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A SUMMER TRAPPING METHOD FOR MULE DEER

U.S. ENVIRONMENTAL PROTECTION AGENCY
Environmental Monitoring and Support Laboratory
Las Vegas, Nevada 89114

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by

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ABSTRACT

This report describes a summer mule deer trapping method which uses modified Clover traps in a circular corral with water as a bait. Drug restraint was used to facilitate safe handling of mule deer by the investigator. Fifteen mule deer were safely captured and outfitted with radio transmitters, ear tags, and reflective markers, and their movements monitored to determine migration patterns.

ACKNOWLEDGMENT

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A SUMMER TRAPPING METHOD FOR MULE DEER

In June 1975, a study was begun to determine the migration pattern of the Nevada Test Site (NTS) deer herd. For this study, ten deer were captured, outfitted with radio transmitter-equipped collars and identification tags, and released during the summers of 1975 and 1976. Movements of the deer were followed on a weekly basis for about 1 year thereafter.

During the summer months, a sizable mule deer herd (Odocoileus heminous) resides in a mountainous, lightly forested section in the northern one-third of the NTS. As winter approaches, this herd leaves the higher elevations of its summer range (normally about 1,500 meters elevation) in the pinion-juniper vegetation range and migrates to an unknown destination. The NTS is located in Nye County, Nevada, with its southeast corner about 104 kilometers northwest of Las Vegas, Nevada. The topography of NTS is typical of south central Nevada desert ranging from dry lake beds at 850 meters elevation to mountain ranges as high as 2,200 meters elevation. The NTS covers an area of approximately 3,500 square kilometers.

Initially, capture efforts involved the use of immobilizing drugs injected by a syringe projectile fired from a powder driven Cap-Chur gun (Palmer Chemical and Equipment Company, Inc., Douglasville, Georgia). The target deer were momentarily transfixed by hand-held spotlights at night. Although several deer were successfully captured in this manner, many man-hours were required to locate, approach, and immobilize these deer. A more efficient and cost-effective approach was needed.

An alternative capture method was then tried using the traditional traps described by Clover (1954, 1956). The traps were placed in areas of heavy deer concentration.

At first, alfalfa hay, fresh alfalfa green chop, grain, and apples were used as bait. The deer ignored this bait. As natural water sources are nonexistent in this area (the nearest water is an infrequently used construction reservoir 4 kilometers away), the traps were modified to use water as the bait.

The trap site was located in the Echo Peak area on the NTS (elevation 2,164 meters). As shown in Figure 1, a circular corral (21 m in diameter) was constructed using woven wire fencing (2 m high) and wooden posts (3 m high, 15 cm thick). This corral is a modified version of the one described by Rempel and Bertram (1975). A 757-liter water tank was placed inside the corral near the fence to simplify filling. Two large openings (2 m across) were left in the corral so that the mule deer would have free access to the

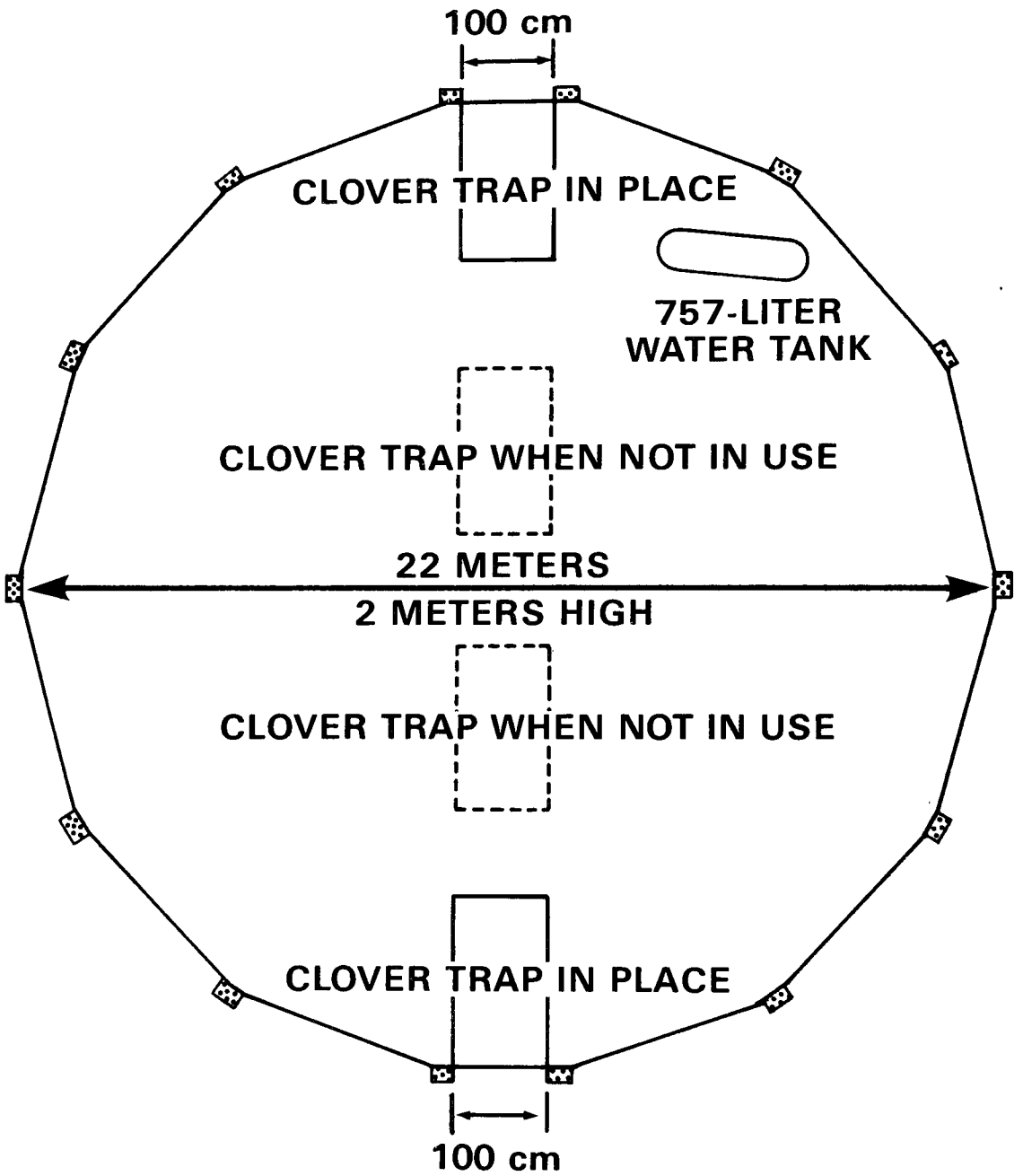

Figure 1. Diagram of corral.

water and would become accustomed to the corral. After 7 days, the openings were reduced to fit the end of a Clover trap (100 cm wide, 125 cm high). These openings were kept open for another week to allow mule deer to enter and exit the trap at will.

The Clover traps were modified so both ends would be open when set. This allowed the deer to see through the trap, with an apparent clear passage to water. Upon contact with the trip wire, both ends were set to drop, thus capturing the animal inside. This trip-wire trigger mechanism was adjusted so that both ends would drop without hesitation, otherwise an alert deer could escape before the trap closed. Even with this mechanism, several deer did succeed in passing through the trap before it closed, but were contained in the adjoining corral where they could be immobilized with the Cap-Chur gun.

When an animal was safely trapped, it was restrained either physically or with a drug. Due to manpower limitations and safety considerations, and reluctance of the investigator to jump into a trap with a highly excited mule deer, chemical restraint was employed in the majority of cases.

The drugs used to immobolize the mule deer were 2.35 milligram per kilogram (mg/kg) of body weight of phencyclidine hydrochloride (Sernylan of Bioceutic Laboratories, Inc., St. Joseph, Missouri) and 10 mg of [10-[3-(dimethyl-amino) propyl] phenothiazin-2-yl-methyl ketone] (Acepromazine Maleate of Ayerst Laboratories, New York, New York) (Dean et al., 1973). To lessen the likelihood of injury, the immobilizing drugs were delivered through a syringe projectile fired from a carbon dioxide (CO_2) Cap-Chur gun (Silberman and McWilliams, 1972). After each deer was immobilized and removed from the trap, it was given 1 mg atropine sulfate, a respiratory stimulant which decreases salivation and bronchial secretions, 2 to 4 mg dexamethasone, a corticosteriod for anti-inflammatory and anti-stress activity, (Azium of Schering Corporation, Kenilworth, New Jersey), and 1 milliliter per 23 kg of body weight of an antibiotic containing penicillin and streptomycin (Combiotic of Pfizer, Inc., New York, New York) (personal conversation with Drs. R. E. Stanley and D. D. Smith, veterinarians with the U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Las Vegas, Nevada). This prophylactic intramuscular treatment was administered with a hand-held syringe and was designed to minimize the trauma and shock of capture which frequently leads to death from respiratory complications. Each mule deer was then fitted with a radio transmitter-equipped collar, an ear tag, and a neck collar with reflective numbers 10 centimeters (cm) in height. Trapping personnel stayed with immobilized animals until they were able to regain their feet; this normally occurred between 2 to 4 hours after injection.

The traps were normally operated one or two nights per week. When set, the traps were checked at about 2200 hours in the evening and again shortly after daybreak. On several occasions, mule deer were found in the same trap at both the early evening visit and on the following morning. It was found that the traps should be checked at least twice nightly; as the less time the animal spends in a trap, the less likely it is to injure itself or damage the trap during escape attempts.

On the days when trapping was not attempted, the traps were removed from the enclosure entrance allowing the deer free access to the water. When not in use, the trap site was left undisturbed except for replenishing the water supply.

Weather affected trapping success. For example, following summer rain showers, it would be 5 to 10 days before trapping was again successful depending on the amount of water standing in puddles. Trapping continued in the fall and early winter until 10 to 12 cm of snow covered the ground or until heavy rains occurred. A total of 15 mule deer were captured using this method.

The author believes that this method of trapping mule deer can be used cost-effectively for other purposes if: (1) the terrain is suitable to build the enclosure; (2) the trap is well located in the habitat of the target species; (3) a suitable bait (in this case water) is used; and (4) the proper aftercare is given to minimize the mortality.

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