

MANAGEMENT OF URBAN COYOTES AND ATTACKS IN GREEN VALLEY, PIMA COUNTY, ARIZONA

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Abstract: Coyote (*Canis latrans*) attacks on humans, once thought to be rare, have increased in frequency over the past decade. In Arizona, the number of wildlife human encounters has increased as our urban environments have expanded into the coyote's natural environment. Coyotes have learned to utilize drip irrigation, pet food, household refuse, and pets as prey. The problem of potential coyote attacks is magnified when people intentionally feed coyotes. In some situations, coyotes have begun to act aggressively toward humans, chasing joggers/walkers, confronting people walking their dogs, and stalking small children. People who live in areas where coyotes are present need to understand the potential hazard that these animals pose to their safety. To effectively manage coyotes in an urban environment, a variety of control methods must be implemented since no single method is effective in every situation. In 2006, the State of Arizona passed a new law that makes it illegal to feed wild animals (except birds and tree squirrels) in Pima and Maricopa Counties to help alleviate issues with wildlife. Unfortunately, the word has not gotten out, and people continue to feed wildlife. The Arizona Game and Fish Department had not reported any bites in the Tucson, Arizona area during the past 3 years, but this streak ended in November 2006 when a coyote or coyotes attacked and injured 8 people in Green Valley, Arizona, during a 13-day period. WS Wildlife Specialists removed 7 coyotes from the area, and the coyote attacks on humans ceased. This paper reviews urban coyote issues in Arizona and describes the numerous bite cases in Green Valley.

Key words: Arizona, *Canis latrans*, coyote attacks, coyotes, human safety, predator control, urban wildlife, wildlife human encounters, wildlife management,

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INTRODUCTION

In Arizona, the frequency of interactions between humans and coyotes (*Canis latrans*) has increased as human populations have grown and expanded into the once undisturbed environment. In their natural environment, coyotes try to avoid humans if possible. The lack of human harassment in the urban environment, coupled with an abundance of resources, encourages

coyotes to associate food with humans and to lose their "normal" wariness of people (Timm et al. 2004). In many such situations, coyotes act aggressively toward humans, chasing joggers/walkers, confronting people walking their dogs, entering fenced back yards and stalking small children. People who live in areas where coyotes are present often do not understand the potential hazard that these animals pose to their safety.

Coyotes are omnivorous and opportunistic predators that feed on a variety of small mammals, birds, reptiles, fruits, plant material, and carrion. However, in urban environments coyotes adopt a varied human-related diet consisting of such items as discarded food, pet food, pets, and landscape fruit (McClure et al. 1995). Coyotes inhabiting more natural environments are drawn into urban areas that support an abundance of available resources needed for survival (Timm et al. 2004). Problems increase if people intentionally feed coyotes.

In the State of Arizona, Statute 13-2927 (Arizona Revised Statutes 2007) prohibits feeding wild animals except birds and tree squirrels in Pima and Maricopa Counties. The law was passed in 2006 to help alleviate conflicts with wildlife. The Arizona Game and Fish Department (AZGFD) also actively discourages residents from feeding wildlife and provides various educational brochures (AZGFD 2004, 2007) and presentations on "Living with Urban Wildlife". Despite the ban on feeding wildlife and the educational campaign, people continue to feed wildlife, and the threat coyotes pose to human health and safety increases.

From 1997 to mid-2000, AZGFD reported 11 coyote human health and safety incidents in Arizona (K. Bergsen, pers. comm.). From mid-2000 to the present, the United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (WS) program has documented 54 human health and safety incidents involving coyotes in Arizona. An incident occurs when one or more coyotes pose a physical threat or make contact with a child or adult. Because no single agency maintains data on all incidents, we do not have data on all attacks that have occurred in Arizona. In this paper, we document and describe coyote attacks on 8 people in Green Valley, Arizona that occurred over a 13-day

period in November 2006. This case study provides details surrounding each bite, the management response, and the techniques used to resolve the incident.

GREEN VALLEY, PIMA COUNTY, ARIZONA – CASE STUDY

The following is a description of events that occurred from November 1 to November 17, 2006, which led to the removal of 7 coyotes that were suspected of being involved in attacking of eight residents of Green Valley, Arizona.

Green Valley is a retirement community with a population of 17,283 residents located 32 km south of Tucson at an elevation of 884 m in the Sonoran Desert, which consists of low-lying, flat valley floors. Temperatures average 80°F during the daytime and 50° at night, and precipitation averages 10.8 inches (27.6 cm) per year. The area is dominated by creosote bush or a mixture of creosote bush and bur sages. The area is surrounded by copper mines and is near hiking and birding areas of the Santa Rita Mountains. The incidents occurred in a retirement community near the Canoa Hills and San Ignacio golf clubs on the south side of Green Valley, Arizona (See Tabel 1).

Chronology of Events

On November 1 at approximately 6:30 pm, the first incident occurred as the victim was visiting some friends at their house. As they were in the back yard of the house, they observed something jump up on the back wall. The owner of the home stood up to observe the animal jump off the wall and walk toward the victim. At that time, the victim asked the owners if they had a dog and indicated to them that something was biting him. Instantly, the owners recognized the animal as a coyote, and stood up and began yelling. The coyote immediately left the yard, but as the people

walked into the house, they observed the coyote jumping back over the wall in a different location to again enter the yard. Again, they yelled at the coyote and threw rocks at it until it left the yard. Then they entered the home and turned on the outside lights. Once again, they saw the coyote jump back over the wall and enter the yard for a third time. They harassed it again and

it left the yard. The residents indicated that the coyote was aggressive and seemed to be hesitant to leave the yard. It appeared to be a healthy adult coyote. The residents also noted that there was no food and no pets in the back yard. The victim received medical attention for his wounds and left town the following day. He later reported that he received the rabies post-exposure treatment.

Table 1. Coyote attacks in Green Valley, Arizona, Pima County, November 2006.

Date	Victim's Sex/Age	Time of Incident	Details
11/1/2006	M/?	1830	Bit in friend's backyard while visiting.
11/3/2006	F/58	1730	Bit in friend's backyard while visiting.
11/4/2006	M/85	1730	Bit in backyard while preparing to bar-b-que.
11/5/2006	M/?	1800	Bit in their backyard while visiting friends.
11/12/2006	F/77	2000	Bit in friend's backyard as she stepped out for a cigarette.
11/13/2006	M/64	0005	Bit on back patio as he stepped out for a cigarette.
11/13/2006	F/66	1800	Bit in their backyard while visiting friends.
11/13/2006	F/69	1810	Bit in their backyard while visiting with husband.

On November 2, an AZGFD Wildlife Manager investigated the incident and took statements from the victim and the owners of the residence where the attack took place. Upon completion of his investigation, the Wildlife Manager provided the residents of the neighborhood with some educational material regarding coyotes.

On November 3, at approximately 5:30 pm, a second attack occurred in the same neighborhood. The victim reported that while he was visiting a neighbor's house, a coyote jumped over a 6-foot wall and immediately ran up to her and bit her on

the back of her leg. At this time, the individuals present began yelling. The victim reported that the coyote did not seem scared, and that they had to work hard to encourage it to go away. The victim stated that her husband even used a chair to try and scare the coyote away. They said that the coyote appeared to be healthy. The victim was transported to a local hospital and began the rabies post-exposure treatment.

On November 4, at approximately 5:30 pm, a third attack occurred about two blocks from the second incident. The victim reported that he walked into his backyard and placed some meat on the side of his

barbeque grill. He then walked over to a small solar yard light, and as he knelt down to adjust it, he felt something grab onto his calf. He began yelling at his wife, thinking that she was playing a joke on him. When he turned around, he saw that it was a coyote. He began shouting, and his wife ran to the door and also yelled at the animal. They continued to harass the coyote, but it did not leave the yard and did not appear to be afraid of them. They reported that the coyote finally jumped the 3-foot wall and left the area. The victim was taken to a local hospital and began the rabies post-exposure treatment.

At approximately 7:00 pm, the AZGFD Wildlife Manager was contacted by the AZGFD radio dispatcher regarding the third incident. At this time, the Wildlife Manager was also informed of the second bite that had occurred on November 3. The second incident had been reported to Pima County Animal Control but had not been relayed to AZGFD. The Wildlife Manager contacted his supervisor and was told to contact WS to assist in the removal of the offending coyotes.

On the night of November 4 at 8:00 pm, AZGFD contacted WS for assistance in removing the coyote that had bitten 3 people. WS was on site within 2 hours and met with AZGFD to discuss the situation and set up a game plan. WS informed AZGFD that WS would be utilizing spotlighting and firearms to remove any coyotes observed. WS thoroughly searched the area but was unable to locate any coyotes until the following morning.

On the morning of November 5, WS removed one male coyote from a big wash, south of where the incidents had occurred. The coyote was given to AZGFD, and the head was submitted to the Arizona Department of Health Services for rabies testing.

While WS was searching the area, 2 women who were out walking gave the WS Specialist information about a resident who was feeding coyotes in the area. WS notified AZGFD and inspected the location near the residence and found old meat bones and bird feeders strewn about. At approximately 9:00 am, AZGFD attempted to contact the resident who appeared to be feeding wildlife behind his home. The resident was not home at that time. Later in the afternoon, AZGFD returned and contacted the resident, but he did not admit to leaving out meat scraps. AZGFD informed him that they suspected him of leaving food scraps out for wildlife, and gave the suspect a copy of the "Unlawful Feeding of Wildlife" statute, advising him that feeding any wildlife except birds and squirrels was illegal.

At 9:15 am, WS and AZGFD briefly searched the San Ignacio Golf Course for a coyote that residents reported seeing frequently. During the search, a golf course employee informed WS and AZGFD about a coyote that had just been seen on the 18th green. WS responded immediately, but the coyote was not present. While conducting the search, AZGFD and WS were contacted by a resident who had averted a coyote's attack on his wife in their yard only 15 or 20 minutes earlier. She had taken their large cat out into the back yard, when a coyote that apparently was hiding in the bushes inside their fence, rushed out, seemingly after the cat. When the wife screamed and ran, the husband rushed out of the house and began yelling at the coyote. The husband then stated that he watched the coyote chase his wife as she was running away. He began yelling and was able to chase the coyote out of the yard. The coyote jumped their 3-foot wall and ran onto the golf course green and lay down. He reported that the coyote appeared to be healthy and showed no signs of fear towards humans. Additional reports

came in confirming that a bold coyote was frequently seen sitting or lying in the middle of the 18th fairway and barking at the golfers as they "played through." Such sightings had been reported for several weeks and maybe even for a couple of months. The 18th fairway is located in the middle of the two neighborhoods where the bites had occurred. Interestingly, golfers or residents did not express any concern about this strange and unusual activity and did not report it to the authorities.

Throughout the remainder of the day (November 5), WS continued to monitor the area for coyote activity. At approximately 6:00 pm, WS was notified by a resident that a coyote had just bitten a person. At the same time, AZGFD was patrolling the neighborhood and heard some fire trucks traveling in the area. AZGFD followed them into a neighborhood and contacted an Emergency Medical Technician at the scene, who verified that it was another coyote bite. WS searched the area but did not find any coyotes. This fourth victim reported that he, his wife, and two neighbors were sitting on their back patio when they saw a coyote jump their wall. The coyote immediately ran over to him and bit him in the left hip, as he sat in a chair. They reported that they immediately started yelling at the coyote, and it jumped over their 3-foot wall. They also reported that the coyote looked healthy and did not appear to be afraid of them. The victim declined medical care from the Fire Department Emergency Medical Technician. The victim was notified of the possibility that the coyote had rabies, and that he should seek medical attention and start rabies post-exposure treatment as soon as possible. AZGFD informed him that he had around 10 days to start the shots, if the coyote was, in fact, rabid. AZGFD contacted the Pima County Sheriff's Department for assistance. They responded with 3 deputies from Green Valley and

helped search the area for the coyote. No coyotes were observed.

On November 6, WS sent 3 additional employees to assist in the project. WS met with the golf course general managers at the San Ignacio and Canoa Hills golf courses and received authorization to work on their property. At both golf courses, WS was allowed use of golf carts to conduct operations on their property. Due to delays in getting authorizations completed, WS was not able to set traps that same day. During that day, AZGFD and WS interviewed bite victims and collected data in order to better understand the coyote(s) involved in the attacks. In the community, residences were taking precautionary measures such as traveling in pairs and carrying golf clubs or sticks for protection. We were advised that the community E-mail alert system was on and active. AZGFD printed and distributed official flyers throughout the community. The media produced several stories about the event, which by now was a big story all across Arizona. An array of AZGFD personnel from various levels visited the scene to address residents' concerns and provide assurances that the matter was well in hand. WS Wildlife Specialists continued to search the area that night and observed several coyotes in the vicinity of where the bites occurred, but they did not have any opportunities to remove the animals.

On November 7, WS placed 20 padded-jaw foothold traps around the golf courses where coyote activity had been observed and near the locations where bites had occurred. WS Wildlife Specialists also continued to use spotlights to search the area for coyote activity.

On November 8, one coyote was captured in a padded-jaw foothold trap. While inspecting traps, WS Wildlife Specialists saw fresh coyote tracks and placed an additional 4 traps in the area. The

captured coyote was euthanized and given to AZGFD for rabies testing. WS Wildlife Specialists continued to use spotlights to search for coyotes.

On November 9, one additional coyote and one bobcat were captured in traps. The bobcat was freed at the capture location. The coyote was euthanized and given to AZGFD for rabies testing. WS continued to use spotlights to search the area for coyote activity.

On November 10, AZGFD and WS inspected traps and freed one additional bobcat that was captured. At several trap locations, WS Wildlife Specialists reset traps where coyote activity had been observed. AZGFD personnel agreed that trapping should continue for another week. WS continued to use spotlights to search for coyote activity, but none were observed.

At 1:49 am on November 11, the Pima County Sheriff's Department observed a coyote that was hunched over and was missing some fur, and appearing to be sick. It was observed in the middle of an intersection and did not seem to fear humans. Due to the recent events in the area, deputies attempted unsuccessfully to corral the animal. The case was forwarded to AZGFD after the incident. Also on November 11, 2 additional coyotes were captured in foothold traps. One of the coyotes was next to the Canoa Hills Golf Course, between where the first and fourth bite incidents occurred. Both coyotes were euthanized and given to AZGFD for rabies testing. WS continued to use spotlights to search the area for coyote activity, but none were observed.

On November 12, WS captured one javelina and one raccoon in foothold traps; both were freed at their capture locations. As of this date, WS Wildlife Specialists had captured a total of 2 bobcats, 1 raccoon, 1 javelina, and 5 coyotes. WS reported all take to AZGFD officials on a daily basis.

This information was also provided to the media.

On the evening of November 12, another bite occurred. This fifth victim reported that at approximately 8:00 pm, she stepped out of a friend's house to smoke a cigarette. As she sat down on a chaise lounge, she felt something heavy jump up onto her lap and start biting her hip. She looked up and realized it was a coyote. She began yelling at the coyote, and then stood up and ran inside to tell her friends. She reported that the coyote loped off unhurriedly. The victim reported that the bite did not break the skin and only left a bruise. She did not seek medical attention. Despite the media attention and presence in the area, the victim did not report the incident to authorities until November 14.

On November 13, the Pima County Sheriff's Department reported that a person had been bitten by a coyote. This sixth victim reported that at approximately midnight he walked out onto his back patio to smoke a cigarette. As he stood on his back patio, watching television through the glass door, a coyote came up from behind and bit him on his right leg. He reported that the bite felt like a bee sting. The victim yelled and swatted at his leg, and the animal jumped over a 4 foot high fence and ran off in an unknown direction. At this time, the man realized that it was a coyote and immediately contacted 911. The fire department arrived and took the victim to a local hospital, where rabies post-exposure treatment was initiated. The information about this incident was not relayed to the AZGFD Wildlife Manager and WS until late in the day.

On the morning of November 13, WS Wildlife Specialists captured a sixth coyote in a padded-jaw foothold trap. AZGFD was contacted and updated on the coyote captures. The animal was euthanized, and the head submitted for

rabies testing. After patrolling the area, WS Wildlife Specialists left to attend a meeting in Sierra Vista, Arizona and perform a bear patrol of that area. When leaving Sierra Vista, WS was contacted by AZGFD regarding the bite that had occurred at midnight. WS immediately left for Green Valley and began a search for the offending coyote. Upon arriving in Green Valley at 6:00 pm, WS Wildlife Specialists proceeded to interview the latest bite victim and patrol the area for the offending coyote. When entering the neighborhood, the WS Specialist turned off his vehicle's headlights and switched to red driving lights. The street was dimly light by house light. As he turned the corner onto the street of the latest bite victim, he spotted a coyote in the red lights. The coyote was about 15 yards or less away from the vehicle, standing broadside. As the Specialist positioned the truck into shooting position, the coyote did not seem concerned in any way. The Specialist sized up the situation for safety and prepared to shoot, as the coyote moved up the middle of street towards an intersection and heavy cover 100 yards away. When the coyote was at about 75 yards, the WS Specialist dispatched the coyote with a single shot from his rifle.

Upon removing the coyote, The WS Specialist contacted his supervisor, and as he attempted to call AZGFD and the Pima County Sheriff's Department, deputies arrived on the scene. Officers asked if the coyote had been hit by a vehicle. Fire trucks and ambulances arrived simultaneously. Following the excitement of all the emergency response vehicles and the removal of the coyote, the Pima County Sheriff's Department reported that 2 additional bites had been reported at 5:58 and 6:05 pm, respectively, in the vicinity of where the coyote was removed. The WS Specialist's cell phone showed that the call he made after the coyote was shot was at

6:07 pm, 2 minutes after the reported bite and 50 feet from the front door of the last bite location.

The seventh victim reported that at approximately 6:00 pm, she was sitting on her back patio with 5 other friends, having a drink, when a coyote walked up and bit her on her left hip. She yelled, and the coyote backed away toward the corner of her yard. She immediately contacted 911 and reported the incident. She stated the coyote stood there for a few minutes before jumping her 2-foot high wall and walking south. The victim did not see the coyote enter her yard. She was taken to a local hospital and began the rabies post-exposure treatment. The eighth and final victim reported that at approximately 6:10 pm, as she sat with her husband outside on their patio, she saw something move toward her that then bit her left leg. Both she and her husband yelled at the coyote, and it jumped up on the corner of her wall and took off in a westerly direction. Within minutes of the coyote leaving her yard, she heard a single gunshot. The victim reported the she and her husband did not see the coyote enter the yard while they were sitting there, and they believe that the coyote was in their yard before they came outside. She also stated that the coyote appeared very healthy. The victim was taken to a local hospital and began the rabies post-exposure treatment.

On November 14, ZGFD submitted the coyote to the Arizona Department of Health Services in Tucson. WS Specialists continued to monitor traps in the area, but they did not capture any additional coyotes. However, 2 additional coyote sightings were reported on the golf course. WS specialists searched the areas, but without success.

On November 15, AZGFD contacted the 8 victims to inform them that all the coyotes removed from the area tested negative for rabies.

On November 16, AZGFD and WS agreed that equipment would be monitored for an additional day. On November 17, all equipment was removed from the area. No additional bites were reported.

DISCUSSION

In urban areas, coyotes are changing their behavior. The most serious problem is that coyotes are adapting to the urban environment and are becoming habituated to humans. As they lose their fear of people, the coyotes become bolder and put themselves and people in hazardous situations that the animals would normally avoid. Coyotes that are fed regularly by people will come to depend on people for food. The greatest danger is in urban environments where young coyotes have learned to utilize human resources. If they cannot find natural prey, they will seek pets or even small children for food.

As coyotes continue to adapt to the urban environment, and as their populations expand, coyote attacks on humans can be expected to increase. To prevent this, authorities and citizens must act responsibly to correct coyote behavior problems before they escalate into human health and safety incidents.

According to Baker and Timm (1998), there are several signs that indicate a human health and safety risk between coyotes and humans. The following, in order of occurrence, are signs that coyotes pose a risk to human health and safety:

1. Increase in taking of pets at night.
2. Increase in observance of coyotes on streets and yards at night.
3. Observance of coyotes on streets and in parks and yards during daylight hours, in early morning and late afternoon.
4. Observance of coyotes chasing or taking pets during daylight hours.
5. Taking pets on leashes and chasing joggers, bikers, etc.

6. Observance of coyotes in and around children's play areas and parks during mid-day.

Once coyotes have become a threat to human health and safety, management of the species must be implemented. Various management techniques can be used to prevent additional threats to human health and safety. Techniques are selected based on effectiveness and promptness of removal. To prevent coyote bites, the animals' behavior must be modified through the use of various harassment techniques and public education.

Public educational is important in reducing dangerous wildlife-human encounters. The public should be educated on ways to discourage wildlife from remaining in their yards, and the importance of keeping wildlife wild. It is essential that people be educated about the importance of not intentionally feeding wildlife, and law enforcement agencies should rigorously enforce "no feeding wildlife" ordinances. The public needs to understand that coyotes use a variety of resources (e.g., refuse, water, pet food, landscaping) to survive in urban environments and will become habituated by our everyday practices. By becoming educated on these issues, the public can reduce health and safety threats to both adults and children.

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LITERATURE CITED

AZGFD (ARIZONA GAME AND FISH DEPARTMENT). 2004. Frequently Asked

Questions About Living With Urban Coyotes. http://www.azgfd.gov/pdfs/h_f/urban_coyote_faq.pdf accessed March 26, 2007.

_____. 2007. Feeding Wildlife Attracts Predators. http://www.azgfd.gov/pdfs/w_c/Urban%20Do%20Not%20Feed.pdf accessed March 26, 2007.

ARIZONA REVISED STATUTES. 2007. Statute 13-2927, Unlawful feeding of wildlife; classification. 47th Legislature, 2nd Regular Session. Title 13, Criminal Code. Chapter 29, Offenses Against Public Order. <http://www.azleg.gov/FormatDocument.asp?inDoc=/ars/13/02927.htm&Title=13&DocType=ARS> accessed March 26, 2007.

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 18:299-312.

MCCLURE, M.F., N.S. SMITH, AND W.W. SHAW. 1995. Diets of coyotes near the boundary of Saguaro National Monument and Tucson, Arizona. Southwestern Naturalist 40:101-104.

TIMM, R.M., R.O. BAKER, J.R. BENNETT, AND C.C. COOLAHAN. 2004. Coyote attacks: an increasing suburban problem. Proceedings of the Vertebrate Pest Conference 21:47-57.