

14.3.2019

Report of Raccoon Dog management in Finland for 2018

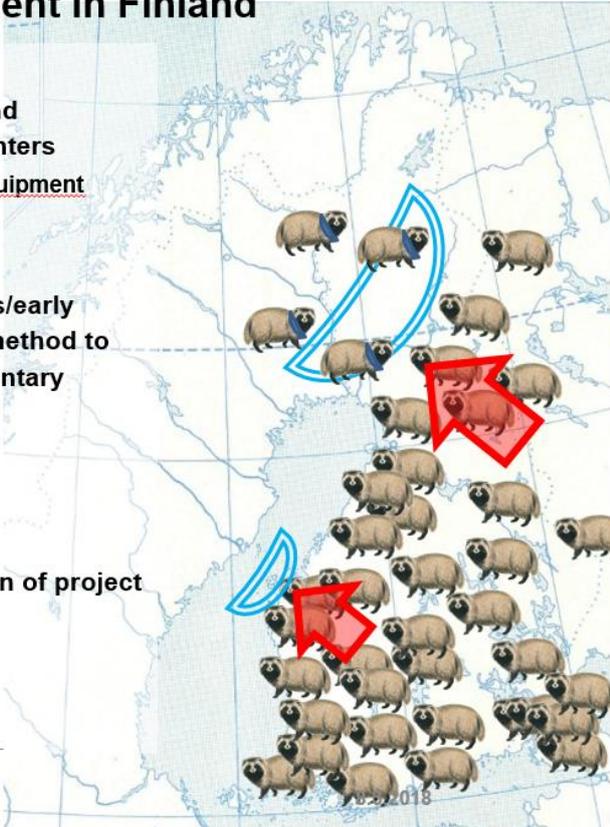
The Goal for 2018 in Finland was to continue the Actions of MIRDINEC LIFE project to prevent further invasion of Raccoon Dogs to Sweden and Norway, and to develop the work to be more cost effective while exploring the solutions for long-term financing.

In Finland the following Actions was carried out following the project working plan with practical adaptations where needed.

- Continue the use of monitoring cameras/early warning system EWS and develop the method to allow for rapid response from local voluntary hunters.
- Continue the use of Judas animals and develop the method to be more cost effective
- Continued co-operative management and information activities with volunteer hunters
- Information about IAS and dissemination of project results
- Efforts to renew the current legal context of the raccoon dog and its status as an invasive species, in alignment with the Finnish management plan of the raccoon dog, produced during the LIFE project.
- Legal permissions

Management in Finland

- **Continued co-operative management and information activities with volunteer hunters**
 - **Trap building, active hunting training, equipment**
→ **effective large-scale management**
- **Continue the use of monitoring cameras/early warning system EWS and develop the method to allow for rapid response from local voluntary hunters**
- **Continue the use of Judas animals**
- **Information about IAS and dissemination of project results**





Picture 1. Overview of Raccoon Dog management in MIRDINEC AFTER-LIFE project in Finland

General overview and Raccoon Dog (RD) harvest

Lapland

Juha Mäkimartti implements project activities in Lapland as external contractor for 2017-2020. The annual level of service depends on available funding.

During 2018 the project achieved the set objectives and succeeded to manage the RD population in the Finnish Lapland. The harvest level known by project has had slightly increasing trend from 2014 to 2017 while harvest was at all-time low during 2018. However, the proportion of Raccoon Dogs caught by regular hunters increased, which indicates that project receives information of the harvest better than before and on the other hand raises concerns of the possible increase of Raccoon Dogs in South-West Lapland. The messages from hunters in Lapland in general reflect a clear decrease of Raccoon Dogs as they are not observed or caught so often anymore compared to 2011.

Active co-operation with local voluntary hunters has continued and expanded well. The purchased trap materials and gift cards has played an important role as project has been able to provide tools and incentives for RD hunting. As previous years, also in 2018, a significant number of hunters has participated education events and meaningful number of live traps were built, set and maintained throughout Lapland by trained hunters. The non-scientific 'fox index' indicates that work has been succesfull and relative proportion of Raccoon Dogs in project traps has decreased significantly while know-how and number of traps has increased.

In Lapland the Raccoon Dog harvest by project staff and involved voluntary hunters was 79 animals in 2018. In addition, project staff has received information of 25 RD killed by other hunters and of 8 traffic kills. Total of 112 Raccoon Dogs has known by the project to be killed in 2018 in the project area in Lapland.

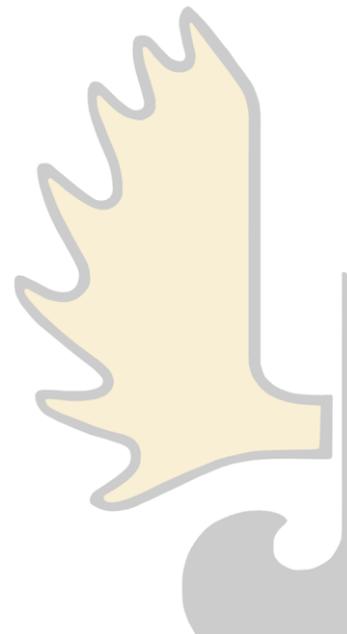
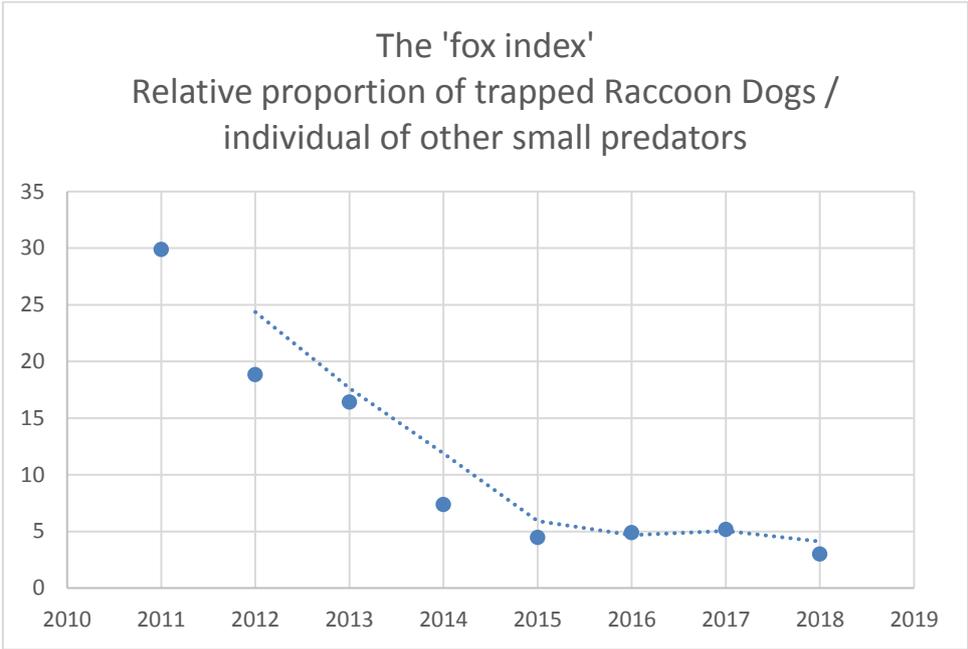
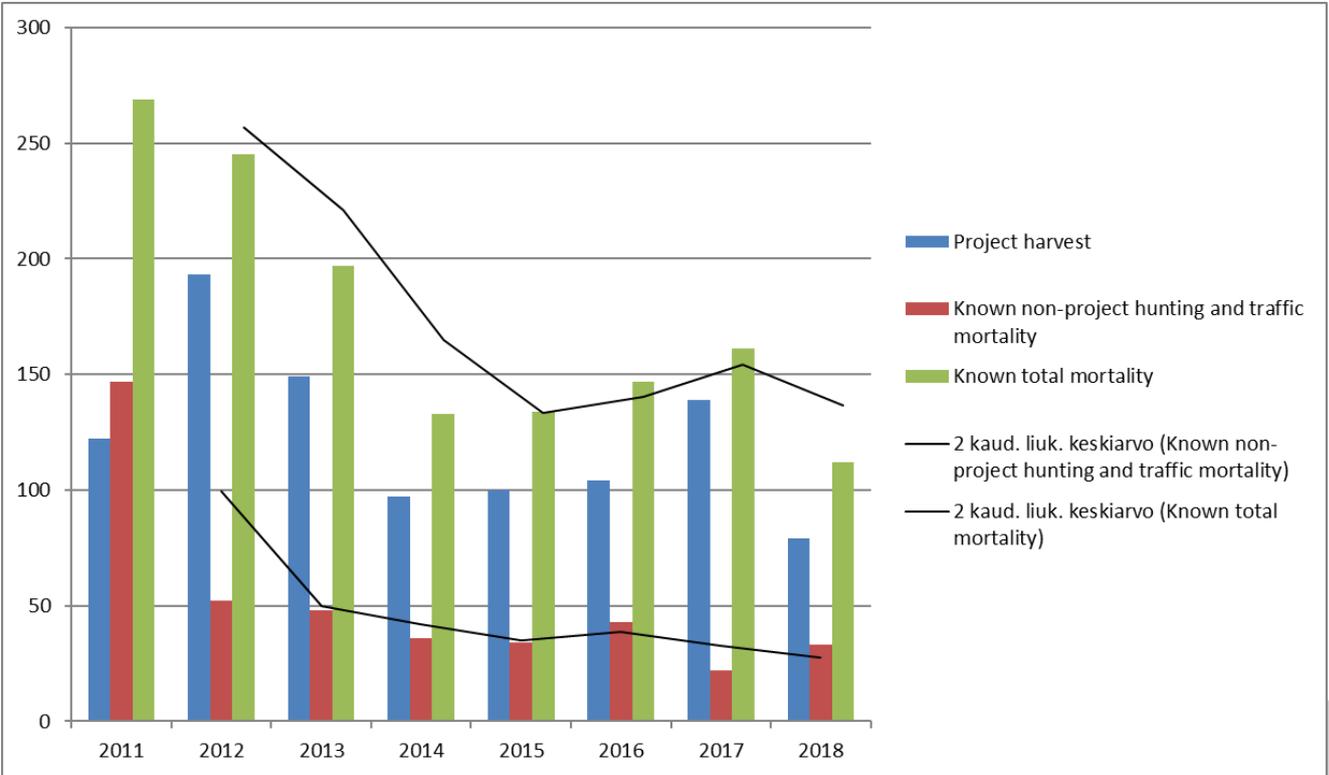


Table 1. Raccoon Dog harvest in Lapland

Raccoon Dog Harvest, MIRDINEC After Life	2011	2012	2013	2014	2015	2016	2017	2018
<i>January</i>	0	0	0	3	2	4	20	5
<i>February</i>	6	4	0	10	4	8		3
<i>March</i>	27	40	10	9	2	10		5
<i>April</i>	2	22	23	4	9	12	12	9
<i>May</i>	1	9	14	3	4	12	14	2
<i>June</i>	8	15	0	3	7	8	7	16
<i>July</i>	4	7	15	1	17	11	20	0
<i>August</i>	17	8	9	5	10	12	13	2
<i>September</i>	22	27	17	14	16	13	15	18
<i>October</i>	24	33	28	27	19	8	30	13
<i>November</i>	5	26	30	15	7	4	8	4
<i>December</i>	6	2	3	3	3	2	0	2
Total project/Mäkimartti	122	193	149	97	100	104	139	79
Other harvest known by Mäkimartti (actual harvest higher, this is and indicative figure)	128	40	39	32	32	37	17	25
Traffic kills (known by Mäkimartti)	19	12	9	4	2	6	5	8
<u>Total killed Raccoon Dogs</u>	<u>269</u>	<u>245</u>	<u>197</u>	<u>133</u>	<u>134</u>	<u>147</u>	<u>161</u>	<u>112</u>
<u>Other harvest + road kills</u>	<u>147</u>	<u>52</u>	<u>48</u>	<u>36</u>	<u>34</u>	<u>43</u>	<u>22</u>	<u>33</u>
Other small predators in projects live KaNu Traps ' the fox index'	9	13	12	18	30	30	31	37
red fox	3	5	6	12	14	15	17	11
badger	5	6	4	3	10	6	4	11
mink		2	1		2	3	4	4
pine marten/stoat	1		1	3	4	6	6	11



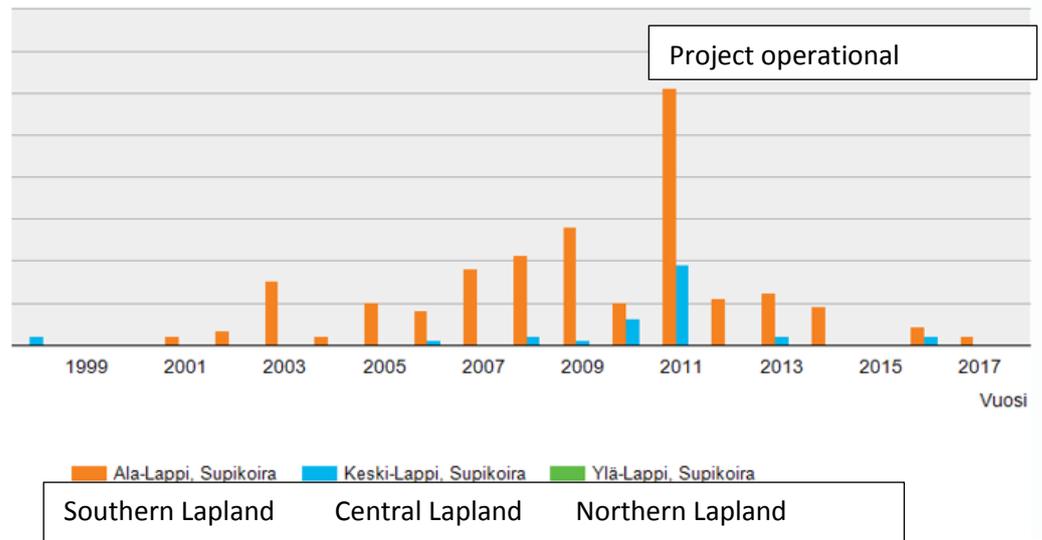
Picture 2: Development of the non-scientific 'fox index' as an indicator of relative abundance of raccoon dogs in project traps compared to an individual of other small predators. Trend line 2-year running mean



Picture 3. Graph of Raccoon Dog harvest in Lapland. Trend line in 2-year running mean.

LUKE riistasaalistilasto

Riistasaalis muuttujina Alue, Laji ja Vuosi



Lähde: SVT: Luonnonvarakeskus. Metsästys

Picture 4. Raccoon Dog harvest in Lapland based on official statistics. <http://stat.luke.fi/en/>

Valsörarna, Kvarken area.

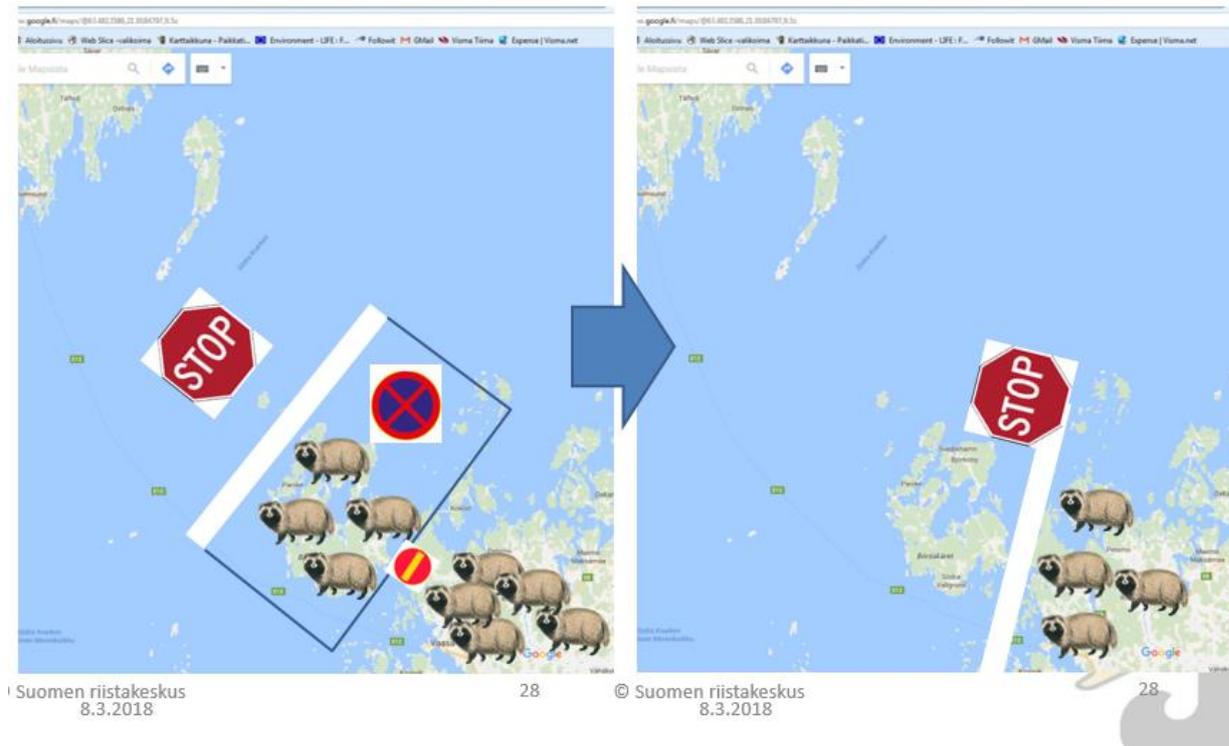
In Kvarken area, Korsholm Archipelago, and Valsörarna in particular, was new focus area in 2018. In 2018 one Raccoon Dogs was eradicated from Valsörarna and one remained to be removed in late winter when area is more accessible for hunting. Good co-operation was established with all four hunting associations in Korsholm Archipelago and game cameras and solar power units were purchased to increase RD hunting pressure in the whole area.

Total Raccoon Dog harvest in archipelago was significant, divided to areas of four hunting associations:

- | | |
|--------------------|-----|
| 1. Björköby | 44 |
| 2. Norra Vallgrund | 34 |
| 3. Raippaluoto | 27 |
| 4. Södra Vallgrund | 25 |
| • TOTAL | 130 |



Valsörarna Vision 2025

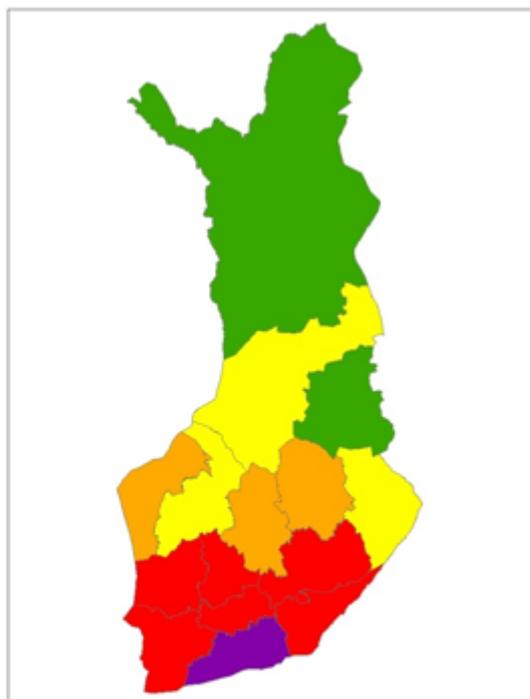


Picture 5. Illustration of the planned activities in Korsholm Archipelago and Valsörarna in particular

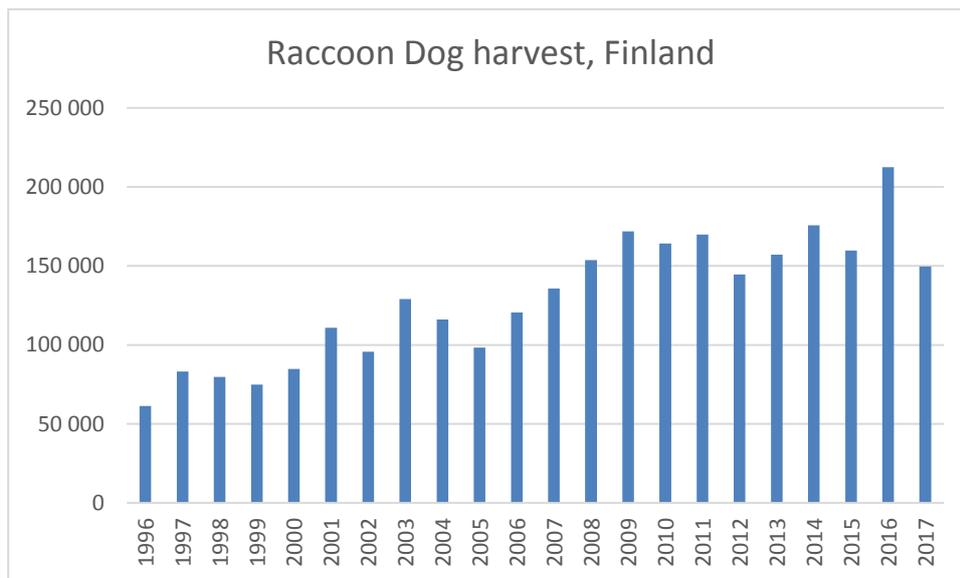
Overview of Raccoon Dog situation on Finland.

**Average harvest of Raccoon Dog
2012-2016 per km² of land in each of
the regions based on official
statistics**
Natural Resources Institute Finland

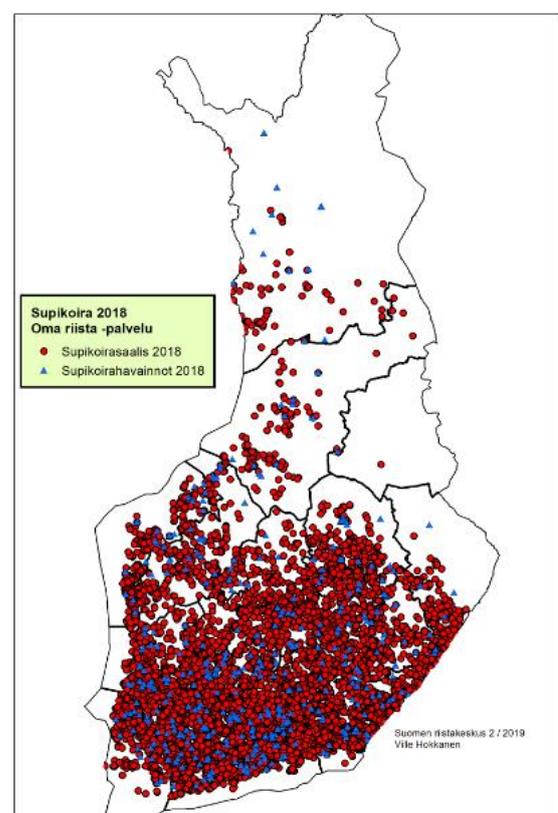
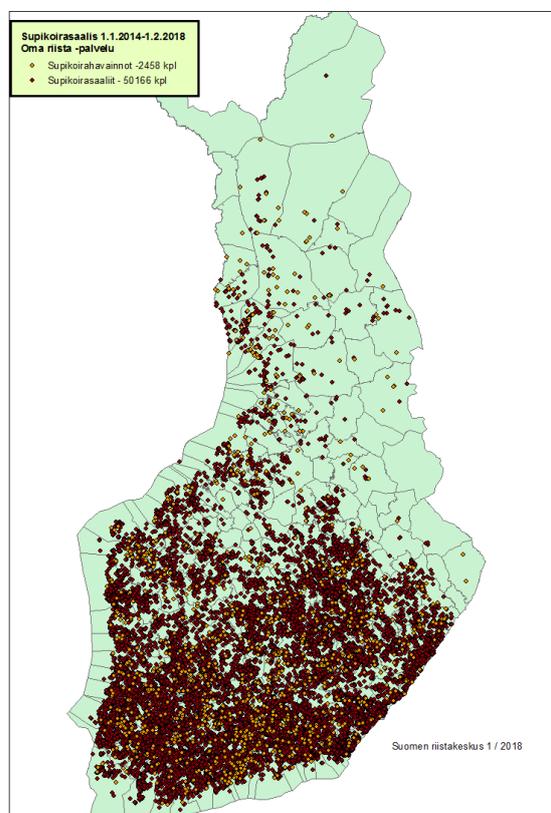
Lappi	0,01
Kainuu	0,03
Oulu	0,1
Pohjois-Karjala	0,3
Pohjanmaa	0,4
Keski-Suomi	0,7
Rannikko-Pohjanmaa	0,8
Pohjois-Savo	0,9
Satakunta	1,1
Kaakkois-Suomi	1,1
Etelä-Savo	1,4
Varsinais-Suomi	1,4
Pohjois-Häme	1,4
Etelä-Häme	1,9
Uusimaa	3,2



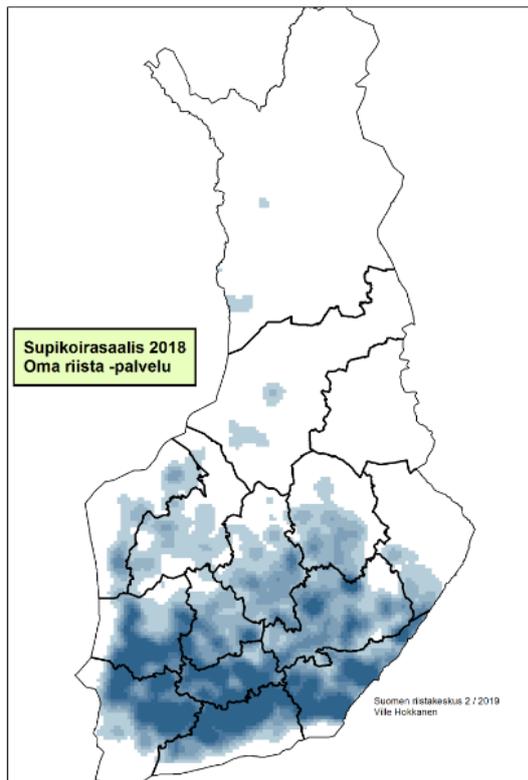
Picture 6. Raccoon Dog harvest density per km² of land per region. <http://stat.luke.fi/en/>



Picture 7. Raccoon Dog total harvest trend in Finland 1996-2017. Low figure in 2017 can be partially explained by harsh June weather conditions potentially causing higher-than average pup mortality.
<http://stat.luke.fi/en/>



Picture 8. Voluntary Raccoon Dog harvests and observations recorded in Oma riista -service 1.1.2014-1.2.2018. N= 52 624 in the whole country and new harvest and observations in 2018



Picture 9. Heat map of voluntary Raccoon Dog harvests recorded in Oma riista -service 2018

Continued use of monitoring cameras/early warning system EWS and developing the method to allow rapid response from local voluntary hunters.

Lapland

In South-Western Lapland 10-20 game cameras were actively used by project staff to follow the RD situation and to assist eradication. In addition, many cameras were used by voluntary hunters.

10-camera EWS line funded by Metsähallitus in 2017 was moved to Bottenvikens national Park to detect Raccoon Dog activity in the islands of Bothnian Bay.

Kvarken/Valsörarna

During 2016 it was found out that Raccoon Dogs has established to Valsörarna, just 25 km from closest islands in Sweden. Two game cameras were purchased and local hunter contacted to set the camera to Valsörarna. In 2017 total of 17 new cameras were purchased to cover the whole Korsholm archipelago in close co-operation with local hunters.

In 2018 five (5) more cameras with power antennas were purchased to be used out in archipelago. For new and previous cameras for outer archipelago 10 solar-panel-battery power units were custom-made to enable nearly maintenance-free operation of GSM-cameras in remote locations. Oversized panel can charge the battery in very low-light conditions and the panel can be assembled in vertical position facing due south to capture all possible sunlight during winter time while avoiding snow accumulation on the panel.

The purchase on new cameras, antennas and power units was funded by The Centre for Economic Development, Transport and the Environment of South Ostrobothnia (ELY Centre) / Environment and natural resources / Nature conservation and landscape protection



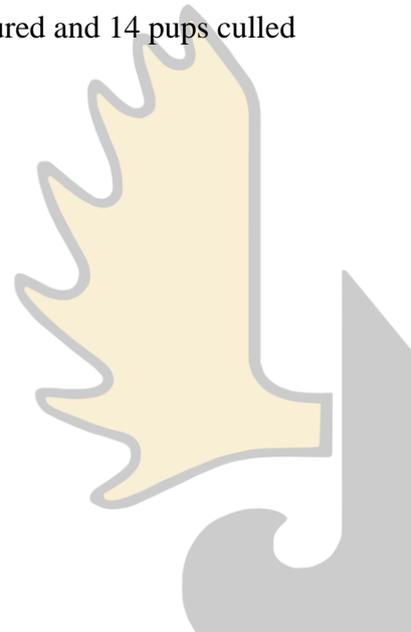
Picture 10. Solar-power unit for game cameras in outer archipelago. Picture. Johan Sten.

Continued the use of Judas animals and develop the method to be more cost effective

During 2017 there was 77 recorded Judas animal activities in Lapland with an average of 10 animals collared and 2 Judas Raccoon Dogs collared in Korsholm Archipelago one in spring-summer period and another in autumn-winter.

Two Judas were road killed. Collar 6107 on March 28th2018 and collar 4329 on October 18th2018.

With Judas method total of 17 adult Raccoon Dogs were recaptured or captured and 14 pups culled during the summer.



14)

Continued co-operative management and information activities with volunteer hunters

Project continued active working with voluntary hunters. The local people are the key resource for effective Raccoon Dog management in Lapland and in Kvarken area. The hunters have participated the project actions well and interest towards educational events and reporting RD observations have been good.

Lapland

Total of 22 different events was organized or participated by the project with total of 265 participants.

KaNu traps and trap building material were provided for interested hunters in the project area. In some places the traps set during MIRDINEC project were moved to better places to increase the effectiveness. The model traps were built in the educational events and material for more traps was given to local hunting associations for further use. Total of 41 KaNu traps was built in project for/by local hunters and materials for building additional 13 was provided totaling 54 traps.

In 2018 no new wildlife cameras or trap alarms were purchased in Lapland. The existing equipment was circulated to new users as seen necessary. The old Mink Police trap alarms purchased during LIFE project and in 2014 are still functional and actively used. 18 old wildlife cameras and 27 trap alarms were circulated to new users.

Project was presented in 6 events for young hunters or at schools with 598 participants. The project joined 2 exhibition events where it was estimated that 1600 people were reached.

Kvarken/Valsörarna

Hunter education including trapping methods and Judas-animal demonstration was organized by project in May 2018. Meeting was organized in Korsholm archipelago in Kvarken area with 20 participants. Representatives of all four local hunting associations were present.

Table 2. Events and participants during 2017.

Type of event	number of events	number of participants
Hunter education/information/project presentation	22	265
Schools and Young hunters	6	598
Exhibitions/general public	2	1600
Project management, planning of hunter educations and negotiations with authorities (Metsähallitus, Border Guard etc)	15	20
TOTAL	45	2483

14)

Gift card –campaign

The idea of Gift-Card campaign was to motivate the hunter to report and return GPS-collars. This is a way to reward active hunters providing animals for collaring and to retrieve the lost collars or to reward hunters who has shown remarkable activity.

It was estimated that 50 x 50 € card was needed for 2018. Total of 50 gift card were purchased to web store Retkitukku, which sells hunting and fishing equipment and gear. The gift cards were split to 40 for Lapland and 10 to Kvarken/Valsörarna.

41 gift cards were given to hunters in Lapland and 10 in Kvarken. The campaign has proven successful and raises the awareness amongst hunters and collars has been returning better.

Information about IAS and dissemination of project results

Table 4. Press articles

3.5.2018	Radio interview, Sami radio
5.9.2018	Radio interview, Lapinuutiset, Radio-perämeri
5.9.2018	TV-news, Yle Lappi
Autumn 2018	Press article, Lapin Kansa
Autumn 2018	Press article, Koillis-Sanomat
Autumn 2018	Metsästäjä/Jägaren 5/2018

Press release by Finnish Wildlife Agency

- August 8th 2018: <https://riista.fi/pysaytetaan-vieraspeto-supikoiran-leviaminen-lapissa/?shared=email&msg=fail>

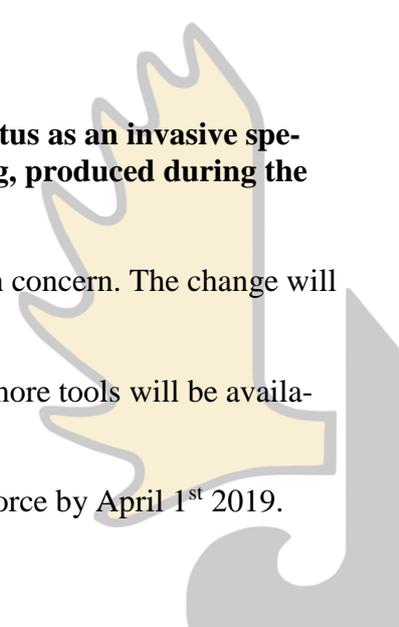
Metsästäjä/Jägaren magazine 5/2018 at page 34-37 <https://www.lehti-luukku.fi/lehti/jagaren/read/05-2018/189514.html>

Efforts to renew the current legal context of the raccoon dog and its status as an invasive species, in alignment with the Finnish management plan of the raccoon dog, produced during the LIFE project.

The Raccoon Dog was listed in EU - list of Invasive Alien Species of Union concern. The change will come into force in 2019.

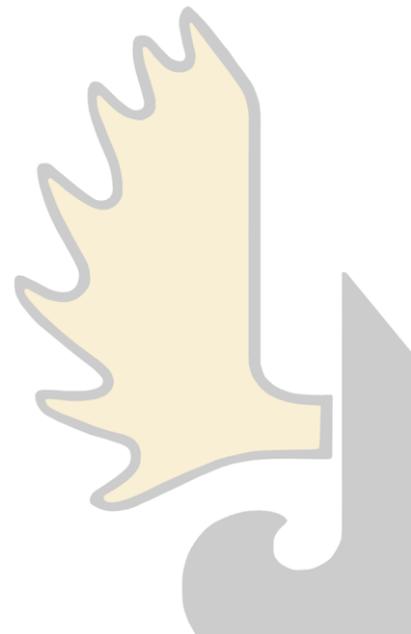
The listing will cause changes in hunting legislation and it is foreseen that more tools will be available for effective management.

Changes are still pending on parliamentary decision and expected to be in force by April 1st 2019.



Legal permissions

- The project was issued a derogation of Hunting Act for effective working though summer and to use forbidden hunting methods (shooting close to vehicle, using artificial light, snare etc.) for 2 years in 2018
- Metsähallitus has issues permit to use ATV and Snowmobile on state lands and outside of designated trails.
- Virtually all key hunting associations have permitted the project to take actions on their hunting areas.
- Project was issued a special permit until 2021 by Ministry of Environment and Metsähallitus Nature Conservation for culling Raccoon Dogs in National Parks and Strict Nature Reserves with some area-specific limitations.



14)

Costs of Actions and realized funding

The total costs of project Actions in 2018 was 153 517 euro.

Table 5 Realized costs and funding

Raccoon dog management in Finland 2018	
Costs of project operation, materials and equipment.	
ANNUAL COSTS	
Cost item	Actual costs 2018
1. Mission, Juha Mäkimartti to carry out project activities	88 639 €
2. Travel costs, estimated total	15 651 €
3. MMS wildlife camera+ GSM service / traps & materials	5 473 €
4. Motivating voluntary hunters. Thanks giving dinner etc.	
5. Gift Cards for Judas-animals	1 250 €
6. Brochures, batteries, timber, screws etc small items. Estimated total	4 306 €
7. Followit service	35 000 €
8. Operation costs of Valsörarna (travel costs of voluntary and project staff, game cameras, Judas-animal collaring, Traps and trap alarms)	3 198 €
Total	153 517 €
-	-
ANNUAL Funding: Country: cost item	
<u>Finland</u>	-
Finnish Wildlife Agency: 1-8	30 000 €
Metsähallitus: 2,3	15 000 €
ELY, nature conservation: 8	2 000 €
<u>Sweden: 1, 7, 8 *</u>	<u>35 000 €</u>
<u>Norway: 1</u>	<u>76 000 €</u>
TOTAL	158 000 €
-	-
BALANCE	4 483 €

Conclusions

- The Raccoon Dog population of the project area in Lapland has stayed at low level compared to 2011. Raccoon Dogs are present throughout Lapland. North of Arctic Circle population is small and scattered to small cells. Special attention is again needed on South-Western Lapland to keep up with achieved results.
- New establishment of Raccoon Dog in Kvarken area Valsörarna is under management and the whole Korsholm Archipelago is under project activities by local hunting associations supported by the project
- Project actions have been cost-effective and generally well accepted thanks to hands-on working model that is easy to contact and participate for the local hunters.
- The reorganization of the project to external contractor Tmi Juha Mäkimartti has proven to be successful and project has continued the activities as planned.
- All available means of Raccoon Dog management are needed and together different working tools (active hunting, Judas animals, cameras, trapping) create a frame to control the population.

March 14th 2019.

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