Translocation techniques used to establish pen farmed Alaskan reindeer

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Abstract: Small herds of reindeer *(Rangifer tarandus)* frequently have been needed to be established in fenced holding pens for research or commercial reasons in Alaska and other areas. Native ranges of reindeer in Alaska were not on road systems, and the diet of the native reindeer had to be changed when they were translocated to small pens. Economics of transportation and feeding played an important role in the feasibility of translocation. Gathering and holding of reindeer for shipment, transport methods, adjustment of free-ranging reindeer to confinement, and a new diet were primary considerations to insure survival. Minimal psychologic stress of short duration, thermoregulation, and physical comfort were extremely important in carrying out a successful translocation. Receiving facilities, feed, and personnel were equally important. A minimum of one month was required to adjust reindeer to confinement and diet change.

Key words: husbandry, Alaska

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Introduction

Herding of domestic reindeer *(Rangifer tarandus)* has taken place in Alaska for nearly 100 years. The original herds were introduced from Siberia in the 1800s for use by the Eskimos located on Alaska's Seward Peninsula. Over the past several years there has been an increasing demand for Alaskan reindeer in other parts of the State or in other areas in North America.

Reindeer are needed for research purposes and for both private and commercial ventures. There are no connecting road systems to the Seward Peninsula, and sea transport of reindeer is difficult because of their remote location and the lack of proper holding facilities near ocean ports. Reindeer in Alaska roam essentially free on tundra ranges and are gathered for antler harvest and fawn marking during the summer. Most herds are gathered once again during the winter for parasite treatment, brucellosis vaccination, and for separation of animals by ownership. It is difficult to capture reindeer other than at these specific times (Dieterich, 1986).

Reindeer have been translocated to many different areas of the world for many years. Methods have varied from overland herding to air transport. Large numbers of reindeer have been

Fig. 1. Type of standard crate used for single reindeer shipments.

transported to alternate ranges in Scandinavia by semi- and tandem-trailer trucks capable of carrying up to 200 animals (Dau, 1987). The history of translocation of reindeer has varied from very successful to total failure with the deaths of large numbers of animals. Various translocation techniques used for different wildlife species and descriptions of results has been documented (Nielsen, 1988).

This report describes one method developed over the past 20 years in Alaska. Each translocation situation is unique, and it should be recognized that there is no single "correct" method. The use of good husbandry practices, an understanding of the behavior and biology of reindeer, plus consideration of the practical economics of the situation all play an important role in a successful outcome.

Materials and methods

Over the past several years, personnel at the University of Alaska at Fairbanks have translocated several hundred reindeer from Alaska's Seward Peninsula to Fairbanks, a distance of approximately 800 kilometers. Aircraft were used because no road or rail system connects these two locations.

Chemical immobilization and physical restaint were used separately and in combination. In our experience, chemical immobilization was not successful for the long duration (approximately 12 hours) of the transport because of the resultant poor thermoregulation and cardiovascular depression. Drugs were used only on reindeer which were unwilling to remain calm even after proper handling. Most transport trips required the use of no tranquilizing or immobilizing drugs.

Crates

The use of large multi-engine aircraft was very expensive, and concessions had to be made to safely move the largest number of reindeer possible in the cargo space available. There were no aircraft specifically configured to transport livestock, and the aircraft operators required control of urine and feces. Individual reindeer were shipped in large, standard, well-ventilated crates that enclosed the entire animal (Fig.1). These standard crates measured 120 cm high,

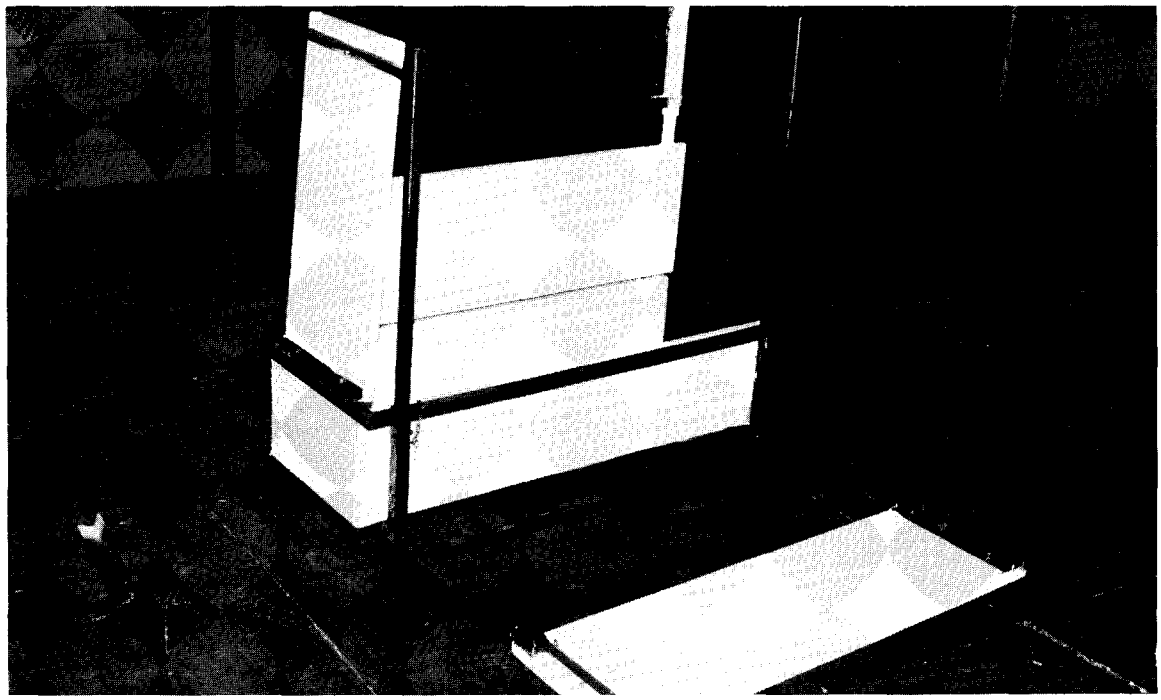

Fig. 2. Type of crate used for reindeer shipments of short durations. Partially assembled showing various parts.

76 cm wide, and 152 cm long. This system worked well but occupied a considerable amount of space and added excessive weight which further limited the number of animals an aircraft could carry.

The size of the standard crate was a limiting factor when shipping several reindeer in one load. Smaller, collapsible crates were designed that had several advantages (Fig. 2). In order to save ground-time aircraft charges, crates could be shipped to the loading site in advance so caged reindeer could be loaded into the transport aircraft as soon as it arrived. Shipping collapsible crates that could be re-assembled saved freight charges based on size-to-weight relationships. Also, more crates could be loaded on one aircraft. These crates were large enough to contain the reindeer's body but allowed the head to extend outside the crate (Fig 3). A padded stanchion which surrounded the neck of the animal aided restraint. The sides and floor of the crates were waterproof, and wood shavings were placed on the crate floors to absorb urine and fecal moisture. Inside measurements of the crates were 104 cm high, 37 cm wide, and 107 cm, long. This size was correct for mature females but small for an adult male. Crate size was minimal to prevent struggling and to conserve space. It was found that once reindeer were placed in the crates, they quickly stopped trying to escape because there was little room for movement. It should be stressed that this crate size is only suitable for trips of relatively short duration (8 to 12 hours).

Reindeer

Shipments of reindeer were carried out in November or December. Best survival was obtained during these months as the breeding season was over, and the pregnant females were early in their gestation period. Body reserves were adequate in young animals and females. Very few males were translocated. Males were more difficult to move because of relatively poorer body condition following the recent

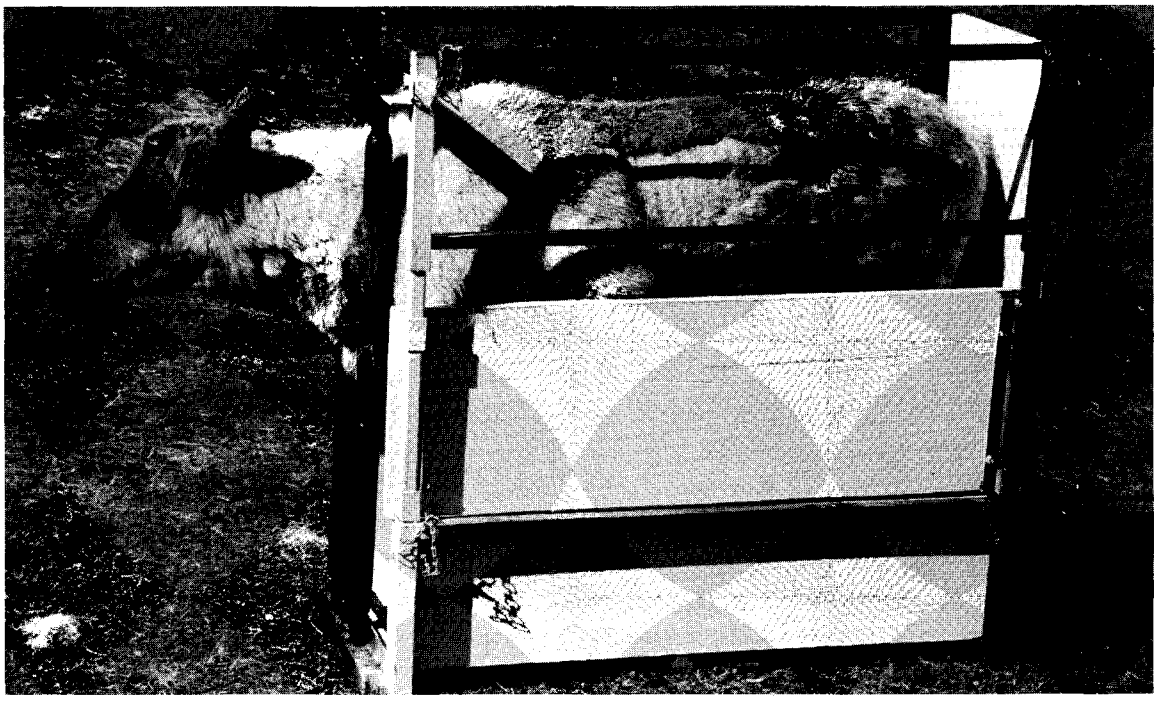

Fig. 3. Adult female reindeer in shipping crate.

completion of rut. Transports were carried out during the winter months exclusively after one attempt was made during summer months and increased mortality was experience due to heat stress.

Every effort was made to minimize the interval between the time the reindeer were first handled and the time when they were loaded into a crate. During the pre-crating period, the reindeer were held in temporary pens constructed with high sides that offered no view of the surrounding activities. Immidiately after crating, each adult reindeer was given an injection of antibiotics (900,000 units of procaine penicillin G and 900,000 units of benzathine penicillin G). Blood samples were obtained if needed. A blindfold made of surgical stockinette was placed over their eyes, and their antlers were cut near the base to prevent injury to other nearby reindeer or handlers (Fig 4).

Crates were loaded carefully and quietly into a waiting aircraft in rows such that the head of each aminal rested between the heads of animals in the next row. Thus, crates were fitted back-to-back and front-to-front which saved considerable space. This arrangement appeared to comfort the animals as they had close contact with the animals in the next row. The majority of the reindeer remained in sternal recumbancy during most of the trip and would only ocassionally stand up for short periods.

The interior temperature of the transport aircraft was maintained below freezing if at all possible to prevent moisture buildup. Ventilation was aided by opening emergency windows when possible.

Destination facilities

Upon arrival at the destination, crated reindeer were unloaded as quietly as possible, taken immediately to a dogproofed fenced field, and released (Fig 5). Within this field were natural hiding areas of trees and willows which allowed the animals to remain out of sight if they so wished. Two to four domesticated reindeer were kept in the fields to serve as "trainers" to teach the newly arrived animals where food and water were located. The newly transported reindeer had

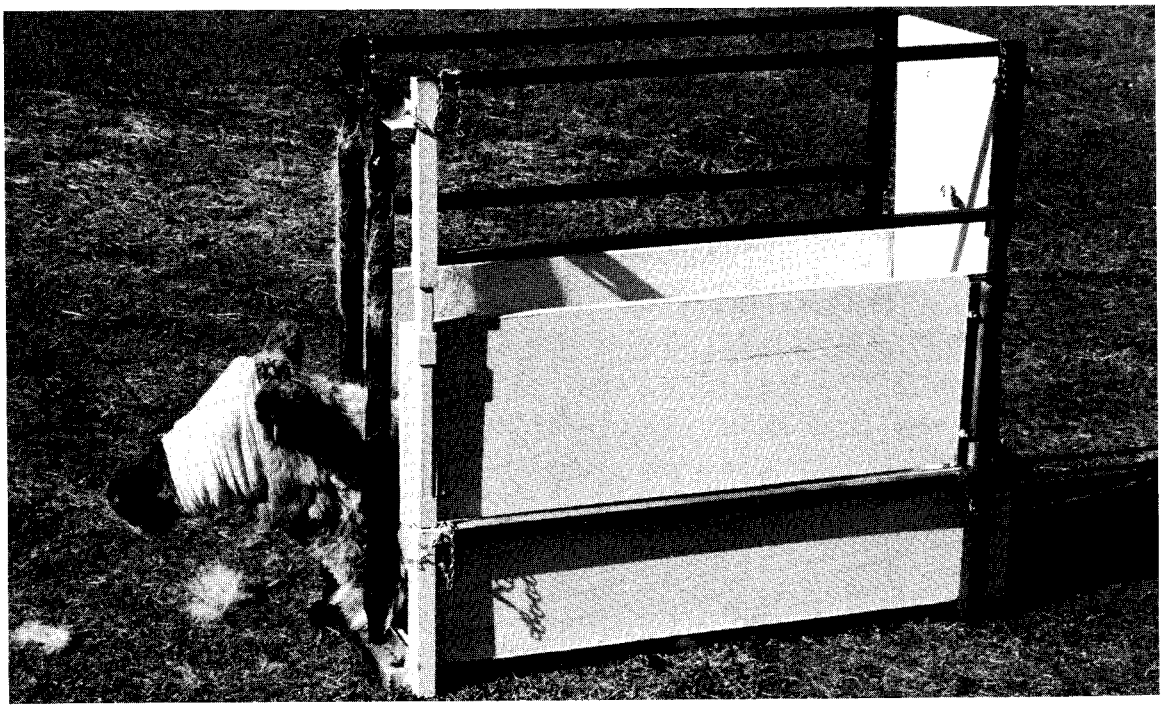

Fig. 4. Typical position of reindeer in crate during shipment. Note blindfold.

Fig. 5. Translocated reindeer in dog-proof fenced field.

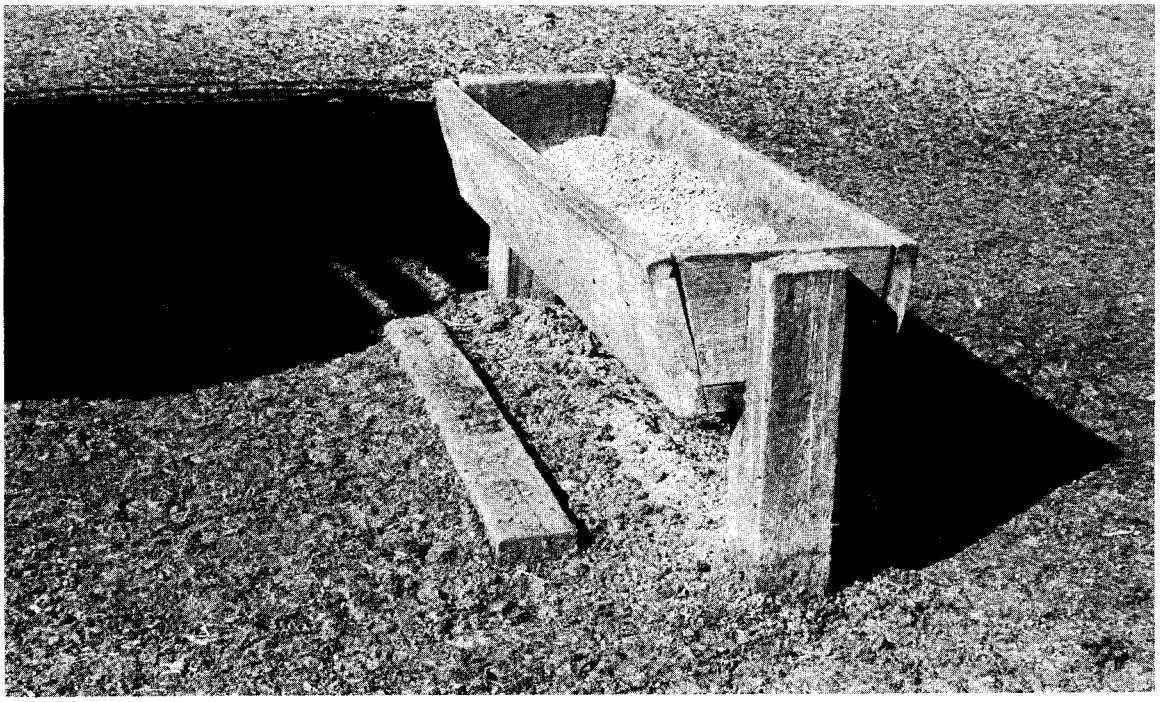

Fig. 6. Type of feeding trough used to prevent feed wastage and insure a clean feed supply free of fecal contamination.

access to natural grasses lying under snow, fine-stemmed grass hay, and a commercial grain mixture[2]. This grain mixture was first mixed with the hay and placed on the ground. The "trainer" deer soon taught the newly translocated reindeer to eat out of "V" shaped feeding troughs placed on posts approximately two feet above ground level (Fig. 6). These troughs prevented the animals from wasting feed by placing their feet in the feed and aided in parasite control by keeping feces away from food sources.

The grain mixture had been used with good results as the primary food source for several generations of reindeer held in captivity over the past 15 years. Some of these reindeer had been held in indoor rooms for infectious disease research for up to 18 months with the grain mixture as their only food source. These animals maintained excellent body condition, and those animals which were pregnant had fawns. Rumen innoculum from reindeer previously adapted to the grain mixture was not introduced to any newly translocated animals. All animals appeared to be able to adjust to the new diet without the aid of additional rumen flora.

It was observed that 90 to 95% of the translocated reindeer would successfully adapt to captivity and a commercial diet. The remaining 5 to 10% would show signs of weight loss after two to three weeks. Any deaths occurred most frequently after 3 to 4 weeks in captivity. It appeared that the time of greatest weakness in most of the reindeer occurred when their natural body reserves were depleted at 3 to 4 weeks post-transport. Unless it was absolutely necessary, newly transported reindeer were not approached or handled during this adjustment period.

After the initial conditioning period was completed, the reindeer were treated for parasites with 0.2 micrograms per kilogram of ivermectin and vaccinated with a killed bacterin-toxoid containing *Clostridium chauvaei-septicum-*

[2]Quality Texture, Purina Mills, St. Louis, Missouri. USA

novyi-perfringens Type C and D. Reindeer that successfully adapted to captivity were used for a variety of research projects. Diet was maintained with the exclusive use of the grain mixture offered ad libitum. Care was taken to keep the food supply fresh and dry. Body condition was maintained at excellent levels for many years with good reproductive success.

Conclusions

Free-ranging reindeer can be successfully translocated and held in captivity with a low rate of mortality if the natural biology of the animals is considered and each move adjusted to fit the special circumstances of the situation. Of primary importance is the amount of stress to which the animals will be exposed, the duration of this stress, and the availability of food and water which is palatable and digestable. A fast move of only a few hours is preferable over a slow move of many hours or days even if the fast move may appear somewhat more stressful. The receiving area must be as stress-free as possible and dog-proof. The animals should not be approached or handled during the conditioning period unless absolutely necessary.

Each translocation of reindeer is unique, and no one single plan should be used for all situations. Experience and good animal husbandry techniques are essential for the succesfull completion of a move. If any one part of a translocation is not going to be completed as planned, the whole move should be adjusted or postponed until all conditions are as optimal as possible.

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