MANAGEMENT NOTES

A Pass for Antelope in Sheep-Tight Fences¹

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Highlight

A Wyoming study has resulted in development of an inexpensive, easily installed pass structure that facilitates movement of pronghorn antelope through fences and retains livestock. Patterned after the common cattleguard, the antelope pass consists of a $5\frac{1}{2} \times 6$ -foot lightweight grill installed on timbers over a 15-inch pit with earth ramps on each end. Proper location and installation are essential to obtain use by antelope. Adjustment and learning through experience and association are important factors in the effectiveness of pass structures. Total cost including installation, is less than \$100 per unit.

Increased attention directed toward better management, protection, and improvement of western rangelands has resulted in the erection of numerous fences. Sheepmen are finding that fencing is an economic necessity to offset higher labor and operating costs (Spillett, et al., 1967). In recent years, several western game and fish departments, national wildlife organizations, and other interested groups have expressed concern about the effects of sheep-tight fences on pronghorn antelope (*Antilocapra americana*). The main fear is that by restricting antelope movements during blizzards, drouths, or natural migrations, sheep-tight fences may cause serious death loss of this game animal (Russell, 1951). What has been needed is a fence type or inexpensive device that will control livestock, and yet allow antelope movement.

The possibilities of horizontal barriers are apparent when the broad jumping ability of the

pronghorn is considered. Numerous authors have recognized and described this ability (Cahalane, 1964; Caton, 1877; Rouse, 1954). A leap of 14 feet is not unusual for the pronghorn and individuals have cleared as much as 27 feet (O'Conner, 1961). Other authors have reported that antelope use this ability to cross cattleguards installed on the range (Mapston, 1968; Sill, 1964; ZoBell, 1968). During a study conducted in the Red Desert of Wyoming, Spillett (1964) found that under controlled conditions a majority of test antelope crossed standard cattleguards and simulated cattleguard devices. Because of the success with cattleguards and the demonstrated broad jumping ability of antelope, Spillett (1964) recommended that emphasis in future studies should be on development of horizontal rather than vertical barriers. Since 1964 field trials of antelope passes have been conducted in New Mexico, Colorado and Wyoming.

This paper gives results of a cooperative field trial conducted by the Bureau of Land Management and the Wyoming Game and Fish Commission. The purpose was to develop an inexpensive pass structure that would facilitate antelope movement and yet retain livestock. A second objective was to evaluate the capability, willingness, and learning ability of antelope to cross various horizontal barriers.

Materials and Methods

In 1965 a sheep-tight fence six miles long was erected intersecting the study area. Six locations in the fence were selected for placement of test structures. Included were four corners, a 12-foot offset in the fence and an 8-foot opening in line with the fence on a trail. Initial test passes were 4×6 -foot in size, designed similar to structures installed by the Wyoming Game and Fish Commission in fences around water guzzlers (June, 1967). As the study progressed, various sized passes and methods of installation were tested. Each new pass or modification of a pass was designed to improve its effectiveness in facilitating antelope movement.

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FIG. 1. Antelope crossing an antelope pass.

Since cattle and sheep were grazed on one side of the fence and cattle on the other side, the structures were also evaluated for their effectiveness in restraining livestock. Antelope movements were determined by track counts, visual observations, and counts by airplane.

Results and Discussion

Initially, antelope were visibly wary of the new fence and test structures. Although cautious examinations were made at close range, few attempts were made to negotiate passes during the first six months. As the study progressed antelope seemed to adjust to the structures and demonstrated a willingness to locate and cross some test passes (Fig. 1). A total of 100 antelope were observed crossing passes on five separate observations. The number seen negotiating passes ranged from 4 to 50. Before crossing the structures a thorough examination was common. This often included staring intently through the opening from several different angles, sniffing at, and pawing the grill. Although jumps were usually made from a standing position, some antelope leaped across while running. This usually involved animals at the rear of the herd who had watched other antelope cross.

Few antelope jumped through 4-foot openings. Passes with openings 6 feet wide received much greater use and antelope crossed with less hesitation. Apparently this was because the larger openings were more readily recognized. While crossing test structures leaps over 7 feet were common, and most antelope cleared 6-foot grills easily. Devices with a jumping distance of less than 6 feet did not confine livestock satisfactorily.

Passes were installed at ground level over a pit and elevated on various sized timbers. Structures at ground level were more readily crossed by antelope, but had the disadvantage of filling up

FIG. 2. Antelope pass specifications and recommended method of installation.

with windblown snow. Although grills elevated on 12-inch timbers retained livestock effectively, most antelope refused to cross the structure. A compromise was achieved by adding earth ramps to both ends of a 6 × 6-foot grill mounted on 10-inch timbers. This type of pass confined livestock and received more antelope use than other structures.

It was apparent that passes were more likely to be used when placed in fence corners. Antelope are directed to the corner location by merging fences. Over 90% of the antelope that crossed passes used corner locations. Structures in line with the fence and in the fence offset received little use.

Construction

To prevent vehicles from crossing the lightweight grill, it is advisable to limit the width to 5½ feet. Recommended length (jumping distance) is 6 feet. The grill is easy to construct (Fig. 2). Thirteen bars are welded parallel on 6 inch centers to two steel supports. Anchor plates at each corner provide for attachment to timbers. The grill can be constructed for about \$41 when purchased in lots of ten.

FIG. 3. A 6 × 6-ft pass with dirt approach in a corner location.

Installation

The location and method of placement in the fence are major determinants of pass effectiveness. Preferably, locations for passes should be determined before fence construction so openings can be provided. For maximum effectiveness, passes should be placed in fence corners. Unless situated along a well-used trail, passes installed in the fence line are of less value. Effectiveness of this pass can be improved by adding a short fence wing to direct antelope toward it.

The pass may be installed at ground level (Fig. 2) or elevated on timbers. In either case it is advisable to place the grill over a 15-inch pit. In sandy areas or where blowing snow is a problem the best method of installation is to mount the grill on 10-inch timbers with earth ramps provided on each end. For maximum antelope use the ramps should be level with the grill for 12 inches and then tapered off to ground level no less than 30 inches from the timbers (Fig. 3).

Braces and supporting structures should be kept

to a minimum. Total cost, including construction and installation, is less than \$100 per unit.

Conclusions

Observations and actual use by antelope during this study indicated that antelope passes, when properly located and installed, have value as a means of facilitating antelope movement through sheep-tight fences. Adjustment and learning through experience over a period of years are considered to be important factors in the effectiveness of pass structures. Cooperative long-range studies currently being conducted will provide a better insight into the value of this type of structure.

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