



*Winter feeding of reindeer stock at Kriivarin porotila (“Kriivari reindeer farm”). The farm has a 20-year history of keeping reindeer, and current stock is seven animals. The primary purpose of keeping the reindeer at Kriivari is preserving the traditional rural landscape by grazing & browsing on a 26 ha plot. In addition, the reindeer at Kriivari are also kept as tourist attraction and for small-scale meat production. © Juhani Lahtinen*

## **Keeping of semi-domestic reindeer (*RANGIFER TARANDUS TARANDUS*) outside the statutory Reindeer Herding Area in Finland - with reference to the risk created to the conservation of forest reindeer (*RANGIFER TARANDUS FENNICUS*) genome**

*WildForestReindeerLIFE  
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## **Keeping of semi-domestic reindeer (*RANGIFER TARANDUS TARANDUS*) outside the statutory Reindeer Herding Area in Finland - a reference to the risk created to the conservation of wild forest reindeer (*RANGIFER TARANDUS FENNICUS*) genome**

### **BACKGROUND**

Two subspecies of reindeer (*Rangifer tarandus*) live in Finland. The semi-domestic reindeer (*R. t. tarandus*) lives almost exclusively in the statutory Reindeer Herding Area in the north, whereas the wild forest reindeer (*R. t. fennicus*) lives further south. These subspecies are prone to interbreed, which creates problems not only in the reindeer herding but for the genetic integrity of the wild forest reindeer (hereafter 'WFR') as well. For this reason, the subspecies are kept apart with various active measures along the southern border of the reindeer herding area.

In addition to the actual Lappish livelihood of herding free-roaming reindeer in the north, semi-domestic reindeer are kept also outside the statutory Reindeer Herding Area. There they are usually kept confined as private pets, in petting zoos or other tourist attractions, or for small-scale meat production purposes. This kind of reindeer keeping obviously creates a problem of its own kind for the WFR conservation as the kept animals occasionally escape from these farms. The mingling of these escapees with the herds of WFR can pose an immediate risk for the genetic integrity of the wild subspecies.

Traditionally, such small-scale reindeer farms outside the reindeer herding area have not been registered at all. Furthermore, this kind of keeping of reindeers as such has not been regulated by law since the Reindeer Husbandry Act of Finland is not valid outside the Reindeer Herding Area. Such disordered state of affairs prevailed still during the planning of the sub-action C3.2 of the WildForestReindeerLIFE, where this small-scale keeping of reindeers outside the reindeer herding area was about to be examined and mapped. As the project started, our idea was to carry out this task during the second project year (2018). Also, the plan for systematic marking of animals was to be made. Execution of this particular task in the sub-action C3.2 was, however, postponed because of HR deficit in the project, and the work was eventually done as late as in 2022. However, this delay turned out to be fortunate as the Commission Implementing Regulation (EU) 2021/520 had entered into force in the 21<sup>st</sup> of April 2021. Among other things this EU-regulation specifies the means of identification (i.e., individual marking) of kept cervid animals thus effectively putting an end to the abovementioned deficiency in small-scale reindeer farm registration and animal marking.

This legislative reform was acknowledged in execution of the sub-action C3.2. by rejecting the making of a plan for systematic marking of animals. The survey and mapping of farms, on the other hand, was kept on the agenda even though the new legislation would eventually take care of the registration in the coming years. We consider the results of our survey would still turn out handy as a reference for the competent authorities.

The risk for subspecies' interbreeding concretizes when a confined domestic reindeer escapes (or becomes released) close to the WFR occurrence range. Escapes are obviously accidental, but we have also witnessed deliberate releases of farmed reindeer. As long as reindeer keeping remains legal also outside the reindeer herding area, the most important objective of is perhaps to raise the awareness of people in general and reindeer keepers/owners in particular about the risks of this activity toward conservation of WFR genome.



## METHODS OF THE SURVEY

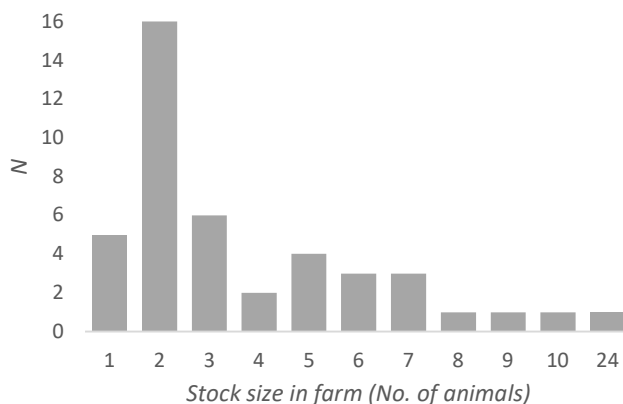
Due to the lack of any reindeer keeping registers, or any other systematic information for that matter, the methodology of searching small-scale reindeer farms was very simple and straightforward. First, we made an extensive on-line search of farm websites, news, online discussion groups, social media, animal selling ads etc. by using a wide array of relevant search terms both in Finnish and in Swedish. At the same time, we extended the search outside internet by carrying out a comprehensive inquiry among the authorities in all municipalities outside the statutory reindeer herding area for possible information of reindeer keeping in their respective area. Secondly, of all relevant search hits we recorded any available contact information and started to contact the keepers via email and by phone. In these contacts we asked the keepers about the history and present status of their reindeer keeping activity. We also gathered information about past escapes and whether the animals remained missing or were recaptured.

## RESULTS OF THE SURVEY

The total number of small-scale reindeer farms or other reindeer keeping places found outside the reindeer herding area was 59. In 34 of them we were able to interview the responsible person. Out of the remaining 25 places there were eight in which the reindeer keeping had ceased recently, and seventeen where keepers were not reached. Either we didn't find any contact information for them, they didn't want to be interviewed, or they just didn't respond to us.

Nearly all interviewees had a positive attitude towards our work. On only one occasion we got criticized by the respondent. However, the questions concerning the escaping of reindeer appeared to be awkward for many keepers. In general, the keepers were often reluctant to elaborate the details of the escape incidents. Seemingly, the escape cases were played down by the keepers. Typical stories were such that the escaped reindeer were either easily retrieved or that they had been killed soon after escape.

**'Reindeer stock in Farms'** — The current (or recent) head count of their reindeer could be achieved from 42 keepers. Their combined stock was 179, which results 4,3 as the average number of reindeer/farm. Two animals was clearly the most common "herd" in a single farm (Fig 1).



**Figure 1.** The frequency of different farm stock sizes in small-scale reindeer keeping outside the statutory reindeer herding area in Finland. Only places with confirmed current/recent stock size are included.

**'Escapes from the farms'** — Altogether ten (29 %) of the interviewed keepers (n = 34) mentioned escapes. Often there was one reindeer that had escaped once, whereas in some cases several animals had managed to escape more than once. We could not count the total number of escaped individuals in the cases the keepers brought up because they often used only plural form of reindeer without any specific number. According to the stories, most animals had been recovered and some remained missing.



Along with the interviews, we also searched the internet for evidence of reindeer-escapees. We got a total of ten search hits of escape cases from the last decade and a handful of even older cases. These cases totalled at least 65 individual reindeer. There is perhaps overlap between the cases in keepers' stories and these on-line search results, but probably such overlap is rather small. The latter incidents were newsworthy and the public as well as authorities were often involved, whereas the keepers did not mention any publicity around the cases they talked about.

Obviously, the detected escape cases are a minimum number, and the situation may actually be worse. This is supported, for example, by the fact that already some years before this work was done we had heard of a farm where the owner had a habit of intentionally releasing the reindeer in late fall to roam free for self-sustained winter feeding. The herd in that farm was approx. 20 strong. That farm is one of those where we didn't manage to reach the keeper/owner. Hence, we do not know the present status of reindeer keeping there.

### Risk to WFR genome

Crossbreeding of semi-domestic reindeer with WFR is known to be a serious risk to the genetic integrity of the latter. This threat is most acute in the vicinity of the southern border of the statutory Reindeer Herding area, where it is attributed to WFR mingling with reindeer that are those actual free-roaming reindeers of the north. Prevention of this to be happening forms the major part of Action C3 in the WildForestReindeerLIFE.

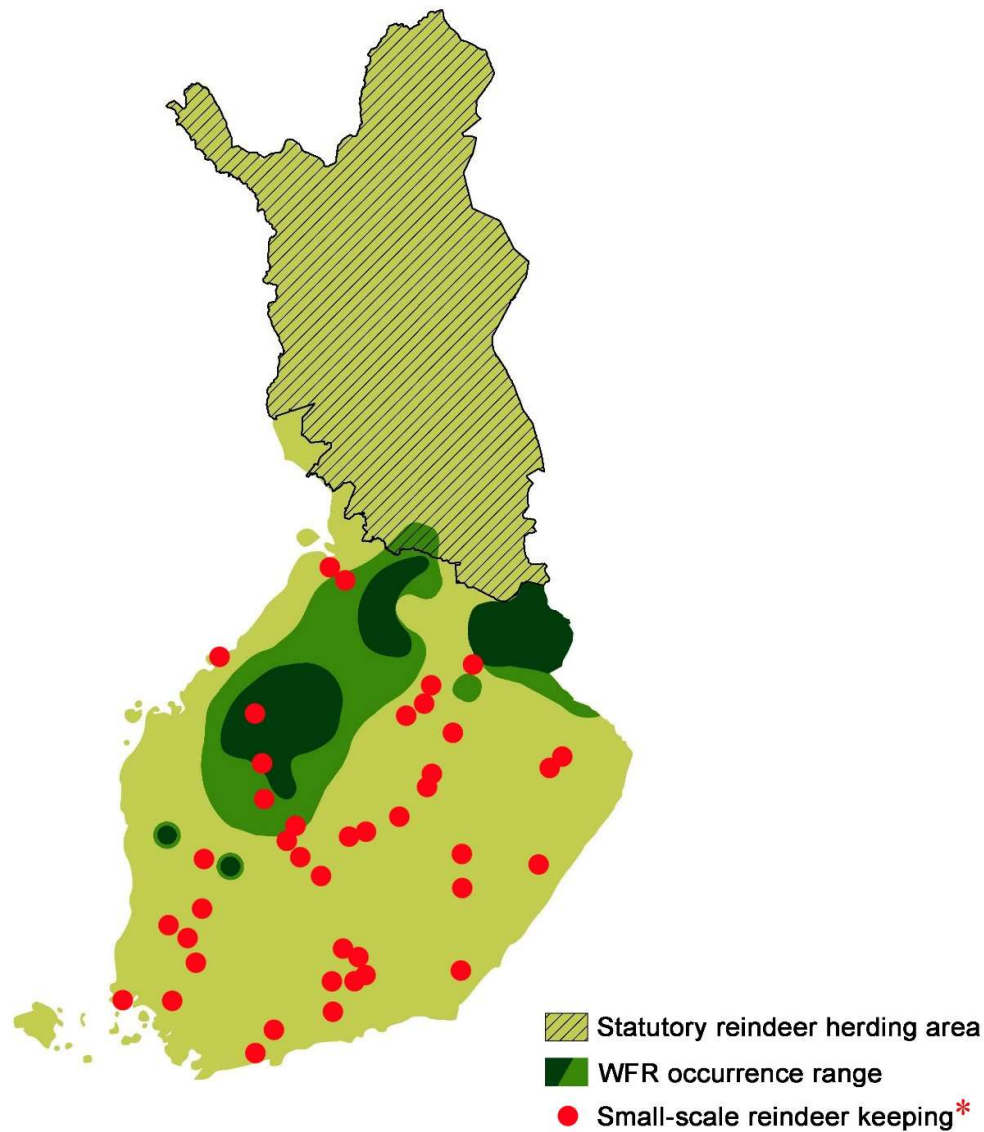
However, results of this survey reveal that also the crossbreeding risk posed by small-scale reindeer keeping outside the Reindeer Herding Area is apparent. We do not have direct evidence of such crossbreeding having taken place, but the sheer commonness of escape incidents at the farms, and the increase of WFR population suggests that the possibility is definitely there. Approximately half of the reindeer keeping takes place in or close to the current WFR range which creates an imminent risk as such, and the risk is even amplified with both subspecies' inherent proclivity for long-distance movements (see Fig. 2 and Fig. 3).

This report will be translated in Finnish and delivered to the competent authorities. The results of this work will be communicated to the small-scale reindeer keepers and to the general public.

*Figure 2. One of those hard-to-explain encounters with a stray domestic reindeer. A passer-by photographed an animal in a rural village in western Finland in September 2020 and sent the photos to us for identification. A couple of days later we received one more photo of the same animal from another person. After that we heard nothing of the animal anymore. We circulated the photographs among the project workers, and by inspecting the morphology, we came to a conclusion that this is a female domestic reindeer and not a WFR. The animal's distance to the nearest known reindeer farm was more than 40 km (and 90 km to the nearest known occurrence of WFR). We were never able to figure out its origin. Another aspect of this incident is that it was one of the many positive examples of our success in the project's communication. During the project we have evidently become identified as Rangifer-experts by the general public, and we have been contacted with all sorts of topics that are related to Rangifer subspecies. © Janne Ylimäki*







**Fig 3.** Small-scale reindeer keeping in 2022 and the permanent occurrence of wild forest reindeer outside the statutory Reindeer Herding Area in Finland. Considering the breeding risk between the *Rangifer*-subspecies, it is justified to state that approximately half of the small-scale reindeer keeping places are such where escaping of the kept animals can pose a risk to the WFR genetic integrity.

\* Only places with confirmed reindeer stock size are mapped here (n=42).