# Record Keeping for Reindeer Herds
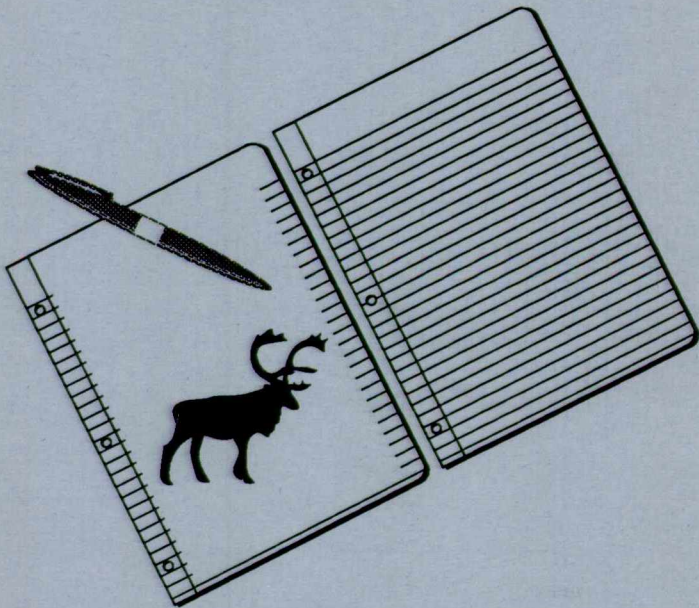
Applied Reindeer Research Project

by

**Alex Clarke**
Systems Analyst

and

**Robert Dieterich, D.V.M.**
Professor Emeritus

# Record Keeping for Reindeer Herds

by
**Alex Clarke**
and
**Robert Dieterich**

## Introduction

Record keeping is an important tool in the management of any productive enterprise. In the area of reindeer herding, consistent and accurate record keeping can provide valuable information for making profitable herd management decisions. Making the right decisions can mean the difference between a non-productive herd and one that yields high profits. In this paper, it will be shown how keeping records can contribute to decision making and how computers can help the record keeping process.

The best time to collect information about a reindeer herd is at the seasonal handlings. Most of the information discussed here requires only an animal identification system (i.e., ear tags) and careful observation. A scale will be needed should any weight measurements be made. The only other requirement is taking the time to make the observations correctly. Time is critical during a handling, but making the time to record and maintain records will increase productivity and will ultimately result in greater profits for the herder. In addition, record keeping will give the herder a better picture of the state of his herd and increase his knowledge of the differences among individual animals.

## Ear Tags

The use of ear tags provides a means of collecting the most basic information. One tagging system that has proven to be very effective utilizes a tag color (which identifies the herd), a two digit year number (indicating the year of birth),

and a four digit number (allowing for 9,999 new animals per year). A blue tag with the number 880101 represents the 101st fawn tagged in 1988 belonging to the herd that uses blue as its color. Ear notches are also recommended to identify ownership in case the ear tag is lost.

Tagging a fawn with the tag year of its birth marks the fawn as belonging to a particular age group. Identifying the sex at the same time helps establish sex/age groups. Thus, information can be recorded over an animal's lifetime, and differences between animals of similar sexes and ages can be compared. Establishing sex/age groups is important in identifying trends within a herd such as bull to female ratios. Identifying trends is useful in making management decisions and evaluating their results.

## Fawn Production

Another advantage of record keeping is maintaining reproductive histories of female animals. As females come through the chute during a summer handling, their udders can be checked for milk, an indication that they are nursing a fawn. While this method is not entirely accurate for evaluating reproduction, it is currently the most useful method available. As the years go by, a reproductive history of a female can be compiled. In the winter when animals are tagged for slaughter, the reproductive histories of the females can be checked as they come through the chute. Because non-productive females consume food in grazing areas but are not producing offspring, they should be favored for slaughter over productive females.

## Castration

A sound castration policy can be established by using records to determine which males are better candidates for steers. By knowing ages and by recording weight gain over several years, smaller, adult males can be selected for castra-

tion.  The genetic stock would be improved by keeping the larger animals as bulls. Smaller animals would put on more weight as a result of being castrated.  By recording weights after the animal is castrated, weight gain could be monitored. Thus, a decision when to slaughter a steer could be made based on age and weight gain. Additionally, information on the number of steers in the herd aids the herder in deciding how many bulls to castrate.

## Medical Records

Maintaining herd health is important to any herder, and keeping accurate medical records for animals is the best way to monitor herd health.  Vaccinations for diseases, such as brucellosis, are now being administered to reindeer herds. Keeping track of how many animals have been vaccinated and how many have not is important for evaluating the degree to which the herd is immunized against the disease. Knowing these numbers is also useful for determining how much vaccine is needed at the next handling to completely vaccinate the herd.

Blood tests are often taken to monitor the incidence of disease in a herd.  Having the results of these tests available provides even more information on the state of herd health. Treatments for parasites, such as warbles, are also being administered.  During the winter as each animal is treated, a record of its treatment is made.  During the summer the animal is checked visually for evidence of the parasite. When combined for the whole herd, these medical records provide a picture of the overall health of a herd. A healthier herd leads to healthier profits.

## Antler Production

Antler production is a major source of income for a reindeer herder.  Maintaining a stock of animals that produces the largest antlers will increase the total weight of

antlers produced for a herd.  By keeping records of antler weights as they are cut at the summer handling, animals that produce the largest antlers can be spared from slaughter in favor of animals that do not produce large antlers. Having a history of antler weights for an animal provides additional information when deciding whether or not to tag an animal for slaughter.

## Radio Tracking

More and more radio collars are being put on animals to track the movement of animals in a herd.  The serial number of the radio collar and the ear tag number of the animal are recorded when the radio collar is put on the animal. If the radio collar fails or produces a mortality signal and there is no sign of the animal, the record keeping system aids in determining the fate of the animal.  If the animal is seen at the next handling, the mortality can be shown to be false.  If the collar has failed, a new collar can be fitted to the same animal. If the animal doesn't show up for the next two or three handlings, a mortality can be assumed.

## Trends and Reports

By keeping records on all of the animals in the herd, trends within a herd can be identified. These trends can be summarized in report form and aid in further management decisions. Trends such as the rate of return of animals can be observed.  Such trends provide a picture of the mortality rate of the herd. Over time, trends in weight gains and losses can help determine the optimum time for slaughter. General health of the herd can be evaluated; increases or decreases in fawn crop can be measured, and results of slaughtering decisions can be observed.

## Computers

Computers were created to perform the kind of record keeping work described here and to do it much faster than if done by hand. By using a computer to collect data, evaluate data, and generate reports, a great deal of time can be saved. During a handling the computer can be used to generate a display of the history for an animal while new data is being entered. This display is more or less instantaneous whereas sorting through written records would be prohibitively time consuming. As new data is being entered, the history of the animal can be examined. This history can be used to justify the kind of decision making that has been discussed throughout this paper. In addition, when the handling is complete, a comprehensive report can be generated at the handling site. This report presents statistics on the current and past handlings and summarizes the trends that are being established in the herd. It also provides the means of examining the results of decisions that have been made and can point out trouble spots. Figure 1 summarizes the information input/output process.
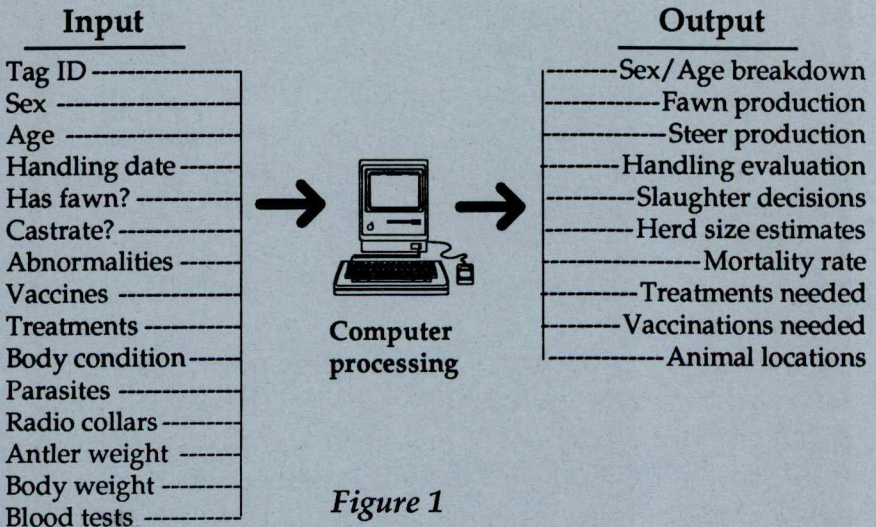
| Input | | Output |
|---|---|---|
| Tag ID | | Sex/Age breakdown |
| Sex | | Fawn production |
| Age | | Steer production |
| Handling date | | Handling evaluation |
| Has fawn? | | Slaughter decisions |
| Castrate? | | Herd size estimates |
| Abnormalities | | Mortality rate |
| Vaccines | | Treatments needed |
| Treatments | Computer | Vaccinations needed |
| Body condition | processing | Animal locations |
| Parasites | | |
| Radio collars | | |
| Antler weight | | |
| Body weight | | |
| Blood tests | | |

*Figure 1*

It should be noted that the information that the computer produces is only as accurate as the information that is put in. Taking the time to collect accurate data is the best way to guarantee accurate results. As information is collected over the years, its usefulness can be analyzed, and the decision making process can be refined. New categories of information can be added and evaluated for their value.

## The Future

The future of the reindeer industry depends on effective herd management and efficient animal handling. Many new techniques in these areas are being developed. One such development is a tiny transponder that can be implanted under the skin of a reindeer. This transponder contains a code which uniquely identifies a deer. When the transponder is activated by a scanner, the code is revealed on a display and automatically entered into the computer. This may eventually replace ear tags as a means of identifying and determining ownership of a reindeer. It will also greatly improve the efficiency of a handling by eliminating the need to read ear tags.

Another important aspect of herd management involves rangeland use. As more and more data is compiled from radio tracking of collared animals, the movement patterns of the herd can be mapped. By overlaying vegetation maps on animal movement maps a picture of the grazing preference of a herd can be developed. This information can help in reducing overgrazing certain areas of the rangeland.

Finally, computer applications in the area of herd management have only begun to be explored. The use of a computer aided record keeping system can provide the reindeer herder with the information needed to make productive and profitable herd management decisions.

Agricultural and Forestry Experiment Station
School of Agriculture and Land Resources Management
University of Alaska Fairbanks
James V. Drew, Dean and Director