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A REVIEW OF SUCCESSFUL URBAN COYOTE MANAGEMENT PROGRAMS IMPLEMENTED TO PREVENT OR REDUCE ATTACKS ON HUMANS AND PETS IN SOUTHERN CALIFORNIA

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Abstract: Since the fatal coyote (*Canis latrans*) attack on a 3-year-old girl in Glendale, California in 1981, government agencies have emphasized developing coyote management programs to increase public safety. This presentation will focus on the success of numerous programs including: small neighborhoods, industrial sites, parks, large city and county-wide projects. Local environmental conditions attracting coyotes, specific problems caused by the coyotes, public reaction, and the role of public relations including public education emphasizing environmental management, will be discussed. Coyote population monitoring regarding behavior patterns, aversive conditioning, and coyote population reduction methods will be reviewed. Trapping remains the most effective tool in removing problem coyotes and re-instilling the fear of humans in most cases; however, calling and shooting by well trained personnel are also a very important tool and sometimes the only option. However, factors in the environment influenced by human behavior must be changed to prevent re-occurrences of urban coyote conflicts with humans and pets. Wildlife must always be considered to be wild, not cuddly friends!

Key words: coyote, coyote behavior, coyote human attacks, coyote pet attacks, human safety, urban coyote, wildlife/human safety

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INTRODUCTION

Prior to the tragic fatal coyote (*Canis latrans*) attack in August 1981 on a 3-year-old girl, Kelley Keen, in Glendale, California (Howell 1982, Baker and Timm 1998), coyote control programs in the United States were primarily implemented to protect livestock and poultry. The attack was also a warning to the public that coyotes do present a risk to human safety despite the constant denial of numerous animal rights groups. The social and political atmosphere in California urban areas leaned heavily towards protecting all wildlife; and pleas to protect pets and humans from coyotes had been resisted by most governmental

agencies despite seven reported human-injury attacks and numerous pet losses to coyotes in nearby communities of Los Angeles (LA) County over the four preceding years (Howell 1982). There had also been concern for over a decade about bold coyotes in yards, parks, streets, and other populated areas both day and night. Many residents even reported coyotes looking through sliding glass doors and windows at their pets, laying on patio chaise lounges, and chasing dogs through doggy doors, etc. (Howell 1982).

The tragic loss of a young child abruptly changed the balance of social and political attitudes, and a plan for coyote

management was developed despite protests and court action filed by animal rights and animal welfare groups against some agencies and the parents of the child (Robert Howell, Deputy Agricultural Commissioner, Los Angeles County retired; Richard Wightman, Deputy Agriculture Commissioner, Los Angeles County retired; and Capt. Michael S. Post, Glendale Police Dept., pers. comm.). The program evolved over several years by local and Los Angeles County agencies has served as a model for development of other urban coyote management programs.

THE FIRST SUCCESSFUL URBAN COYOTE PROGRAM

Glendale, Los Angeles County, 1981

Following the fatal coyote attack on the 3-year-old girl, an immediate evaluation of the attack site and surrounding suburban area was conducted by the Los Angeles County Agriculture Commissioner's office and Glendale Humane Society personnel, with input from the state Department of Fish and Game. This action was requested by the Glendale City Police Department and the County Board of Supervisors (Howell 1982). Coyote populations were found to be abnormally high. The diet was found to be high in anthropogenic items such as pet food, garbage, small pets, avocados and other fruit, vegetable gardens, and seeds and fruit from ornamental plants, as well as cottontail rabbits and small rodents (Howell 1982, Wirtz et al. 1982, Shargo 1988, Baker and Timm 1998). It is also important to note that a neighbor of the Keen family had been asked by the parents to stop feeding coyotes and other wildlife due to the increased coyote activity (Robert Howell, Deputy Ag. Commissioner retired, pers. comm.).

According to Howell, an immediate, large-scale public safety program, developed

by the County Agriculture Commissioner and the Glendale Police Department, was initiated utilizing all local news media regarding coyote hazards, hazing techniques, how to protect children and pets, and to inform the public that traps were going to be set for coyotes. The program also had a coyote complaint and information phone line to help calm the public and to gather information on other potential problem areas. An area with a radius of half a mile (0.8 km) from the attack site was defined as the specific target area. Padded, offset-jaw leghold traps were the primary method used; however, due to the extremely high coyote numbers and boldness of this population, shooting was also implemented in specific safe areas. Within 80 days, 55 coyotes had been trapped or shot within the target area (Howell 1982). The removal of these coyotes and the change of habitat brought about by the education program drastically reduced reports of pet attacks, and there was no report of further human injury in Glendale for over 20 years (Lt. Todd Stokes, Glendale Police Department, pers. Comm.)

Glendale Police Department assigned Captain Michael S. Post to coordinate this urban coyote management program in the city; he did so for nearly 20 years. The coyote hotline continued, following the initial control period, as did other forms of monitoring coyote behavior, and public education. These programs were locally operated by the police department, which advised citizens on human and pet safety, prevention of attractive habitats, hazing methods, and other essential information. Coyote activity monitoring remains an integral part the program. This program is now under the direction of Lieutenant Todd Stokes, who now refers people to coyote web sites but continues to monitor calls related to coyote activity. Suspected coyote problem activity areas are referred to the Agriculture Commissioner's

biologists, who further evaluate the area and provide residents with more public education and/or implement a trapping program targeting the specific problem coyotes in the immediate areas. The biologists and trappers continue to evaluate the programs effectiveness by monitoring the coyote population to prevent future problems.

According to Howell (1982), in addition to the Glendale program, a long-range plan to help protect the public from future attacks or damage from coyotes was initiated by the Los Angeles County Board of Supervisors, as the Agriculture Commissioner was directed to implement education and assist other city animal control agencies and unincorporated areas in the county with the management of coyotes. Current budgetary constraints make it necessary for incorporated cities and home owner associations (HOAs) to now contract with the commissioner or with private Nuisance Wildlife Control Operators (NWCOs) for these services (Jim Hartman, Acting Deputy Agriculture Commissioner, pers. comm.). The commissioner's program continues to be very effective in educating the public on coyote issues and has active coyote management programs in numerous communities within Los Angeles County. However, some communities wait until the coyotes are too habituated to the urban habitat to easily change behavior by hazing or removal of one or two coyotes. In these situations, a larger number of coyotes may need to be removed in order to stop or prevent human injury. Some communities, including Calabasas (Conrad Burton, Los Angeles Agriculture Commissioner Office, pers. comm.) Hidden Hills (Troy Spillman, Wildlife Management Professionals, personal communication), and Diamond Bar (William Taber, Inland Valley Humane Society, pers. comm.), have continued to educate the public and monitor coyote

behavior change. They also contract with the Los Angeles County Agricultural Commissioner or private NWCOs to investigate, and when necessary, trap and euthanize coyotes in specific target areas to prevent them from becoming bold enough to cause human injury. An increase in pet losses or coyotes approaching humans is most often what initiates calls to the person monitoring coyote activity. These communities have not had reports of human injury by coyotes, and they report that pet losses are significantly lower than prior to program initiation. A more recent, proactive task the Los Angeles Agriculture Commissioner initiated in 2004 was the formation of the "Urban Wildlife Management Association," which serves to pool resources from numerous other agencies and wildlife management stakeholders, including universities and private industry that have an interest in "Safely Managing the Los Angeles County Biodiversity". This forum has been used to discuss many human/wildlife conflict issues, and it has improved communication between participants on numerous sensitive issues regarding the need for wildlife management in urban settings.

OTHER SUCCESSFUL PROGRAMS

A portion of this discussion will relate program initiation, effort, and success to observed changes in coyote behavior that indicate an increasing risk to human safety (see Timm et al. 2004). These stages of behavioral change are often predictable and occur in this sequence:

1. An increase in observing coyotes on streets and in yards at night.
2. An increase in coyotes approaching adults and/or taking pets at night.
3. Early morning and late afternoon daylight observance of coyotes on streets and in parks and yards.

4. Daylight observance of coyotes chasing or taking pets.

5. Coyotes attacking and taking pets on leash or in close proximity to their owners; coyotes chasing joggers, bicyclists, and other adults.

6. Coyotes seen in and around children's play areas, school grounds, and parks in mid-day.

7. Coyotes acting aggressively toward adults during mid-day.

Generally, the earlier in the sequence the coyote management program is initiated, the lower the amount of resources needed and the higher the chances of success in preventing attacks on humans.

Griffith Park, City of Los Angeles, July 1995

Rangers noted in early summer 1994, four months prior to the first human injury attack, coyotes frequently being seen during early and late daylight hours in Griffith Park. Coyotes were also often seen chasing or carrying cats (*Felis catus*) and rabbits (*Sylvilagus* spp.) in turf and picnic areas. Remains of cats, skunks and rabbits were commonly found in these public use areas. This stage 3 and 4 coyote activity should have been noted as a precursor to increased bold coyote activity. By late summer, visitors began reporting coyotes begging for food, followed by people retreating to cars or areas away from their picnic meals while bold coyotes fed on what was left. In October 1994, an adult male was bitten on the leg or foot. In the following spring and summer days (noon to 5 pm), five adults were attacked and injured, and a 15-month-old girl was attacked and carried from a car seat on a picnic table for some distance before her mother was able to beat off the coyote and rescue the child (Baker and Timm 1998; Capt. Hector Hernandez, Griffith Park Head Ranger, pers. comm.). The child had been partially protected by a

heavy jump suit but still suffered numerous puncture wounds to the thigh.

The first step in developing an urban coyote program is a site inspection and evaluation. This was done by the author, who was brought in as a consultant to the Los Angeles City Park Rangers and the City Council, who were alarmed by a coyote attacking a child. Human food scraps were found in numerous trash cans and around bulk dumpsters, which had large holes in the bottom and sides. Scat found on trails near two specific attack locations within the park contained food wrapping material, chicken bones, and skunk and cat hair. Bedding areas used by coyotes were littered with the same items, as well as with rabbit and cat remains (Baker and Timm 1998). Attractive habitat conditions noted included heavy bush and landscaping around grassy picnic and play areas, plentiful human food, feral cats, rabbits, and unwary humans.

As the second step, the city was advised to post coyote danger warning signs and to provide handout information to all persons entering the park, asking them to report coyote sightings to rangers, who were to aggressively haze the coyotes near public use areas whenever patrons were in the park. However, this coyote population had been hazed using noise devices since the first bite incident, with little apparent change in coyote behavior.

The third step in the program was to hire a team of trained sharpshooters, due to the immediate threat to public safety, to remove coyotes in specific target areas until acceptable coyote behavior was observed, and to remove the animal that attacked the child. The fourth step was habitat improvement, addressing thinning and skirt removal of shrubs, covering trash cans, replacing damaged dumpsters, enforcement of the wildlife feeding ban, public education, discouraging feral cat feeding, and documentation of coyote activity. The

habitat modification was not to be initiated until after the direct control of coyotes was accomplished, in order to avoid an increase in bold coyote behavior and/or a change in coyote activity patterns.

Calling and shooting was initiated in two specific target areas after park closing. Five alpha adults and three young adults were removed during two nights in July, within three days of the attack on the young child. The last coyote taken was an adult female whose canine teeth measurement and condition (a blunt, broken upper canine tooth) closely matched the bite wound pattern on the child. Since removal of these two family units, there have been no further attacks or bold-acting coyote problems, even though many coyotes populate the adjacent wildland area of the 4,000-acre park. Coyotes seen were very wary of humans for over 10 years. Recent personal communication with park ranger Doug Kilpatrick (February 2007) indicates that many of the coyote warning signs are now gone, public education is more limited, and habitat modification efforts implemented following the attacks have decreased, resulting in increased daytime coyote sightings.

North West Laguna Nigel Area, Orange County, September 1991

One adult male, while walking the pet near his home, was chased by a coyote and had his poodle taken out of his arms and off of the leash. The poodle was killed, and the man was shaken up but not bitten (Baker and Timm 1998, Timm et al. 2004). Coyote activity in the area was observed to have been at stage 4 prior to the attack, and a trapping program and public education started immediately after this stage 5 incident. Attractive habitat conditions noted included heavy landscape and adjacent brushy canyons, available garbage on two trash days per week, loose house cats,

rabbits feeding on turf, ornamental fruit (*Ficus nitida*), and routine walking of small dogs.

Padded leghold traps were set in nearby active trials in the adjacent canyon. Two coyotes were trapped within 100 yards of the attack site in two nights, and no more coyote sign or sightings were seen for the balance of the 10-day trap period. There was no re-occurrence of bold coyote activity or daytime sightings. Pet losses in the whole area subsided for one year, and there were only incidental cat losses for at least 6 or 7 years.

Southeast Laguna Nigel, Orange County, June 1995

Two adult males were bitten on the feet and ankle areas, one at night and one in mid-morning. Just prior to these bite incidents, six adults and several children were chased away from a chicken dinner at their patio table by a coyote that refused to leave until it had eaten its fill and then took the rest of the chicken with it. The coyote acted very aggressive towards anyone trying to scare it away (Baker and Timm 1998, Timm et al. 2004).

Attractive habitat conditions noted included heavy landscaped areas (slopes) only several blocks from native brush, pet food in yards, small dogs and cats, garbage out for trash collection, and rabbits and numerous small native and commensal rodents in the landscaping. Stage 3 and 4 coyote activity was noted for several months before this stage 7 activity. Both public and local governmental agencies reacted with public news releases, and HOAs sent out flyers on coyote safety and prevention of attacks, while notifying residents that trapping was to be initiated. A site survey revealed trails behind most residences. However, the only coyote bedding areas and dens were found in landscaping on one hillside about two blocks south of the bite

attack sites and in an undeveloped 10-acre hillside and a 50-acre park about a quarter-mile north of the bite sites, but within 50 yards of where the dinner party had been interrupted. Leghold traps were placed in trails leading from both areas, but not near the park due to the numerous walking trails. Traps were placed where trapped animals would most likely not be seen by the public. It appeared that two family coyote units were involved. Seven coyotes were trapped and euthanized. There were no reports of human attacks or incidents for the following 7 years; coyotes were occasionally sighted at night, but they were very wary of humans.

Forster Ranch Area, San Clemente, Orange County, May 1992

A 5-year-old girl was bitten on her back while climbing a ladder on her swing set, trying to get away from a coyote that had jumped the rear wall of her yard from a heavily landscaped bank (Baker and Timm 1998). The child's mother heard her screams and chased the coyote away with a garden implement. The public and governmental agencies and the HOA reacted quickly with safety and coyote prevention information. According to San Clemente Animal Control Administrator Gene Begnell, there had been about a month of reported dog and cat attacks (8 in all), and coyotes were regularly seen day and night on the streets and in yards. There was stage 3, 4, and 6 coyote activity reported prior to the attack. A licensed childcare facility had reported having a coyote in the rear yard play area every morning about 7:30 to 8:30. The coyote stalked the play area and laid in wait for some time before leaving. This activity was observed by the author and a NWCO employee. Attractive habitat conditions noted included heavily landscaped overgrown common area slopes, pet food, garbage, small pets, pet water, numerous landscape fruits, and rabbits and

rodents around lawn and garden areas. Leghold traps were placed on several active trails in protected landscape areas and on several trails in adjacent brushy and grass land areas, trapping five coyotes. Two coyotes were shot at night in an area heavily used by dog walkers in early morning, where traps could not be set. Following the program, coyotes were no longer seen in daylight hours, and when seen at night they shied away from humans. This development is surrounded on two sides by thousands of acres of native brush and grasslands and is in a canyon where two large drainage areas join from the mountains to the east. There is an abundant coyote population in this area, which has been closed to hunting for years.

Forster Ranch Area, San Clemente, Orange County, October 2001

Nine years after the first bite incident, several children were bitten by one coyote on a school playground. Wildlife Services shot two coyotes (Timm et al. 2004; Terry Cox, USDA, Wildlife Services, pers. comm.)

Forster Ranch Area, San Clemente, Orange County, August 2005

A 4-year-old boy was bitten on the shoulder while in a park in Forster Ranch. Wildlife Services shot one coyote (Terry Cox, USDA, Wildlife Services, pers. comm., Swegles 2005)

South San Clemente, Orange County, March 1997

A 2-year-old girl was being boldly stalked by a coyote, while with her father and another man working in the back yard. The father noticed the coyote in a "freeze mode" a few feet away, locked onto the child as a prey item. The coyote was crouched for attack when the father grabbed the child and began shouting and slowly backing away and into the house. The

coyote slowly crept closer until the other man hit it several times with a 2×4 to break off the attack mode, and the coyote slowly moved a short distance away (Baker and Timm 1998). Fortunately, the child did not move before her father grabbed her, as the coyote would most likely have attacked, since movement of prey is often the key stimulus for attack (Lehner 1976).

The coyote returned at the same time every morning, coming all the way up to the same sliding glass door the father and child retreated. The coyote would then lay in wait behind low shrubs within 10 feet of where the child had been. This behavior continued until the coyote was trapped in the yard. Attractive habitat conditions noted included adjacent heavy brush, a compost pile, a vegetable garden in the back yard, and a heavily-fruited *Ficus nitida* tree in the front yard, neighbors' pet food, house cats, rabbits and rodents, and a neighbor's coy pond, all of which appeared to be sources of food and water.

Observed coyote activity that was reported to the HOA and San Clemente Animal Regulation covered stages 1 through 5 prior to this incident. Two coyotes were leghold-trapped in the yard, an adult male and female, and another two were trapped within 200 yards, on canyon trails entering the neighboring streets. Three others were taken about one mile away, where a coyote had been frequenting a rear yard in the daytime, frightening the resident. One week into the 10-day trapping project, all signs of coyote tracks on trails leading into the HOA from the south and east canyons stopped. The HOA began a heavy skirt pruning project and continued distributing instructions in newsletters to residents regarding how to avoid attracting coyotes and other wildlife. As of November 2001, there had been no more human/coyote encounters or heavy pet losses reported in this immediate area.

San Juan Capistrano, Orange County, January 1997

Eleven adult employees were attacked or harassed in the employee parking lot and on sidewalks of the Nichols Corning Institute, a 100-acre facility. This facility was surrounded by native chaparral to within about 20 yards of some buildings, and many native plants were planted in the landscaped areas to maintain a natural environment theme. There was also a large pond surrounded by lawn areas, giving a serene meadow look. For years, coyotes were only observed from a great distance occasionally, but for about two years prior to 1996, observed behavior advanced to stage 1. In summer 1996, about 9 months prior to the attacks, it increased to stages 2 and 3. By late fall 1996, stage 4 activity was noted, as coyotes were observed chasing rabbits and raccoons (*Procyon lotor*), and coyotes were also observed begging food from employees at lunch time. Some employees were reportedly observed feeding the noon-time beggars. By December, the author was contacted by the health and safety officer to ask about the behavior and what they could do to change it. They were advised to inform employees of the dangers of coyotes that had lost fear of man, and they were given advice on hazing methods, as Institute management did not want to harm the coyotes. Guards and shuttle drivers began to harass the coyotes with horns and chasing. In late December, coyotes began entering the employee patio at noon when it was crowded, sending everyone back into the buildings. Employees were told not to take food outside or to put food items in outside trash cans. Outside trash cans were removed or tightly covered.

Employee reaction varied greatly among the 1,000 employees. Some were scared to go outside for lunch, while a few nature lovers liked to get close to and feed

or watch the intruders. When word spread that some coyotes might be trapped in order to re-instill fear of man into the bold ones, People for the Ethical Treatment of Animals (PETA) and other animal rights groups contacted Institute management with threatening letters from their national headquarters, warning Nichols Corning not to harm the coyotes. In early January, coyote behavior increased to stage 7, when a total of five female and two male employees were attacked and another four were stalked and chased by very aggressive coyotes but avoided physical contact. Coyotes were primarily attacking people and taking purses, lunch pails, and bags, most likely looking for food that they had been getting from begging and out of trash cans. One woman was bit twice on the ankle and pulled to the ground while she and another woman beat the coyote off and began yelling for help. She retreated to her car and went to the hospital, and subsequently began rabies treatment. One man was bitten on the shoe, and another man wearing a backpack was jumped on from behind. Most purses and other items taken by coyotes did not have any food in them. Attractive habitat conditions noted at the location included human food scraps from trash and some handouts, rabbits, raccoons, skunks, coy fish, and water.

Shooting was recommended, as coyotes were coming from two fenced private properties. It was reported to management by the woman taking the rabies treatment that PETA would no longer interfere: it seems a coyote bit a PETA contact, who quickly had to face the reality of the hazard of feeding coyotes. The shooting was done at night when fewer employees were on site, and in two specific safe zones. Calling to these areas and shooting produced two adult coyotes the first night. A break of several days was taken to see if these were the only bold

animals, but control was resumed after two more men were attacked. Three more coyotes were taken in one night. Sign was then read on coyote trails, and shooting was ceased and no traps were placed, due to lack of coyote activity.

All employees attended a mandatory wildlife safety class, and a brochure on wildlife was published by the employer. Plantings were thinned and a lot of brush cleared, and trash tightly secured. According to the Health and Safety Officer, Bill Maxfield (pers. comm., February 2007), there has been no signs of bold coyotes day or night for over 10 years.

Arcadia, Los Angeles County, November 2004

The city of Arcadia only had occasional use of a coyote management program, when coyotes were reported spooking race horses at Santa Anita Race Track or patrons at the Los Angeles Arboretum. However, after November 2004, when a woman received a bite on her leg while standing next to her dog, they began a year-round program. They now closely monitor all calls and contract with a NWCO or the Los Angeles County Agriculture Commissioner for investigation and direct coyote control, whenever they get pet attack calls (Linda Garcia, City of Arcadia, pers. comm.). The city had been getting complaint calls of observed coyote behavior changes encompassing stages 1 to 5 before the 2004 attack, but now they only get reports of stage 1 or 2 behavior.

AVERSIVE CONDITIONING AND COYOTE POPULATION REDUCTION METHODS

In observed coyote behavior at stages 1 and 2, a fair level of success was often obtained by use of various hazing or aversive conditioning methods, when practiced consistently every time coyotes

were observed in close proximity to humans. The effect could last for several months or even years. However, in stages 3 and beyond, any changes in coyote behavior due to hazing was usually temporary, only lasting a few weeks or months (depending on the methods used), unless one or more coyotes was trapped or shot. Trapping and removal of several coyotes was most effective at re-instilling the fear of man into the balance of the coyote population. The following hazing and aversive conditioning methods have been found to be at least partially effective:

Human behavior: Yelling, waving arms, and act threatening towards coyotes in populated areas. However, be safe and never corner a coyote or approach one with young nearby.

Sound devices: Firing starter pistols or .22 caliber blanks, air horns, banging pans, fire crackers, whistles, or playing loud radios (news or talk shows).

Motion activated devices: Spotlights, strobe lights, motion-activated water sprinklers (Scare Crow™), are most effective when sound is also incorporated with these methods.

Projectiles: Throwing or using a slingshot to lob rocks, golf balls, or marbles at coyotes.

Non-lethal firearms (shooting to scare): Paintball guns, BB guns, and pellet rifles seem to be used most effectively; however, local and state laws often restrict some of these uses.

Trapping: Capture with leghold traps and subsequent release, as a method to re-instill fear of humans into problem coyotes, has been attempted, but it only seems to develop trap-wise (trap-shy) animals. However, when leghold traps are used to take and euthanize the animal, it works well to extinguish bold behaviors within the population, especially if the alpha male and/or female are taken. Originally,

steel-jawed traps padded with several layers of burlap were used, and later rubber-padded Soft Catch™ traps were employed. However, a trap ban passed in California in November 1998 allows only padded leghold traps to be used when officially authorized to resolve a threat to human safety by coyotes. There are several effective leg snares, as well as the Collarum™ neck snare, that have been proven to be useful in urban settings; however, they are more labor-intensive and can't be as easily placed as the Soft Catch™ trap. Like the offset and Soft Catch™ leghold traps, they allow the release of nontarget animals. Leg or foot injuries have never been much of a problem, in my experience, due to use of a short chain, double swivels, and shock springs. The Soft Catch™ trap is the most humane leghold trap, especially for nontarget animals. The Collarum™ does seem to further reduce the chance of injury over leg snares, but is only designed to be used in a cubby set so the target animal can only reach the baited trigger from the front.

Target animals are often euthanized by shooting them in the brain area with a .22 caliber short or CB cartridge, or they are put down with other methods recommended by the American Veterinarian Medical Association. When traps are used in urban areas, they are checked twice daily. Traps have proved to be more effective than shooting at putting the fear of man back into coyote populations.

DISCUSSION

Reducing the risk of future coyote attacks on humans and pets is possible. It is a responsibility those in charge of public safety, wildlife management, animal regulation, and park management must take seriously in urban, suburban, and rural areas. The methods have been well tested and proven over the last 25 years, and they are listed here in order of importance:

Programs to Prevent Coyotes from Losing Fear of Humans

1. Public education to inform citizens about wildlife, what habitat components attract animals, and effective hazing methods.
2. Development of statutes to prohibit feeding wildlife and regulate refuse handling.
3. Develop coyote behavior monitoring regarding daytime activity, boldness to humans, pet losses, and human conflicts.
4. Initiate coyote population reduction when needed.

Programs for Existing Bold Coyote Problems

1. Public education to warn about safety for humans and pets.
2. Initiate monitoring of coyote behavior to pinpoint and evaluate potential problems and specific target areas.
3. If necessary, and when feasible, start trapping or shooting in specific target areas.
4. Continue to monitor behavior, as trapping of one or two coyotes may re-introduce fear into the target coyote family group.
5. Public education to eliminate components of attractive habitats, such as food, water, shelter, and friendly humans.

The following statement is, in my opinion, still accurate: *“Once coyotes have begun acting boldly or aggressively around humans, it is unlikely that any attempts at hazing can be applied with sufficient consistency or intensity to reverse the coyote habituation. In these circumstances, removal of the offending animals is probably the only effective strategy”* (Timm et al. 2004). Public education is the key to getting citizens to have a good understanding of the problem and its causes, so that effective urban coyote management programs can be

implemented with enough public support to reduce future attacks on humans and pets.

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LITERATURE CITED

- BAKER, R.O., AND R.M. TIMM. 1998. Management of conflicts between urban coyotes and humans in southern California. Proceedings of the Vertebrate Pest Conference 18:103-111.
- HOWELL, R.G. 1982. The urban coyote problem in Los Angeles County. Proceedings of the Vertebrate Pest Conference 10:20-23.
- LEHNER, P.N. 1976. Coyote behavior: implications for management. Wildlife Society Bulletin 4:120-126.
- SHARGO, E.S. 1988. Home range, movement, and activity patterns of coyotes (*Canis latrans*) in Los Angeles suburbs. Ph.D. Dissertation, University of California, Los Angeles, CA. 76 pp.
- SWEGLES, F. 2005. Coyote shot in aftermath of bite incident. Orange County Register, San Clemente, CA, August 30, 2005.
- TIMM, R.M., R.O. BAKER, J.R. BENNETT, AND C.C. COOLAHAN. 2004. Coyote attacks: an increasing suburban problem. Transactions of the North American Wildlife and Natural Resources Conference 69:67-88.

WIRTZ, W.O., M.A. KELLER, AND W.G.
MEIKLE. 1982. Urban coyotes in
southern California: a progress report.
62nd Annual Meeting, American Society
Mammalogy. Snowbird, UT. 13 pp.