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Electronic matching of female reindeer and calves

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Traditional identifying the ownership of free ranging reindeer calves in mountain pastures, is work demanding and time consuming for the herders. By using GPS collars and UHF short-range technology, the reindeer calves are more easily matched to the female reindeer whose ownership is known. The goal is to reduce the workload for the herders, and the time the reindeer stay in pens.

Introduction

In each reindeer herding district in Norway, there are several reindeer owners. Ownership is marked with a unique system of earcarving. The reindeer calves are born free ranging in mountain pastures in spring/early summer. These are carved when the reindeer herd is gathered in late summer/early autumn. This is a three stage process. First, the reindeer herd is devided, and groups up to 500 animals are gathered in pens. Approx. 50 animals at the time are driven into small rounded pens (diameter approx. 15 m, figure 1). All calves are catched (grabbed by hand) and equipped with collars with a number plate (title picture), before the females and calves are released into larger pens (approx. 150 x 150 m). This is repeated until all the animals have been sorted. After approx. 30 minutes in the larger pens, the animals have calmed down, and the calves are following their mothers. Based on the number plates the calves are then paired to their respective mothers visually (or by using binoculars). The process before all animals are paired is time consuming. In addition, the animals are disturbed during this observation period. The next step is to gather the reindeer herd again in the small pen, catch the calves and remove the collar with the number plate and mark the animals by ear carving (and in some cases a plastic eartag). By use of GPS collars and UHF short-range technology, it should be possible to identify the ownership of the calves without the visual identification process.

Materials and methods

The "Telespor Radiobjella" generation 3 (GPS/GSM collars) with UHF short-range radio signals, will be used for the identification process. Each calf will be equipped with a "Telespor radiobjella 3" collar with large, visible id number. This devise will send a number of signals with increasing strengths in broadcast mode. This sequence of signals will be repeated at fixed intervals. Female reindeer device: Each female are already, or will be equipped with a "Telespor radiobjella 3" collar. These collars are linked to the different reindeer owners in the database on the Telespor data server. The female device will listen continuously for radio signals, and will record the incoming signals and id-number from the calf device. This information is

Figure 1. Reindeer gathered in the small pen for calf marking. Photo: Svein Morten Eilertsen.

Figure 2. Reindeer with “Telespor radiobjella” GPS/GSM collar. Photo: Svein Morten Eilertsen.

sent through the GSM system to the Telespor data server.

The program for pairing female reindeer and calves assume that the calf and mother move together, and that other mother-calf pairs move independently. It also assumes that the number of signals received will be significantly higher for the correct calf than for any other calves. The reindeer owner can log on to his own area on the Telenor server with a unique password, and match the id-number of female and calf.

Results and conclusions

Electronically pairing female reindeer and calves reduces disturbance in the herd during the matching process. This method also allows for the herd to be released into larger pens during matching, which reduce internal stress to the animals. The period for visual identification and marking might last up to three hours per group of reindeer in the sorting pen. Therefore, electronic identification of calves might reduce the workload significantly.

Figure 3. Traditional collars with numbers for reindeer calves. Photo: Svein Morten Eilertsen.

Figure 4. Selecting reindeer calves for earmarking. Photo: Svein Morten Eilertsen.

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