

*BIOLOGY, LEGAL STATUS, CONTROL MATERIALS, AND DIRECTIONS FOR USE*

**Coyotes**

*Canis latrans*



**Introduction:** Coyotes are very adaptable and inhabit most areas of California with the exception of major metropolitan areas. They are medium sized animals belonging to the dog family. In the hotter drier regions of California, coyotes are

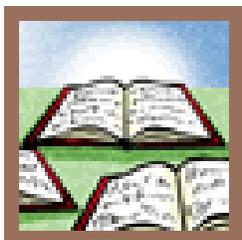
tan-brown in color with streaks of gray. In the more mountainous or humid areas the color is darker with less brown. In the winter the coats become quite dense, especially in the colder areas. They are native to Western North America (see range map). During the last fifty years coyotes have increased their range to cover most of



North America. This has been due largely to human encroachment and modification of the landscape. Coyote interaction with humans has increased in larger suburban areas due in part to an available food supply. Further coyote information and resources are available at [coyotebytes.org](http://coyotebytes.org)



**Identification:** The coyote resembles a medium size dog i.e. a Collie or German Shepherd type dog. They have a slender longer muzzle, erect ears, and a dark to black tipped bushy tail. Coyotes are mainly rust-brown to gray, however this can vary greatly from black, to rust, to almost white in some populations. Adult males are typically larger and heavier than females weighing 25 to 35 lbs and females from 18 to 25lbs. The voice of the coyote is quite distinctive, consisting of various howls, high-pitched yaps, and occasional dog like barks.



**Legal Status:** Laws regarding coyotes and coyote control are not necessarily uniform among states or even counties, and may change. Coyotes are not threatened or endangered in California and are classified as non game mammals by the Department of Fish and Game. When coyotes continue to be a problem after non-lethal methods have proven unsuccessful or when human health and safety is jeopardized, it is sometimes necessary to kill one or more animals. Coyotes can be shot where legal and appropriate or captured using a variety of legal restraining devices. Care should be taken when trapping; steel jaw leg hold traps cannot be used to capture coyotes except where human health and safety emergencies have been declared by designated officials or where

certain threatened or endangered species are themselves threatened by predation. Toxicants or poisons used to control coyotes are illegal, except for fumigant cartridges which are available to predator control specialists. California Department of Fish and Game regulations prohibit the relocation of coyotes without written permission from the Department. For further information on the legal status of coyotes and other wildlife contact your local California Department of Fish and Game Regional Office.



**Damage:** Coyotes can cause substantial damage. In rural areas they often kill sheep, calves, and poultry. In some parts of the state they cause damage to drip irrigation systems by biting holes in the pipes. In other areas they cause considerable damage

to watermelons, citrus fruits, and avocados. Aircraft safety is often jeopardized when coyotes take up residence on or near runways. Coyotes have also been known to prey on various endangered/threatened species including the kit fox and the California least tern. In urban and suburban areas, coyotes commonly take domestic house cats, small dogs, poultry, and other domestic animals. Coyotes have been known to attack humans, and in one case, a coyote in southern California killed a three-year-old girl (Baker and Timm 1998).





**Range:** Historically, coyotes were found in the western states. Over the last 50 years they have extended their range to cover most of North America (Timm et al 2007). Coyotes live in almost any habitat in California from arid deserts to coastal regions. They are not as common in densely forested areas or planted agricultural situations due to decreased food sources. Coyotes are both transient and territorial dependent upon food resources, breeding time, and pup rearing. Where food is readily available territories are smaller. Territories can range 15 square miles to 1 to 3 square miles, and even one quarter of a square mile. Packs consist of up to 10 individuals. A dominant pair may share its area with juvenile offspring. Coyotes are not as social as wolves and can live successfully as solitary individuals.

### Coyote



**Habitat:** Coyotes traditionally existed in large open habitats. Today, being extremely adaptable they are found in nearly all habitats. Deserts, swamps, tundra, grasslands, brush, dense forests, from below sea level to high mountain ranges. High densities of coyotes exist in suburban California.



**Biology:** Coyotes are most active at night and during the early morning. Coyotes bed in sheltered areas and use dens usually only when rearing young. They may go underground for shelter or when being pursued. They have good eyesight, hearing and sense of smell. They are extremely fast and have been measured at speeds of up to 40 miles per hour and can sustain slower speeds for several miles (Green et al, 1994). Coyotes breed between February and

March producing pups in April and May. Average litter size is 5 to 8 pups. Multiple litters may be found in one den. Coyote dens are usually selected for protective concealment and can be found in banks, rock crevices, sinkholes, underbrush and also open areas. Dens are usually located near water and coyotes will dig out and enlarge burrows made by other smaller mammals. Dens can be a few feet to 50 feet with multiple openings. In urban environments, dens can be in storm drains, under storage sheds, in holes dug in vacant lots, parks, or golf courses, or any other dark, dry place (APHIS Factsheet 2002). Adult coyotes care for pups including non parents. Because food requirements increase dramatically during pup rearing, this is a period when conflicts between humans and urban coyotes are common. By 6 months of age, pups are nearly fully grown. About this time, mother coyotes train their offspring to search for food and family groups may be seen i.e. in parks and golf courses. If food is deliberately or inadvertently provided by people, the youngsters quickly learn not to fear humans and will develop a dependency on easy food sources. In the fall most young disperse and find their own breeding territory, but one or two pups may stay with the parents and become part of the family group.



Coyotes are carriers and transmitters (vectors) for many diseases; distemper, hepatitis, parvo virus, mange,

rabies, tularemia, parasites include mites, fleas, ticks, worms and flukes. Many of these diseases are transmitted through pet or human interaction. Coyote lifespan is 10 to 12 years.



**Damage Prevention and Control Methods:** Coyote damage is variable depending on the situation. They may prey on pets; become a threat to public health and safety such as when they frequent airport runways or residential areas (rabies). More common is the predation by coyotes of livestock, sheep, lambs, cattle, and poultry. Over the last 100 years livestock producers and government agencies have worked at effective coyote control using toxicants, shooting, traps and other techniques. Population models indicate the elimination of coyotes would be nearly impossible taking decades, University of California. Increased regulations, human attitude change toward predators, and restrictions on toxicants make control difficult. In California leg hold traps are banned, shooting is impractical and may be banned ad hoc from county to county. Modern control strategies rely on an integrated approach using non lethal and preventative techniques. Utilizing lethal control is appropriate when other methods have been exhausted, via a professional or government service such as California Wildlife Services.



**Exclusion:** Coyotes are physically capable of surmounting most fencing. They will go under, through or over the fencing. Digging is common, searching for gaps at gates or washouts. Some may jump or climb fences. Total exclusion is highly unlikely. Good fencing, however, can reduce predation and also increase the effectiveness of other control methods when they are used at the same time.

At a minimum fencing should be 5 ½ feet high (higher on slopes). Net wire mesh should be no larger than 6 inches between stays. Digging can be discouraged by running barbed wire along the bottom of fencing or burying a galvanized wire mesh apron. The scaling of fences can be discouraged by installing a wire mesh overhang of at least 18 inches, slanted at an angle facing outward, roller devices that can be attached to the top of fences are also commercially available.

Electric fencing is an option but factors such as cost and long term maintenance should be considered. Also, electric fencing may be inappropriate or even illegal in some urban areas.

Traditional exclusion management methods should always be adhered to; close off crawl spaces under porches, decks, garden sheds, and mobile homes because coyotes like to rest or rear young in these areas.

**Habitat Modification:** Sound or visual hazing is often used to keep coyotes away from livestock. In most cases this has only a temporary effect, and works best where the wariness of the coyotes can be maintained e.g. by interchanging control methods. In the absence of a real threat coyotes will readily adapt to; flashing lights, propane cannons, scarecrows etc. Timm 2007 reports that even strobe-siren devices only kept coyotes from sheep flocks for several months.

Maintaining the coyote's wariness is key. For example, when coyotes first encounter urban areas there is an element of wariness. Suburban residents should strive to maintain this and attempt to frighten a coyote

away by shouting, throwing rocks, squirting water hose, using an air horn, or otherwise appear aggressive. Similarly, motion sensor lights on buildings may deter coyotes.



Some animal breeds are effective to exclude coyotes from pastures: certain breeds of guard dog, llamas and donkeys. Guard animals are most effective where they can see and challenge coyotes, and where they are behaviorally bonded to the livestock. Care should be taken since there are occasions when guard animals are not effective. Multiple coyotes or mountain lions may attack. In urban areas coyotes have been known to attack large dogs even in the presence of their owners, e.g. Labrador retrievers.

Suburban areas can be very attractive to coyotes; areas of lush landscaping provide food, water, and shelter. Reducing attractiveness is the key to limiting coyote encounters. Clear or thin vegetation and thereby deprive coyotes of shelter and cover. Avoid using landscaping plants that bear fruit and seeds if possible, as coyotes are attracted to ripening fruits. Fencing is useful on small garden plots (see earlier). Manage compost heaps and rodents to reduce predation. Eliminate water sources such as fountains, ponds or install net wire fences around them. Do not leave dog or cat food outside.

**Frightening:** Effective as a temporary method only for short periods of time. You should use before predation becomes a problem, so as to increase wariness of the coyote. Many frightening methods have been tried, many have even been ridiculed. Essentially, anything which produces wariness is valid. Varying your position, appearance, duration, or frequency of frightening stimuli is important, even using them in multiple combinations. Lights, strobe lights, motion lights, bells, radios, parked vehicles, propane exploders, sirens.

**Fumigants:** Fumigation in coyotes can be effective for coyote control. A special gas cartridge is used.

**Repellents:** Many repellent concepts have been tested with little success. Chemical compounds which rely on smell and taste to repel have been tested with little success. High frequency sound has produced similar negative results.

**Toxic Bait:** None registered

**Trapping:** There are many effective methods of trapping coyotes. It is recommended that a wildlife professional be consulted. In California the use of steel jaw leg hold traps is illegal except under special circumstances. There are also comprehensive regulations on the use, type, identification, and checking of traps (see Law and regulations chapter).



### Other

**Shooting:** Where shooting is legal, this is often a preferred method of predator control. However, safety must always be considered and even where legal firearm use may not be appropriate e.g. neighbors too close. Aerial hunting is strictly regulated under the Airborne Hunting Act and is allowed only with a special permit.

**Denning:** This is the practice of locating coyote dens and removing the pups and/ or adults. Denning is a useful control strategy where coyote predation has historically and consistently occurred. Breeding pairs of coyotes are extremely territorial and defend their territories against other canine intruders. Thus, it may be an advantage to keep a particular denning pair if they have not been preying on livestock.

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