Report on the translocations (Action C1)

Report on monitoring the translocated seals (Action D1) will be published at the end of the project

Action C1: Implementing genetic rescue plan by translocations

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Summary

The translocations of three adult ringed seals within Lake Saimaa were conducted in springs 2023 and 2024. In addition, a pup delivered to rehabilitation to Metsähallitus in summer 2024 was released to Kolovesi basin and is reported therefore as additional translocation. The translocated seals are monitored after release by satellite tags, photo identification (photo-ID), and genetic monitoring.

Introduction

A conservation translocation is the intentional movement and release of organisms from one area to another, primarily to conserve a species or restore ecosystem functions and processes (IUCN 2013). Previous studies underscore the genetic challenges faced by the Saimaa ringed seal, including decreased genetic diversity due to high site fidelity, small population size and inbreeding, which threaten population's long-term viability. In addition, the population is divided genetically into few different subpopulations, which poses significant challenges to conservation efforts (Valtonen et al. 2012;2014, Löytynoja et al. 2023, Sundell et al. 2023). To maintain current remaining genetic diversity and mitigate the potential negative effects of inbreeding pressure, we conducted assisted gene flow within Lake Saimaa by translocating few seals. Translocations were carried out from area with highest population density to areas genetically isolated and/or small population but with suitable and safe habitat for the seals according to the principles and guidelines for genetic rescue (Biard et al. 2022, Sundell et al. 2023). Sundell et al. (2023) recommend Pihlajavesi as a potential source and Southern Saimaa as a potential recipient of subpopulation for translocating individuals (Figure 1). In addition, Kolovesi is recognized also as recipient population due to population demographic reasons. The Saimaa ringed seal is also recently recognized own species (see Löytynoja 2025) and therefore translocations are considered only within the lake to avoid an unpredictable risk of disease, the introduction of deleterious alleles, and severe ecological issues for the population.

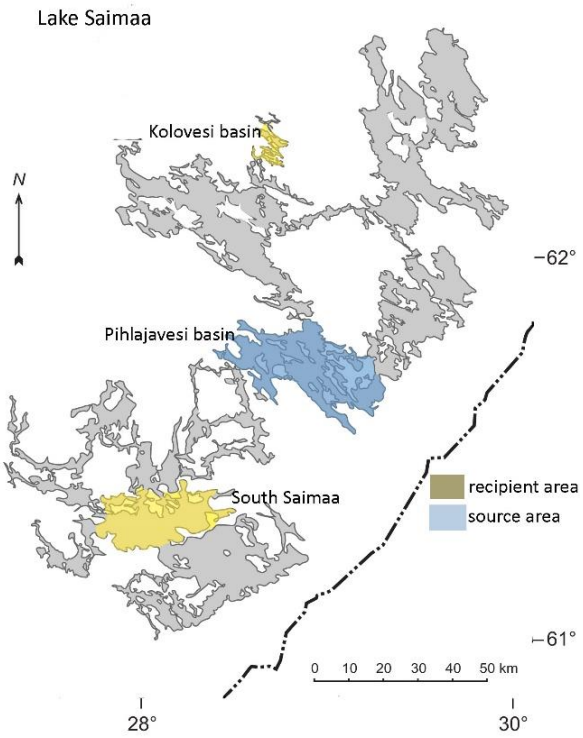

Figure 1. Map of the Saimaa ringed seal translocation regions. Light-blue area indicates Pihlajavesi as a source population area and yellow areas indicates recipient population areas in Kolovesi and South Saimaa.

Capturing and translocations

Fieldwork related to capturing and translocations were carried out by UEF together with Metsähallitus, WWF Finland and Korkeasaari Zoo. This action was linked to other actions of the Life project (A1, A3, A4, A8, C6, D1). The detailed procedures for seal capture and translocation involved comprehensive training prior to the capture efforts, ensuring personnel were well-prepared and tested negative for COVID-19 and influenza before handling seals. Specific site selection was based on water depth, flat bottom, and suitable opening width for capturing nets, with potential sites identified through photo-ID datasets of local seals, ensuring targeted and informed capture efforts. Potential capture sites were scanned for water levels, and camera traps set weeks before capture to monitor haul-out sites with real-time identification of seal presence and suitability for capture. The camera traps facilitated non-invasive monitoring and ensured capture only when seals were confirmed present, thus minimizing disturbance and optimizing safety.

Capturing of the selected seal individuals (Table 1) was done by supervised tangle nets dropped from a boat around hauled-out seals during the late molting season. When a seal becomes entangled, typically within 10 to 15 minutes of setting the net, it is immediately lifted onto the boat, released from the net,

and taken to the nearest shore. This method allowed for quick intervention to minimize stress and injury to the seal.

The translocation procedure for the seal involved careful handling to ensure its welfare, including monitoring body temperature and breathing cycle (Table 1), which are standard practices in wildlife translocation to minimize stress and health risks. The use of a custom-made translocation box with ice cubes to regulate temperature reflects best practices in animal transport, aimed at preventing overheating and stress. The entire process, from capture to release, lasted around four hours, covering approximately 90 km, with a dedicated handling team including a wildlife veterinarian to monitor the seal throughout, ensuring its well-being during transit.

The seal was handled on the target site by restraining manually. The pelage patterns were photographed before releasing, and DNA samples were taken (saliva and skin). Furthermore, a GPS/GSM tag (SMRU, Univ. of St. Andrews, Scotland) was glued using rapid glue (Loctite 454) to the fur between the scapulae and a plastic flipper tag attached to the hind flipper.

Table 1. Descriptives of translocated seals and parameters of monitoring the welfare of the animal during translocation procedure. F = female, M = male.

Seal ID	**Sex**	**Kg**	**Source area**	**Recipient area**	**Release date**	**Breathing cycle /min**	**Body temperature before /after transport °C**
Phs221 (AM23)	F	48	Pihlajavesi	Kolovesi	22.5.2023	5 & 3	NA/35,4
Phs499 (TU23)	M	41	Pihlajavesi	South Saimaa	24.5.2023	NA	NA/36
Phs083 (JE13)	F	44	Pihlajavesi	Kolovesi	22.5.2024	NA	36,3/35,6
Phs527*	M	18,5	Pihlajavesi	Kolovesi	31.8.2024	NA	NA/NA

*Rehab pup

During 2023-2024, translocations of Saimaa ringed seals from Pihlajavesi to other parts of Lake Saimaa: Kolovesi basin and South-Saimaa (Figure 1), were successfully carried out. Specifically, two females (AM23 and JE13) were moved to Kolovesi basin, and one male (TU23) was moved to South-Saimaa. The additional effort involved a male pup found in poor condition in Pihlajavesi during summer 2024, which was rehabilitated and released into Kolovesi basin in autumn 2024.

Translocations were conducted under the permits of the regional Centre for Economic Development, Transport and the Environment (ESAELY/1035/2022 and ESAELY/1062/2024), Project Authorisation Board of Regional State Administrative Agency (formerly Animal Experiment Board ESAVI/34853/2022) and water area owners.

Monitoring and future perspectives

Translocated adult seals were tracked daily with GPS tags until tags dropped off. In addition, both adults and the pup were attached by flipper tags, which enables later identification, if animals are found dead. Photo-ID, which relies on unique pelage patterns, is used for long-term monitoring. These seals are annually tracked with Photo-ID. For long term and over generation evaluation of the success of the translocation can be monitored by DNA. DNA samples are being analyzed at the University of Helsinki to find out the genetic background of translocated seals and can be compared later to found pups/placentas/hairs. Together, these methods enable comprehensive, multi-generational monitoring of translocation outcomes, ensuring the seals' survival and genetic health. A report with the results of the monitoring will be published at the end of the project.

The long-term success of translocations is enhanced when integrated with other conservation actions such as habitat protection and gill net fishing restrictions, which collectively improve the likelihood of viable and resilient populations. Therefore, translocations are a valuable tool in the conservation toolkit for the Saimaa ringed seal, but their effectiveness depends on comprehensive, multi-faceted conservation efforts.

Acknowledges

The success of the translocation of Saimaa seals was dependent on a skillful and dedicated work group of several people. We would like to sincerely thank all the people who participated in the design and conduction of this Action. The Action is part of the Our Saimaa Seal LIFE (LIFE19NAT/FI/000832) project. The material reflects the views of the authors, and the European Commission or the CINEA is not responsible for any use that may be made of the information it contains.

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