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DEFENSIBLE SPACE: A BEHAVIORAL APPROACH FOR MANAGING PREDATORS AT THE URBAN-WILDLAND INTERFACE

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ABSTRACT: Southern California has experienced rapid human population growth during the past 50 years. As housing continues to encroach into and abut previously undeveloped areas containing wildlife communities, conflicts between homeowners and predators have become common. Traditional methods of control (removal) of problem animals are often infeasible due to legislative constraints, local ordinances, public opinion, and environmental considerations. This necessitates developing alternative approaches to facilitate coexistence and diminish the opportunities for negative interactions. In the Defensible Space program, people are educated about local wildlife and provided animal behavior-based methods to respond to animal incursions. Though the system is not always 100% effective, it has diminished the overall number of complaints received and reduced most of the remaining complaints from panic-based to knowledge-based.

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INTRODUCTION

Since World War II, Southern California has rapidly increased both in human population size and the amount of urban/suburban development. Numerous studies have discussed patterns of population growth around pre-existing urban areas, and the ecological impacts to wildlife habitats and communities from urbanization and loss of open space (Sauvajot and Beuchner 1993; Scott 1995). Urbanization has also brought a change in demographics. A decreasing percentage of the population actively participates in consumptive recreation such as hunting or fishing, is part of a rural/agrarian society, or is aware of local wildlife populations (especially predators). One result of this demographic change is a growing number of people opposed to, or uncomfortable with, the killing of animals, unfamiliar with firearms, and unaware of safety concerns for themselves or their property when recreating in or living adjacent to open space lands. The purpose of this paper is to discuss a simple program developed over time to educate urban dwellers about local wildlife predators and assist them in dealing with predator interaction problems.

BACKGROUND

When the author first began his position as The Department of Fish & Game's (The Department) wildlife biologist for Santa Barbara and Ventura Counties in 1990, 10 to 20 calls per week were received from suburban dwellers either concerned about predator sightings or distressed by the suspected loss of a pet to a wild animal. In most cases, the offending predators were coyotes (*Canis latrans*), or bobcats (*Felis rufus*), and occasionally mountain lions (*Felis concolor*) or black bears (*Ursus americanus*). It is interesting to note, though many callers were aware of coyote presence, they were shocked to learn the remaining species live in open spaces adjacent to their homes. Most felt these were animals of the "wilderness area," and requested that they be relocated to some remote area. Roughly 75% of the callers favored non-lethal action or were adamant the offending animal not be harmed. The remaining 25% preferred immediate lethal justice, but refused to take action themselves or

were prevented from doing so because of firearm use restrictions in urban areas. About 85% of the phone calls originated from Ventura County, especially the southern portion adjacent to Los Angeles County. As much of Santa Barbara County remains in agriculture, is developing at a slower rate, and has a contract with USDA Animal Services (formerly Animal Damage Control), wildlife-human interactions are not as prevalent. Until the 1960s the southeastern portion of Ventura County was mainly ranch lands supporting grain crops or grazing animals. Real estate developers recognized the value of these large tracts of ranch lands and acquired them as a cheap source of land on which to build homes for the expanding work force of the greater Los Angeles area (Bidwell 1989). Many of the cities in this area function as bedroom communities with residents commuting long distances daily. This lifestyle serves to further isolate them from the surrounding natural landscape and its wildlife inhabitants. In order to assist individuals in this area, a large scale education program had to be developed and made available to them in a format both easy to understand and apply. Through a series of accidental observations and occurrences, the concept of "Defensible Space" was born.

THE PROGRAM

"Defensible Space" is a catchy phrase for a simple program founded on common sense and basic wildlife biology principles. The phrase is borrowed from the California Department of Forestry's fire protection plan for homeowners along the wildland interface. There are not any common guidelines between the two, but rather just the common premise of taking responsibility for the safety of your own backyard. There are three steps in the program, each building on the previous one.

Step One: Know Your Wildlife Neighbors

When contacted about their "nuisance wildlife" problem, most individuals cannot identify the offending animal, let alone know anything about an individual species' food, social or habitat requirements. By providing informational leaflets to homeowners with

species identification information, general habits, and other helpful hints, this gap can be bridged. Before mailing the written material, often up to 20 minutes are spent on the phone going over the information in detail and providing human-related analogies to help non-biologists understand biological concepts. If the individual is part of a homeowners' association, a meeting of the group is suggested where animal slides, skins, and skulls can be shown to further provide detailed information on local wildlife. Often an individual's great amount of concern or fear is due to a lack of knowledge. Although time consuming initially, increasing the knowledge base has a direct correlation to decreasing the amount of panic and demands for relocation or extirpation. The first is usually not an option because of ecological concerns, and in Southern California, the second is not an option because of public/political opinion concerns. With education, though, many people come to understand that, on occasion, some animals may have to be "removed." The basic wildlife knowledge background also prepares the human part of the equation for step two which involves recognizing and eliminating attractions.

Step Two: Eliminate Attractions

Predators are incredibly opportunistic and intelligent creatures. Species survival is based on reproductive success, and reproductive success is based on maintaining a positive energy balance. The easiest way to keep a positive energy balance is through an ample and easily caught food supply. What better source is there than domestic pets left unguarded and outside during the nighttime hours? Or an unfenced vegetable garden where rabbits and squirrels grow fat, providing food for carnivores? Many urban interface dwellers will actively feed wildlife; purposefully leaving out bowls of pet food or scraps. Every spring, many posted signs show up in the neighborhoods, "Lost Cat," "Lost, Small Dog." These animals are not the victims of some underground pet-napping ring, but rather of opportunistic wildlife. Homeowners must recognize that if they want to avoid negative interactions, they must be responsible and make sure their immediate backyards are free of attractions. Step two involves not only pointing out the obvious attractions which should be removed (unattended pets, garbage, pet food, pooled water, improperly housed chickens, ducks, etc.), but also having the caller describe their yard to determine how proper fencing, vegetation trimming or landscaping changes might decrease the chance of negative interactions. Step two is often the most difficult of the three steps in which to achieve success since humans are probably the most difficult species of which to modify behavior. This fact, plus the perceived need of many people to take some kind of action, led to the development of step three.

Step Three: Active Coexistence

A hundred years ago, wilderness travelers carried firearms, knives, and other weaponry to protect themselves. People were wary of, and respected mother nature. Predators were hunted aggressively, often with dogs, and avoided people. Today, isolation from the natural world has changed people's views of predator species. Instead of eliciting an immediate fear response,

or at least recognition of their potential threat, today they are often viewed as warm, fuzzy creatures. Recreationists, especially in urban open spaces, carry only a camera to shoot with. If people happen to see a predator, they will often stare at it, ooh and ah, and remain as passive as possible so as not to frighten the animal. People are becoming less of a threat, yet most do not realize how their attitude change toward wildlife might be exacerbating their "nuisance wildlife" problems. In response to various individuals who felt they had to do something more active to discourage these predators from taking up residence in their backyards, yet did not want to harm them, the author began to look at several ways the animals' behavior might be slightly modified. The goal was to increase the animals' human wariness level. Animals maintain territories with inter- and intra-specific aggression. It can be mild, violent, or sometimes lethal. Discharging firearms is the traditional method for human-inflicted aggression toward wildlife and has been shown to be effective, even when not fired directly at the animal. Most urban areas, though, have firearms closures for safety reasons. It is reasonable to assume projectiles of any kind might function equally well in controlling nuisance wildlife. One of the most successful has been the common garden hose. Teamed with a high pressure spray head, garden hoses have been shown to repel bobcats, coyotes, and even mountain lions. One homeowner, with her own fire hydrant and stand pipe, turned the fire hose on a mountain lion who had taken to crossing her driveway at midday. The lion opted to not return during daylight hours again. People are encouraged to outfit their garden hose with a high power head and washers so the hose can be left on at all times. It becomes a quick tool for increasing the human wariness level. Other water-based projectiles such as a water balloon launched with a slingshot, and "supersoaker" squirt guns, both loaded with a mild water/ammonia mixture (10:1) have proved effective against coyotes and bobcats. Pellet guns and wrist rockets work in less urban areas. Aggressive and savvy dogs can be an amazing tool. Personal observation of a militant Walker hound has shown how even a well established pack of coyotes will circumvent this dog's turf in order to avoid interaction.

All of these tools or actions come with the caveat that the aggressive action is intended to be mild, and the predator should never be cornered or put in a defensive position. In addition, it is stressed that these actions will not deter the animal from using the areas during the hours between dusk and dawn when most predator activity occurs. Thus, it is especially important to follow step two and remove attractions. Wildlife has a need to utilize these habitats. What this technique is intended to do is adjust their behavior so they are not using people's immediate backyards during the majority of the daylight hours. Most people never utilize step three, but they feel better knowing they can do something if they wish to.

CONCLUSION

People need to understand "coexistence" is an active term; it requires some sort of action even if it is just increasing one's knowledge as in step one. Though the "Defensible Space" concept is not always 100% effective,

it has, over the past eight years, decreased the number of panic stricken and uninformed phone calls received. During the late spring when most calls come in, the author may only get 10 to 20 calls per month. Very few people request relocation anymore, and many just want to record a sighting. Other agencies that might field calls report similar results. Whenever there is a widely publicized incident anywhere in the state, especially with a mountain lion, calls momentarily increase.

One of the most important aspects of the program is increasing knowledge and making sure this specific type of impact to wildlife is addressed through environmental review processes. When new housing developments are planned, and with them open space requirements, human/wildlife interactions should be addressed under impacts to wildlife and be provided as a disclosure to prospective buyers or tenants. The information in steps one and two should be provided to new residents. Making new residents aware of the wildlife and wildlife habitat in their area can reduce the number of requests for wildlife removal. This increased awareness will ultimately benefit all wildlife.

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