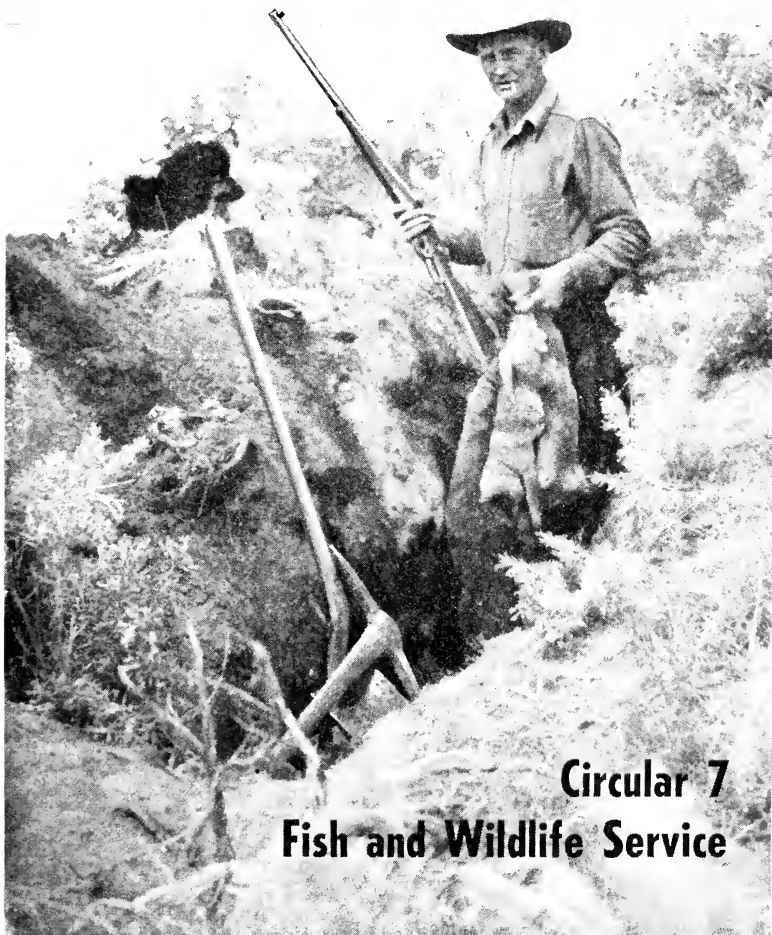


Coyote Control

BY MEANS OF

DEN HUNTING



Circular 7

Fish and Wildlife Service

UNITED STATES DEPARTMENT OF THE INTERIOR
Harold L. Ickes, Secretary
FISH AND WILDLIFE SERVICE
Ira N. Gabrielson, Director



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1915

COYOTE CONTROL BY MEANS OF DEN HUNTING

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CONTENTS

	Page		Page
Importance of den hunting.....	1	Methods of den hunting.....	5
Qualifications and equipment of the den hunter.....	1	Activities of whelps.....	6
Breeding habits and number of young.....	2	Removing whelps from dens.....	7
Denning sites and habits.....	3	Trapping and shooting adults.....	8

IMPORTANCE OF DEN HUNTING

One of the best methods of keeping down the increase of coyotes is to destroy the newly born whelps before they leave the dens to shift for themselves. A little time spent in April, May, and June in locating dens and destroying the young coyotes will save months of strenuous effort trying to rid the range of the predators after they have reached maturity.

Coyotes are particularly destructive during the denning season because of the need of extra food both for themselves and for their young. Lambing bands of sheep on open ranges suffer the heaviest losses. Coyotes that kill lambs during April and May generally have dens, and when the dens are located and the whelps destroyed, the sheep killing usually stops. Some coyotes show great cunning in refraining from killing lambs near their dens and will pass by a band of sheep herded directly over a den to raid another several miles distant. They have been known to carry a leg of lamb as far as 8 miles to their young in the den. Contrary to the belief of stockmen and others, the male coyote is as destructive as the female, and special attention to fresh kills at lambing time has shown that the tracks of male coyotes are more in evidence than those of females.

QUALIFICATIONS AND EQUIPMENT OF THE DEN HUNTER

The most essential qualifications of a den hunter are keen observation, persistence, and familiarity with the habits of coyotes. He can probably become more skilled in den hunting than in any other phase of coyote control. The denning habits of coyotes are similar in most sections, and the same general methods of den hunting can be applied in humid mountainous sections as in semiarid deserts.

¹ Now with the Division of Wildlife Research.

"Den signs" are indications of denning activity and the den hunter should always watch for them. They may consist of tracks, a well worn path leading to and from a den, or holes freshly cleaned out. Holes made by coyotes in digging out squirrels or rabbits should not be confused, however, with those prepared for dens. A good hunter will overlook no likely place and will investigate every hint, for dens are often found where least expected. He should look for den signs in every locality where animals are frequently seen. He should keep in mind the places used by pairs of coyotes and visit all old dens known, as signs may often be discovered there at whelping time. Holes may be cleaned out in one canyon and the den be just over the hill in another. Sheep herders on a range usually can give information concerning locations of dens.

The equipment of a den hunter should include at least two gentle saddle horses, a small shovel, a pair of field glasses, a rifle of not less than .25 caliber, and a dog. Coyotes are not so much afraid of a man on horseback as of one on foot. A rider, therefore, can get many good shots, and in heavy sagebrush he can more easily see and track coyotes from his vantage seat upon a horse.

BREEDING HABITS AND NUMBER OF YOUNG

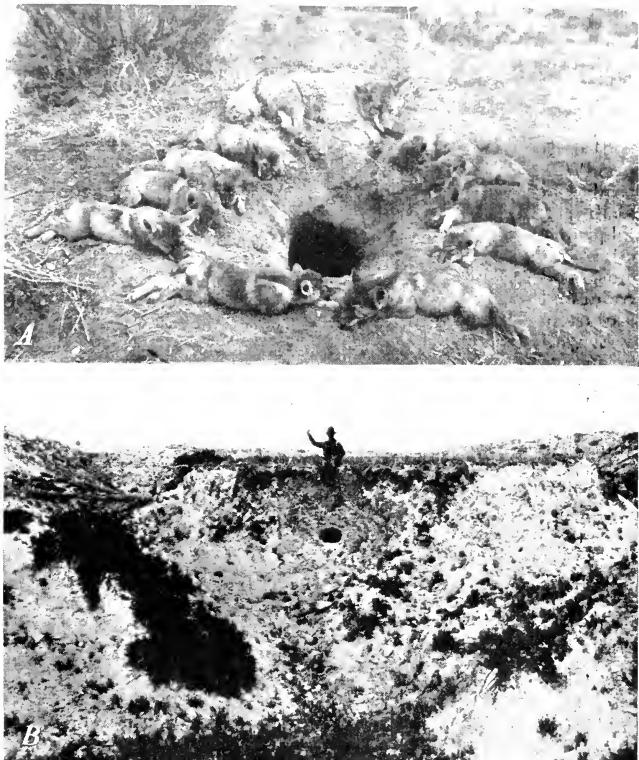
In the mating season coyotes may be heard yelping much more than usual, and packs of three to a dozen animals may be seen. Later the breeding animals pair off. Some pairs may remain together for a number of years, but as a rule coyotes do not mate for life.

The whelping season varies with latitude. In general, according to studies of a large number of embryos by G. W. D. Hamlett, of the Bureau of Biological Survey (now the Fish and Wildlife Service), the season in the northern tier of States seems somewhat earlier than farther south; in Montana, for example, breeding begins about February 1 and lasts throughout the month, the height of the season being about February 15. In Texas, breeding apparently begins somewhat later, although data are inadequate for definite conclusions. In some States, as in Oregon and Arizona, Hamlett found a variation of at least 2 months in the time of breeding, probably because of great diversity in altitude and other environmental factors.

Coyote pups are born 60 to 63 days after breeding of the parents. Their eyes open when they are 9 to 14 days old. The average number of young in a litter is 7. Although there may be smaller litters when food is scarce, at other times it is not uncommon to find litters of 9 to 12 (fig. 1, A), and some females have been known to have as many as 19 young at one time. The only thing provided in the nature of a nest is an enlarged section of the den, and some dens do not have even this. The pups lie in the dry dust on the floor.

Dens often contain two litters, one of young with eyes not yet open and the other of pups about a month old. One litter may be large and the other small, the latter probably belonging to a young female that, apparently at a loss for a place to den, had taken up quarters with her mother. Young females usually whelp about 10 days to 2 weeks later than the older ones. Occasionally a den may harbor three litters. At a den where two litters are found there is usually only one male, which would suggest polygamy.

Under normal conditions a pair of coyotes is found with every den, unless one parent has been killed. If the female is killed and the pups



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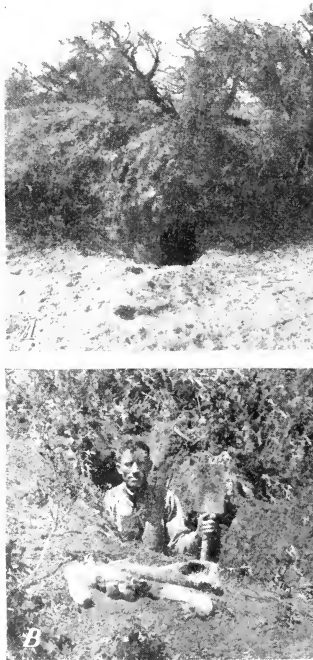
Figure 1.—A, Coyote and a litter of 10 taken from a den in San Luis Valley, Colo.; B, coyote den (directly beneath hunter) in a hillside thicket in rugged country, Lance Creek, Wyo.

are young, they die. If they are old enough to eat meat, the male parent cares for them, as he does his part in providing food.

DENNING SITES AND HABITS

Coyotes do not select denning sites according to any recognizable rule, but many of them return to the same general locality year after year, even though the dens are regularly dug out and the pups killed by den hunters. If the female is killed, the male may bring his new mate to the same den the next season. A dug-out den that has not been badly damaged in removing coyotes may remain unoccupied for two or three seasons and then be used again.

Dens may be found in a canyon, wash-out, or coulee, on a bank or hillside (fig. 1, *B*), in a rock bluff, or even in level ground, as in a wheat-field, stubblefield, or plowed field. They have been discovered under deserted homestead shacks in the desert, under grain bins, in a drainage pipe, in a dry culvert under railroad tracks, in a hollow log, in a thicket, and under a clump of thistles that had blown into a canyon.



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Figure 2.—*A*, Entrance to a coyote den in a dry creek bank, Morrow County, Oreg.; *B*, a former predator-control leader at the mouth of a coyote den dug out near Cokeville, Wyo. (Remains of three lambs in foreground, including two skulls out of which the brains had been lapped by coyotes.)

As a rule, instead of digging entirely new dens, coyotes will enlarge abandoned badger or rabbit holes or use deserted porcupine dens in rocky promontories or canyon walls. Usually they start cleaning out the holes several weeks prior to whelping. They generally claw out the dirt in one direction from the mouth of the den, where it piles up into a mound, although some dens have no such mound (fig. 2, *A*).

The female continues digging and cleaning out den holes, sometimes a dozen or more, until the young are born. Then, if one den is disturbed the family moves to another. Sometimes the animals move only a few hundred yards, apparently just to have a cleaner home,

leaving many fleas behind. Occasionally a female that has lost her whelps will clean out several holes before becoming reconciled to her loss. Barren females sometimes prepare dens, but they are not found traveling with a mate. Male coyotes also work at many holes in spring but generally to dig out dead rabbits. The tracks of the male will usually be seen at these freshly dug holes, which have a different appearance from those cleaned out for dens, and dried-up rabbit carcasses will generally be found nearby.

When entering the den, the coyotes almost always go around, not over, the mound, if one is present. Dens may have one or several entrances in use, and several passages may branch from the main one. After the pups are born, small balls of rolled fur and hair from the mother's belly may be found in the dry dirt in the mouth of the den.

Parent coyotes have no set time for being at home and may be found near the den at any hour. Although they do most of their killing early in the morning, they sometimes visit the den only at night. They are clean about their dens; so there is little refuse or odor.

The coyote den is usually in rougher surroundings than are dens of small burrowing rodents and is normally within reach of water. Contrary to general supposition, however, coyotes do not always make their dens near water. In hilly areas they usually do, but on the large deserts of eastern Oregon dens are often found as far as 6 miles from water. Coyotes do not go to water regularly unless the weather is warm, and pups do not need water until they are several months old.

METHODS OF DEN HUNTING

The proper time for hunting coyote dens is from April 5 to June 15. If too early a start is made, before some of the coyotes have whelped, the territory will have to be covered again. Where signs indicate a late den, however, a follow-up visit to it should be made.

Den hunting should be systematic and thorough. Where the soil is sandy the movements of coyotes can be readily determined by means of tracks and other signs characteristic of the whelping season. The general location of a den may occasionally be learned by hearing the howling of the coyotes, but other means must be employed to find the exact spot. It may be located by tracking, by watching the movements of the old coyotes, or by riding the range looking for holes, but systematic tracking insures the best results.

A good time to hunt dens by tracking is just after a rain. Another is the day after a severe windstorm, as storms restrict the activity of the coyotes.

Water holes and springs in the desert are excellent places from which to start in hunting dens. The den hunter should circle the water hole, noting the direction of the tracks and giving special attention to those of pairs and to their relative freshness, for when fresh tracks of a pair are noted, they are generally close to the den. When sign is found, it should be back-tracked to a point where there are tracks going both ways; the tracks begin to form a trail within a quarter of a mile from the dens. Near the den, unless the ground is too hard, many tracks will be found going and coming in every direction. Finding the den is then an easy matter. Sometimes, however, tracks lead to a den from only one direction.

Loose hairs and distinctive tracks are often observed in the mouth of a used coyote den. The coyote track is elongated, and not nearly so rounded as a dog track, and the coyote side-toe impression is longer than that of a dog of the same size. The tracks of young coyotes, barren females, and those that have lost their pups can be distinguished from those of denning pairs, as the latter generally travel by a direct route, the tracks of the female usually being smaller and more pointed than those of the male.

When a female leaves the den for water she nearly always travels in a direct line, probably not deviating over a hundred yards from it in a distance of several miles. Coyotes do not always water at the same place each time, however, nor return to their den direct from the watering place unless the den is a long distance from water. Sometimes the male will remain near the den while the female is away, but more often the two travel together, the female holding a little more to a true course than the male. The tracks often indicate that they travel side by side for some distance, the male then wandering away several hundred yards but later returning to his mate.

Coyotes with dens have regular hunting grounds to which they usually travel on a nearly straight course, whether near or several miles distant, but they do not travel back to the den on a direct line again until after they have made their kills.

When the den is in danger of being discovered coyotes act in a nervous manner. Some will circle about it at a distance when the hunter is near; the old female may be seen in one direction and, after disappearing, may later be seen peering over a hill in another quarter. When a female with a den first sees a person, she looks at him for a moment, then almost invariably toward the den, sometimes turning completely around to do so.

A den is usually located within a radius of approximately a mile of freshly cleaned-out holes. An experienced hunter can tell by the appearance of a den and by signs nearby whether it is occupied, without dismounting from his horse. When a den is found, if the whelps are roaming a considerable distance away, the searcher should circle it, making much noise to frighten them into returning. They should not be rushed, however, as they will then scatter and run into any accessible hole and extra effort in digging them out will be required.

As a rule, one will not find many live rabbits near a den; so that in a rabbit-infested district a scarcity of rabbits may be an indication of a nearby den.

ACTIVITIES OF WHELPS

Inexperienced hunters often dig out dens that contain no young. If the searcher listens at the mouth of the den he can usually hear any whelps inside, especially when they are very young, as they are then seldom quiet. If a nursing whelp loses hold of a teat, it is rather noisy until it regains its hold.

The whelps emerge when about 3 weeks old, and then their tracks and other sign are easily noted. At that age they do not whine, but can be heard moving about when in the den, where, if crowded, they sometimes growl. Curiosity to see what is going on outside will drive some to the entrance. When the burrow is steep they are unable to clamber out at as early an age as when it is nearly level. Little scratches made in their attempts to crawl out will often be noted on the side walls and floor of the den.

When the pups are about 8 to 10 weeks old the dens are abandoned, and the entire family roves about, remaining together until early fall.

REMOVING WHELPS FROM DENS

The digging necessary to capture pups depends largely on the nature of the soil and the location of the den (fig. 2, *B*). Some dens are so shallow that little digging is required; others cannot be dug out; and some burrows lead straight into a bank or under a hardpan ledge. Much work can be avoided by running a shovel handle or long stick as far as possible into the hole to ascertain its direction and then digging a pit down to the den instead of following the burrow. Where digging is extremely difficult, the animals can be destroyed by the use of calcium cyanide gas as later described. If pups can be seen back in a den but cannot be reached in digging, a forked stick or a wire so twisted as to catch in their fur has been employed to save labor; but if the den or burrow branches and turns, such an instrument is never wholly satisfactory, as some of the whelps are likely to be missed.

Before digging is begun, the den entrance should be blocked to prevent the escape of the mother coyote, should she be inside the den. When the pups are of suckling age she is often in the den with them, but when they are old enough to play and be fed outside she seldom goes into it. It is difficult to tell her whereabouts by her tracks, as she backs out of the den unless disturbed and the tracks all appear as if made in entering.

Pups are wobbly on their legs when only 2 or 3 weeks old; so if a pit 18 inches deep is dug just outside the mouth of the den, they will fall into it when they attempt to crawl out of the den and can easily be captured.

Smoking the young out of the den is not satisfactory as a rule, but is sometimes successful. A good smoker can be made by soldering a half-inch hose coupling to the spout of a bellows-operated bee smoker and using sulfur and pieces of burlap as fuel. A piece of garden hose about 10 feet long can be attached and worked down into the den close to the pups, preferably behind them. The operator should stand back from the mouth of the den, armed with a club to dispatch the pups as they come out. Throwing a handful of calcium cyanide into a den and stopping the hole with dirt is an effective method of fumigation, but this chemical must be handled with extreme care—as a rule by experienced workers only—as it is also dangerous to man.

A small dog trained to go into dens and bring out the whelps is useful. Such dogs are scarce, but with careful handling, the proper breed (wire-haired fox terrier or other terrier) soon learns and enjoys this work. Any dog, however, is a great help, as the parent coyotes become much alarmed if it nears their den and often set up a howl or series of barks and yelps, thus betraying the fact that a den is near. A small dog is preferable, and one that runs rabbits and hunts several hundred yards from the hunter is better than one that follows at the horse's heels. Coyotes are likely to give wide berth to a large dog, but will sometimes fight and chase a small one, thus presenting a good target for shots, particularly when the coyote goes some distance from the den to fight the intruder. For several days after the den has been destroyed females that have lost their whelps frequently fight or chase any dog that comes near.

A 12-gage pump shotgun loaded with BB shot is good for hunting pups that have left the dens but are still together. They may be found lying under sagebrush or among the rocks and are more easily hit with a shotgun than with a rifle when they start to scatter.

TRAPPING AND SHOOTING ADULTS

A hunter should leave as few traces as possible of his visit to a den. He should carry several traps, with which to try to capture the old coyotes. It is well to set a few traps "blind"—that is, without bait or scent—in the trails leading to the den, although some coyotes never return to a den after a hunter has visited it. A good set can be made by burying a dead whelp, leaving one foot exposed, and setting traps nearby. Holes that have been cleaned out for dens make excellent places for trap sets, particularly for catching females as they go in or out before whelping. In such a situation, two traps should be set blind, one on each side of the entrance or mound. Other favorable sites are the beds where old coyotes lie, presumably on guard. These beds may be close to the den or on a hillside or canyon rim half a mile away. The coyote-getter, a device for controlling traps, may be set about dens in the same way as that described for traps.

Further information on trapping coyotes is contained in Fish and Wildlife Circular 2, Hints on Coyote and Wolf Trapping.²

When coyotes are sighted near their dens they are usually quiet, and some good shots may be possible. A hunter should never dismount from his horse when a coyote stops to watch him, but should wait until it starts moving and then dismount on some high spot and be ready to shoot the instant it stops again. If it does not stop of its own accord, a low whistle will often halt it long enough to offer the hunter a good target.

² Obtainable free from the Fish and Wildlife Service, Chicago 54, Ill.



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