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A HISTORY OF URBAN COYOTE PROBLEMS

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Abstract: We summarize previously published information on coyote attacks on humans in North America. This problem has developed primarily in urban and suburban areas of southern California since the early 1970s, and the frequency of attacks and other human safety incidents is increasing. Similar attacks are now known from at least 18 states in addition to California and from 4 Canadian provinces, with the majority of attacks occurring since the early 1990s. We review early explorers' and settlers' accounts of coyotes in the Los Angeles area, as well as development of coyote control programs during the 20th century. We also describe the political and human dimensions aspects of attempts to manage suburban coyotes, noting that a wide range of beliefs and opinions can be present among city-dwellers. We believe the most important factors contributing to coyotes' habituation to humans, which in southern California has led to coyote aggression and attacks, are: residential habitats rich in resources; reduced efforts to control coyote populations; and changing human attitudes and behavior toward coyotes. Similar circumstances in other suburban habitats in North America may have led to increased coyote attacks elsewhere, but it is difficult to predict if they will become as numerous as in southern California.

Key words: California, *Canis latrans*, coyote, coyote-human attacks, habituation, history, human safety, Los Angeles basin, predator control, urban coyote

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INTRODUCTION

Coyote (*Canis latrans*) attacks on humans have emerged as a phenomenon within about the past 30 years. The problem is most severe in California (particularly urbanized Southern California), where we are aware of more than 111 such incidents occurring during the period 1977 through 2004. In the past decade, the problem has increased in number of incidents (Timm et al. 2004, 2005). Fragmentary information on similar coyote attacks that have occurred in urban and suburban areas in other states suggests this problem may be developing elsewhere. We review the history of the development of coyote attacks on humans, in an effort to better understand the conditions that led to the present situation in Southern California, and with the goal of better predicting where similar conditions might permit this problem to develop and grow. Appropriate preventive measures may be effective in preventing or reducing coyote problems, if they are applied in a timely manner.

COYOTE ATTACKS ON HUMANS

The History of Attacks in California

The occurrence of coyote attacks on humans is a relatively recent phenomenon. In fact, Froman (1961:111-112) stated,

regarding coyotes, "One of the very few potential foods in which they have shown no interest is human flesh. They have a strong curiosity which can lead them into such unnerving actions as following a horseman along a lonely bridle path, but I was able to find no record or even unsubstantiated report of any Los Angeles coyote that had ever attacked a man, woman or child."

The presentation and subsequent paper by Deputy Agricultural Commissioner Robert G. Howell (1982), "The Urban Coyote Problem in Los Angeles County," was the first formal report that detailed the developing problem of aggressive coyotes attacking humans in suburbia. This report followed the tragic death of a 3-year-old girl, Kelly Keen, after she was attacked by a coyote in the front yard of her residence in Glendale, CA in August 1981. This report also summarized 7 other coyote attacks on humans during the period 1978 through 1981 in Los Angeles County; 4 involved children age 5 or under, one involved a teenager attempting to save a dog from a coyote's attack, and 2 attacks were on adults. Howell noted some of the environmental conditions that were conducive to the habituation of coyotes toward humans, leading to bold coyotes that were "very comfortable" in the suburbs and utilized a rich supply of foods including household garbage, pet food, small pets, vegetable gardens, and abundant rodents, as well as available water sources. He also noted that complaints about problem coyotes in suburbia, including many attacks on pets, and coyote aggression toward children in protection of a den within a suburban yard, had been recorded in the Los Angeles region "for at least the past twelve years".

Carbyn (1989) summarized information on coyote attacks on children that had occurred primarily in national parks in western Canada, mostly during the 1980s. Of the 14 attacks he reported, 4 resulted in "major injuries," one of which actually occurred in Yellowstone National Park in 1960. Two attacks occurred in 1985 in Jasper National Park, and one occurred in 1988 along a trail at a highway stop near Creston, British Columbia. From his investigation of these 4 most serious incidents, Carbyn concluded that they were predatory in nature: "Coyotes appeared to have lost fear of humans and regarded the children as prey" (Carbyn 1989:445). He further noted that such habituation "has been widespread in national parks and urban areas where this predator associates humans with food at campgrounds". In noting that 3 of the 4 attacks occurred at the season when coyotes were either about to have pups or were feeding pups, Carbyn speculated that it was possible that boldness in coyotes toward humans "is related to food stress". However, he also reported several "unusual behavior responses" of coyotes toward humans in Canadian national parks, including chasing cars and snapping at tires, slashing tents in a campground, and nipping at campers in sleeping bags. He noted that it is difficult to determine motivations for such behavior, and that there may not be a common basis for such incidents.

Baker and Timm (1998) summarized coyote-human safety incidents in California involving 53 individuals in 16 locations, from 1988 through 1997, in which a total of 21 individuals suffered coyote bites. They provided detailed case histories on 13 incidents or clusters of incidents. They noted that more than 32 other individuals experienced human safety incidents due to habituated or aggressive coyotes during this same period. Six years later, Timm et al. (2004) were able to document a total of 89 coyote incidents from California during the period 1978 through 2003, of which 48 had occurred from 1998 through 2003, indicating an obvious increase through time. Most incidents occurred in Southern

California near the suburban-wildland interface, with the largest number of incidents occurring in Los Angeles, Orange, San Diego, San Bernardino, and Riverside Counties, in decreasing magnitude. The authors discussed both preventive and corrective actions that should be taken by neighborhoods, cities, regions, and counties to reduce incidence of such attacks, stating their belief that coyote attacks on humans in suburbia are preventable.

More recently, Timm et al. (2005), via increased access to newspaper reports via Internet searches of NewsBank and LexisNexis, were able to find additional reports of coyote attacks on humans from the last three decades. They reported in excess of 160 human safety incidents in California involving coyotes since the early 1970s. They recognize that this data set is incomplete (Timm et al. 2004): some incidents are never reported to authorities, some agencies or entities that receive such reports do not share this information with researchers or others, and some reports are discarded after a few years or are not maintained in a manner that is easily accessible.

Characterizing Coyote Attacks

For the purpose of this paper, we now define a coyote "attack" on a human as an incident in which physical contact between one or more coyotes and one or more humans occurred at a single location at a point in time. For example, if a coyote bit two or more people at a single location at a specific time of day, we categorize this as one attack. However, if persons at two different locations were bitten by a coyote within only a short time interval, we categorize this as two separate attacks, even though circumstantial evidence might in some cases suggest the same individual coyote was involved in both incidents.

While we are aware of coyote attacks in which the offending coyote was infected with rabies, we have intentionally omitted these attacks from our data and analyses, while at the same time recognizing that many offending coyotes are not captured and therefore cannot be tested for rabies.

Our database presently contains 111 incidents of coyote attacks on humans in California; all except one incident, which occurred in 1961, have occurred since the early 1970s. Of the 111 incidents, 14 incidents involved the presence of a domestic dog, where typically the person was bitten or scraped by the coyote in an effort to rescue the dog from attack, or the coyote attacked both the person and the person's nearby dog. The 111 attacks resulted in injuries to a total of 136 individuals (87 adults and 49 children, where a child is defined as any person ≤ 10 years of age).

Additionally, there were 62 human safety incidents in which coyotes aggressively approached adults or children, or stalked small children, in which no physical contact occurred (or physical contact was not mentioned in the incident report). Of these 62 incidents, 17 involved the presence of a pet (dog or cat). Examples include the following:

1. A landscape gardener was confronted by two aggressive coyotes, and he beat them away with a rake.
2. A coyote charged and tried to bite a 2-year-old child, but was driven away by the child's parents.
3. A coyote 'frozen' in a stalking posture was 4 feet from a 2-year-old girl when the father grabbed the child away before the coyote pounced; the coyote left the area with much hesitation even after being hit with a stick by the father and a neighbor, and it returned to the yard daily for several days until it was trapped.

4. A coyote that had chased a jogger attempted to charge two deputy sheriffs, who then shot it.
5. A man was chased by two coyotes, which snatched his poodle out of his arms and made off with it.
6. A group of about 6 coyotes "attacked" a woman and her dogs in her yard and one dog was bitten; when the woman and dogs retreated inside her car, the coyotes jumped aggressively against the car and scratched the hood and doors.

Other Attacks in North America

While California has incurred far more coyote attacks on humans than other states, the problem seems to be arising and possibly increasing in other states. We suspect that some of the factors that lead to the development of habituated, aggressive coyotes are more strongly present in Southern California than elsewhere, although it is possible that the circumstances that lead to coyote attack have simply developed earlier in suburban Southern California than they have elsewhere, and that this problem may become increasingly serious in other localities.

Primarily through news media reports, we are currently aware of at least 76 attack incidents (where coyotes make physical contact with humans, and in the vast majority of instances inflicted bites) from 18 states besides California. The largest number of such attacks took place in two states adjacent to California: Arizona and Nevada (Table 1). Our database, developed primarily through authenticated reports from newspapers and other media, contains 37 cases of coyote attacks in Arizona from 1990 to the present. Carrillo et al. (2007) notes that the Arizona Wildlife Services program office has record of 65 human safety incidents involving coyotes in Arizona that occurred since 1997.

Table 1. Distribution of coyote attacks on humans within the states of the United States, through May 2007.

State	Number of attacks
CA	111
AZ	37
NV	9
CO	4
MA	4
NM	4
NY	3
NJ	2
TX	2
WY	2
AK	1
CT	1
ME	1
NC	1
NE	1
OH	1
PA	1
VT	1
WA	1

We are also aware of a total of 17 attacks that occurred in 4 Canadian provinces (Alberta, British Columbia, Ontario, and Nova Scotia), all of which occurred between 1988 and 2006. For all attacks in the continental United States and Canada (excluding California) where precise dates are known, the distribution of attacks through time (Figure 1) suggests this problem is developing or increasing in recent years, particularly within the last decade: 65% (59 of 91) of all known attacks have occurred between 1997 and 2006. However, there may be some bias in this data, in that the most recent attacks are more easily found through Internet searches of news articles, as opposed to incidents that may have occurred more than a decade ago.

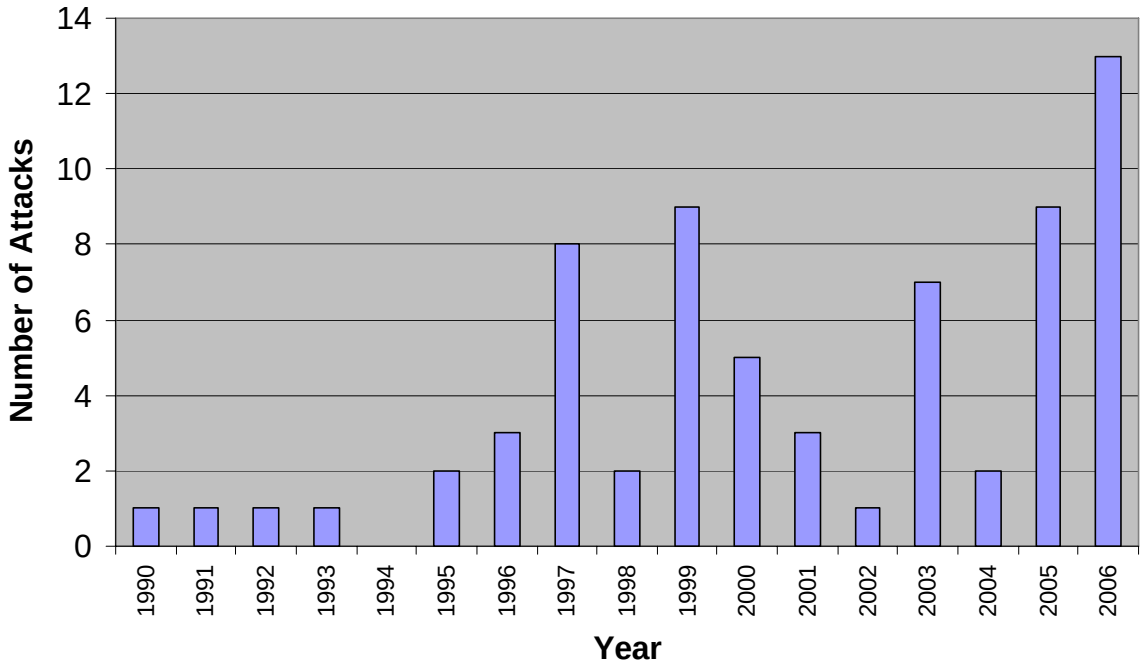

Figure 1. Distribution by year (1990 through 2006) of known coyote attacks on humans in the United States and Canada (excluding attacks in California).

HABITUATION TOWARD HUMANS

The habituation of large mammalian carnivores (and other wildlife) toward humans is a phenomenon that is generally recognized. Habituation begins when animals tolerate humans at a distance, and can progress in some instances to "taming," that is, conditioning an animal through positive reinforcement such as food. Habituated animals "can and do become troublesome or dangerous…" (Geist 2007). In compiling our database of coyote attacks, we have noted reports of intentional feeding of coyotes in many instances where coyotes attacked humans; intentional feeding is probably a factor in more of these situations than is apparent.

Several early reports of coyotes becoming habituated to humans and suburban habitats are available. Perhaps the first report of human-habituated coyotes was that from Yellowstone National Park in 1947, as cited by Young and Jackson (1951:69): "Two tourist-habituated coyotes, repeatedly observed begging for food and posing for pictures, causing tourist traffic jams along the main park highway…" an

occurrence "until now unheard of in Yellowstone's colorful history."

Intentional feeding of coyotes (and other wildlife, such as bears) by park visitors is likely the principal cause of the predators losing their fear of humans, resulting in their approaching humans at close distances where the risk of negative interactions is highly likely. Humans also unintentionally provide food to wildlife: campgrounds or public use area in parks often provide opportunities for animals to obtain human food items, either from careless storage of foods or from garbage containers that are not animal-proof or are full to overflowing.

Hope Ryden, in her book *God's Dog* (1975), describes her efforts to document and photograph a habituated female coyote in Yellowstone that frequented the area near the Tower Ranger Station. When, in her haste, Ryden jumped out of her vehicle to photograph this coyote begging for food from another tourist's auto, she left her car door open. The coyote leaped into the front seat, in search of additional food items, and refused to exit: "I opened all four doors and shouted and clapped. But the coyote merely flattened her ears and jumped from the front seat to the back and then to the front again" (Ryden 1975:110). Ryden observed this same coyote's interaction with another tourist's car, in which the coyote, anticipating food, snapped at a child's hand when the child reached out to pet the coyote. She concluded, "…it was only a matter of time before this brash animal would bite someone."

COYOTES IN LOS ANGELES – EARLY ACCOUNTS

While it is known that the coyote has tremendously expanded its range following the settlement of North America by European immigrants, some authorities consider the coyote to have been primarily an animal of the open plains or short-grass prairies prior to the 18th century (Young and Jackson 1951, Gipson 1978, Parker 1995). In terms of geologic time, Pleistocene-era fossil evidence shows a canid resembling the coyote to have occurred in Maryland (Gidley and Gazin 1938) and in New Brunswick (Stewart 1976). Specimens found in the La Brea tar pits, in what is now "downtown" Los Angeles, California, included coyote-like specimens, also dating from the Pleistocene or earlier (Stock 1929, Gill 1965). Unlike in eastern North America, where the coyote was not present at the time of European settlement, coyotes were found by the earliest European explorers to be present in southern California during the 1700s (Priestley 1937, Gill 1965). They were also well known in Native American lore; for example, the coyote played an important role in the creation myths and ceremonies of the Juaneños, a tribe of California Shoshonean Indians, as well as the Gabrielinos and the Serrano Indians, all of whom occupied portions of the Los Angeles basin and some surrounding areas (Gill 1965:24-27). Gill (1965:34-35) concludes, after examining these early European explorers' accounts, that coyotes were present in southern California in "fairly large numbers" during the mid-1700s. He further noted that the number of coyotes increased, once the Spaniards established themselves in California, due to an increase in the food base provided by the introduction of livestock during the Mission Period. As early as the 1780s and 1790s, the Spanish missionaries reported predation damage caused by coyotes, among other predators, to their herds (Engelhardt 1923).

While early explorers and settlers frequently mentioned coyotes, their writings gave only general indications as to the density or distribution of coyote populations. Lansford Hastings (1845:98) wrote of personal observations of three kinds of

"wolves" in California: "…black, gray, and the prairie wolves; the latter of which are very small, but they are much the most numerous and troublesome… In traveling through the valleys of this section, you will pass many hundreds of them during the day, which appear to evince no timidity, but with heads and tails down, in their natural crouching manner, they pass within a very few rods of you."

As the Los Angeles area's population, and agricultural enterprises, grew and expanded, the coyote developed an increasingly negative reputation as a pest animal. Further, pioneer attitudes tended toward those of conquering the wilderness and establishing civilization, with little tolerance for interference by native predators, which were controlled as necessary by use of guns, traps, and poisons. Writing in the mid-1800s, Hittell (1863:112-113) conveyed a common attitude of the time toward coyotes: "He is a great thief, and will steal the pillow from under a sleeping man's head; for it happens in California that bags of provision are often used as pillows… He is one of the worst enemies and most troublesome pests of the farmer."

THE GEOGRAPHY OF SOUTHERN CALIFORNIA

We suspect there are characteristics of southern California habitats that have caused human-coyote conflicts to develop in this locality earlier and to become more frequent than in other areas of the state or in other western states. Gill (1965) noted such geographical and landscape factors:

> *"Aside from the coyote's inherent ability to adapt to man's alteration of the landscape, possibly the most important reason it has been able to maintain such proximity to the urban human population of Los Angeles is because of the abrupt transition between urban environment and wild landscape in this city. A combination of rapid urban growth and restrictive physiography have created an urban situation in Los Angeles which is duplicated by few cities in North America. Most metropolitan areas have transition zones between their urban and suburban, suburban and rural, and rural and natural or wild areas. Not so Los Angeles. Abruptly bounded on the west and the south by the Pacific Ocean, and on the north and east by mountains, Los Angeles is an urban entity sharply abutted by a wild landscape, with little opportunity for an ecotone to develop between the two. Undeveloped areas are actually within the city itself, such as the Santa Monica Mountains, Hollywood Hills, and other smaller hill areas not as yet urbanized. These mountain and hill areas are covered by dense chaparral, providing a habitat for the coyote in Los Angeles."* (Gill 1965:45-46)

Additionally, California's Mediterranean climate is typified by a warm, dry period of approximately 7 months (mid-spring through mid-fall), where lush residential landscape vegetation is maintained by irrigation, in contrast to surrounding undeveloped dry areas of sparse vegetation or decadent chaparral. Many types of small mammals (e.g., rodents, rabbits) that are attractive prey for coyotes thrive in irrigated landscaping (Baker 1984), thus enticing coyotes into residential habitats where they then also encounter pet food, spilled feed from bird feeders, compost piles, and edible fruits and seeds of various landscape plants (Timm et al. 2007).

COYOTES PRESENCE IN URBAN / SUBURBAN HABITATS

Gill (1965) stated that coyotes were seen and sometimes removed from the center of Los Angeles as early as the 1930s. In 1937, a coyote was killed by an automobile while crossing one of the Los Angeles Central Business District's main streets (Anonymous 1937). The following year, a coyote was shot near downtown Inglewood while preying on poultry, an incident that was described as "the first depredation of its kind since pioneer days" (Anonymous 1938a).

In 1943, along the urbanized southern edge of the San Gabriel Mountains, many coyotes were seen preying on pets and poultry. Concerning these coyotes, it was reported "So bold had they grown as they trotted by school children in the early morning that parents became worried and began to demand their extermination" (Anonymous 1943). A pair of coyotes was trapped in April 1946 on Rancho Los Amigos near Downey, CA, 9 miles southeast of downtown Los Angeles, where they had recently killed 8 purebred sheep. This pair of coyotes was reportedly responsible for more than $1,500 in damage during the previous year. At the time, the habitat they were occupying was completely surrounded by paved streets residential and commercial properties (Young and Jackson 1951:173).

In 1950, animal control agents captured a coyote that, after being sighted and pursued, took shelter in a garage in West Los Angeles; this animal had previously been seen walking through a shopping district on Wilshire Boulevard, several miles to the west of the downtown area (Anonymous 1950).

Gill (1965:59-60) observed that such examples indicated the distribution of coyotes in the Los Angeles area was not restricted only to areas of favorable wildland habitat near the suburbs, but that coyotes were commonly frequenting highly urbanized and developed areas, and that pairs of coyotes had even established dens in areas of human residential developments. Froman (1961:109) summarized the suburban coyote's life in the Los Angeles area:

> *"Coyotes… do not restrict themselves to the outskirts of Los Angeles. Through the heart of the city– in the beds of creeks dry most of the year, on the sides of hills too steep for building, along the edges of the estates of movie stars and oil millionaires– they live lives of ease and luxury beyond the wildest dreams of their hardscrabbling ancestors."*

PREDATOR CONTROL PROGRAMS

Timm et al. (2004) speculated that reductions in formal or region-wide coyote control efforts may have contributed to the development of bold coyotes in urban and suburban environments. They noted that as southern California became more urbanized and less agricultural, the political and financial support for predator control programs waned.

Beginning in 1937, the Los Angeles County Board of Supervisors approved a $1 bounty for every coyote taken, at the behest of Police Superintendent Leland Ford. This program was in effect from November 1937 through June 1938, and was one of the first formal efforts to control coyotes in the Los Angeles area. This program was begun in response to the concern that coyote depredation was having an impact on the region's poultry, livestock, and wild game. More than 650 coyotes were taken during this 8-month period (Anonymous 1938b). Gill (1965:66) noted this was a large number of coyotes considering the small amount

paid, but the program was considered ineffective (Gill and Bonnett 1973:104). In 1942, the Board of Supervisors contracted with the U.S. Fish & Wildlife Service (USFWS) for the services of professional predator control agents to kill coyotes, bobcats, and mountain lions, in response to specific complaints. However, only one hunter was hired, with an annual budget of $1,800 (Anonymous 1942), which was deemed to be insufficient to deal with the growing predator problem (Gill 1965:79). Further, the USFWS agent handled complaints only within the county outside the Los Angeles city limits. In 1948, 77 coyotes were trapped or otherwise killed in the Los Angeles area in a 1-month period (Gill and Bonnett 1973:96). Approximately 500 coyotes and bobcats were taken in the Los Angeles area during 1955, with the large majority presumably being coyotes (Anonymous 1956). An inadequate level of control within Los Angeles County (1 government hunter) continued through the 1950s.

According to Gill (1965:80), by 1959 the inability of one USFWS hunter to respond to the increasing number of predator complaints in Los Angeles County was obvious; further, there was almost a total lack of predatory animal control within the City of Los Angeles, as no member of the city's Department of Animal Regulation was trained or experienced in predatory animal control, nor did employees of the various cities within Los Angeles County or county employees have authorization to trap coyotes or other predators (Hillinger 1960). So, from 1959 to 1961, the City of Los Angeles itself hired contract trappers to respond to coyote complaints within the city. A chief purpose in this arrangement was for the contract trappers to train selected animal control officers to be able to handle predatory animal complaints, once anticipated legislation that would authorize them to do so was enacted. These contract trappers took 73 coyotes during a 2-year period.

In November 1960, an epidemic of rabies occurred in skunks in the San Fernando Valley, the northern portion of the City of Los Angles. Within 9 months, 36 skunks had been found positive for rabies. Much concern developed that rabies might spread to other carnivores– coyotes, foxes, and bobcats (Mason 1963). Because of this concern, in January 1961 the Los Angeles City Council appropriated funds to hire additional contract trappers to control skunks and larger carnivores in the area of the epidemic. Concurrently, legislation was being finalized to allow the city's Department of Animal Regulation to establish an effective predatory animal control program.

This legislation provided that these contract trappers be replaced by full-time animal control officers who were employees of the City of Los Angeles and whose primary function was coyote control (Mason 1963). Through 1964, these animal control officers had taken a total of 85 coyotes from within the city limits, while USFWS trappers continued to respond to coyote complaints within Los Angeles County outside the city of Los Angeles, typically taking about 35 to 40 coyotes annually (Gill 1965:67). Gill noted that private individuals could and did engage in calling and shooting coyotes (or using archery, in locations where firearms were not permitted) in areas peripheral to the Los Angeles suburbs, such as in the Angeles National Forest, which is near urban areas. He reported information indicating at least 200 coyotes were taken annually by sportsmen in the foothills immediately adjacent to the Los Angeles basin (Gill 1965:68). Gill and Bonnett (1973:99) conservatively estimated that a total of at least 2,700 coyotes were taken in the Los Angeles area from 1961 to 1971.

During the first fiscal year of the program (July 1961 through June 1962), a total of 2,775 complaints concerning wild animals were received, mostly regarding coyotes. This resulted in setting of 957 traps and the capture of 39 coyotes, 22 fox, and 2 bobcats within city limits (Mason 1963).

In 1972, the City of Los Angeles changed its policy on the use of steel-jaw leghold traps: only offset-jaw, padded leghold traps and cage traps could be used. This policy was in effect until April 1992, when the City Council banned the use of all leghold traps (Boswell 2000). Cage traps and firearms were then the only methods used to take coyotes until June 28, 1993, when the newly-appointed Board of Commissioners of Animal Regulation, who were given authority over the Los Angeles Department of Animal Regulation, banned all taking of coyotes. This animal welfare-oriented political atmosphere remains in effect today. However, due to public complaints, very limited use of cage trapping was allowed after March 1994.

The extremely limited circumstances allowing the use of cage traps has, for the most part, halted the trapping of coyotes by Department employees in the City of Los Angeles (Boswell 2000). The response to most coyote complaints to the department is that a wildlife officer provides advice on preventing coyote conflicts, either over the phone or by mailing to the individual public education materials. Occasionally, Department wildlife officers investigate serious problems and provide on-site advice. In rare instances, they may use a hazing device, such as a paint ball gun, to scare a very brazen coyote off a patio, for example. Serious coyote public safety problems are referred to the California Department of Fish and Game, which may call USDA Wildlife Services personnel to remove the bold coyotes (Troy Boswell, City of Los Angeles, personal communication).

In the 1970s, Los Angeles County Agricultural Commissioner's Office initiated a coyote management program to protect livestock and poultry. The Commissioner's personnel developed the first serious urban coyote management program in 1981, following Kelly Keen's tragic death in Glendale. The initial response to this fatal coyote attack was to conduct 80 days of leghold trapping and shooting within a 0.5-mile (0.8-km) radius of the attack site, in a hilly suburban residential area. During this effort, county personnel trapped and shot 55 coyotes. The current program responds to specific coyote complaints within Los Angeles County outside the Los Angeles city limits, selectively removing bold urban coyotes in unincorporated areas and under contract with incorporated cities. Both the Collarum™ neck snare and several types of leg snares are the primary coyote removal tools used. This program continues to be very important to Los Angeles County in educating residents about methods to avoid urban coyote problems (Jim Hartman, Acting Deputy Ag. Commissioner; Bob Howell, retired Deputy Agriculture. Commissioner, Los Angeles, County, personal communication)

THE HUMAN ELEMENT IN COYOTE-HUMAN CONFLICTS

In this conference's plenary session, TWS Executive Director Michael Hutchins noted that our efforts in resolving human-wildlife conflicts are often complicated by people's "compassionate and sentimental views about animals" (personal communication). Also in the plenary session, Francine Madden noted, regarding our management efforts, "Wildlife is the easy part; it's humans that are difficult."

While we often assume that predator control activities and programs are more contentious and less acceptable today to the

urban populace than they were in years past, objections to such management activities were described by Gill (1965) as occurring in the Los Angeles area as early as the late 1950s and early 1960s. For example, in the late 1950s it was illegal to trap predatory animals with the City of Los Angeles (Los Angeles Municipal Code). The contract trappers employed by the City of Los Angeles in the 1959 were required to inspect each trap 3 times within a 24-hour period, including one nightly visit (Gill 1965:81). Additionally, trappers were requested to line the steel jaws of their foothold traps with rubber garden hose, to reduce any pain inflicted on the trapped coyote (Gill 1965:81). It was only after an outbreak of rabies in skunks in late 1960 that a new ordinance was passed, allowing Department of Animal Regulation officers to take coyotes and other problem mammals (Los Angeles Municipal Code). Even then, the new ordinance was passed over objections of "local conservation groups" (Gill 1965:82).

Gill (1965:85) noted that animal control officers' efforts to deal with coyote problems in suburbia were hampered in the following ways:

> *"1. Reluctance of complainants and neighbors to permit Animal Control Officers on their property to carry out control work.*
>
> *2. Disputes between neighbors; controversy over whether animals should be controlled or unmolested.*
>
> *3. Deliberate springing of traps by persons who think steel trapping is inhumane.*
>
> *4. Concern by complainant, and others, that pets may be caught in traps.*
>
> *5. Trapping of pet animals by accident, especially cats, which have no legal restriction on their movements."*

Over and above legitimate concerns about coyote control activities, there are those individuals in the public sector whose perceptions of reality, risk, and appropriate responses regarding coyote conflicts are sometimes much different than those of the rest of us. Froman (1961) describes such situations, related to him by professional predator hunters from their experiences in Southern California in the 1950s:

> In one episode, a complaint was called in by a housewife in Sherman Oaks, in the northwestern part of the Los Angeles basin. "*Every night, she said, coyotes congregated on her lawn. She was fearful for the very lives of her children. Somebody please do something quick*." Albert Traub, chief of predator control in Los Angeles County for the United States Fish & Wildlife Service, Branch of Predator Control, sent one of his hunters, Grant Birmingham, to investigate. Sure enough, Birmingham "found many coyote tracks around the edges of the lawn and in the flower bed, and it was clear the woman had not exaggerated her report."
>
> "He told her that he would be glad to try to trap the animals for her. 'Trap them!' she gasped in horror. 'You mean with steel traps?' He admitted that the traps were made of steel. 'Never!' she thundered. 'What a dreadful thing to suggest. Just imagine what steel traps would do to their poor legs. You get out of here right now and don't you ever dare come back.'" (Froman 1961:122)

And another memorable episode, again having to do with coyote management in suburbia:

> "*Indeed, Los Angeles being the mecca for eccentrics that it is, Traub thinks that he may have encountered some of the weirdest difficulties any civil servant has faced. It is his opinion that the only real threat the city's coyote population poses is the threat of a rabies outbreak, and one of his favorite stories concerns a local hearing at which he was asked to testify on this. In the midst of his testimony, a woman rose in the audience and lifted her bare right arm.*
>
> *'Bite me!' she declaimed with the passion of a Joan of Arc. 'Bite me and I'll prove there is no such thing as rabies. It's just an excuse for mistreating helpless animals.'"* (Froman 1961:122-123)

Unfortunately, the polarization of attitudes concerning problem coyote management efforts continues today. Inaccurate information, coupled with strongly-held positions on the part of some segments of the public, result in delays in management activities or inaction. Civic decision-makers and agency officials often find themselves caught in the cross-fire between citizens who demand action to reduce coyote threats to pets and children within their neighborhoods, and animal welfare or animal rights advocates who take it as their mission to oppose any lethal removal of coyotes.

The City of Glendale, CA, which at one time had one of the best municipal coyote management programs (Baker and Timm 1998:310), recently faced acrimonious public debate while attempting to fund a program of removal of problem coyotes. This newspaper account described what transpired during a City Council meeting following a decision to allocate funds for coyote removal:

> *"Parents of a Glendale girl who authorities say was killed in a 1981 coyote attack rushed to City Hall in the middle of a City Council meeting after they saw an animal rights activist on television protesting coyote trapping and questioning how their child died. Clutching her daughter's death certificate in her hand, a visibly upset Cathy Keen told council members Tuesday that she was there to counter animal rights activist Pamelyn Ferdin's suggestions that 3-year-old Kelly Lynn Keen died of some sort of blunt force trauma.*
>
> *"'I'm the mother of the child. My heart is pounding. I cannot believe someone can accuse my husband or me of child abuse,' said Keen, who is president of the child advocacy group Glendale Healthy Kids. Keen and her husband, Robert, had been watching cable access coverage of the Glendale City Council meeting when they heard their names mentioned during public comments by activists opposing city plans to trap and kill coyotes. 'I'm not here to discuss whether or not to trap coyotes, but when coyotes walk into your front yard, you have a problem,' Keen said. 'And I will not be accused of child abuse, and I think Glendale needs to be responsible for their children.'*

"Ferdin, a former child actress, said again Wednesday that she does not believe the girl died from a coyote attack. 'I stand by my beliefs that a coyote did not kill (the girl).' Another activist present at Tuesday's meeting, Maral Tejirian, said Wednesday: 'I felt bad for the mother for being upset about this and coming out.' In an interview Wednesday, Councilman Frank Quintero rebuked animal rights activists for the comments. 'Leaving aside the merits of trapping coyotes, what the activists said at the dais was cruel and absolutely uninformed,' Quintero said. 'Knowing the mother, it broke my heart that they would do that to her. When they were making the accusations, I was considering stopping them.'

"Tuesday night, Cathy Keen recounted her daughter's death in August 1981. Her death is generally considered to be the only documented U.S. case of a coyote killing a human. Kelly Lynn let herself out of the family's Chevy Chase Canyon home and encountered the coyote in their driveway, her mother said. 'The coyote dragged her across the street,' Keen said. 'My husband ran to her rescue and chased the coyote off. We drove as fast as we could to Glendale Adventist Hospital, ran red lights, did everything we could to save her life. She was in surgery for four hours, and she died from injuries because of the coyote attack. I have the death certificate in my hand.' The certificate listed the cause of the child's injuries as 'mauled by a coyote'" (Boghossian 2004).

CONCLUSIONS

Human-coyote conflicts, including attacks on humans beginning in the mid-1970s and continuing to the present, have developed to a more serious and widespread degree in Southern California than in any other region in North America. We suggest that the following may be important contributory factors in this region: the geography and climate of the Los Angeles basin; residential habitats rich in resources of food, water, and shelter; a reduction in efforts to control coyote populations, beginning in the 1950s; and changing human attitudes and behavior toward coyotes (particularly intentional feeding), leading to habituation. Some of these factors are also present in suburban environments of other cities, particularly in western North America. Many other suburban localities have experienced increased coyote attacks on pets in the past decade, and some have documented multiple incidents of coyote attacks on humans. Without better knowledge of the importance of the various factors that contribute to such coyote-human conflicts, it is difficult to predict whether the coyote problem will develop in these other localities to the extent it has in Southern California. However, it is noteworthy that coyote attacks on pets are apparently beginning or occur or increasing in frequency in a number of suburban areas throughout North America, and the incidence of coyote attacks on humans in the United States and Canada appears to have increased substantially within the past decade.

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