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# A CAGE TRAP FOR LIVE-TRAPPING MOUNTAIN LIONS

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**ABSTRACT:** The use of cage traps to capture mountain lions (*Felix concolor*) has the potential to become a valuable tool in the USDA-APHIS-ADC program. Because of California public sentiment, many of the traditional methods can no longer be used or are being severely restricted. Due to increasing requests for assistance, California ADC personnel have had to develop a method that will be highly selective, humane, and effective in rural and urban areas. The development of the mountain lion cage trap and its applications are described.

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## INTRODUCTION

Cage traps are used to capture many species of animals such as striped skunks (*Mephitis mephitis*), raccoons (*Procyon lotor*), and opossums (*Didelphis virginiana*). During 1990, the California Animal Damage Control (ADC) program used cage traps to capture 70% of all animals trapped. Cage traps accounted for as many animals taken as all other ADC methods combined (1990 Annual Report).

California's growing human population expanding into the historic range of the mountain lion, coupled with the steady increase of the mountain lion population over the last two decades (Mansfield 1990) has led to an increase of human-lion conflicts. A growing number of requests for assistance have been coming from owners of small acreages within populated areas. These small acreages are typically called ranchettes, capable of supporting small farm flocks. Traditional methods of taking mountain lions, such as dogs and/or shooting, are limited in these situations. Also, recent changes in California State regulations have restricted the use of trapping devices requiring the use of cage traps exclusively. These changes have focused ADC's attention to improve and increase the use of cage traps for taking mountain lions.

## TRADITIONAL METHODS

The most common method used to take mountain lions in the California ADC program is with dogs. Dogs, specifically hounds trained for lions, are taken to the location of reported damage; and if fresh mountain lion sign is present, the dogs are released to trail the scent of the offending mountain lion. As the dogs approach the mountain lion, the lion will usually tree. The mountain lion is then dispatched by the houndsman. The distance traveled by the dogs can be from a few hundred yards to several miles, depending on the movement of the mountain lion.

Success depends on many different factors including: response time, environmental conditions, physical impediments, and quality of hounds. During 1991, the California ADC program used dogs to capture 82% of all mountain lions taken (Figure 1).

Before dogs may be used to tree the mountain lion, a depredation permit must first be issued to the property or resource owner by the California Fish and Game Department. As stated earlier, an increasing number of depredation complaints are coming from the owners of ranchettes which are small acreages. Many of the permits specify the mountain lion must be taken on the property where damage occurred, which limits the use of dogs.

Shooting, without the use of dogs, is another method used to take mountain lions. This method usually employs the use of a blind. The individual hides and waits for the lion to return and feed on the carcass. Night vision equipment is often used to help see the returning mountain lion during periods of darkness. This method can be quite time consuming, but it has been effective in dealing with problem mountain lions, especially on small acreage where dogs were not suitable.

Snares, mostly foot and occasionally neck, have been used to capture mountain lions. Their use was banned in June 1990 after California voters passed Proposition 117, the Mountain Lion Initiative. Leg snares gave the ADC Specialist a tool-at-hand which could be used if conditions prevented the use of dogs or shooting.

During the years of 1987 and 1988, before the ban, snares accounted for approximately 25% of the lions taken by the California ADC program (Table 1).

## DEVELOPMENT OF THE CAGE TRAP

The use of cage traps for capturing mountain lions is receiving increased interest. Several factors that are responsible for this interest include: humaneness, selectivity, safety factors in populated areas, and ability to release non-target species unharmed. Cage traps are also very cost effective as compared to previously mentioned control methods.

In 1986, the California ADC program began taking a serious look at the use of cage traps to capture depredating mountain lions. The initial cage trap, used to capture mountain lions, was originally built to trap feral hogs. It measured 3' x 3.3' x 10' and was constructed from large grid horse panels. The trap was placed in front of a pen of goats where recent mountain lion predation had been occurring. The trap was not

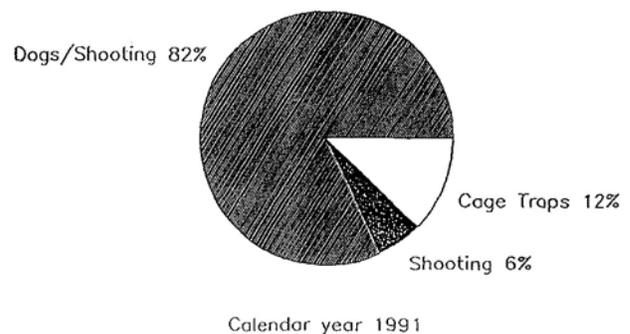


Figure 1. Percentage of mountain lions taken by method of control. Based on 50 mountain lions taken by the California ADC Program.

Table 1. Mountain lions taken by the California ADC Program (1982-1991).

Calendar Year	METHODS OF TAKE				Total Taken
	Dogs/Shooting	Shooting	Foot Snares	Cage Traps	
1982	5	1	0	0	6
1983	13	0	2	0	15
1984	14	0	3	0	17
1985	16	1	6	0	23
1986	16	0	2	1	19
1987	18	1	7	2	28
1988	16	2	7	2	27
1989	28	3	6	3	40
1990	35	2	2 <sup>a</sup>	1	40
1991	41	3	0	6	50
<b>Totals</b>	<b>202</b>	<b>13</b>	<b>35</b>	<b>15</b>	<b>265</b>

<sup>a</sup>Taken before the June 1990 ban.

baited but placed in such a manner that the mountain lion would enter the trap under the auspices of gaining access to the penned goats. The trap was successful in capturing an 85 pound female mountain lion. The following year, 2 more mountain lions were captured with the trap. In both instances, the fresh mountain lion kills were carcasses of a goat and sheep which were used for bait.

After each capture, the trap needed major repairs, as both lions had almost made successful escapes. This was due to the large 6" x 8" grid panels.

The valuable knowledge gained from those first captures was instrumental in building a more effective and durable cage trap. It was concluded that some mountain lions would enter a cage trap even if they had to lower their heads to gain clearance. However, a taller trap would allow the mountain lion to enter easily with plenty of head room. A larger trap would also seem less confining to the mountain lion and help reduce trap shyness. A larger cage trap was built in 1987. The trap measures 5' x 5' x 10' and was built with a detachable panel frame. The panels can be unbolted from each other and transported to remote locations and reassembled. The trap can also be transported by loading it onto a small utility trailer or towed by attaching a set of tires to the bottom of the trap. A small version of the mountain lion cage trap was built in 1989. It measured 4' x 4' x 10' and was built with a solid frame. This trap can easily be loaded into a pickup for transporting or loaded onto a utility trailer and towed with an ATV to remote locations.

Commercially made galvanized stock panels were used for the sides, the top and bottom, and the door. The panels are made from 3/16" galvanized rods welded together to form a 2" x 4" grid pattern. This size of pattern gives added strength to the trap versus the larger (4" x 4"; 6" x 8"; 8" x 10") grid patterns. The smaller grid prevents the lion's possible escape, the lion's reaching through and striking at objects outside the trap, and the trap's repair after each capture.

The 2" x 4" mesh does not restrict light from entering the

trap, such as solid panels or a culvert trap would do. Being well-lit with little view obstruction, the trap gives a less confined feeling.

The door is mounted to the top of the trap by bearing plates. The bearing plates mounted on each side of the door contain a sealed bearing from which the door pivots. The bearings give the door a smooth movement and a fast closure speed. Under most operating conditions, the closure speed is sufficient from the weight of the door only.

A half second is the average speed of the door closure. If more speed is needed, a coil spring at the top of the door can be adjusted.

Two spring bolt gate latches are located on the doors outside lower corners. These latches hook over the bottom frame of the trap when the door is closed. The floor treadle is a 1.5' x 4' metal plate located 2' from the inside rear of the trap. The set trap is activated when the floor treadle is depressed. A tension spring located on the top lever arm can be set to any poundage, thus eliminating catching smaller non-target animals entering the trap.

When sufficient weight is applied to depress the treadle, a lever arm releases the set door. The door then swings from its top inside horizontal set position in a down and outward arc to close in a vertical position.

#### FIELD APPLICATION

Before California ADC can initiate depredation control activities or remove a mountain lion for public health and safety reasons, a depredation permit or written authorization must be issued by the California Department of Fish and Game.

When a resource owner finds a fresh mountain lion kill, it is critical that they obtain a permit and contact ADC quickly. The best chances for capturing the offending mountain lion is the first night after the initial kill. Several mountain lions have been captured at dusk while returning to feed on the carcass; therefore, it is imperative that the trap be baited and set several hours before dark. Often the mountain lion has moved the carcass to a different location to feed on it. This new location should be the site where the cage trap needs to be set. If several kills were made, use the carcass which has been most fed upon and remove the rest. If the trap cannot be placed at the carcass site, set the trap as close as possible; then drag the carcass to the trap. When dragging the carcass, be sure to leave a good scent trail for the returning lion to follow. Hang the carcass or bait in the back of the trap behind the treadle. A minimum space of 6" should be left between the carcass and the rear wall of the trap. This will prevent the mountain lion from pulling pieces of the carcass from outside the cage trap. Attach the carcass securely so that it cannot be removed from the trap or pulled under the treadle by the lion before the trap is sprung. Any obstacle under the treadle may cause the trap not to activate properly.

The floor and treadle should be completely covered with leaves, grass and preferably dirt. The treadle tension should then be set at approximately 15 pounds to prevent accidental capture of non-target species.

Test fire the trigger mechanism to insure the door closes smoothly and clears the material covering the floor. Outside the trap, use brush and limbs on top, sides, and rear to camouflage the trap and give it a more natural appearance.

## DISCUSSION

One of the early concerns was that only inexperienced juveniles could be caught. This has not been the case. Of the 15 mountain lions taken with cage traps, 6 were females and 9 were males. The females weight ranged from 85 pounds to 120 pounds. The males weight ranged from 100 pounds to 138 pounds. These were all healthy adult lions.

Until 1991, only 2 cage traps were available statewide. This limited availability led to a number of requests for assistance not being met expediently. Although only 12% of the mountain lions captured were with cage traps, this number should rise significantly as more traps become available for use throughout the state.

The mountain lion cage trap is used to capture feral dogs and wild hogs. This multiple use ability makes the cage trap a versatile tool in solving a range of animal damage problems.

## CONCLUSION

As requests for assistance involving mountain lion damage increase, the ADC program must develop and incorporate new methods in solving these problems. The mountain lion cage trap has proved to be an effective method in lion damage control work.

Mountain lion damage problems attract media attention, which in turn exposes large segments of the public to ADC control techniques. Practice of effective, selective, and humane methods will demonstrate to the public the professionalism of sound wildlife control practices.

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