A Simple Carnivore Improvement of Existing Sheep Fencing

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Summary: *We present technical specification for a simple way of securing sheep pastures against large carnivore attacks. The method was originally planned to suit pastures already fenced off with a mesh-wire, i.e. the traditional fence used for sheep in Norway.*

In 2000-2002, the Norwegian government spent € 325'000 (US$ 400'000) on securing livestock fences against large carnivores in the county of Østfold. Sheep owners had two options; either they could improve an existing mesh-wire fencing (Fig. 1a) by adding 1-3 electric wires, or exchange the whole fence with a fully-electric wire fence (Fig. 1b). Most sheep owners chose the first option. However, due to low height of their existing fences several owners also chose the latter option. Thereby long stretches of high-quality sheep mesh-wire was taken down, and exchanged with fully-electric fencing.

Although immediate preventive effects of the improved Østfold fences have been documented (see this issue of CDPN), their long-term effects are uncertain since they predominantly work as psychological barriers. The most prevalent argument for not building fences with stronger physical effects has been high material costs.

We present a fence alternative that represents more of a physical barrier, but still lies within the cost range of improved fences in Østfold.

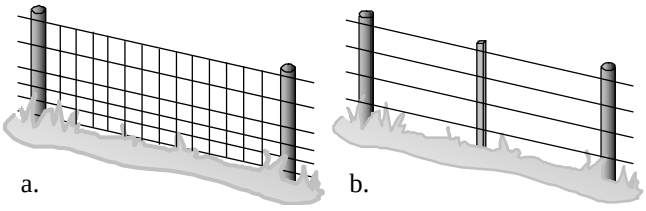

Fig. 1: Sheep fencing used in Østfold: a. traditional mesh-wire, and b. a fully-electric "carnivore" fence.

Technical specifications

We assume that the pasture is already fenced off with a traditional sheep mesh-wire fence. The challenge with such a fence is to get sufficient height to prevent carnivores from jumping in. The posts usually stand 100-120 cm above the ground. On sloping ground this means the effective height can be very low on the outside.

The distance between posts in the traditional fence is normally 1.5-2 m. Along with the mesh-wire this makes them very rigid. They can easily withstand the pressure of adding extra height without any of them being exchanged. This may of course be done in several different ways, not all equally robust. We suggest that higher fence posts are added for every third existing one (Fig. 2). This means that no parts of the original fence have to be removed (although it may be a good idea to simultaneously tighten up the mesh-wire).

Conclusion

The cost of the described fence alternative is intermediate compared to the improved fencing in Østfold (see Table 1). Though, without a mesh-wire fence present, it will become the most expensive alternative with the present cost-regime in Norway. However, if one considers the potentially higher preventive effects of such a fence, it may still be the best option. A cheaper fence with mainly psychological effects may turn out to be more expensive over time.

Tab. 1: Alternative carnivore improvement of sheep fencing in Norway, their cost and subjectively estimated barrier effects (based on the Østfold experience and present knowledge on carnivore behaviour, not tested). Costs include the labour needed to build the fence (for details, please contact the corresponding author).

Fence type	Height	Number of electric wires	Psychological effect	Physical effect	Costs per metre
Traditional sheep mesh-wire	100-120	0	10 %	20 %	€ 3.75
As above with carnivore improvement as recommended by the Authority	90-125	1-3	80 %	60 %	€ 1.50
As above with carnivore improvement as recommended in this paper	150-160	5	90 %	90 %	€ 2.25
Fully-electric "carnivore" fence as recommended by the Authority	100-120	4-5	70 %	50 %	€ 2.75

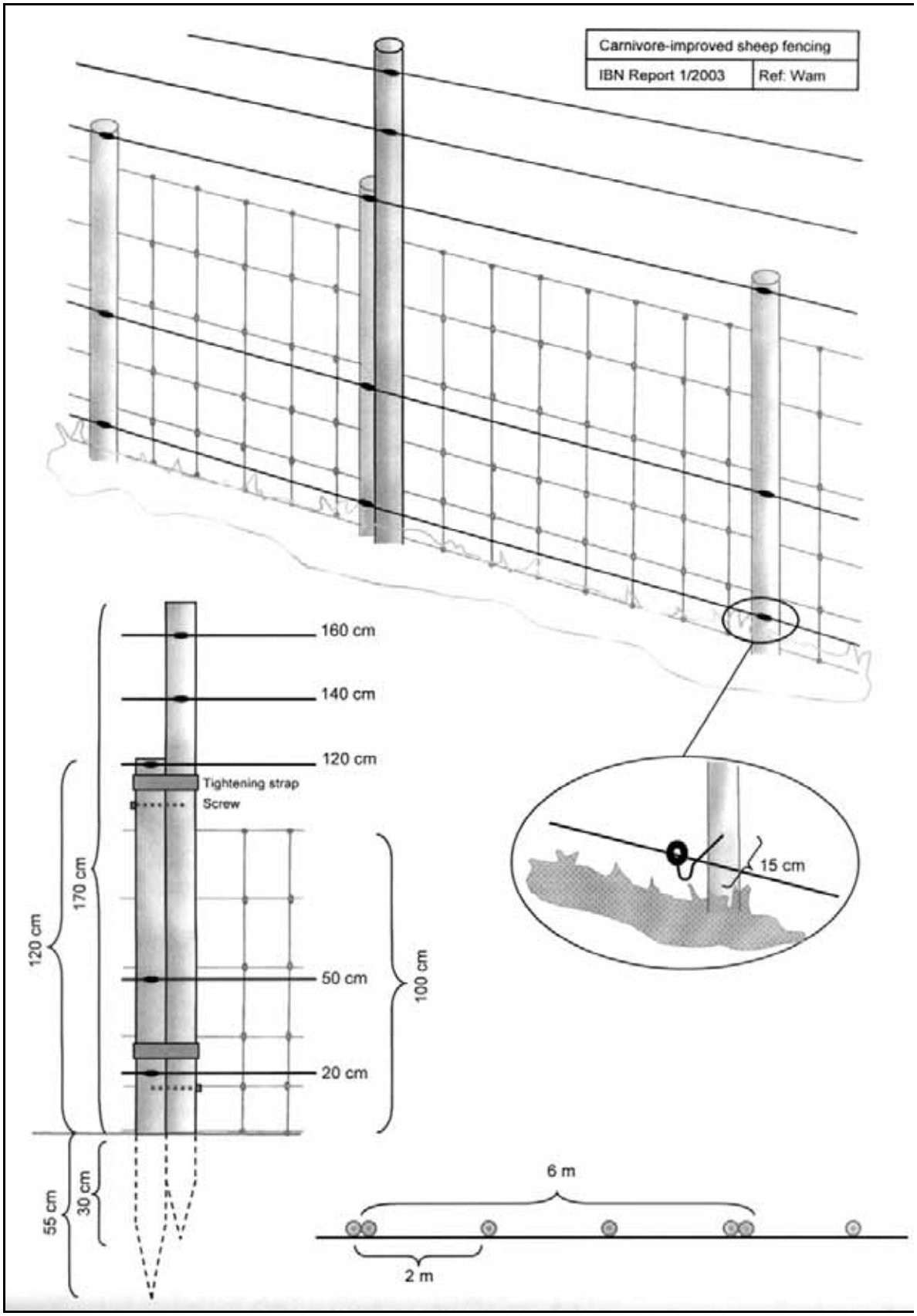

Fig. 2: A simple way of securing sheep mesh-wire fences against attacks from large carnivores.