an animal as a means of coexistence. Especially considering the fact that problematic coyotes are often influenced by human's feeding them. My theory-heavy perception of the world was often challenged by the practically-oriented

tendencies in the Mayor's office. Human needs are at the center of city governance, and this is not likely to significantly shift. If a coyote threatens the lives of residents, the safety of people will automatically override that of the animal. Though difficult to comprehend, the lethal removal of one individual coyote might prevent chaos associated with non-responsiveness. The ban on relocation makes targeted lethal removal, unfortunately, the only option in Chicago to ensure public safety. This moral compromise, however, does not lead to a state of harmonious coexistence.

Furthermore, there are a number of challenges in Chicago's government that may prevent the necessary animal focus inherent in Zoöpolis and a fully-realized transspecies urban theory: gang violence, racial inequality, police brutality, poverty, equitable housing, and establishing a functional inner-city school system are just a few of the problems facing the city of Chicago. There is no way a modern city will put these issues aside in order to invest time into promoting the fight for species equality. Cities, while moving toward navigating a better relationship with the natural environment, are still largely anthropocentric. Chicago has a dwindling budget and depleted staff, which is negatively impacting the functioning of the city. Most of the people I encountered were not concerned with making policy that creates better urban environments for animals. The disparate nature of Chicago's Animal Care and Control Department alienates wildlife-related policy from the rest of the work. There is a humanist attitude in city government that hierarchically ranks the importance of some issues over others. Even though the city is focused on climate change and creating more "green" initiatives, concern for wildlife evades most factions of the municipal government.

Zoöpolis involves a reshaped relationship between urban residents and animals. This involves a detangling of deeply embedded conceptual separations between humans and wildlife.

To successfully achieve this, the coyote management plan would have to destabilize these categorical distinctions. Anthropomorphic value systems shape the way people perceive animal others on an inclusionary and exclusionary basis. Each type of animal is, therefore, subject to a different kind of association based on human shaped interpretations. A pervasive nature-culture dualism isolates wild animals, setting them apart from the everyday life of people and, therefore, outside the purview of human identity. However, domesticated animals are subject to different associations and find ways into human culture. Philo describes these differences as leading to inclusion of some animals and exclusion of others, "It might be appropriate here to think of a continuum between inclusion and exclusion, with animals such as dogs and cats tending to be at the inclusionary extreme… and with animals such as lions and bears tending to be at the exclusionary extreme" (date, 66). Some (many animals of prey) are vilified, and fear-based associations shape relationships between humans and these animals.

Establishing a positive relationship between urban residents and coyotes is especially challenging due to historical interpretations of coyotes embedded in American culture. Coyote ranges and movement across North America are intricately related to settlement patterns of westward expansion. Foresting and land clearing opened channels, allowing coyotes to expand ranges across the country [Gompper 2002]. Encounters with coyotes became common as development moved across the U.S. Farmers developed a contentious relationship with coyotes, blaming the animals for missing livestock. Furthermore, authors such as Mark Twain shaped an extremely negative view of the animal, vilifying its characteristics [Flores, 2016]. This cultural discontent coupled with farmer frustration lead to government-sanctioned eradication efforts in the mid twentieth century resulting in the killing of over six million coyotes in less than a decade [Flores, 2016]. Coyotes and other predatory species, such as wolves, are subject to distorted

perceptions and interpretations based on cultural biases. This complicated narrative is a contributing factor shaping an urban uneasiness toward the animal, exemplified by Chicago homeowner rankings of coyotes as the most threatening wildlife to public safety (Gehrt, 2004, page 84). The perceived threat, however, is not backed by much of the scientific research on coyotes – illustrating a natural tendency to avoid humans even in urban areas (see Gehrt 2011; Gommper 2002; Hess 2014; Poessel et al 2017 in particular).

The perception of coyotes is shaped by historical and cultural narratives, leading to a fearful urban tendency and a need to "place" them elsewhere. Coyotes, however, are now present in urban areas across the U.S. and are challenging the urban inclination to displace certain animals not culturally valued in residential areas. Philo asks, "Are we to say that an urban fox is included or excluded, since it deliberately utilizes city spaces even if humans do not want it to?" (66). So, then, should urban, or suburban, wildlife be understood in terms of the animals that are "supposed" to be there, based on human associations with particular wildlife, or in terms of those actually existing in those spaces? Furthermore, is it possible to rewrite deeply imbedded cultural narratives that especially vilify certain wildlife through personifications of good and evil?

This task seems overwhelming, and a wildlife management plan, alone, may not rectify a traditionally problematic relationship between humans and coyotes. If the plan is implemented effectively, however, it might play a partial role in galvanizing new interactions and shaping new narratives. The portion of the plan focusing on education and outreach will likely supply people with the information they need to establish positive relationships with coyotes. The accessibility of this information is dependent on the department's ability to reach out to communities and document which neighborhoods are in the most need of assistance. Unfortunately, it is impossible to speculate about the success of the plan or its enforcement without making

assumptions. If the goals of community engagement, connections between the city and the scientific community, and broader considerations for wildlife among numerous municipal departments are achieved it is possible for the plan to guide residents into better relationships with local coyote populations.

The role of policy is integral in dictating how people live and interact with the urban environment. Using municipal government action to foster coexistence will affect how animals are perceived by residents, rectifying a larger dualism between culture and nature. Chicago's coyote management plan is a single component of this and is a first step and framework for establishing better relationships between people and the wild animals that are slowly reclaiming urban spaces. In order to fully realize Wolch's interpretations of multi-species urban networks, the discipline of urban planning must become more inclusive and engage with the movement patterns and characteristics of local animal species. Widening the purview of urban planning and development is key to ensuring positive relationships between humans and animals in cities. The discipline of urban planning must become more inclusive. Ahern (2013) suggests a "transdisciplinary" approach will allow for other insights, such as landscape ecology, to inform the methods of urban development and allow for a less destructive urban design. Incorporating understandings of local wildlife in development planning will alleviate the potential for dangerous interactions between humans and wildlife. Infrastructure changes to the urban form are costlier, but worth considering. A useful urban design change is the construction of wildlife overpasses and underpasses throughout road networks. These structural alterations provide movement channels for wildlife around cities and combat the effects of habitat fragmentation. Larger networks fostering animal movement patterns allow for wider habitat options, ensuring

some species don't turn to urban areas as a last resort. These approaches to urban design account for the presence of animals and exemplify multi-species approaches to urban development.

Concluding Thoughts

Reshaping the human perception of wild animals, enforcing multi-species urban policy, and building wildlife-friendly cities are all necessary in igniting Zoöpolis and engaging a transspecies urban theory. The need for this is especially pressing, as many forms of wildlife begin to encroach on cities nationwide. Coyotes may serve as an introduction to a larger phenomenon. They are the largest recent mammalian carnivore to adapt to an urban area, but others are beginning to appear. In Chicago, mountain lions have already been spotted in the Wrigleyville neighborhood. Larger animals recently showing signs of encroachment on urban and suburban areas, such as bears, will pose greater challenges (Grubbs and Krausman, 2009). Coyotes may be viewed as a gateway into a larger problem that will expand, if attempts to manage and negotiate the presence of wildlife in populated areas is not addressed. This is only possible through intentional efforts on the part of cities to move away from anthropocentric planning and policy. "If wilderness can stop being (just) out there and start being (also) in here, if it can start being as humane as it is natural, then perhaps we can get on with the unending task of struggling to live rightly in the world" (Cronon, page 90). Municipalities govern urban spaces and have the capacity to shape realities and rectify problematic relationships between humans and nature and bolster coexistence between society and wildlife. Municipal management of wildlife and effective plan making are modes capable of reshaping coexistence only if complemented by other efforts on the parts of cities. It does, however, serve as a starting point. It does, however, serve as a starting point.

Bibliography

Anderson, Kay. "Animals, Science, and Spectacle in the City." *Animal Geographies: Place, Politics, and Identity in the Nature-culture Borderlands*. By Jennifer R. Wolch and Jody Emel. London: Verso, 1998. 27-50. Print.

Ahern, J. (2013). Urban landscape sustainability and resilience: the promise and challenges of integrating ecology with urban planning and design. *Landscape Ecology*, *28*(6), 1203-1212.

Baker, Rex O.; & Timm, Robert M. (1998). Management of Conflicts Between Urban Coyotes and Humans in Southern California. *Hopland Research & Extension Center*. UC Davis: Hopland Research and Extension Center. Retrieved from:

Beatley, T. (2011). *Biophilic cities: integrating nature into urban design and planning*. Island Press.

Carnivores, C. I. U. (2004). Ecology and management of striped skunks, raccoons, and coyotes in urban landscapes. *People and predators: From conflict to coexistence*, 81. Urban carnivores

Cronon, W. (2009). Nature's metropolis: Chicago and the Great West. WW Norton & Company.

Cronon, W. "The Trouble with Wilderness; Or, Getting Back to the Wrong Nature." *Uncommon Ground: Rethinking the Human Place in Nature*. New York: W.W. Norton, 1996. 69-90. Print.

Czech, B., Krausman, P.R., and Devers, P.K. 2000. Economic associations among causes of species endangerment in the United States. BioScience, 50: 593– 601.

Dell'Amore, C. (2014, November 21). Downtown Coyotes: Inside the Secret Lives of Chicago's Predator. National Geographic. Retrieved from

Dell'Amore, C. (2016, April 18). How Wild Animals Are Hacking Life in the City. *National Geographic*.

Division of Wildlife Resources. (2016). Wildlife Damage Management in Illinois – 2-15 Summary. *Wildlife Diversity Program Note 16-2.*

Donkin, R. A. (1991) *Meleagrides: an historical and ethnographical study of the guinea fowl.* London: Ethnographica.

Ewing, R., Kostyack, J., Chen, D., Stein, B., & Ernst, M. (2005). *Endangered by Sprawl. How Runaway Development Threatens America's Wildlife*.

Elliot, E. E., Vallance, S., & Molles, L. E. (2016). Coexisting with coyotes (canis latrans) in an urban environment. *Urban Ecosystems, 19*(3), 1335-1350.

Fedriani, J. M., Fuller, T. K., & Sauvajot, R. M. (2001). Does availability of anthropogenic food enhance densities of omnivorous mammals? An example with coyotes in southern California. *Ecography*, *24*(3), 325-331.

Flores, D. (2016). *Coyote America: a natural and supernatural history*. Basic Books.

Gehrt, S. D., Riley, S. P., & Cypher, B. L. (Eds.). (2010). *Urban carnivores: ecology, conflict, and conservation*. JHU Press.

Gehrt, S. D., Anchor, C., & White, L. A. (2009). Home range and landscape use of coyotes in a metropolitan landscape: conflict or coexistence?. *Journal of Mammalogy*, *90*(5), 1045-1057.

Gehrt, S. D., Brown, J. L., & Anchor, C. (2011). Is the Urban Coyote a Misanthropic Synanthrope? The Case from Chicago. *Cities and the Environment*, *4*(1), 1-25. doi:10.15365/cate.4132011

Gehrt, S. D. (2007). Ecology of coyotes in urban landscapes.

Gehrt, S. D., & Smith, M. (2004). Ecology and management of striped skunks, raccoons, and coyotes in urban landscapes. In N. Fascione & A. Delach (Eds.), People and Predators: From Conflict To Coexistence (pp. 81-103). Island Press.

Gompper, M. E. (2002). Top Carnivores in the Suburbs? Ecological and Conservation Issues Raised by Colonization of North eastern North America by Coyotes: The expansion of the coyote's geographical range may broadly influence community structure, and rising coyote densities in the suburbs may alter how the general public views wildlife. *Bioscience*, *52*(2), 185-190.

Gullo, A., & Lassiter, U. (1998). 1998: The cougar's tale. In Wolch, J. and Emel, J., editors, Animal geographies: place, politics, and identity in the nature-culture borderlands, London: Verso, 139-161.

Hess, G. R., Moorman, C. E., Thompson, J., & Larson, C. L. (2014). Integrating wildlife conservation into urban planning. In *Urban Wildlife conservation* (pp. 239-278). Springer US.

Kirksey, E. (2015). *Emergent Ecologies.* Duke University Press

Luniak, Maciej. *Synurbization - Adaptation of Animal Wildlife to Urban Development*. Digital image. *The University of Arizona*. Proceedings 4th International Urban WIldlife Symposium, 2004. Web.

McCleery, R. A., Moorman, C. E., & Peterson, M. N. (Eds.). (2014). *Urban wildlife conservation: theory and practice*. Springer.

Philo, C. (1995). Animals, geography, and the city: Notes on inclusions and exclusions. *Environment and planning D: Society and space*, *13*(6), 655-681.

Poessel, S., Mock, E., & Breck S. (2017). Coyote (Canis Latrans) Diet in an Urban Environment: variation relative to pet conflicts, housing density, and season. *Canadian Journal of Zoology,* (4), 287.

Soule, M. E. (1991). Land use planning and wildlife maintenance: guidelines for conserving wildlife in an urban landscape. *Journal of the American Planning Association*, *57*(3), 313-323.

Sterba, J. (2012). Nature wars: the incredible story of how wildlife comebacks turned backyards into battlegrounds. Crown.

Taves, Ilanah, and Stan Gehrt. "Interview about Chicago's Coyote Population" 20 July 2017.

Taves, Ilanah (2016) Intersections Between Urban Wildlife and the City of Chicago. *Policy Problem Statement, Chicago Mayoral Fellowship Program.*

Timm, R. M., & Baker, R. O. (2007, April). A history of urban coyote problems. In *Wildlife Damage Management Conferences--Proceedings* (p. 76).

Urbanik, Julie. "Into the Wild: Goegraphies of Human-Wildlife Relations." *Placing Animals: An Introduction to the Geography of Human-animal Relations*. Lanham: Rowman & Littlefield, 2012. 137-81. Print..

Wilson, E. O. (2016). *Half-earth: our planet's fight for life*. WW Norton & Company.Wolch J. (1996). Zoöpolis. Capitalism Nature Socialism, 7, 21-48.

White, L. A., & Gehrt, S. D. (2009). Coyote attacks on humans in the United States and Canada. *Human Dimensions of Wildlife*, *14*(6), 419-432.

Wolch, J. (2002). Anima urbis. *Progress in human geography*, *26*(6), 721-742.

Wolch, J., & Emel, J. (Eds.) (1995). Theme issue on Bringing the animals back in. Environment and Planning D: Society and Space, 13, 631-760.

Wolch, J., Emel, J., & Wilbert, C. (In press). Reanimating cultural geography. In K. Anderson, M. Domosh, N. Thrift, and S. Pile (Eds.), Handbook of cultural geography. London: Sage.

Wolch, J., West, K., & Gaines, T. E. (1995). Transspecies urban theory. Environment and Planning D. Society and Space, 13, 735-760.

Wolch, J., & Owens, M. Animals in Contemporary Architecture and Design. *Humanimalia: a journal of human/animal interface studies.* Volume 8, Number 2-Spring 2017.

Figures

1. Jaymi Heimbuch. *An Urban Coyote Steals a Newspaper From a Lawn.* Jaymi Heimbuch Photography
2. Sean Finnegan. *Coyote Range Map*. "Coyote Facts". National Geographic Society.

Cited Plans

Broomfield, C.O. Open Space and Trails Division. *Final Report: Assessment of Human-Coyote Conflict: City and County of Broomfield, Colorado* https://www.broomfield.org/DocumentCenter/View/1282

Chicago, I.L. Mayoral Nature and Wildlife Advisory Committee & Chicago Department of Planning and Development. (2011) *Chicago Nature & Wildlife Plan Update*. https://www.cityofchicago.org/content/dam/city/depts/zlup/Sustainable_Development/Publications/Chicago_Nature_and_Wildlife_Plan/Nature_Wildlife_Update_2MB.pdf)

Chicago, I.L. Department of Animal Care and Control (2017) *Draft of Coyote Management and Coexistence Plan.*

Calabasas, C.A. Public Works Department. *Coyote Management Plan.* http://www.projectcoyote.org/CalabasasMgmtPlan.pdf

Long Beach, C.A. Department of Parks, Recreation and Marine Animal Care Services Bureau (2015) *Coyote Management Plan.* http://www.longbeach.gov/globalassets/acs/media-library/documents/wildlife/living-with-urban-coyote/long-beach-coyote-management_final-11-3-15/

New York, N.Y. Department of Environmental Conservation (2015) *New York State Wildlife Action Plan.* http://www.dec.ny.gov/docs/wildlife_pdf/swapfinaldraft2015.pdf

Human Society of the United States. A Template Coyote Management & Coexistence Plan. http://www.humanesociety.org/assets/pdfs/wildlife/template-coyote-management-plan.pdf

Washington D.C. District Department of the Environment (2015) *District of Columbia Wildlife Action Plan* https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/00_2015WildLifeActionPlan_Chapters_07_31_2015_PublicVersion_0.pdf

Other Resources

Chicago Field Museum (2017, October 12). Illinois Peregrines. https://www.fieldmuseum.org/science/special-projects/illinois-peregrines

Cook County Coyote Project, 2017 https://urbancoyoteresearch.com/

Urban Coyote Ecology and Management https://urbancoyoteresearch.com/sites/default/files/UrbanCoyoteManagementPDF.pdf