

12.1.2015

## Report of Raccoon Dog management in Finland for 2014

The Goal for 2014 in Finland was to continue the Actions of MIRDINEC project to prevent further invasion of Raccoon Dogs to Sweden and Norway and to develop the Actions 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 seen reasonable.

- 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

### General overview and Raccoon Dog (RD) harvest

During 2014 the project achieved the set objectives and succeeded to keep the RD population down, or even decreased it, in the Finnish Lapland.

The raised awareness among public and hunters has resulted new observations and contacts from new areas improving our overall image of the RD situation in the project area. The public support for the project has been on a good or excellent level and media has treated the subject well. The RD eradication work was even proposed for the competition for the Best Finnish Nature Project in 2014 with positive media visibility.

Active co-operation with local voluntary hunters has continued and expanded well. The purchased trap materials, trap alarms and monitoring cameras has played an important role as project has been able to provide new tools for RD hunting. In 2014 a significant number of hunters has participated education events and meaningful amount of live traps are set throughout Lapland by trained hunters. However, we are already seeing declining motivation to RD hunting due to decreased population. Once it takes too much time and effort to catch a Raccoon Dog it is not so interesting anymore. It will become increasingly difficult to keep up the interest of hunters if the population declines, even when the relative the importance of killed animal will increase. In some areas where RD was relatively common prior to project and now in low numbers, we have some indications of changing hunters' opinion. RD hunting is fun, and people have trained dogs for that. It is a risk that for some hunters in the project area the species has become a resource instead of Invasive Alien to be eradicated. This issue needs to be considered and reacted appropriately if needed.

The renewal of legal context of RD and the solutions for long-term financing has proven to be tough challenges. With current economic situation it is becoming increasingly difficult to have project funding in Finland and even more difficult to create new permanent funding channels from state budget.

The RD harvest by project staff and involved voluntary hunters was 97 animals in 2014. In addition project staff has received information of additional 32 RD killed by other hunters and of 4 traffic kills. Total of 133 Raccoon Dogs has known to be killed in 2014 in the project area

The project harvest numbers in 2014 are lowest in the period of 2011-2014, and less than a half of the 2012 harvest. Please refer to table 1 below. As a robust analysis of the harvest numbers from 2011 to 2014, we can see a decline of the RD numbers. 2011 was first year of MIRDINEC Life+ and project staff was still finding the best ways of working.

- The number of RD killed by project has decreased from 193 in 2012 to 97 in 2014 while the know-how, resources and working areas has increased.
- The number of reported RD kills outside of project staff and involved hunters has decreased from 128 in 2011 to 32 in 2014.
- Known traffic killed RD has decreased from 19 in 2011 to 4 in 2014.
- The number of other small predators caught in the live traps can be used as a robust 'fox' index of the hunting pressure and the relative abundance of Raccoon Dog. The fact that the number of other predators in traps has increased while the number RD has decreased reflects that the hunting pressure has increased while RD harvest has declined. This indicates declining RD population.

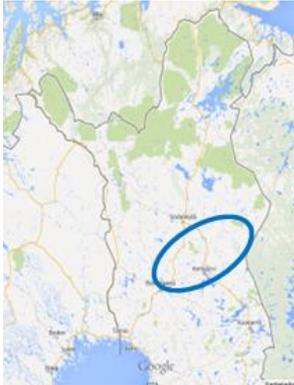
Table 1. Raccoon Dog harvest

<b>Raccoon Dog Harvest, MIRDINEC After Life</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b><u>2014</u></b>
January	0	0	0	<u>3</u>
February	6	4	0	<u>10</u>
March	27	40	10	<u>9</u>
April	2	22	23	<u>4</u>
May	1	9	14	<u>3</u>
June	8	15	0	<u>3</u>
July	4	7	15	<u>1</u>
August	17	8	9	<u>5</u>
September	22	27	17	<u>14</u>
October	24	33	28	<u>27</u>
November	5	26	30	<u>15</u>
December	6	2	3	<u>3</u>
<b>Total</b>	<b>122</b>	<b>193</b>	<b>149</b>	<b><u>97</u></b>
<b>Total killed Raccoon Dogs</b>	<b>269</b>	<b>245</b>	<b>197</b>	<b>133</b>
MIRDINEC After Life	<u>122</u>	<u>193</u>	<u>149</u>	<u>97</u>
Other harvest known by project staff (actual harvest higher, this is an indicative figure)	128	40	39	32
Traffic kills	19	12	9	4
<b>Other small predators in project live KaNu Traps ' the fox index'</b>	<b>9</b>	<b>13</b>	<b>12</b>	<b>18</b>
red fox	3	5	6	12
badger	5	6	4	3
mink		2	1	
pine marten	1		1	3

## Project Actions

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

The old EWS system was taken down while working in the area. Some of the cameras were still operational and they were used to data collection in Rovaniemi-Salla –area. The eastern EWS system was set up in June by summer practice Timo Ahvenainen. By the end of the year there were no pictures of RD in the area.



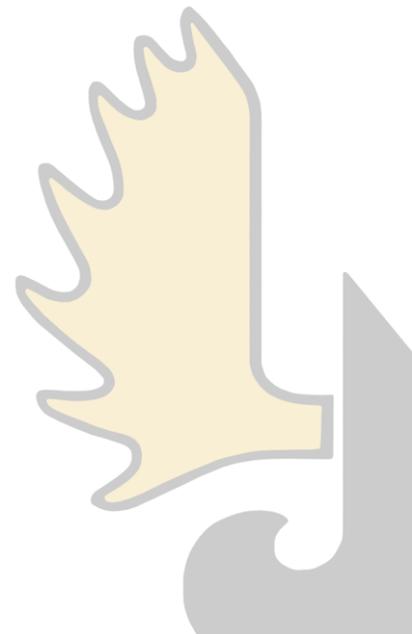
Relocation area of old monitoring cameras

30 new Uovision UM565 SMS cameras with external batteries for long lifespan were purchased and protective boxes ordered from local manufacturer to extend the lifespan of the equipment. The new cameras have been delivered for voluntary hunters in the key project area in South-Western Lapland. Especially in Tornio River Valley new cameras has provided new information about RD. The response from hunters has been good, and most observed RD has been killed either by active hunting with dogs or by live trapping. Some of trapped individuals have been used as Judas-animals. Usually the RD has been killed or trapped by local hunters before project staff has time to check the observation.

The number of purchased cameras was lower than planned. It was seen practical to purchase 30 cameras first and leave some of the reserved money aside to see whether it is more effective to purchase more trap alarms or cameras. The saved money was forwarded to more trap alarms to increase the effectiveness of trapping.



Raccoon Dog in a trap 16.4.2014

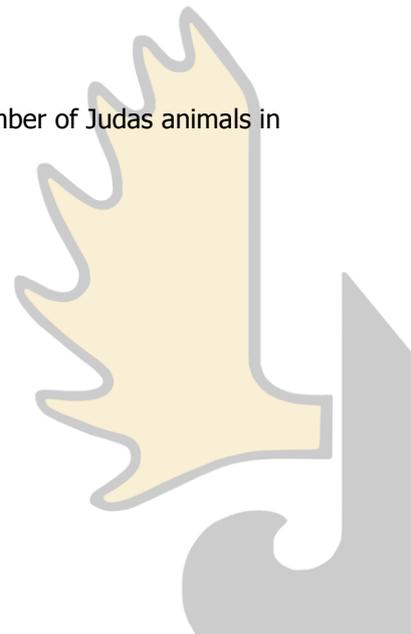




RD in an Uovision camera picture send to email 30.9.2014.



RD couple feeding on a carcass, notice the collar of Judas-animal. The relative number of Judas animals in traps and pictures has increased.



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

Total of 21 new Raccoon Dogs has been collared in 2014 and in addition there are two animals in field with collars attached in October 2013. The focus of Judas-animals has been changed to Kemi River due to decreased observation in Tornio River Valley.

Judas animals have been re-captured 37 times and 17 Raccoon Dogs has been killed with Judas-animals.

Hunters have killed 5 Judas animals in 2014. During the MIRDINEC project and After Life work total of 9 Judas animals has been killed by hunters.

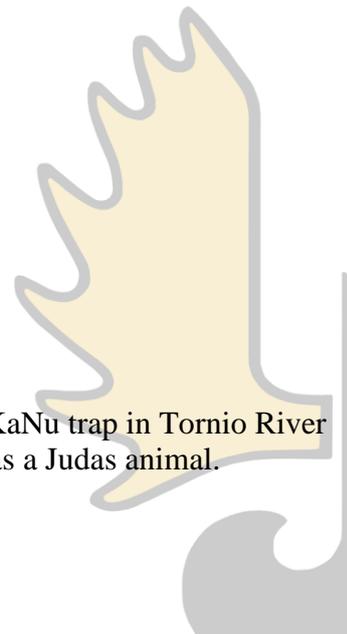
At the end of 2014 total of 17 Judas animals were working in Lapland. One Judas animal is situated in South-western archipelago to explore how the animals are moving in archipelago areas. 12 of these animals were located in the Followit map at the end of the year and 6 were missing. 2 of the missing animals are in a known den hibernating. 4 animals are out of GSM service in a den, remote location or Sweden. In spring of 2014 Judas-animals paired up in Tornio River Valley – a good sign maybe?

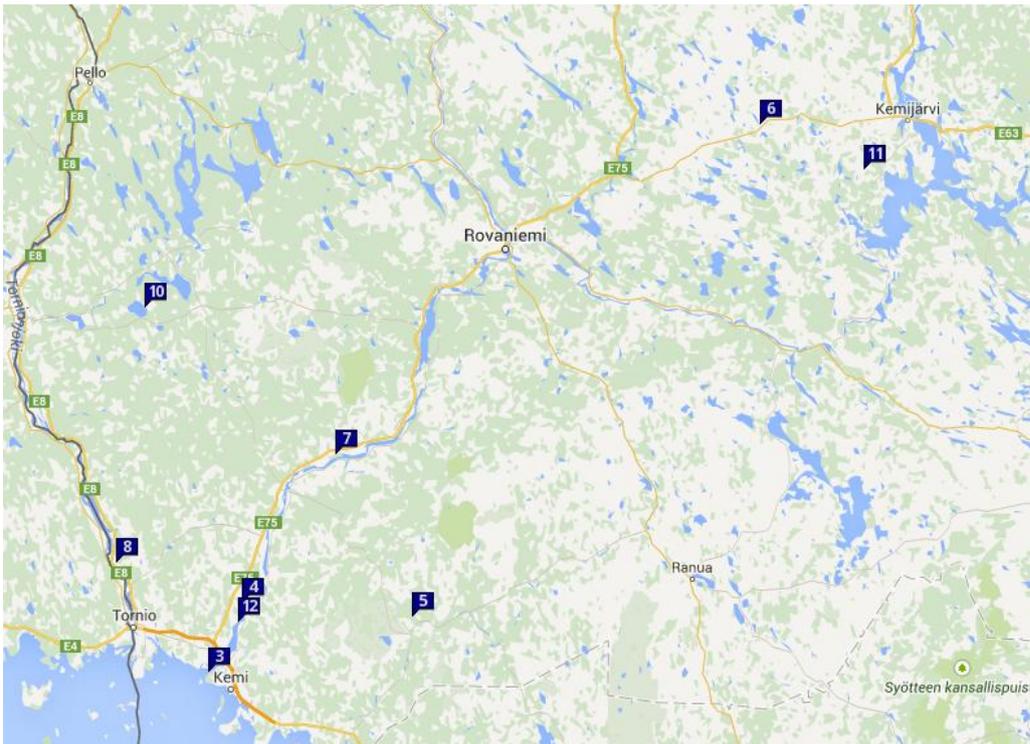
In 2014 there has been total of 23 different Judas Raccoon Dogs out in the field. 5 of the available Raccoon Dogs were killed by hunters. Compared to the situation during MIRDINEC project in 2011-2012 the number of hunter-killed Judas animals has risen significantly. In 2011-2012 the annual RD harvest in total was almost double compared to 2014 with virtually no Judas animals killed by hunters. This change in the relative proportion of Judas animals in total harvest indicates that the total population has decreased in the project area.

The new schedule of collars sending only 1-location/night proved to be dysfunctional in the working conditions. There are high chances that the animal is out of GSM coverage on a given moment. The most recent schedule of 4-locations/night seems to be more reliable.



Voluntary hunter Kimmo Andersson holding a Raccoon Dog trapped with KaNu trap in Tornio River Valley. This individual was and equipped with a GPS-GSM collar to work as a Judas animal.

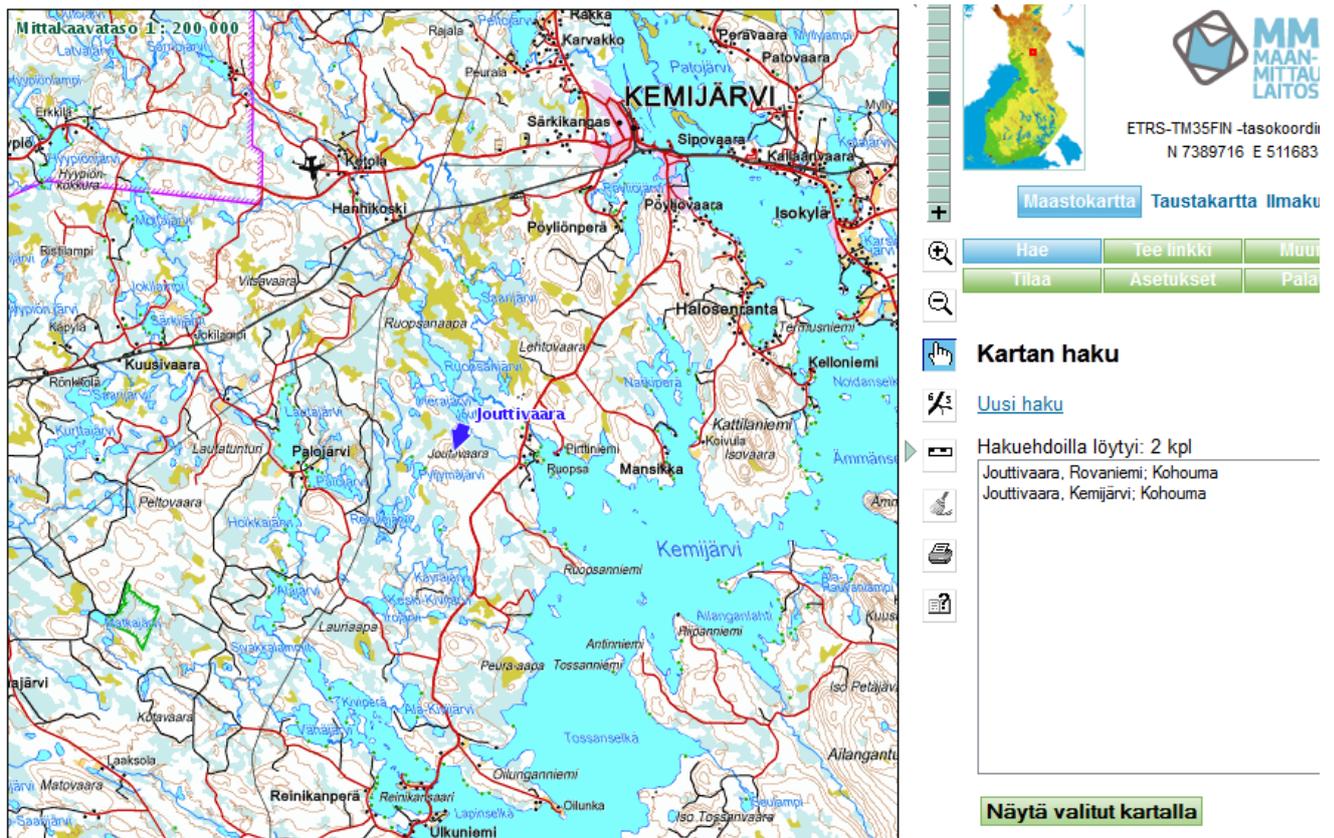




*Location of Judas animals in Lapland 5.1.2015. In addition 6 animals are probably in the area of which 2 are in known dens and located with VHF-signal. 4 animals are at unknown locations and probably won't be found anymore.*



Usually hunters report to project staff if they kill or capture a Judas animal. Sometimes efforts are given to make project staff work hard, like in the occasion of the picture. The collar was well hidden by someone in to a broken forest road culvert. The collar was found buy project staff based on discrete GPS-location that was sent once the water level was low and collar was out of water.



As an example Judas animal released in Kemijärvi area in Central Lapland found a mate within few months. Animals were found hibernating in a rock pile on a top of Jouttivaara hill.



Despite northern location and harsh conditions of Kemijärvi, Raccoon Dogs are fat and in good shape.

### 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. The hunters have participated the project actions well and interest towards educational events and reporting RD observations have been good. However, due to declining population it is becoming harder to keep up the RD hunting motivation. It is hard to motivate to hunt for something that almost does not exist.

During 2014 total of 89 different events was organized by the project with total of 1722 participants and 118 built KaNu –traps. Please refer to table 2 below for more detailed information.

Wildlife cameras, KaNu traps and trap building material and trap alarms 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.

The project purchased 30 cameras, material for total of 225 KaNu –traps + 150 triggers, 45 Mink Police trap alarms and 10 new Uovision trap alarms. So far 118 KaNu traps has been built in educational events and materials for 3-9 traps are given to hunters that has participated the events, totaling materials for 67 traps. Project staff has materials to build another 40 traps in 2015. In addition Metsähallitus, Kemijoki Oy and Game Management Associations have sponsored some trap materials for the RD eradication work.

At the moment the project staff and key voluntary hunters have total of 64 KaNu traps with trap alarms set in the project area. Including all the involved hunters and traps set during the MIRDINEC project it is estimated that 250-270 KaNu traps and 100 small traps are out in the field and used annually.

Table 2. Events, participants and built traps during 2014.

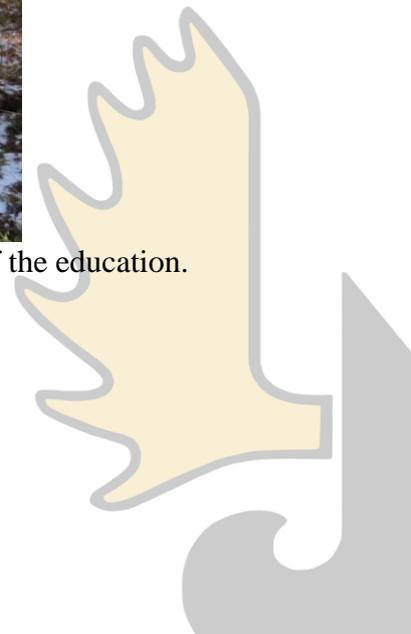
Type of event	number of events	number of participants	Traps built
Hunter education/information	32	388	89
Hunter field education	16	69	13
Schools and Young hunters	8	504	3
Media work / articles	14	23	0
Co-operation with other countries and authorities	13	106	13
Exhibitions/general public	6	632	0
<b>TOTAL</b>	<b>89</b>	<b>1722</b>	<b>118</b>



Hunters building their own traps



Training of trap setup and use of electronic trap alarms are important part of the education.



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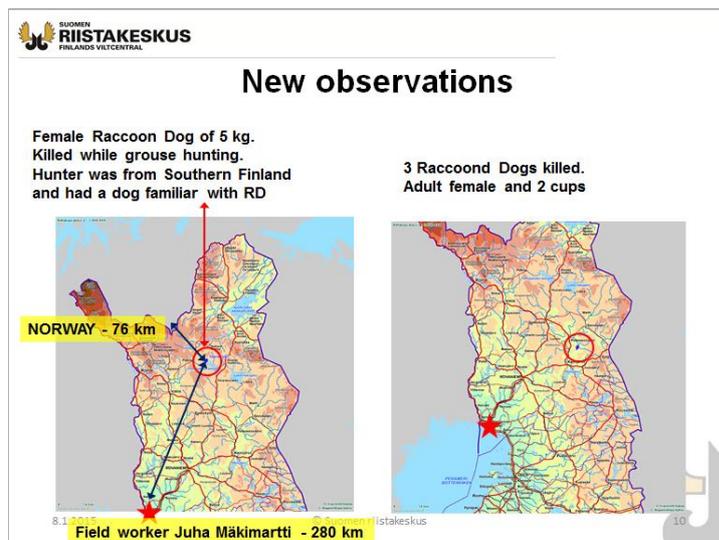
KaNu trap set with Mink Police electronic trap alarm.

### Information about IAS and dissemination of project results

Project staff has done active media work during 2014. 23 journalists have been contacted and 14 different articles have been published and some will come out in 2015. Please refer to table 2.

There is significant response after each article from general public and hunters in forms of Raccoon Dog observations. Especially articles in hunters magazine has provided feedback. This indicates that the issue is still important for people and many people still find the work as a new deal in Lapland.

The project actions and hands-on approach of fieldworker Juha Mäkimartti was credited by stakeholders as a proposal of the After Life project for the competition for the Best Nature Act in Finland 2014



New Raccoon Dog observations received shortly after articles in newspapers



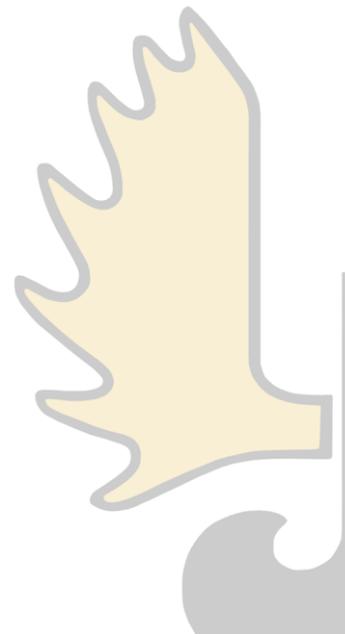
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**Efforts to renew the current legal context of the raccoon dog and its status as an invasive species, in alignment with the Finnish management plan of the raccoon dog, produced during the LIFE project.**

The Hunting Act was revised during 2014 but it did not provide major improvements for Raccoon Dog eradication.

**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.)
- Project staff checked whether the actions require animal test permission. The decision was negative as the actions do not cause significant pain or stress for the Judas animals. In Finland animals are not sterilized.
- One Judas animal has spent significant time periods in Pisavaara strict nature preserve. Ministry of Environment and Metsähallitus Natural heritage Services issued a special permit for entering the area and to eradicate Raccoon Dogs for year 2015.
- 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.



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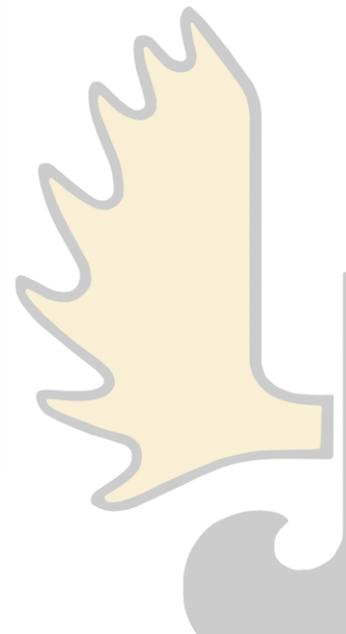
### Costs of Actions and realized funding

The total costs of project Actions in 2014 was 159 352, 34 euros

During 2014 the Finnish Wildlife Agency changed the calculation for the overheads related to salary costs, which cut this overheads costs from 25 000 euro to 12 500 euro. This budget cut did not affect the project actions.

The project ended up on a positive budget balance. Unused money of 3 647, 66 euro was forwarded for the costs of project actions in 2015.

<b>Cost item</b>	<b>Planned</b>	<b>Realized</b>
Salary costs and overheads*	67 000,00 €	50 977,48 €
Service, maintenance and necessary update/repair of satellite/GSM-GPS collars for Judas animals (~ 20 collars)	35 000,00 €	35 000,00 €
Materials for 225 KaNu -live traps and 150 KaNu triggers (planned 80 piece)	12 000,00 €	17 921,00 €
45 Mink Police units and 10 Uovision trap alarm units. (planned 40 units)	8 000,00 €	13 610,40 €
30 MMS wildlife camera (planned 40 units)	18 000,00 €	8 047,00 €
Batteries+ GSM services for units + wood for traps + permits + office costs+ miscellaneous stuff	4 000,00 €	7 284,57 €
Motivating voluntary hunters. Gifts, Thanks giving dinners etc	3 000,00 €	2 724,90 €
Travel costs	25 000,00 €	23 786,99 €
<b><u>Total</u></b>	<b><u>172 000,00 €</u></b>	<b><u>159 352,34 €</u></b>
<b>Realized funding</b>		
<b><u>Finland</u></b>		
Finnish Wildlife Agency	58 000,00 €	
Metsähallitus	10 000,00 €	
<b><u>Sweden</u></b>	35 000,00 €	
<b><u>Norway</u></b>	<b><u>60 000,00 €</u></b>	
<b><u>TOTAL</u></b>	<b><u>163 000,00 €</u></b>	
	3 647,66 €	



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**Conclusions**

- The Raccoon Dog population of the project area in South-Western Lapland has decreased.
- Raccoon Dogs are present throughout Lapland and more information about the population status in Central and Eastern Lapland is needed
- Project actions have been cost-effective and well accepted thanks to hands-on working model that is easy to contact and participate for the local hunters.
- 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

**Recommendations for 2015**

- The project Actions need to be continued at least on the current level. The relative importance of project staff will increase as the motivation of the voluntary hunters decline following the decrease of the Raccoon Dog population.
- There is need for additional resources in Central and Eastern Lapland for collecting information and reducing the number of Raccoon Dogs. Without actions in these areas there is a risk for an establishment of a new breeding population producing individuals potentially dispersing to Norway and Sweden.

January 12<sup>th</sup> 2015.  
Mikko Alhainen  
Finnish Wildlife Agency

