

POSSIBILITIES, CHALLENGES AND INTERNATIONAL DEMAND FOR COMMERCIAL HUNTING SERVICES IN FINLAND

New economic growth from the Finnish bioeconomy

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Master's thesis

May 2017

Management and Economy in the International Forest Sector

TIIVISTELMÄ

Tampereen ammattikorkeakoulu
Management and Economy in the International Forest Sector

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Possibilities, Challenges and International Demand for Commercial Hunting Services in Finland – New Economic Growth from The Finnish Bioeconomy

Master's thesis 84 sivua, joista liitteitä 10 sivua
May 2017

Kaupallisten metsästyspalveluiden järjestäminen on Suomessa varsin pienimuotoista ja riista-ala työllistää hyvin vähän ihmisiä verrattuna muihin biotalouden aloihin. Halusin selvittää tutkimuksellani, olisiko ulkomaalaisilla metsästäjillä kiinnostusta tulla Suomeen metsästämään, millaisia mahdollisuuksia ja esteitä kaupalliselle metsästykselle olisi Suomessa, sekä millaisia esimerkkejä riistataloudesta löytyisi muualta Euroopasta.

Kaupallisen metsästyksen mahdollisuuksia Suomessa tukivat selvityksen pohjalta riistalihan kasvava kysyntä ja sen tarjonnan puute. Metsästyksen hyväksyttävyys on myös hyvällä tasolla Suomessa. Haasteina havaittiin puutteita ja esteitä lainsäädännössä, sekä riistatalouden rakenne luo haasteita kaupallisuuden kehittymiselle. Ajureina muutokselle toimivat kuitenkin metsästäjien ikärakenne, metsästäjämäärän pieneneminen, sekä biotaloudelle asetetut tavoitteet.

Tutkimukseni pohjalta selvisi, että ulkomaalaisilla metsästäjillä on kiinnostusta maksaa metsästyspalveluista Suomessa. Erityisesti riistalajeista heitä kiinnostavat hirvi, valkohäntäpeura, metsäpeura, teeri, metso ja riekko, mutta kaikille tutkimuksessa esitellyille riistalajeille olisi ollut kiinnostuneita asiakkaita. Metsästyksestä ja saaliista tarjotut hinnat vaihtelivat suuresti, mutta kaikista eläinlajeista tarjottiin myös hyvin merkittäviä summia.

Tutkimuksessa saatiin myös tietoa muualla maailmassa metsästyksen käytettävistä rahamääristä sekä havaittiin maanomistajien saamien metsästysvuokrien olevan merkittävä tulonlähde.

Työn lopussa on esitetty visiota mahdollisista yritysmaalleista, joilla lisättäisiin työllisyyttä ja hyvinvointia maaseudulla, sekä saataisiin riistalihaa markkinoille. Lisäksi todetaan millaisia jatkotutkimuksia aiheesta olisi hyvä tehdä.

Asiasanat: biotalous, kaupallinen metsästys, maaseutuelinkeino, riista, riistaliha, riistanhoito

ABSTRACT

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Master's thesis 84 pages, appendices 10 pages
May 2017

There are only a few companies arranging commercial hunting services in Finland and there is a low number of persons employed in the hunting sector of the Finnish bioeconomy. The aim of this research was to find out if there is demand for commercial hunting services for foreign hunters in Finland, what possibilities and barriers there are for commercial hunting and what kind of examples of wildlife economy can be found from other European countries.

The possibilities for commercial hunting are raising from the demand for game meat and lack of its suppliers. Hunting is also well accepted in Finland. Challenges are raising from lack of and barriers in legislation and the structure of Game Administration also creates challenges for the development of commercial hunting. But transformation is driven by aging hunters, declining number of them and the challenges/targets set by the Finnish bioeconomy.

The survey revealed that there is demand by foreign hunters for commercial hunting services in Finland. They were most interested in moose, white-tailed deer, forest reindeer, black grouse, capercaillie and willow grouse, but there are interested customers for all the Finnish game species introduced in the survey. The amounts of money offered for hunting and catch were varying widely, but all species were highly valued by some.

The survey brought also information about money used for hunting in other countries. It was also noticed that the lease of hunting grounds can be a significant income for a landowner.

At the end of this research there are new ideas about possible models for game companies, which could increase employment and create welfare in rural areas and would bring game meat to the markets. There is also need for further research.

Key words: bioeconomy, commercial hunting, game, game keeping, game meat, rural livelihood

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GLOSSARY

animal husbandry	karjankasvatus
antlers	sarvet, esim. saksanhirven sarvet, vuosittain putoavat
bag, catch, quarry	saalis
bioeconomy	biotalous
breed	koirarotu
driven hunt	ajajahti
game	riista
game conservation	riistanhoito, riistansuojelu
game crop	riistapelto
game fence	riistatarha
game husbandry	riistankasvatus
game meat	riistaliha
gamekeeper	riistanhoitaja
gamekeeping	riistanhoito
game releasing	riistan vapautus
game management	riistanhoito
game rearing	riistantarhaus
high seat	jahtitorni
lease	metsästysmaan vuokra
moose	hirvi (<i>Alces alces</i>)
poaching	salametsästys
point	sarven piikki, esim. peuran tai hirven
population management	kannanhoito
predator control	petopyynti
red deer	saksanhirvi (<i>Cervus elaphus</i>)
shooting	lintujen lentoon ammuntametsästysmuoto Englannissa
stag	uros saksanhirvi (<i>Cervus elaphus</i>)
stalking	hiivintäjahti
trophy	trofee, metsästysmuisto esim. sarvet tai kallo
white-tailed deer	valkohäntäpeura (<i>Odocoileus virginianus</i>)
wildlife economy	riistatalous

1 INTRODUCTION

According to the strategy of the Finnish Hunters' Association Finland is "the great game land" (2010, 3). What does it actually mean? What kind of game land Finland is when compared to the other European countries?

The aim of this thesis was to find out if there are possibilities for game as livelihood in Finland. What challenges and possibilities the game entrepreneurship would be facing? Is there room for it – or could there be demand?

First, there was seen a need to analyze the current situation of hunting in Finland to be able to find the possible barriers and possibilities arising from the EU and the Finnish legislation. The structure of the Finnish Game Administration was analyzed in order to see how it works and how it would be supporting possible new game economics in Finland. Hunting as part of the Finnish bioeconomy was studied, including the overall attitudes towards hunting and the demand for the game meat in Finland.

Examples from around Europe were searched to see how game can create employment, income and raise the national economy. The Finnish bioeconomy is looking for sustainable growth from nature resources which would create more jobs for Finnish people. Could the game give some answer?

The survey was released for the members of the Council for Game and Wildlife Conservation (CIC) and it was aiming at answering the question "Is there international demand for commercial hunting services in Finland".

Finally, some possible ways to have game as rural livelihood are suggested.

Thank You for lending the photos for the survey: Jere Malinen, Marko Muuttola, Jaakko Ruola and Veli-Matti Väänänen. Many thanks for the good advices for the survey: Mikael Antell and Mikael Wikström. Special thanks for the CIC members, who spent their valuable time answering this survey.

The Finnish CIC delegation commissioned the research.

2 FRAMEWORK OF GAME ECONOMICS IN FINLAND

This part of the research will examine the EU and Finnish legislation, regulations and conventions concerning hunting, the Finnish game organizations, hunters in Finland, hunting in the framework of the Finnish bioeconomy, demand for the game meat and attitudes on hunting. There is searched for possibilities and challenges the commercial hunting is facing in Finland.

2.1 EU legislation, regulations and agreements concerning hunting

The Finnish hunting policy is following the EU legislation concerning nature and biodiversity. The “Bern Convention” was the first international treaty to protect both animal and plant species and their habitats (Bern Convention 1979) and it has been base on the EU conservation directives “Habitats Directive” and “Bird Directive”. Law came into force in Finland in 1986.

Finnish hunting is regulated among others by the Council Directive (92/43/EEC) which is also called as “Habitats directive”. It was made for conservation of natural habitats and of wild fauna and flora. Law came in force in 1995 when Finland become a member in the EU. There is a list of different Annex species in where Annex IV species are under strict protection and Annex V species should be maintained on favorable conservation status (EU Council Directive 1992). Some of the Finnish game animals are under strict protection like brown bear (Annex IV), Eurasian lynx (Annex IV), wolf (Annex IV, V) and wolverine (Annex II) (Laanikari 2017) and for them are prepared management plans by the Finnish Wildlife Agency (d).

The United Nations Environment Programme (UNEP) created a legal instrument for conservation and sustainable use of biological diversity. This Convention on Biological Diversity (CBD) was first adopted in Rio 1992 and came into force in Finland 1994. Convention says that conservation of biological diversity is a common concern of humankind. States are responsible for conserving their biological diversity and they

should use their biological resources in sustainable manner (Convention on Biological Diversity). Finland has action plan and strategies for protection of biological diversity.

The European Parliament and Council Directive (2009/147/EC) on the conservation of wild birds – so called the “Birds Directive” - is also having impact on hunting in Finland (European Parliament and Council Directive 2009). There is listed in Annex I bird species which habitats are under special conservation to ensure their survival and reproduction (Article 4). There is needed to specially take care of species which are among others in danger of extinction (a) or considered rare because of small populations (c). Also the trends and variations in population level shall be taken into account. In the Annex I list is among others the barnacle goose (*Branta leucopsis*) which is hunted among others in Estonia (Jahilind 2017).

The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) is developed under the framework of the Convention on Migratory Species (CMS) – also known as “Bonn Convention”- and administered by the United Nations Environment Programme (UNEP). It’s an intergovernmental treaty dedicated to the conservation of migratory waterbirds and their habitats. It covers 254 species of bird including many game species. Finland has been contracting party since 1.1.2000 (AEWA 2017). It’s regulating waterbird hunting in Europe with following actively the IUCN Red List (2017) and restricting hunting when certain species’ population is declining. Agreement is focusing in both conservation and sustainable use if migratory waterbirds (FACE 2017).

The Ramsar Convention is an international treaty to conservation and sustainable use of wetlands. It’s also known as “Convention on Wetlands”. There is a list of important wetlands – so called “Ramsar sites”. Finland signed convention in 1975 and is having 49 Ramsar sites which area is almost 800,000 hectares. Ramsar philosophy is “wise use” of wetlands for the benefit of people and nature. (Ramsar 2017)

The wildlife trade in the EU is following the decisions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Its goal is

that the survival of wild animals and plants is not threaten by the international trade of specimens (CITES 2017). The basic regulation is the EU Council Regulation (1997) and there is many amending and implementing regulations.

Seal product trade was banned in the EU year 2009 when the European Parliament and the Council adopted the EU Regulation prohibiting the trade in seal products (European Parliament and Council Regulation 2009). They wanted to ensure the ethics of hunting and trapping methods. There are no longer seal products for sale on the European market. The Regulation (1007/2009) was amended in 2015 (European Parliament and Council Regulation 2015) to allow the Inuit and other indigenous communities sell their seal products to EU market. This amending was justified with the importance of seal hunting for the socio-economy, culture and identity of the Inuit. In Finland was 28,000 grey seal (*Halichoerus grypus*) and over 6,000 ringed seal (*Pusa hispida*) in 2012. Populations has been growing and causing problems among other for professional fisher (Finnish Wildlife Agency 2017 a).

The EU adopted regulation called “the Leghold Trap Regulation” in 1991 which prohibited the use of leghold traps within the European Union but also importing of goods and products made of animals from countries using leghold traps or other trapping methods which do not meet international standards (EU Council Regulation 1991). This regulation completed by listing countries from specific animal pelts and manufactured goods can be accepted (EU Commission Decision 1998).

Agreement on International Humane Trapping Standards (AIHTS) was negotiated between the EU, Canada, the Russian Federation and the USA and agreement was made in 1998. First was planned that parties of the agreement need to prohibit the use of not certified traps until the year 2016 according to the implementation schedule of the agreement (EU Council Decision 1998). But 2012 was decided against this that the implementation will be left to the individual member states (BASC 2017).

The EU’s Biodiversity Strategy 2020 was adopted in 2011. It aims to stop the loss of biodiversity and ecosystem services in the EU by the year 2020. Background of it is the Convention on Biological Diversity (CBD) first was adopted in Rio 1992 and at the

COP10 (Conference of the Parties) was adopted the 20 concrete “Aichi” targets to combat the biodiversity loss (COP10 2017). These COP10 commitments are reflected in the EU’s 2020 Biodiversity Strategy. The Target 1 of the Strategy is to “Protect species and habitats”. In practice this means among others completing the Natura 2000 network and make sure these areas will get sufficient funding. Target 3 “Achieve more sustainable agriculture and forestry” may give possibility to increase amount of game crops. Target 5 “Combat invasive alien species” is providing legal framework for fight against invasive alien species (IAS) to protect the biodiversity in the EU. (EU’s Biodiversity Strategy)

The Invasive Alien Species EU Regulation (1143/2014) came in force 2015. This regulation seeks to protect native biodiversity and ecosystem services from invasive alien species (European Parliament and Council Regulation 2014).

Natura 2000 is a network for breeding and resting sites for rare and threatened species and some rare nature habitat sites. The aim is to ensure survival of threatened species and habitats listed in “Birds Directive” and “Habitats Directive”. It’s not a system of strict nature reserves and approach to conservation and sustainable use is to get people working with the nature – not against it. The pan-European Natura 2000 Award aims to raise among others the excellent managed Natura sites, show cases of added value for local economies and created networks. Would be good to evaluate how the Natura 2000 implementation in Finland have followed the spirit of the Natura 2000 Award. (Natura 2000)

The agreement of the EU Platform on Coexistence between People and Large Carnivores were sign in Brussels 2014 (Photo 1.) to support the European Commissions’ policy on large carnivores under the Habitat Directive. It was made to recognize large carnivore related socioeconomic and cultural considerations and concerns, to find solutions to conflicts through constructive dialogue and engage in trans-boundary cooperation (Cipriani 2015). DG Environment of European Commission has prepared “Key actions for Large Carnivore Populations in Europe” paper which contains recommendations for local authorities (DG Environment EC 2015).



Photo 1. Tiina Eklund, the Director General of CIC Tamás Marghescu and the President of the CIC Division Policy&Law Jan Heino in the agreement signing ceremony and the first working session of the EU Platform on Coexistence between People and Large Carnivores in Brussels the 10th of June 2014

2.2 Finnish game legislation and authorities

In Finland hunting is regulated by hunting law (Hunting Act 615/1993). When animals are hunted, captured or killed this act will be applied. It is also applied to game management, compensation for damage caused by game animals and keeping of dogs. In certain parts this law will be applied also in capturing and killing animals which are protected by Nature Conservation Act (1096/1996). When following the provisions of the Hunting Act (615/1993) shall be also complied the provisions in the Nature Conservation Act (1096/1996) and the Animal Welfare Act (247/1996). Hunting law tells the definition of hunting and overall hunting season for both game species and unprotected animals, but more detailed provisions concerning hunting are written in Hunting Decree (66/1993) like hunting season for certain animal species.

Hunting Act (615/1993) is having similarities to Conservation Act (1096/1996) which is aiming at maintaining biological diversity, promote the sustainable use of natural resources and awareness and general interest in nature. Hunting Act (615/1993, section 3) describes game management that it “... *means activities intended to increase, preserve, or improve a game animal population and the balance among different animal populations by regulating the size of game animal populations, preserving or improving the living conditions of game animals, or by some other means*”. Hunting Act and

Conservation Act are both supporting the sustainable use of natural resources. The spirit of the Hunting Act for the game management is both "active" and "passive" (Forsman & Pellikka 2012). Active game management means predator control, improving habitat, game releasing and selective hunting (Siivonen 1946, 20) and passive game management means sustainable hunting (Siivonen 1946, 9). When Conservation Act is aiming at promote interest to nature it is also seen that active game management will do the same: hunter who makes game management work will enjoy more watching the game than shooting it (Lindgren 1943, 27).

The will of game management was added to the Hunting Act first time year 1934. There was very low game population in Finland in the beginning of 20th century and hunters were wanted to take actively care of the game and start to use sustainable game resources (Ilvesviita 2005, 201). The Finnish General Hunters Association worked hard to get the game management to the Hunting Act 1934 (Ilvesviita 2005, 191).

According to the Hunting Act (615/1993, Section 56) *"the supreme authority in the management and supervision of hunting and game husbandry is the Ministry of Agriculture and Forestry"*. This means that ministry is leading the hunting policy in Finland.

The word "game husbandry" in the Act raises questions because it can mean concrete rearing of game birds (Maryland Government 2017) (Shooting UK 2017) (United Nations 2010, 42) like "animal husbandry" can mean concrete handling of cattle. But "animal husbandry" can also be an overall expression taking care of domestic animals (Encyclopedia Britannica 2017) (Merriam-Webster 2017).

What does Hunting Act mean with the "game husbandry" (615/1993, Section 56)? There is no description. The Finnish Wildlife Agency explains that game husbandry includes "hunting, wildlife management, collecting game data, game management plans and preventing game damages" and the Finnish translation is "Riistatalous" (Finnish Wildlife Agency 2017 b).

International Council for Game and Wildlife Conservation (CIC) has been spoken about "Economics of Wildlife" (CIC 2012). Or could the Finnish Bioeconomy strategy let us use the term "Game Economy"? (Finnish Bioeconomy Strategy 2014).

The Hunting Act (615/1993) doesn't recognize professional gamekeeping which means person getting his livelihood from gamekeeping, hunting, rearing or releasing game (Lahtinen 2001) (National Gamekeepers 2017) (Viltmästareförbundet 2017). But

Hunting Act recognizes some other livelihoods like farming, forestry, fisheries, reindeer husbandry (615/1993, section 41a/2). The damages which are caused by game animals to these livelihoods can be prevented by hunting licenses. This was seen a while ago when there was given eight wolverine licenses to reindeer herders (Ministry of Agriculture and Forestry 4.1.2017).

“Game economy as livelihood” project was set up by Ministry of Agriculture and Forestry in 2012. According to the final report “the game farms offering pheasant and partridge hunting are having the highest turnover” when they compared different types of “hunting tourism” companies in Finland. The game farms with reared birds are examples of professional gamekeeping. (Maa- ja metsätalousministeriö, Ruralia-insituutti & Suomen riistakeskus 2012).

Game Animals Damage Act (105/2009) tells the procedures how the damages caused game animals will be compensated (Game Animal Damage Act).

Hunting in fences is prohibited in Finland according to Animal Welfare Decree (396/1996). It says that “killing a reindeer or other domestic animal or an animal farmed for production purposes by shooting as in hunting” (Section 14, 7) which is inflicting undue distress, pain and suffering, is illegal according to the Animal Welfare Act (247/1996, section 3).

Foreign hunter needs a hunting license when hunting in Finland. Hunting license can be granted when foreign hunter who is already having a foreign hunting license or is able to prove that he/she is having a permit to hunt in certain area in his/her home country. If this isn't possible the Finnish hunting exam is needed. When having own hunting license or permit to hunt, the Finnish hunting license can be ordered from the local hunting association.

Hunting permit in certain area is also needed. This permit is given or sold by the hunting right holder.

A shooting test is needed when hunted deer or bear with rifled firearm. Foreign hunter needs to have a shooting test certificate or right to hunt a game of similar size. Otherwise they need to take the Finnish shooting test. (Finnish Wildlife Agency 2014)

When willing to hunt in other EU country with own guns, there is needed the European firearms pass for the guns. (European Parliament and Council Directive 2008, section 14).

Game authorities

The Finnish Wildlife Consortium consist of the five operators: The Ministry of Agriculture and Forestry (the Unit of Game and Fisheries in the Department of Natural Resources) (Photo 2.), Finnish Wildlife Agency (guiding and supervising 298 game management associations), Metsähallitus (Game and Fisheries process in the unit Parks & Wildlife Finland), Natural Resources Institute Finland (Luke) and Finnish Food Safety Authority (Evira). (Riistakonsernin Strategia 2012-2016) (Suomen riistakeskus) (Metsähallitus)

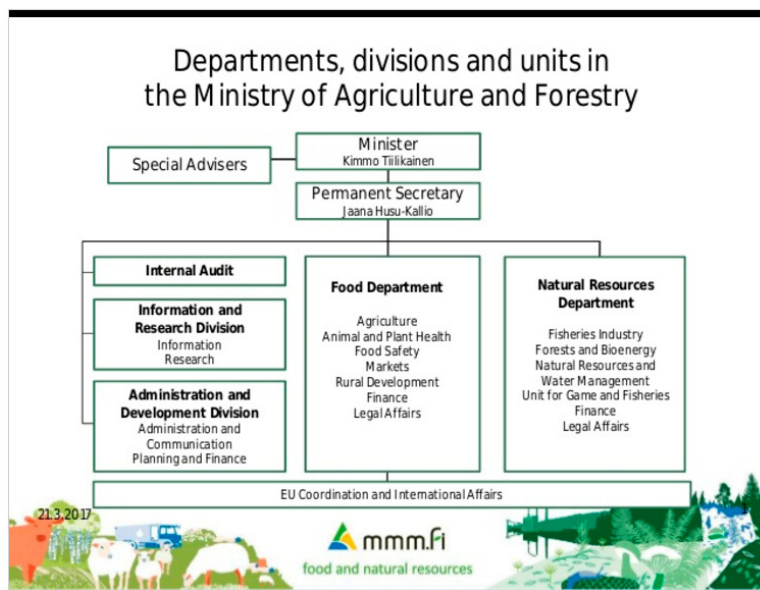


Photo 2. Organization structure of Ministry of Agriculture and Forestry (Ministry of Agriculture and Forestry 21.3.2017)

The Finnish Wildlife Consortium is having their own strategy which main idea is the “Welfare generated by Game”. The vision of the strategy is that “Finland is a leading country in sustainable use, management and conservation of the Game”. (Laanikari 2017) (Riistakonsernin strategia 2012-2016) (Photo 3.)



Photo 3. The old strategy of the Finnish Wildlife Consortium. In the newest strategy 2012-2016 the “Objectives for social impact” has replaced with “Welfare generated by Game” (Laanikari 2017) (Orava 2017) (Riistakonsernin Strategia 2012-2016)

The Finnish Wildlife and Game Administration differs from some parts of the Finnish Wildlife Consortium. It consists of four operators: The Ministry of Agriculture and Forestry, the Finnish Wildlife Agency and game management associations, Wildlife councils (the National Wildlife Council and Regional Wildlife Councils) and Natural Resources Institute Finland (game research). (Ministry of Agriculture and Forestry 18.4.2017) (Photo 4.)

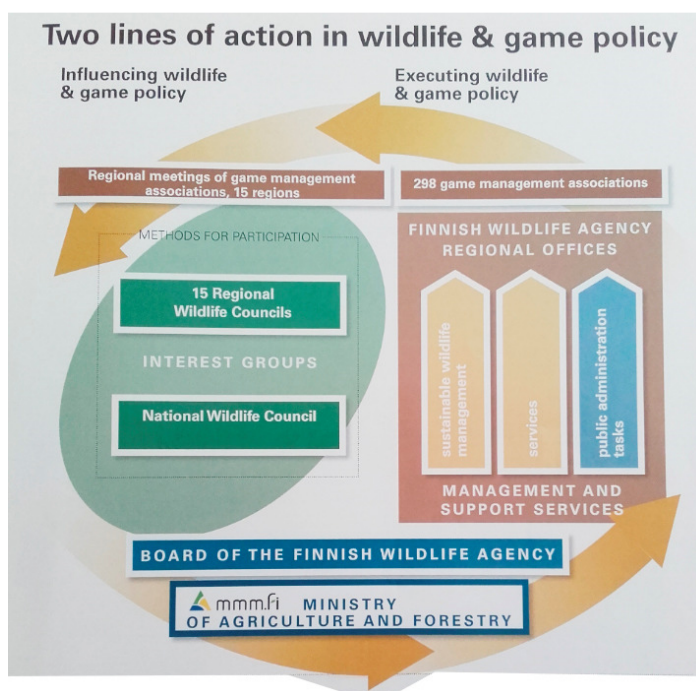


Photo 4. How the Finnish Game Administration works (Finnish Wildlife Agency 2017 c).

The Ministry of Agriculture and Forestry is the supreme authority in managing and supervising hunting and game management (Hunting Act (615/1993), Section 56). There are about three and “half” persons preparing game legislation (Ministry of Agriculture and Forestry) (Ruusila 2017) in the Unit of Game and Fisheries in the Department of Natural Resources (Photo 2.).

Overall duties for all ministries are written in “Government Act” (175/2003) and duties concerning the Ministry of Agriculture and Forestry are in “Governments’ Decree of the Ministry of Agriculture and Forestry” (Valtioneuvoston asetus maa- ja metsätalousministeriöstä) and “Decree of procedures in the Ministry of Agriculture and Forestry” (Maa- ja metsätalousministeriön asetus maa- ja metsätalousministeriön työjärjestyksestä). There is among others demand for management by results and profit target (Section 2).

There is also the Strategy of the Ministry of Agriculture and Forestry 2012-2020. According to the Strategy the basis of its operations is to secure the Finnish food, sustainable usage of natural resources and to create possibilities for livelihoods rising from them. Its goal is among others to support the Finnish Bioeconomy (Hirvikannan hoitosuunnitelma, 22).

The Ministry of Agriculture is also following the Strategic Programme of the Finnish Government (2015) which sees the strengthening the entrepreneurship as one of the main goals.

The Unit of Game and Fisheries of the Ministry of Agriculture and Forestry will nominate 10 members to the board of the Finnish Wildlife Agency, members to the National Wildlife Council and Regional Wildlife Councils. In the ‘Wildlife and Game Administration Act’ (Riistahallintolaki) is also told which interest groups will have representatives in these game administrative organs. In the board of the Finnish Wildlife Agency and the National Wildlife Council is many representatives from the Finnish Wildlife Consortium. In the National Wildlife Council is also representatives from “national significant organizations concerning nature conservation, hunting and gamekeeping and agriculture and forestry” (Wildlife and Game Administration Act, Section 4). There are no representatives of the game entrepreneurs (Valtakunnallisen riistaneuvoston jäsenet).

The Finnish Wildlife Agency's task is to promote sustainable economics of wildlife, support the activity of game management associations and the implementation of wildlife and game policy. It also manages the public administration tasks and promotes game management and sustainable hunting with among others by preparing management plans (Wildlife and Game Administration Act, Section 2) for different game species like seals (*Halichoerus grypus*, *Pusa hispida*), wolf (*Canis lupus*), wild forest reindeer (*Rangifer tarandus fennicus*), forest birds and moose (*Alces alces*) (Finnish Wildlife Agency 2017 d). The Ministry of Agriculture and Forestry grants the funding for The Finnish Wildlife Agency and game management associations from the State Budget.

There were 74 persons working at the Finnish Wildlife Agency in 2016 (Suomen riistakeskus 27.2.2017) even in other sources has been announced about 65 persons (Riistanvuoksi 2016, 3). This number includes 15 regional offices of the Finnish Wildlife Agency (Riistanvuoksi 2016, 3).

The game management associations (Wildlife and Game Administration Act, Chapter 2) are working mainly voluntary basis (2.3 Hunters and hunting in Finland) and there are 295 game management association (Riistanvuoksi 2016, 3).

A Finnish hunter can be a member in one game management association (Wildlife and Game Administration Act, Chapter 2, Section 15) and bring the reforming ideas to its annual meeting (Section 16).

The National and Regional Wildlife Councils are supporting national game policy. Their tasks are written in the "Finnish Governments' Decree for Game Administration" (171/2011). They will participate in preparing game management plans, planning economics of wildlife and hearing the stakeholders (Valtioneuvoston asetus riistahallinnosta).

Metsähallitus is a state-owned enterprise having public administration duties but also running businesses. It administrates more than 12 million hectares of state-owned land and waters. There is about 50 persons working in the process of Game and Fisheries in the Metsähallitus unit Parks & Wildlife Finland. Game and Fisheries is selling hunting licenses and can lease the State owned land areas for hunters. (Metsähallitus)

Natural Resources Institute Finland (Luke) is having among others game research. According to the law (Laki luonnonvarakeskuksesta) their duty is to produce information and expert services for supporting authorities.

The Finnish Food Safety Authority (Evira) ensures the food safety and promotes animal health (Evira 2017).

The Ministry of Agriculture and Forestry is leading by performance-based management the organizations of the Finnish Wildlife Consortium and administrating the State budget concerning them (Appendix 1.). Money will come from the hunters: Hunter pays yearly Game Management Fee EUR 33 for getting a hunting card (Act on Game Management Fee and Hunting License Fee (949/2012, Section 1) and Hunting License Fee for each cervid killed (Act on Game Management Fee and Hunting License Fee 160/2011, Section 4). The Ministry has changed the law in 2015 to get justice to grant money also for different information systems and “other purposes” (Section 6) like “to accomplish the Strategy of the Finnish Wildlife Consortium”. Money has been given also to the Natural Resources Institute Finland, Metsähallitus, The Finnish Hunters’ Association and The Nature and Game Management Trust Finland (Pitkänen 2016).

2.3 Hunters and hunting in Finland

There were 304,245 hunter year 2016 who had paid the Game Management Fee and got the hunting card (Suomen riistakeskus 27.2.2017) but only about 200,000 of those have been hunting (Natural Resources Institute Finland 11.8.2016). There were 2,032 less hunters than a previous year and the number has been going down for last three years. Number of women hunters raised with 666 year 2016 and is total 22,372 (Suomen riistakeskus 27.2.2017). Number of hunters have remained quite unchanged for last 25 years. Around 200,000 hunters are participating in game management activities yearly. The average age of hunters is around 50 years and 7 percent of them is women (Natural Resources Institute Finland 11.8.2016).

The Finnish Wildlife Consortium is often speaking about “Finnish wilderness tradition”. It means that hunting has been a vital necessity for Finnish families (Finnish Wildlife Agency 2017 e) and it’s more like experiencing and knowing the nature and doing the game management where the shooting, trophies or big bag of game aren’t the main goal (Ministry of Agriculture and Forestry 2012, 5). But hunting has become more like a hobby during the years even it still carries a special meaning for hunters, their families and society (Finnish Wildlife Agency 2017 e). Hunting tradition is changing which can also be seen from Finnish hunting dogs: there is decreasing number of the native breeds

like Finnish hound and Finnish Spitz. The Labrador Retriever has been the most registered dog for many years (Kennelliitto 2016). Many woman has become a hunter because of their hobby with gundog breeds (Yle Uutiset 21.3.2016). The retrieving dogs are mostly used in wildfowling and pheasant shooting in Finland (Eklund 2017).



Photo 5. Culture is changing (Herskovits 1964, 498). These Finnish rock paintings in Astuvansalmi Ristiina were made 4,000 - 2,200 B.C. Women hunter on the left (Eklund, Tiina 2017).

The animal species which can be hunted are written in the Hunting Act (615/1993, Section 5) and more detailed information like hunting season for game animals and season for protection also for the unprotected species is written in the Hunting Decree (666/1993). The most hunted game animals in 2015 were mallard (*Anas platyrhynchos*) with the catch of 249,000 and wood pigeon (*Columba palumbus*) with catch of 235,000. The most hunted mammals were raccoon dog (*Nyctereutes procyonoides*) with catch of 160,000 and mountain hare (*Lepus timidus*) with catch of 153,000 (Natural Resources Institute Finland 11.8.2016) (Appendix 2.)

Moose is the most important game species in Finland but the amount of hunted moose is varying: there were hunted 68,000 moose in 2010 (Petäjistö & Matala 2015, 5), 44,000 in 2015 and 49,661 in 2016 (Suomen riistakeskus 10.2.2017).

The amount of game management has been decreasing rapidly (Forsman, Leena & Pellikka Jani 2012). This is concerning because the game management has been written

in the Hunting Act (615/1993, Section 3) and it is also raised in the strategy of the Finnish Wildlife Consortium (Photo 3.). The most game keeping work done by hunters was feeding the animals (50% of hunters), making nest boxes for birds (<30% of hunters) and doing predator control (<30% of hunters) (Forsman, Leena & Pellikka Jani 2012). Game keeping in practice is important because habitat management, maintaining food supply and heavy predator control are proven to be the most important factors improving wild game production (The Game Conservancy, 4 and 68). Releasing game is also good way to improve game population when the game keeper knows the right way to do it (The Game Conservancy, 10-11).

The Nature and Game Management Trust Finland and Baltic Sea Action Group (BSAG) are having together Järki-project 2014-2018. Part of this project aims at nature conservation and sustainable game management and have been cooperating with the Ministry of Agriculture and Forestry. They have been working for to improve the financing of the best practices in nature conservation in the Rural Development Programme Finland (Luonnon- ja riistanhoitosäätiö 2014). Funding can be an important element for the landowner when some area's turning from productive to unproductive is compensated. They have also tried to encourage hunters to game crops with their news bulletin (Järki 2017).

According to the Finnish Wildlife Agency the Finnish hunters are doing a lot of 'volunteer work' which is supporting the Finnish "game husbandry", creating value added and there haven't been need for tax money (Riistanvuoksi 2016). Hunter doesn't need to be a member in the game management association (Wildlife and Game Administration Act, Section 15) but the most hunters are. It is estimated that the game management associations did volunteer work 290 man-years and about 40,000 hunters were participating volunteer working year 2008 (Forsman, Wikman, Härkönen & Eskelinen 2010). In the voluntary assistance work for large game situations (SRVA) the game management association are voluntary supporting the Finnish police and offering hunters to track and euthanize large game animals which are wounded in traffic accidents. This is mostly done without any compensation. In similar police assistance VAPEPA-work is compensated EUR 400 for one search and motor vehicle costs (VAPEPA Agreement 2015). SRVA work was done about 1,800 man-years and 5,000 hunters were participating to this assistance work year 2008 (Forsman, Wikman, Härkönen & Eskelinen 2010). Over 20,000 hunters were counting game populations for

the Natural Resources Institute Finland's game research. Many association managers have seen a need for financial compensation in the future (Forsman, Wikman, Härkönen & Eskelinen 2010).

The Finnish Hunters' Association is a voluntary based organization for Finnish hunters and is having 160,000 members (Suomen Metsästäjäliitto 23.8.2016). Association has criticized that hunters pay all the costs concerning game animals, game authorities and game damages and there aren't used any tax income (Suomen Metsästäjäliitto 2016).

2.4 The Finnish Bioeconomy and hunting

The EU's bioeconomy strategy was released on 2012 and two years after released the Finnish Bioeconomy Strategy (2014). Like EU Strategy it's aiming at resource-efficient low-carbon society with sustainable economy. The Finnish Strategy sees that the sustainable bioeconomy will boost our economy, employment and create well-being for the Finnish people. It's aiming at 100,000 new jobs and increasing bioeconomy output up to EUR 100 billion by the year 2025. (The Finnish Bioeconomy Strategy 2014, 3)

	Output million EUR	Value added million EUR	Employed	Exports million EUR
Food, total	16 093	4 356	128 400	515
Agriculture	4 822	1 658	90 100	0
Food industry	11 271	2 698	38 300	515
Bioeconomy products total	29 273	9 317	101 400	13 819
Forestry	4 232	2 898	25 000	68
Wood products industry	6 870	1 542	36 400	2077
Pulp and paper industry	13 653	2 967	23 300	9185
Construction	9 228	3 344	58 120	100
Chemical industry	1 644	434	1 600	1 347
Pharmaceutical industry	1 339	845	4 100	932
Renewable energy	4 033	1 903	5 801	0
Water treatment and distribution	610	400	2 700	0
Bioeconomy services total	2 993	1 416	33 900	0
Nature tourism	2 737	1 226	32 000	0
Hunting	85	79	100	0
Fishing	171	111	1 800	0
Bioeconomy total	60 685	20 104	319 321	14 248
National economy total	375 777	163 424	2 509 500	54 221
Share of bioeconomy	16,1 %	12,3 %	12,7 %	26,3 %

Table 1. Bioeconomy output, value added, people employed and exports in 2011 (The Finnish Bioeconomy Strategy 2014, 9) (Sunabacka 2014). Addition of figures have been done wrongly (Appendix 3.)

The significance of the forest sector for the Finnish bioeconomy is obvious (The Finnish Bioeconomy Strategy 2014, 8) (Sunabacka 2014) and majority of the Finnish exports consists of forestry products which export rate was 22 percent year 2016 (Customs 7.2.2017). Hunting is the least productive sector of the Finnish bioeconomy when compared its output, valued added, people employed and having no exports at all (Sunabacka 2014) (The Finnish Bioeconomy Strategy 2014, 9).

Can be seen that output in normal market situation is comparable to employment. The value added (Table 2.) per employed person is in agriculture EUR 18,402 and in food industry EUR 70,444. The second is using the agricultural products as raw material and refining new products of them. The food industry is more productive and efficient because the value added per employed person has grown. Efficiency means saving raw material and consuming less (Pekkarinen & Sutela 2000, 26). This development will bring more employment in production chain of and higher value for the refined products (Table 1.)

Output	100
Purchases input	30
Value added	70
Work input	40
Capital input	20
Economic value added (EVA)	10

Table 2. Counting of the value added which is used in the Bioeconomy Strategy (2014, 9) and its difference to the Economic value added (EVA) (Kaplan & Cooper 1984, 265)

The Finnish income of hunting come mainly of moose. There was hunted 68,000 moose in 2010, which produced about 9 million kilos meat and the value was estimated to EUR 50-150 million (Petäjistö & Matala 2015, 5). Production of game meat is based on hobby in Finland (Kankainen & Saarni 2014, 7).

Output/ moose meat	85
Purchases input/ costs of hunting	6
Value added	79

Table 3. Counting of the value added for moose hunting in Finland (Table 2.) and the Bioeconomy Strategy (Table 1.)

The value of game and hunting has been counted different ways in Finland. It is said that catch is an important part of hunting - but only one part of the economic value and benefits of hunting (Kankainen & Saarni 2014, 7). The value of hunting in Finland is often determined by the value of recreation and meat, because in Finland hunting is mainly hobby (Finnish Wildlife Agency 2017 e) and game meat doesn't mainly come to the markets (Kankainen & Saarni 2014, 4). Hunting provides social interaction, communality, physiological and psychological impact on welfare for hunter (Pellikka, Juutinen & Eskelinen 2016, 6-13).

One possibility is to count an alternative cost for hobby: even hunting is satisfying hunters' needs the hours spend in hobby are out of working and is decreasing income (Pekkarinen & Sutela 2000, 26). One possibility could be getting money from hunting which would reduce the alternative costs by bringing income. Hunting could also be sold profitable (Eklund 2017).

The primary production starts in hunting when something is hunted. The hunters and hunting clubs are mainly responsible of this now in Finland (Kankainen & Saarni 2014, 8). The primary production in agriculture and forestry is seen different way. The one who owns the resources or raw material will use it – or sell it for the primary production. According the Hunting Act (615/1993) nobody owns the game. But the hunting right is owned by the landowner and the hunting couldn't be done without landowners' permission. Could also be seen that the raw material for hunting pays almost nothing in Finland (Table 4.) which brings the value added mainly for the hunter. How it is in other countries will be closely examined in chapter 3. "Examples of economics of wildlife in Europe" and chapter 4. "Survey and its Results".

Output/ moose meat	85
Purchases input/ costs of hunting	6
<u>Purchases input/ raw material</u>	<u>0</u>
Value added	79

Table 4. Counting of the value added for moose hunting in Finland (Table 2.) and the Bioeconomy Strategy (Table 1.)

There is lack of further processing or refining the raw material in hunting which means less employment on the value chain (Table 5.). Every value added million in “nature tourism” (Table 1.) is equivalent to 26 jobs, in agriculture to 54 jobs, in food industry 14 jobs. These figures mean that agriculture has lower profitability, while food industry is more efficient and creating more value added per employee. The food chain creates 68 jobs per every value added million. The hunting chain does not create almost at all employment because every value added million creates 0,79 jobs (Table 1.). The employees in the game economy are nowadays mainly the employees of the Finnish Wildlife Consortium. When compared the amount persons preparing game legislation in the Ministry of Agriculture and Forestry can same be seen there: 3,5 persons are working for the game which is approximately 1,2 percent of the total employees of the ministry. Approximately 50 percent of the employees of the ministry are working in the Food Department (Ministry of Agriculture and Forestry).

Output/ moose meat	85
Purchases input/ costs of hunting	6
<u>Purchases input/ raw material</u>	<u>0</u>
Value added	79
Work input (no real money)	0
<u>Capital input (some capital invested)</u>	<u>x</u>
Economic value added/ for hunters	+70

Table 5. The value of moose hunting in Finland can be counted in many ways. EVA (Economic Value Added) is estimating firms economic profit when taken count also costs of the capital employed. (Table 2.) (Table 1.)

Most of the hunting costs come from purchases like clothes, cartridge, dog food, gasoline, game management fee and licenses. Raw material doesn't usually pay anything (moose) and there aren't commonly payed wages. There is normally only a small amount of capital invested: dogs, hunting lodge, some percentage of cars used and

gun. Hunters have made hunting lodges often themselves without any compensation and they are seldom located on an own land. The costs for the “capital input” are mainly electricity or other annual costs. Dogs and guns are also invested, but aren’t usually any high amounts. All the invested money is needed to divide with years of usage. (Table 5.)

But there are some problems when counting the output of hunting. Output is now counted of the estimated meat price on markets and added the estimated recreational price for hunters (Petäjistö & Matala 2015, 5). The moose meat does not end up to free markets and is not available for consumers. There is only a few percent of hunters who sell meat to the food chain and 7 percent was sold to the private consumers. The total amount of sold moose meat was about 7.6 percent which means 0,69 million kilos (Kankainen & Saarni 2014, 10). The average price for sold moose meat was EUR 7 per kilo (Kankainen & Saarni 2014, 13) and the real output of moose meat was EUR 4,83 million. The demand for the game meat, is closely examined in chapter 2.6 “The demand for game food in Finland”.

There were 310,000 registered hunters and 213,000 of them were hunting at least once year 2013. Hunting days were altogether 3,6 million and one hunter was hunting approximately 17 days per year. There were 1,4 million moose hunting days which can be turned to approximately 82,840 moose hunters. (Metsätalastollinen vuosikirja 2014, 195). The amount of moose meat which hunters are consumed is difficult to count. According to Kankainen and Saarni (2014, 10) moose meat was consumed 5,81 million kilos by hunters, 1,65 million kilos given to relatives and landowners and 0,5 million kilos was refined - but seems that mainly to own consumption.

Some hunting clubs have been selling moose meat to restaurants and private consumers (Hämäläinen 2017).

Moose is also causing costs for the landowners. The moose damages were approximately EUR 1,6-5,4 million per year during the years 2001-2011. Usually there is no rent payed of the hunting area when it leased in Finland (Petäjistö & Matala 2015, 14). Usually the landowner does not benefit of the game. There is continuing discussion about moose damages and demand to decrease the moose population (Helenius 2017) (Packalén-Reinikainen 2014) (Silvennoinen 2017).

The Ministry of Agriculture and Forestry is the supreme authority in managing and supervising hunting and game management (Hunting Act (615/1993), Section 56). Planned game economy means that political decisionmakers are accepting the plan while most of the economic systems are market economies nowadays (Pekkarinen & Sutela 2000, 27). This differs from many countries where private landowners are leasing hunting areas for hunters who compensate the game damages for the landowner – and will decide the amount of the game in the area.

2.5 The demand of game meat in Finland

Finnish people has growing interest to the origin of the food (Helsingin Sanomat 4.3.2017) and how healthy the food is. This has grown the usage of organic food (Helsingin Sanomat 15.8.2015). There have also been problems with the quality of foreign meat (Yle Uutiset 18.3.2017) and people are interested in the welfare of animals (Kuluttajaliitto 2017) (SEY 7.3.2017). The interest in local-food is growing because it's seen as more sustainable choice. There have become different types of food-supply-chains where primary producer is selling straight to consumer. One of these is REKO, which has been growing fast (Nissi 2017) (Ruokapiiri 2017).

Game is seen as pure Finnish food from our nature. When the team of Finnish chefs' won Silver Medal in Chefs' Olympic Games they chose to "bring some forest and nature to the meals" and prepared white-tailed deer with lichen as main course (Helsingin Sanomat 2016) (Kinnunen 2016). Game is seen as sustainable choice and as local-food. The WWF Finland recommends the usage of sustainable hunted game meat (WWF Finland 2017).

Demand for the Finnish game meat is higher than supply (Eklund 2017) (Yle Uutiset 2015) but there is only a small amounts of game meat available. It can be seen when grocery store is advertising "game weeks": there is usually foreign game available: pigeon from Scotland, hare from Argentina and moose from Sweden (Appendix 8.) (Yle Uutiset 2015).

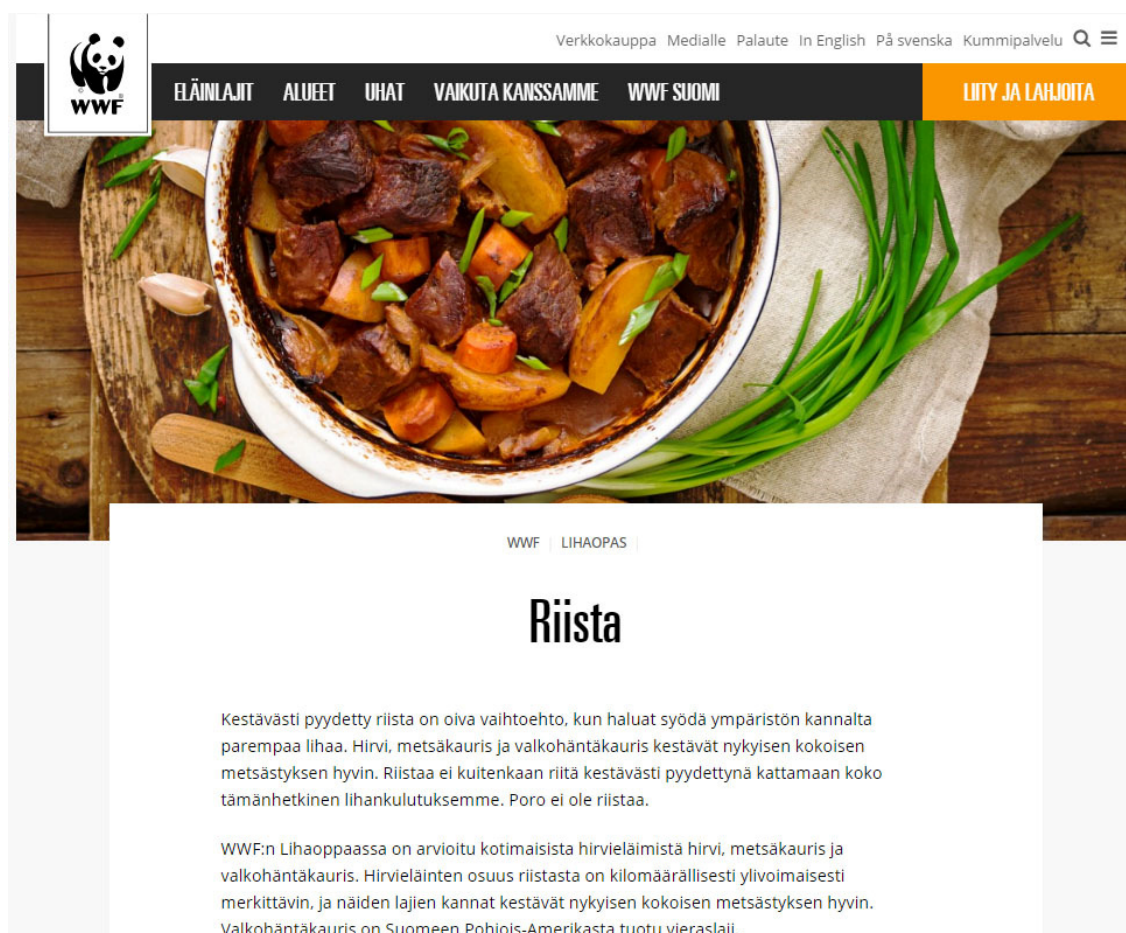


Photo 6. WWF Finland recommend the usage of game meat. “Riista” means game meat (WWF Finland 2017).

The Ministry of Agriculture and Forestry have been preparing food policy report “Ruoka2030” which was approved by the Finnish Government in February 2017. It’s telling the food policy goals until the year 2030 and sees that primary production comes from agriculture and is enabled by the EU’s common agriculture policy (Ministry of Agriculture and Forestry 2017, page 10). Game is mentioned once in report and there is no vision for the game meat (Ministry of Agriculture and Forestry 2017, 14-15).

”Food from Finland” is a growth program for exporting food from Finland. It’s financed by the Ministry of Economic Affairs and Employment and active operator there is Fin Pro. Program is marketing the Finnish berries from nature with a phrase ”Pure tastes from the Arctic North” and say says them to be healthy and natural. There is no mention about game meat (Food from Finland 2017).

Wild boar population is returning to Finland (Tikkanen 2015). Wild boar meat is wanted and it would have markets (Penttinen 2016). But there is a lot of discussion about the African Swine Fever (ASF) and the threat it might cause for the pork

production (Ala-Siurua 2016). There is no management plan for wild boar population and the decision by the Ministry of Agriculture and Forestry is to “half the population” (Laanikari 2017) (Ruusila 2017). There is assumed to be over 1,500 wild boars in Finland (Suomen riistakeskus 26.2.2016).

The Hunting Act (615/1993) was changed in 2016 to ease the hunting of wild boar (3.6.2016/422). Already in 2012 in the final report of the “Game economy as livelihood” working group was written that “Will be determined is there need to let some small game population to become huntable” (Eklund 2012) (Ministry of Agriculture and Forestry 2012, 7).

One possibility to produce game meat is to grow game in fenced areas. In Finland is not allowed to hunt in fences, which differs from neighbor country Sweden. From this more examples in the chapter 2.7 “Examples of game economy”.

2.6 People’s attitudes on hunting

There is sometimes confusion with the hunting terms. Sometime poaching is said to be hunting in newspapers. Helsingin Sanomat (14.4.2017) wrote that “Hunter has done a strike near the cities”. Article was telling about “commercial hunting” but it was telling about people who are hunting near cities and are selling food to local markets. The trophy hunting is often called as commercial hunting.

Challenge is that growing population needs food. Mintz has once said that “Eating unites all living thing and food is essential to life.” (1994, 102).

The trophy hunting has been in headlines during last couple of years. When an American hunter killed a male lion (*Panthera leo*) called Zecil in Zimbabwe July 2015 raised a storm in social media (De Minin, Leader-Williams & Bradshaw 2016) (De Minin 2017). Members of the European Parliament (MEPs) from different political groups submitted a Written Declaration on “trophy hunting” in the European Parliament which aimed to ban the import of game trophies into the EU (European Parliament 2016). Many organizations saw that declaration was against conservation hunting and globally established guidelines for sustainable use of renewable resources as a basis for conservation. These guidelines have been adopted in the United Nations and Convention for Biological Diversity (CBD Convention).

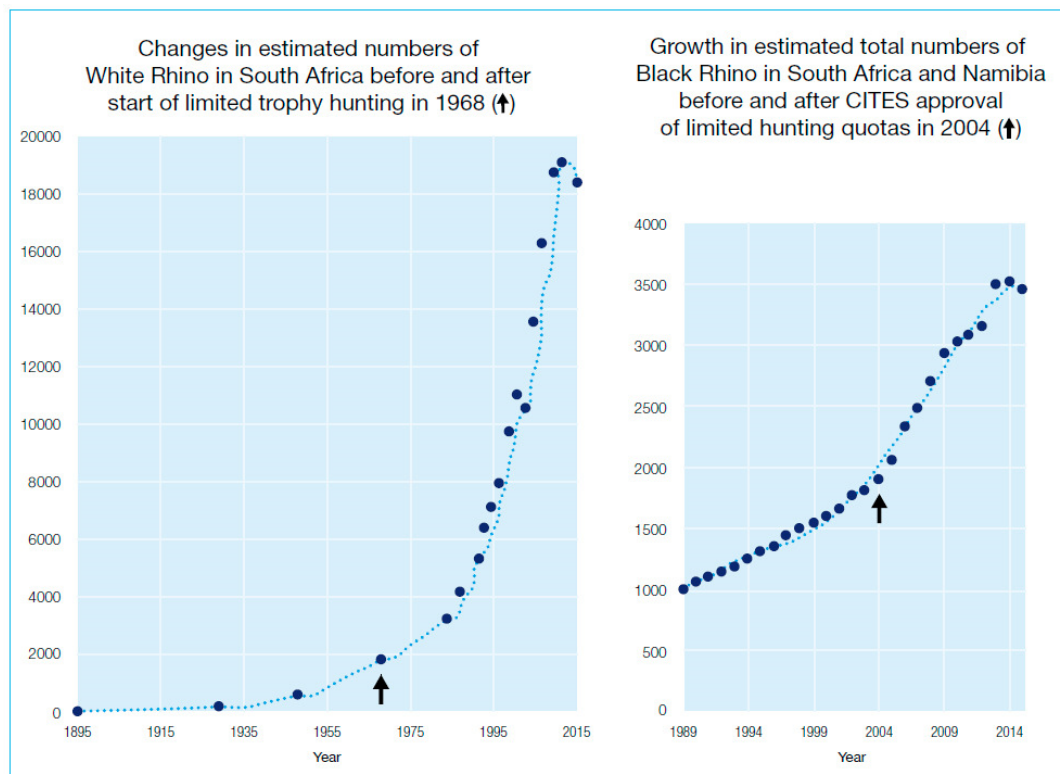


Photo 7. Trophy hunting has helped the recovery of White and Black Rhinos (IUCN Briefing Paper April 2016).

Financial Year (July/June)	Tourist Hunting	Photographic Tourism
2009/2010*	18,444,881.00	2,706,603.00
2010/2011*	23,536,347.00	2,863,287.24
2011/2012*	15,062,217.75	2,080,978.00
2012/2013*	15,917,430.93	3,904,808.35
2013/2014**	16,723,425.00	5,016,703.03
2014/2015**	16,277,373.00	4,736,187.00
2015/2016 (until January 2016)**	11,215,723.47	3,041,225.00

Photo 8. Revenue from trophy hunting and photographing in Tanzania (IUCN Briefing Paper April 2016).

Hunting tourism will bring money for conservation and it will bring money also for the areas where ecotourism isn't viable. Without income of hunting these areas would be transformed to the other forms of land use which would decrease the biodiversity ((De Minin, Leader-Williams & Bradshaw 2016) (De Minin 2017). Sustainable hunting is supporting biodiversity and has led to recovering some species (Photo 7.). Poaching is a

wildlife crime which can lead to extinction some species like Black Rhinos and International Council for Game and Wildlife Conservation (CIC) is working against wildlife crime at all levels (CIC 2013).

Sometimes hunting could also help endangered species. One example is the snow leopard (*Panthera uncia*) which is endangered (EN) according to the IUCN Red list and is living in the Tien Shan mountains in Kyrgyzstan. The local people are poor and getting their livelihood of herding goats. Snow leopard is killing goats which has led to poaching of the leopard. On the same area is hunted the Siberian Ibex (*Capra sibirica*) which conservation status is “least concern” (LC) according to the IUCN Red List. Trophy hunting of one Ibex costs approximately EUR 7,000 – 10,000. Local people get income of the hunting and guiding hunters. (Eklund 2017)

There has been discussion about justifying hunting in 1970’s and 1980’s (Ilvesviita 2005, 280) but hunting is nowadays widely accepted in Finland (Suomen riistakeskus 23.5.2013) (Photo 9.).

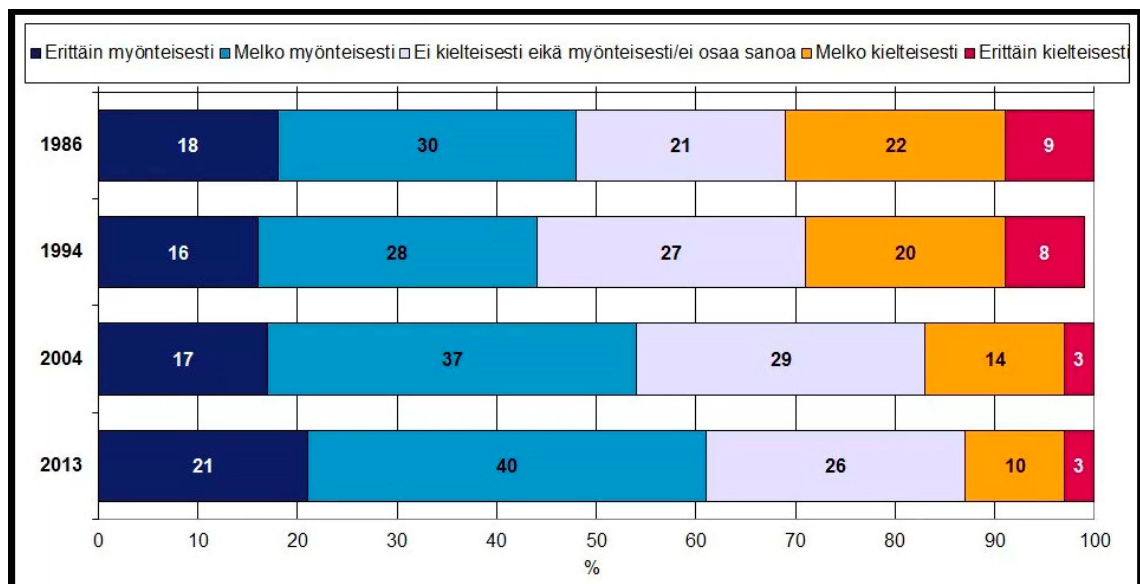


Photo 9. Hunting is well accepted in Finland. From left “very positive”, “quite positive”, “can’t say”, “quite negative” and “very negative” attitude toward hunting (Suomen Taloustutkimus Oy 2013).

Hunting is seen more than before as conservation (Suomen riistakeskus 23.5.2013). Hunters’ are doing important work for the Finnish nature when they are catching

invasive species (Luontoon.fi 2017), tracking animals wounded in car accidents and doing the game management in the spirit of the Hunting Act (615/1993).

2.7 Conclusions

From the international legislations and conventions can be found some barriers for the commercial hunting because they are restricting, regulating and banning hunting of certain mammal and bird species. One challenge is that the regulations are often world or European wide, and there can be difficulties to recognize the local characters and differences. Like the ban of the seal product trade, whereas the Finnish seal population is tens of thousands and growing. This ban doesn't prevent the commercial hunting of seals, but it can prevent the best possible usage of hunted seals: would be ethically right to use the hunted animals without wasting anything, but the Finnish markets are small there might not be enough demand for the seal products.

Threats can rise from new restrictions or bans, which may among others prevent hunting, the trade of certain products from hunted animals or increase areas where hunting is banned. For example, AEWa can ban hunting of some waterbird species and Ramsar areas can prevent hunting in certain areas. The AIHTS agreement, which was planned to prohibit the usage of not certified traps, can lead to problems: KaNu -trap isn't certified and it is commonly used for trapping raccoon dog, which is an invasive species. The ban of KaNu-trap would fight against the Invasive Alien Species EU Regulation (1143/2014) and lead to the loss of biodiversity in Finland.

As possibilities can be noticed that the international conventions often approve the sustainable usage of natural resources. For example, the Convention on Biological Diversity (CBD) recognizes hunting as the sustainable usage of natural resources. Can be also noticed that even though the international conventions and legislation would approve something, the national legislation can set bans and restrictions despite of it. Like the Natura 2000 network, which was established for breeding and resting sites for rare and threatened species and some rare nature habitat sites in the EU. These areas are strictly or partly protected in Finland and many of these areas are now converted to protected areas, where hunting is forbidden according to the Nature Conservation Act (1096/1996). In many other countries, the Natura 2000 areas are often taken care of and the Natura Award is rewarding the best practices. The Finnish Annex species of Habitats Directive differ from the neighbor countries: among others wolf is strictly protected in Finland and much more freely hunted in Estonia and Latvia.

But the conventions, directives and regulations are also strengths. They are aiming at vital animal populations and supporting biodiversity – which is also aim of the sustainable hunting.

In the Finnish legislation is positive that the Hunting Act recognizes both active and passive game conservation. Active game conservation creates ground for game entrepreneurship, because commercial hunting needs vital game populations from where to hunt. But at the same time the Hunting Act doesn't encourage to the active game conservation work, which is decreasing in Finland at the moment.

There are terms in the Hunting Act concerning game economics like "game husbandry". It can be understood in many ways and there isn't clearly told about game entrepreneurship. The Finnish Hunting Act doesn't recognize hunting as livelihood like it recognizes reindeer husbandry, farming, forestry and fisheries. This can be a problem in a situation where some animal threatens this livelihood.

Ministry of Agriculture and Forestry did have a working group "The game economy as livelihood", but seems that it didn't bring almost any suggestions or conclusions to support the game entrepreneurship. Might be good to evaluate its achievements and arrange a further working group.

Hunting in fenced areas is banned in Finland according to the Animal Welfare Decree. At the same time, it is allowed for example in Sweden and bringing many opportunities for game entrepreneurship.

Would be good to evaluate more deeply the Finnish legislation, how it supports and prevents the game entrepreneurship as rural livelihood and encourage to nature conservation work.

When looking through the Finnish game authorities, can be seen, that there is a small number of actors who are strong decision makers in game matters in Finland. The Ministry of Agriculture and Forestry is the supreme authority in managing and supervising hunting and game keeping. The Finnish Wildlife Consortium includes the organizations which are having the main power in decision making in game matters.

These strong organizations are doing many good things concerning game matters. But can be also asked: how is it listened the possible new and visionary ideas from the field or the other operators? Should there be created a mechanism for getting new ideas, while there is a quite small number of officers making decisions in these organizations?

When compared the Wildlife Consortium to a company, which is setting goals and evaluating its operations every year, can be asked, how is the Consortium evaluated? How is it measured the achievements of the supreme authority, the ministry, which is leading performance-based the organizations of Wildlife Consortium? Has there been enough discussion about the goals of the Wildlife Consortium among the hunters?

Hunters are paying the game management fee for the Game Administrations. Is hunter a customer or a funding source for the Game Administration – or both? What are hunters' possibilities to develop and change operations and goals of the Game Administration? Are the hunters aware of what they are financing and is it actively told them?

Might be good to have a clear and open evaluating system for the Game Administration and create a permanent mechanism for discuss and develop the operations. One possibility would be a platform, which participants could represent consultants from business-life, game entrepreneurs and some other groups bringing new ideas under discussion and development.

There is a great amount of Finnish hunters doing voluntary work for the Game Administration and society. But there will be faced changes in the near future because of the decreasing number of hunters. The SRVA work, which is done now voluntary and without compensation, can become as a business opportunity for some skilled hunters in the future. Would be good to start the discussion of the becoming change and how to meet it. Would be good to debate. about the financing model. One example is what is done in Sweden.

Hunting has been changing during the years and game conservation work has been decreasing. If there is wanted to support the game keeping work, there should be discussed about the models in the future.

When looked the Finnish Bioeconomy can be seen that hunting is the least productive sector of the bioeconomy. There is much potential, but it's mainly a hobby: there is only a few persons mainly from the Finnish Wildlife Consortium getting their livelihood of the game.

Hunting differs from common businesses, because raw material is mainly free and there are payed no wages. The amount of capital invested is low. This makes hunting quite profitable for the hunters who will get the meat. But correspondingly hunters do voluntary work for the society. Should be counted more carefully the value of voluntary work and what would be possibly to get from selling the game meat, hunting services and

paying taxes for the society. Would be good to count how the possible income would react to the bigger animal populations.

There is demand for the Finnish game meat while its ecological and ethical choice. But the game meat does not enter up for the consumers. Game meat could bring income for hunting associations and land owners – and when supply is meeting the demand

The Finnish people are having mainly positive attitude on hunting. But there is needed more discussion about hunting, because it can be seen from different examples that there is lack of information. Some of the hunting terms are understood and used wrongly and sometimes there are difficulties to understand the difference between poaching, illegal killing and hunting.

Would be could to tell living examples how hunting has supported vital animal populations and game economics has created welfare – but also discuss about the bad examples and how they are prevented or developed in the future.

There are many possibilities and challenges for the commercial hunting in Finland according to this chapter of the thesis. But more than present regulations and legislations – is needed a will to create employment and welfare of game economics for the rural areas.

3 EXAMPLES OF ECONOMICS OF WILDLIFE IN EUROPE

There are plenty of examples how game can create income, increase employment and national economy. It can also be a remarkable tool for nature conservation. Following some examples from the Europe.

3.1 Europe

The European Federation of Associations of Hunting & Conservation (FACE) has estimated the economic value of hunting in Europe. They revealed that hunting is an enormous economic factor: There is 6,7 million hunters, value of hunting is EUR 16 billion and hunting sector provides 102,581 jobs in Europe. One European hunter is using average EUR 2,400 yearly in hunting of which to hunting dog 30 percent, transport 25 percent and leasing of hunting grounds 15 percent. (Ebner 2016).

Hunting has brought income and employment to Europe. Some examples below;

Country	People employed	Number of hunter	Money used hunting/ billion EUR	Money used one hunter EUR	Money for conservation million EUR
Austria	?	123,283	0,475	3853	?
France	25,800	?	3,6	?	?
Finland	100*	304,245***	0,230****	1113*****	?
Germany	?	368,664	1,6	4340	82,5
Ireland	?	?	0,112	?	?
Italian	43,000	850,000	3,26	?	?
UK	74,000**	600,000*****	3,2	?	295
Europe total	102581	6,700,000	16	2,400	16,000

Ebner 2016

* The Finnish Bioeconomy Strategy 2014

** BASC 2014

*** Suomen riistakeskus 27.2.2017. Hunters in Finland paying Game management fee, but has hunted yearly 207,000 (Pellikka, Juutinen & Eskelinen 2016, 17)

**** Pellikka, Juutinen & Eskelinen 2016, page 17

***** BASC 2014, page 3. Number includes shooters of live quarry, clay pigeons or targets

Table 6. Value of hunting in some countries in Europe: number of employees in hunting sector, number of hunters, money used for hunting and for conservation. (BASC 2014) (Ebner 2016) (The Finnish Bioeconomy Strategy 2014)

Hunting provides jobs in Europe among others as dealers of hunting firearms, professional hunters and gamekeepers, dog trainers and pet food, manufacturing of

firearms and special items, manufacturing and sale of clothing and accessories. Jobs creation is improving the economic viability of rural areas. (Ebner 2016)

Furthermore, hunters do great amounts of conservation work for habitats and species (Penttinen 2016). This consist inter alia of wildlife management, predator and invasive species control, creation and maintenance of coverage for game, hedges and ponds and winter feeding of wild animals. Hunters contribute to the goals of the EU Biodiversity Strategy 2020. (Ebner 2016)

FACE sees that rural areas need hunting as an additional driving economic factor like the Cork declaration (1996) is addressing (Ebner 2016).

3.2 Austria

Forestry has longer history in Austria than in Finland. Near the border of Slovakia people has grown forests with "coppice with standards" -method already for 800 years. One joint-forest area of 400 hectares is owned by 89 farms. Spokesman of this area is Karl Gass. He says that firewood from the area goes for the forest owners and selling logs is also an important income to the joint-forest, but the biggest income for joint forest gets of selling the hunting rights (Keto-Tokoi 2017).

Hunting a red deer with big antlers can cost EUR 10,000 – 15,000 in Middle-Europe. This is more than an income of 100 spruce logs. This makes game as very profitable nature resource for landowners. The society will tolerate game extremely well when it brings income. There is about 200,000 red deer in Austria on wintertime which is more than ten times the density of Finnish moose population. Red deer population made damages for forest plantations on wintertime until on 1950's Austrians invented to fence the red deer from November to May. (Malinen 2016)

Thole is one hunting area in state of Steiermark. Its' size is 50,000 hectares and there are 22 fences for red deer and 25 employed gamekeepers. One of the fences is 18 hectares and there kept on wintertime about 50 red deer. (Malinen 2015)

Is evaluated that it costs EUR 5,000 to grow one red deer stag. Income of shooting is EUR 10,000 – 15,000 EUR so the total net income is EUR 5,000 – 10,000 per animal. There is shot 1,200 red deer during hunting season in the Thole hunting area. This

makes 25 shot red deer per 1,000 hectares. But in addition there is shot also other game animals like chamois, mouflon, roe deer and wild boar. (Malinen 2016)

Red deer antlers give also good income for the Thule hunting area owners. One red deer grows almost 80 kilos antlers during its life. When red deer drops the antlers yearly they will be collected and sold to Asia. Price for antler is about EUR 25 per kilo. (Malinen 2016)

There is about 450 professional gamekeepers in Austria. Studies will take three years to become a gamekeeper (Malinen 2016).

3.3 Denmark

Landowner Per Nielsen in Northern Denmark is having forest area total of 9,000 hectares from which 3,100 hectares in one piece. There is about 950 red deer on these non-fenced areas. Hunting areas are usually leases for five year periods and there is allowed to shoot only limited number of animals yearly. The owner is worried about the quality of animals because surrounding areas shot them as too young. At the moment they have good quality red deer in their area which is important for breeding. (Nielsen 2015)

Hunting land lease in Denmark is much higher when compared to Sweden. Lease prices for good red deer area are DKK 500–800 per hectare yearly (EUR 70–110). The Danish lease prices have had impact to Southern Sweden hunting leases and rising them. Higher prices are paid especially for the hunting areas with wild boar in South-Sweden (Åhlen 2017).

Lille Vildmose

Denmarks' biggest nature reserve is "Lille Vildmose". It's owned by Aage V. Jensen Charity Foundation (2017) which is having 28 nature reserves around Denmark and thousands of hectares protected areas in Scotland, South-Africa and Greenland. Foundation is supporting scientific work and the publishing books of animals and plants. (Aage V. 2015)

Total area of "Lille Vildmose" was 6,500 hectares from which was fenced 4,000 hectares year 2015 (Skriver 2015). During last two years they have bought more areas and nature reserve covers now 7,600 hectares (Lille Vildmose 2017). The fenced area is

made to prevent animals spread and cause damages for the surroundings but also to keep the area “quiet”. The animals in the area will be counted by visual perception and with helicopter. There is about 150 wild boars and over 400 red deer on summertime on the area (Skriver 2015).

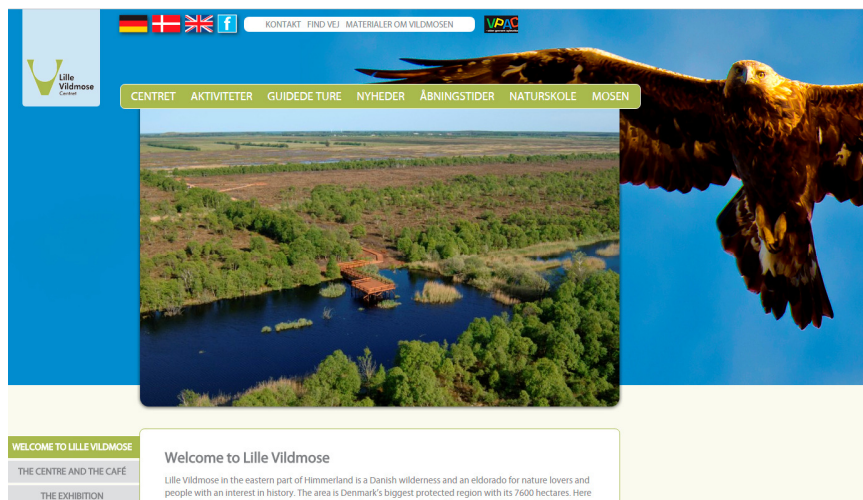


Photo 10. The fenced conservation area “Lille Vildmose” in Denmark (Lille Vildmose 2017).

Area is open for public from Easter to late autumn with entrance fees varying from adults’ DKK 70 to children’s DKK 30 and families DKK 175 (two adults and two child). There are towers for birdwatchers and path for people to walk among wild boars. In the exhibitions people can learn about the usage of natural resources like digging peat and hunting. (Lille Vildmose 2017)



Photo 11. What people can do in the Lille Vildmose? Among others learn how to skin the wild boars (Lille Vildmose 2017).

There is commercial hunting in the Lille Vildmose area in autumn and winter. They are selling wild boar and red deer meat from the area. The trophy prices for red deer vary from DKK 7,000 to 25,000 depending on the weight of the antlers. According to Skriver (2015) they were planning to buy five moose (*Alces alces*) from Sweden EUR 5,000 per animal. Moose is fenced in Sweden and it's easier to get licenses for fenced animals and transport them between fences (Skriver 2015). This plan came in reality in the November 2015 when they bought five moose calves to Lille Vildmose - and moose has now returned to Denmark. The fence of these moose is 30 kilometers long surrounding area of 2,100 hectares (Lille Vildmose 2017).



Photo 12. Bog area in the Lille Vildmose. Red deer is grazing in peatland area – and there were planning to buy moose to the area (Eklund 2015).

Lille Vildmose has got funding from EU's LIFE -funding instrument (EU LIFE 2017) for restoration of active raised bog EUR 4,194,396.00 year 2010 (EU Life Lille Vildmose). Reason for selling hunts is to get funding but also take care of the wild boar and red deer population management. They don't want to become as "bad example" like what happened in the Oostvaardersplassen in Netherlands (Skriver 2015).

3.4 England

Shooting in England supports 70,000 full-time jobs. There about 600,000 people shooting live quarry or clay and spending GBP 2,5 billion (EUR 2,9 billion) each year on goods and services. Shooters spend 3,9 million days in conservation work which is equivalent of 16,000 full-time jobs. (Appendix 4.)

3.5 Finland

There is only a few game entrepreneurs who are doing game keeping and selling hunting as livelihood in Finland. There are more companies which are selling hunting trips to Finland and foreign countries without game keeping or rearing animals. Many game entrepreneurs are members in the Finnish Professional Gamekeepers Association (Lahtinen 2001).

Kartanon Riista Ltd is the oldest game enterprise in Finland. It started its business in 1999. Company has been working on leased lands. In the very beginning it leased the Kytäjä Manor area of 5,000 hectares and with the lease of FIM 25,000 (EUR 4,000) yearly. After two years was made new agreement with long period and progressive lease of tens thousands of euros early and rising - and including hunting arrangements for the landowner. The turnover of the company has risen from zero to approximately EUR 0,5 million per year. Company have had 3 to 5 full-time workers and 1 to 6 gamekeeper trainees yearly.

Company is doing great amount of game keeping. Every year habitats are improved by planting and clipping shelter and hedgerows. There are sowing 15 to 20 hectares of game crops, controlling predators by catching 160 to 200 yearly - mostly raccoon dogs. They have been feeding game animals by approximately 30 silage bales, 80,000 kilos grain, 40,000 kilos fodder and 50 salt stones yearly. They have been rearing birds like grey partridge and pheasant and arranging moose and white-tailed deer hunting. There has been 40-60 moose wintering in the area which means 9-12 animals per 1000 hectares. There is also roe deer and fallow deer in the area but they haven't been hunted because of the low population.

Social contacts are very important for the company. There have been hundreds of hunting dog trainees and hunters from surrounding hunting clubs doing voluntary work for the company and getting possibility to train and hunt in the area.

There is more demand than supply for the game meat and the REKO-sellings has grown tens of percentages last year.

"The most rewarding is to see plenty of wildlife in the area" says the head gamekeeper of the Kartanon Riista Ltd. According to him the game keeping work of 20 years has been rewarding and there is more game in the area than before. There haven't been game damages and forestry income are important for the estate. The landowner has been

satisfied to the lease, arranged hunts and the game meat sold to his local restaurant which has risen its' turnover. (Eklund 2017)

3.6 Germany

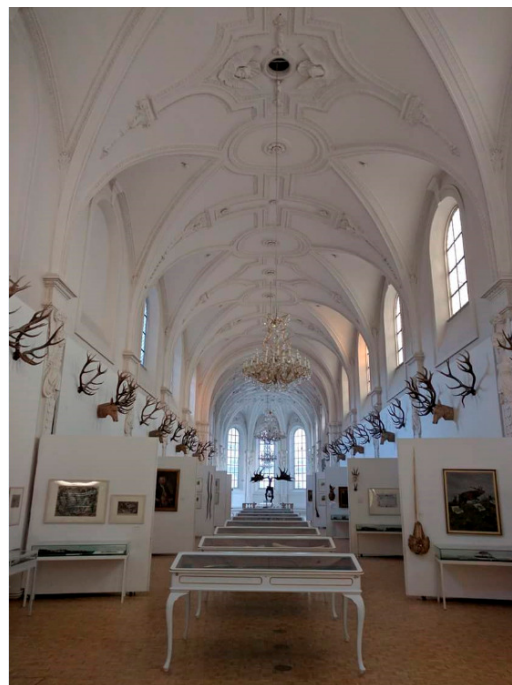
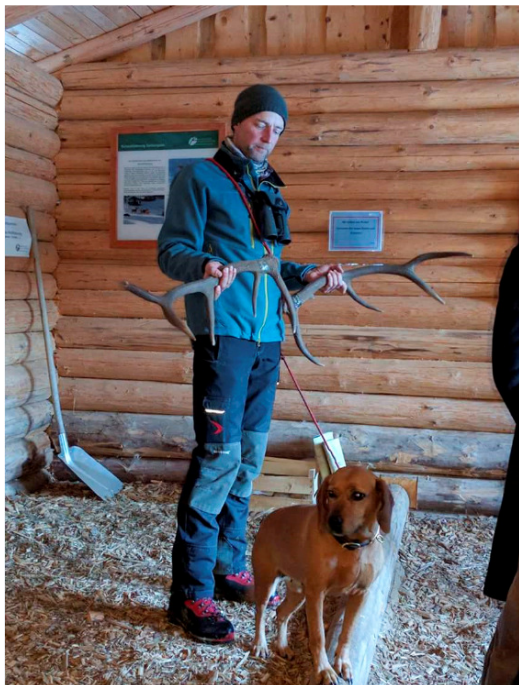


Photo 13. (left) Gamekeeper in Bavaria Germany showing small antlers of red deer. Antlers should be more mature when animal is hunted: older, more massive and having more points (Sipilä 2017).

Photo 14. (right) Red deer trophies are highly appreciated in Germany. They are handled with respect and honored placing them in visible (Sipilä 2017).

The professional gamekeepers sell red deer hunting in Bavaria Germany. Shooting red deer stag can cost EUR 1,000 without antlers and a good trophy will easily raise the price to EUR 4,000-5,000. In the wintertime game keepers collect red deer in fences and feed them with dried carrots, apples and hay. The fence of 40 hectares is having more than 40 red deer inside (Sipilä 2017).

3.7 Netherlands

Oostvaardersplassen is a fenced 6000 hectares' conservation area in Netherlands. Ecologist and government scientist **Frans Vera** from Staatsbosbeheer (2017) planned Oostvaardersplassen to replicate wild pre-historic Europe. He brought there free-ranging

large herbivores like Konik horses, Heck cattle and red deer. People wasn't wanted to the area and only a few had entry there. There was no hunting because it was wanted to be as wild as possible without the touch of a human (Marris 2009).



Photo 15. TV AVRO's programme told about hundreds of suffering animals starving to death in the Oostvaardersplassen (Hagen 2013).

But the area has faced many problems. According to Vera there is not enough money to monitor and publish scientific data from the area and its' development. The number of herbivores exploded and many of them starved to death year 2005. This raised concern about the animal welfare in Dutch Parliament (Wild Europe 2005) and Vera needed to make an agreement with government to kill the starving animals (Marris 2009). Year 2013 there were again hundreds of animals starving to death. This raised a storm in media (Hagens 2013) (Economist 2013) because animal welfare is a big issue in Netherlands (Economist 2013). Oostvaardersplassen is not only its kind and there are similar projects going on among others in New Zeland, Russia and Saudi Arabia.

3.8 Sweden

The Board of Agriculture is the Swedish Government's expert authority. It's supports marketing of the "local and environment intelligent" game food which is seen as ecological climate intelligent resource (Jordbruksverket 2017).

The prices of leased hunting areas in Sweden vary much depending the location and hunting possibilities for certain animal species. In South-Sweden prices can be very high because of the Danish hunters arriving easily along the Öresund bridge and their interested in wild boar hunting. Price for leased hunting hectare can rise to thousands of Swedish crowns. Prices on the webpages “HittaJakt.se” (Table 7) are describing quite well the leases in different Swedish provinces. (Åhlen 2017)

Legislation differs from Finland and hunting in fenced area is allowed in Sweden. There are many different types of hunting business arranged in fenced areas.

The SRVA work is compensated in Sweden. There are approximately 5,500 hunters involved with wildlife traffic accidents in Nationella Viltolycksrådet (2017).

ERSÄTTNING	
Kontaktpersoner:	50 kronor per samtal.
Olycksplatsbesök för kontaktpersoner:	100 kronor.
Eftersök rådjur:	400 kronor.
Eftersök älg:	700 kronor.
Eftersök rovdjur:	1900 kronor.
Bil:	Ersättning per km endast om enkel väg överstiger 50 km.
Skoter:	Ingen ersättning.

Photo 16. SRVA compensation for hunters in Sweden 2016 (Fredriksson 2016).

HittaJakt.se				
		HEM	BÖRJA HÄR ▾	JAKTLEVERANTÖRER
Observera att tabellen visar priser i kronor per hektar				
Relaterat				
Verktyg: Jämför vilttillgången på din jaktmark mot en lika stor i ett annat län				
Län	#	Lägsta 25%	Högsta 25%	
Blekinge	23	4 - 83	83 - 191	191 - 291
Dalarna	17	0 - 2	2 - 9	9 - 14
Gotland	4	-	-	-
Gävleborg	25	0 - 0	0 - 1	1 - 14
Halland	26	30 - 100	100 - 160	160 - 253
Jämtland	17	0 - 1	1 - 12	12 - 21
Jönköping	45	0 - 42	42 - 92	92 - 113
Kalmar	40	2 - 47	47 - 74	74 - 108
Kronoberg	37	0 - 50	50 - 113	113 - 286
Norrbottn	19	0 - 0	0 - 1	1 - 6
Skåne	90	26 - 135	135 - 250	250 - 355
Stockholm	19	0 - 43	43 - 115	115 - 202
Södermanland	34	34 - 118	118 - 188	188 - 258
Uppsala	30	10 - 46	46 - 71	71 - 172
Värmland	24	0 - 1	1 - 23	23 - 49
Västerbotten	25	0 - 0	0 - 2	2 - 10
Västernorrland	19	0 - 1	1 - 10	10 - 18
Västmanland	34	1 - 27	27 - 28	28 - 64
Västra Götaland	85	1 - 75	75 - 103	103 - 200
Örebro	24	0 - 35	35 - 80	80 - 152
Östergötland	36	31 - 71	71 - 97	97 - 143

Table 7. Leases of hunting areas in different Swedish provinces (HittaJakt.se 2017)

Eriksberg Hotel & Nature reserve

Eriksberg Hotel & Nature reserve is said to be the biggest hunting fence in the Northern Europe. It's located in the province of Blekinge and there is 915 hectares' fenced area with approximately 1,400–1,500 animals in summertime (Eriksberg 2017). There is game species like wild boar, fallow deer, David's deer, mouflon, red deer and wisent (Appendix 5).

Wisent (*Bison bonasus*) is the largest herbivore in Europe. It's threatened and vulnerable (VU) (IUCN Red List 2017). Wisent was near extinction year 1919 but with the captive breeding and reintroductions its population of free-living animals was risen to 1,800 and there is more 1,400 animals living in captivity year 2006 (IUCN Red List 2017). Fencing animals will increase the genetic heterogeneity when the gene pool will be wider and this will decrease the possible threat of diseases for the whole species. The European Association of Zoos and Aquaria EAZA (2017) has established the European Endangered Species Programme (EEP) year 1996 and third of the wisents' captive population is participating this programme (IUCN Red List 2017). Eriksberg and many other wildlife parks are not members in EAZA and not participating EEP (EAZA 2017) but they are increasing wisent population and supporting the important wisent conservation work.

Eriksberg Hotel & Nature reserve offers first-class accommodation and restaurants in the middle of the wildlife park. Restaurants are concentrating to the quality of food. The game meat comes from their estates, is local and the food is prepared by top chefs (Appendix 6). Their restaurant "Visenten" has been the best restaurant year 2015-2016 and one of the five best restaurants in Blekinge province year 2017 (White Guide 2017).

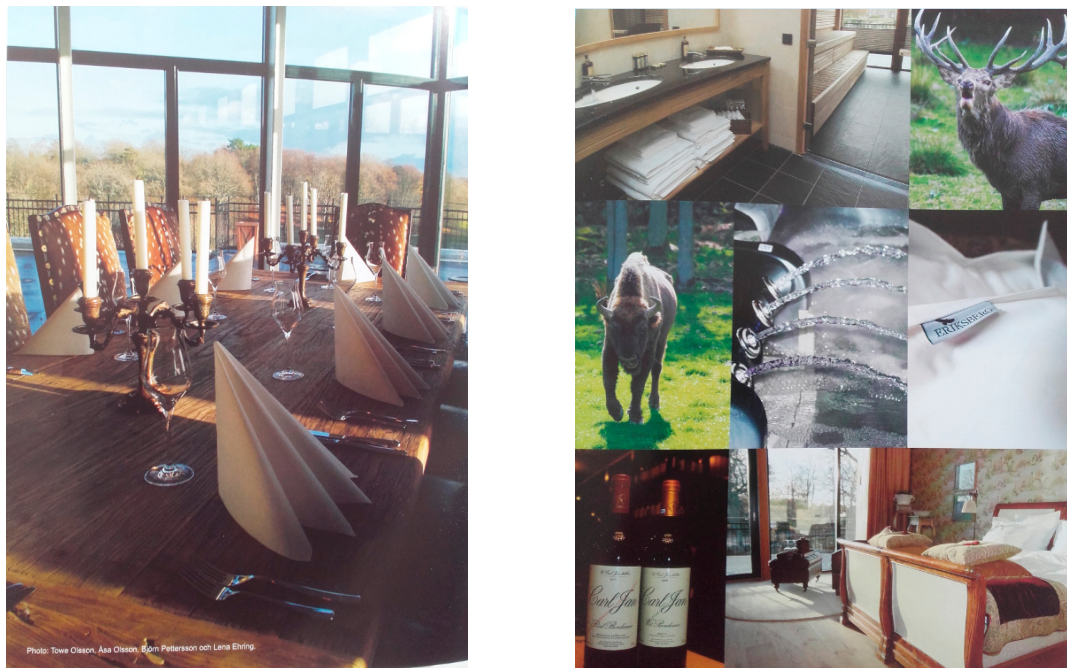


Photo 17. Eriksberg Hotel & Nature reserve is a safari-park with first-class accommodation and restaurant (Appendix 6). Area is producing local game meat (Eriksberg 2015).



Photo 18. Eriksberg Hotel & Nature reserves' restaurant "Visenten" use local game meat as raw material and has been chosen as the best restaurant in Blekinge province years 2015-2016. (Eklund 2017) (Eriksberg 2017) (White Guide 2017) (Appendix 6)

Eriksberg is offering first-class accommodation with excellent quality (Eriksberg 2015). There is possibility for sauna and jacuzzi with a view to hundreds of grazing animals (Eklund 2015). Every room has its own unique character (Eriksberg 2015).



Photo 19. One of the Eriksbergs' hotel rooms with its own unique character. Every room is also having its own weapon locker (Eklund 2015).

During autumn and winter many driven hunts will be arranged in this hunting fence and the King of Sweden has taken part to these expensive driven hunts (Olsson 2015). At summertime Eriksberg is a safari-park for families. They can drive with their cars along the roads and see hundreds of mammals and birds in the area. There is cafes, shops, restaurants and accommodation in middle of the nature reserve. Prices for entry to the area are:

Children under 8 years:	for free
Children 8-18 years:	SEK 100, for whole season SEK 200
Adult:	SEK 160, for whole season SEK 300
Family (2 adults, 3 children):	SEK 400, season SEK 600
Dogs can come to the area when leashed	

Table 8. Prices to Eriksberg Hotel & Nature reserve on summertime. There is also shops and cafés in the fenced area (Eriksberg - Nordens 2015).

Roslagens Jakt & Vilt

Roslagens Jakt & Vilt is representing smaller game fence in Sweden when compared to Eriksbergs Hotel & Nature reserve. Roslagen is organizing different courses, tests for

dogs, selling hunting, game meat, living animals and organizing safari-trips to the game fence (Roslagens 2017) (Appendix 9). Roslagens has sold living animals also to Finland (Uudenmaan metsästäjien Palvelumuistio 2015).

Dovhjortshägn

Nu erbjuder vi även hundträning på dovhjort. I ett stort jakthägn med några få dovhjortar har vi nu möjlighet att erbjuda din hund effektiv träning.

1-2 timmars jaktträning med instruktör kostar 1600kr

Tider för jakt och jaktträning:
1 oktober-31 januari.




Photo 20. Training hunting dogs and shooting game in fenced is allowed in Sweden (Roslagens 2017). Trained and tested dogs increase the ethics of hunting (Svenska Kennelklubben 2017, 8).

The Swedish Kennel club has given rules for wild boar dog tests and approves the organizations which are able to arrange the test. Rules are aiming at good hunting ethics and selective breeding of mentally healthy working dogs (Svenska Kennelklubben 2017, 8). Rosenlagens is arranging wild boar working tests but is also approved as arranger of dogs' behavior test (BPH) (Svenska Kennelklubben 2017).

Sveaskog

Sveaskog is the biggest landowner with 14 percent share of the productive forestry land in Sweden. The company has noticed that there is high demand for hunting areas and they want to develop hunting practices and possibilities to meet the demand. Nowadays there are about 25.000 hunters as their customers yearly. Sveaskog is having auction in internet for the hunting areas (Sveaskog 2017). Price for leased hunting area varies according to the quality of the game and the size and location of the hunting area. Big game areas are paid higher prices. In northern Sweden price per hectare has been SEK 4-12 per hectare which is about EUR 0,5-1,3. In some cases there have been also payment of the hunted moose depending the quality of the animal: calf SEK 500, cow SEK 3.500 and bull SEK 4.500 (Esbjörnsson 2015).



The screenshot shows the Sveaskog website with a dark blue header. The header includes the Sveaskog logo, navigation links (SKOGSÄGARE, VIRKESKUND, FASTIGHETER TILL SALU, JAKT, FISKE OCH FRILUFTSLIV, JOBB, OM SVEASKOG), and a search bar. Below the header is a breadcrumb trail: Start > Jakt, fiske och friluftsliv > Arrendera och hyra > Lediga arrenden > Unik jaktmark i Katrineholm, högvilt och småvilt. The main content area features a large image of three deer in a field. Below the image is the title 'Unik jaktmark i Katrineholm, högvilt och småvilt' and a description: 'Vi erbjuder en unik jaktmark med mycket god vilttillgång utanför Katrineholm. Här finns fantastiska möjligheter till en lyckad jakt på kronhjort, dovhjort, älg, rådjur och vildsvin.' To the left of the description are details: 'Län: Södermanland', 'Kommun: Katrineholm', 'Areal: 1344 ha', and 'Avtalsform: Jakt, högvilt och småvilt'. To the right is a green button labeled 'Lämna anbud' with a link 'Lämna ett anbud' below it.

Photo 21. Sveaskog is having auction in their internet pages for hunting areas (Sveaskog 2017)

Sveaskog is also selling hunting rights. Hunting permission can be sold for one small game hunting season and certain for certain area with SEK 400-800. Sveaskog is also selling one day hunting licenses. These prices vary very much depending the hunting area, its size, location and game species. Small game hunting day can cost SEK 350 and there can be limitations like maximum amount of hunted grouse birds. (Sveaskog 2017)

3.9 Conclusions

There can be found interesting examples how game can bring livelihood for the rural areas in Europe. There are many businesses which could be done also in Finland, but some of them wouldn't be possible because of our legislation, like hunting in fenced areas.

The vitality of animal populations is recognized well in Middle Europe, like what animals are too young to be hunted. More education for selective hunting is needed in Finland. Would be also good to raise the knowledge about other hunting cultures and improve the language skills of the Finnish hunters to get more ideas for livelihood.

4 SURVEY AND ITS RESULTS

4.1 Survey

The survey was aiming at answer to the question “is there is demand for foreign hunters to come hunting in Finland”. The chosen method was collecting data by doing an inquiry survey for foreign hunters but also analyzing written information about hunting to be able to find the framework where hunting is situated.

Survey was chosen to be done as inquiry in internet which would allow reach the hunters around the world – the possible customers for the game entrepreneurs in Finland. For the group to send the survey was chosen the members of International Council of Game and Wildlife Conservation (CIC) because it was needed somehow to limit and recognize the group which is under the research to be able to find some background information of the group. By doing the survey for the CIC members it also allowed getting information around the world which wouldn't be possible if survey would be done to European hunters like the member organizations of FACE (European Federation of Associations for Hunting & Conservation) or some hunter organization from some certain nation.

Questions in survey were chosen to be both quantitative and qualitative; ready sums of money from which to choose but also open questions to get more information and possible feelings about questions - because hunting can be raising feelings. The problem first met was the wideness of the inquiry; should it be asking overall questions about feelings about hunting in Finland? And if there would be questions about the game species - how many species there should be?

The chosen program for the do the inquiry was “Surveypal”. It was easily available and it's also easy to use. The inquiry itself become long because there was seen the need to add as many Finnish game species as possible because this would give more detailed information if there is demand for some certain game species – like detailed information about the prices.

The problem was the length of the survey and was seen that it might decrease the amount of answers. The solution for this was time consuming: to tell some background

information about animals, how they look, what is their hunting season and amount of yearly hunted animals. And to keep the research group awake; to use many good photos of the game animals. This chosen way was even more time consuming; to find the photos from disordered photo archives, good photos from books – and then ask permission from photograph right owners to possible usage of the photo. And also; most of photos needed to photograph again from books and adjust their size and light conditions.

There were more problems met with the survey program. Because there were many photos, they took so much space that the program went down. It was also noticed that some of the questions wasn't able to do as wanted and there it was needed to discuss with the programmer of Surveypal -program to develop it. It was also heard from the programmer that they have never had such long inquiry.

Planning of questions to the inquiry was started in spring 2016 and the building of the survey was done during the spring and summer 2016. The Finnish CIC delegation who commissioned the research – read questions through couple of times and gave ideas to improve the inquiry.

The game animals were presented in the inquiry so that first game overall information about them with nice photos. If the answering person would announce interest in hunting certain game animal – there would come more detailed questions about prices and photos of hunting and hunted animals.

The research was finally launched in the 28th of September in 2016 and was open until the 31st of October 2016.

4.2 Results

There were 319 who opened the inquiry and 121 of them answered to the questions. According to CIC they have about 1,600 members and approximately 90 percent of them are having e-mail (1,440). The amount of answers was not high when compared to all the members having e-mail (8.4%) but from the ones who opened the e-mail was answered 37.9 percent.

There were answering persons from 25 different countries. Most of the answers came from Germany (24.8%), Switzerland (11.6%), France (9.1%), Austria (8.3%), Belgium (5.8%), Italy (5.8%), Spain (4.1%), UK (4.1%) and United States (3.3%). Age of the person was varying between 20 and 79 years and the median was 50-54 years. Most of the answered persons were men (95%). The years they have been hunting varied in between beginner (less than one year) to more than 60 years (!), while medium was 21-30 years.

Most of answered persons had bought or been in commercial hunt (94.2%). Most had bought hunting from foreign country (80.2%) and many from their own country (52.1%). One fifth had been participating in bought hunting but haven't bought self (18.2%). Some of answered had never taken part to commercial hunting (5.8%).



Table 9. The people taken part in commercial hunting (n=189)

The ones who had bought hunting with money had used to hunting arrangements and trophy fees approximately EUR 3,600 – 3,900 yearly (median). But the amounts varied a lot; some had used EUR 150 for hunting and trophies, while the highest announced sum was EUR 150,000. Most people used approximately EUR 5,000 (12.5%) in hunting and trophies and over third of the answers were between EUR 5,000 - 10,000 (34.7%). (n=104)

In the free comments people told that it has become more common to pay a fee up to EUR 100 when participating one day driven hunt in Germany. There were also comment about the term 'hunting', which in African and English traditions means stalking

and 'shooting' for birds is then excluded, whereas in European and American tradition it covers both. Many also announced that the sum is average and sometimes they are spending much more e.g. when travelling 'long distance'. (n=30)

When asked about equipment like guns and hunting clothes was the sum much smaller; the median for yearly purchases were EUR 1,500 and 72.6 percent of the sums were between EUR 500 – 5,000. But also notable is that 14.1 percent was spending from EUR 10,000 up to 100,000. (n=94)

In free comments become clear that many haven't counted guns to these annual costs. It was said that once You buy good equipment it'll take long time to purchase new ones or; 'I have bought them at the beginning of my hunting career but haven't replaced any over time'. (n=19)

For non-commercial hunting was spent smaller sums yearly; the average was EUR 1,000 (median) and half spent EUR 500 – 1,000 (47.0%). Almost one fourth was using more than EUR 5,000 (23.6%). (n=17)

Hunting ground

Half of the persons answered had their own hunting ground (51.8%) – and the other half did not have (48.2%) (n=114). Over two third told they have been leasing land for hunting (61.3%). (n=119)

When asked where the hunting ground is located – most announced their home country (93.3%) (n=61). For the hunting area they were using approximately EUR 5,000 yearly (median). More than EUR 10,000 was using 37.7 percent and over EUR 20,000 was using almost every fourth person (23.9%). (n=58)

Most persons announced that they are hunting in their area 'big game' (85.0%) (n=51) and 'small game' (70.0%) (n=42). In free word were told which animals were regarded as 'big game' and in Europe there were e.g. 'fallow deer', 'roe deer' and 'wild boar', while in Africa was discussed about the size of 'buffalo' or 'elephant'. (n=14)

When was asked where leased hunting area is located – were the answers slightly different from the 'own hunting ground'; now there were 74.6 percent announced own

country and rate decreased 18.7 percent from previous. The percentage of hunting land in foreign country rise to 25.4 percent (leased) from 6.7 percent (own). (n=71)

How much was then the lease of a hunting ground? Lease was varying a lot but most announced sums were mainly in between EUR 10 – 60 per hectare (70%), but there were also much higher leases. There was mostly 'big game' hunted on these areas (92.9%). (n=65)

There was a small problem with this question; there wasn't asked the size of the hunting area which would have given interesting information.

Hunting in other country

The most answered that they prefer a hunting trip abroad of 4-5 days (36.7%) or 1 week (37.5%) (Table 10.)

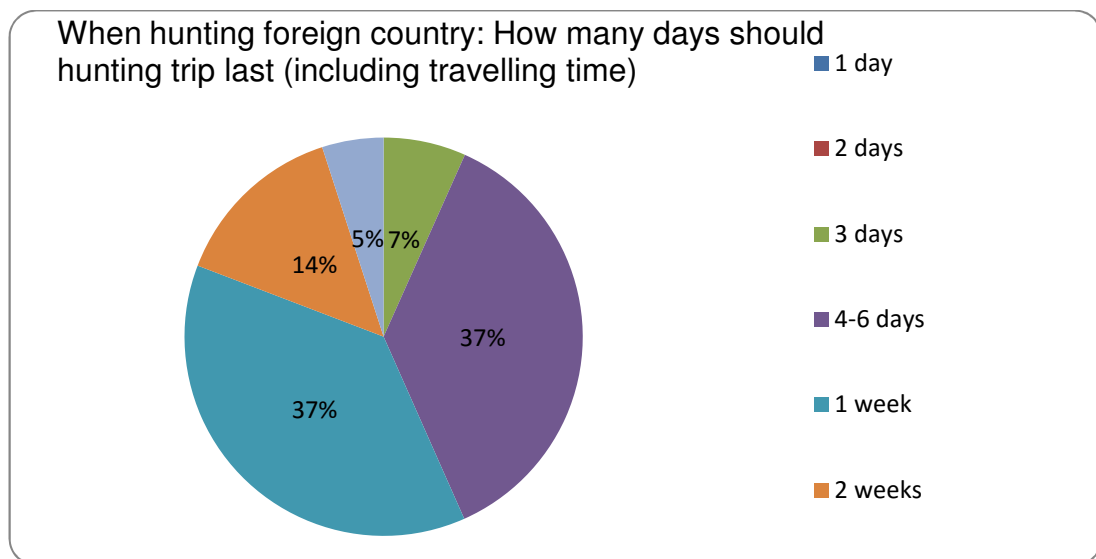


Table 10. The wanted duration of a foreign hunting trip (n=120)

More precisely was commented like 'two days travelling – two days hunting' or 'two days travelling – 3 – 5 days hunting'. It was also said that it depends on the hunted animal, method of hunting - and destination; near shorter time and far away longer hunting; 'A short break in Spain – but will not go in Greenland for 3 – 4 days...'. (n=28)

Accommodation

The quality of accommodation wanted was from basic-level to medium mostly (1,2,3 = 85.9%) (n=113)

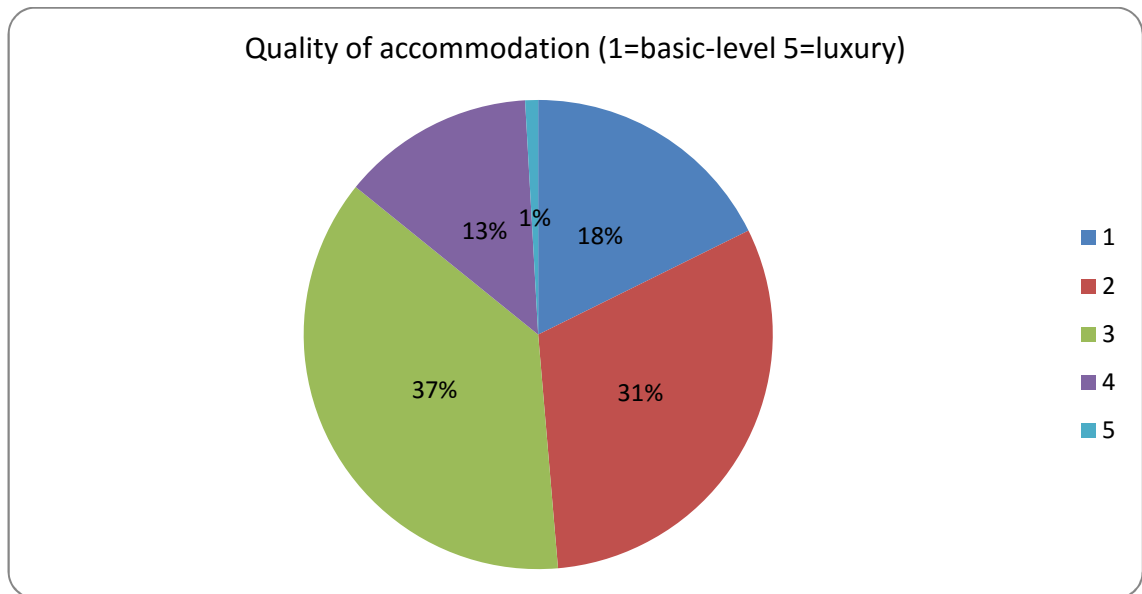


Table 11. The quality of accommodation wanted on a hunting trip (n=113)

The most wanted to pay about the accommodation EUR 50 – 100 per day (37.3%) or EUR 100 – 150 per day (31.4%). Almost one fifth was willing to pay more than EUR 150 per day (18.6%) (n=118)

But there were many answers that quality of accommodation doesn't really matter because; 'It depends on the hunt; I can stay in a very basic camp, if I hunt in the wilderness'. (n=38)

Hunting bag, catch or quarry

When people go for commercial hunting they are looking for a catch. The will to get the targeted animals was 71.2 percent but getting the trophy was not so important (48.7%). (n=117)

This question raised many long answers (n=31) and was commented e.g. that;

'The hunt must be fair chase and really a "hunt".'

'For me the very important thing too is to be close to the nature, look for the game.'

'A good hunt with no animal taken is better than a very poor hunt with animal taken.'

'Must be ethical hunting.'

'You go hunting to be successful. Never the less I know that you don't bag every day.'

Hunting in Finland

Most of the answered persons were interested to hear about moose (94.1%), wild forest reindeer (87.1%), black grouse (83.2%), white-tailed deer (82.2%), capercaillie (81.2%) and willow grouse (76.2%) (n=101) and these animals will be reported in this thesis.

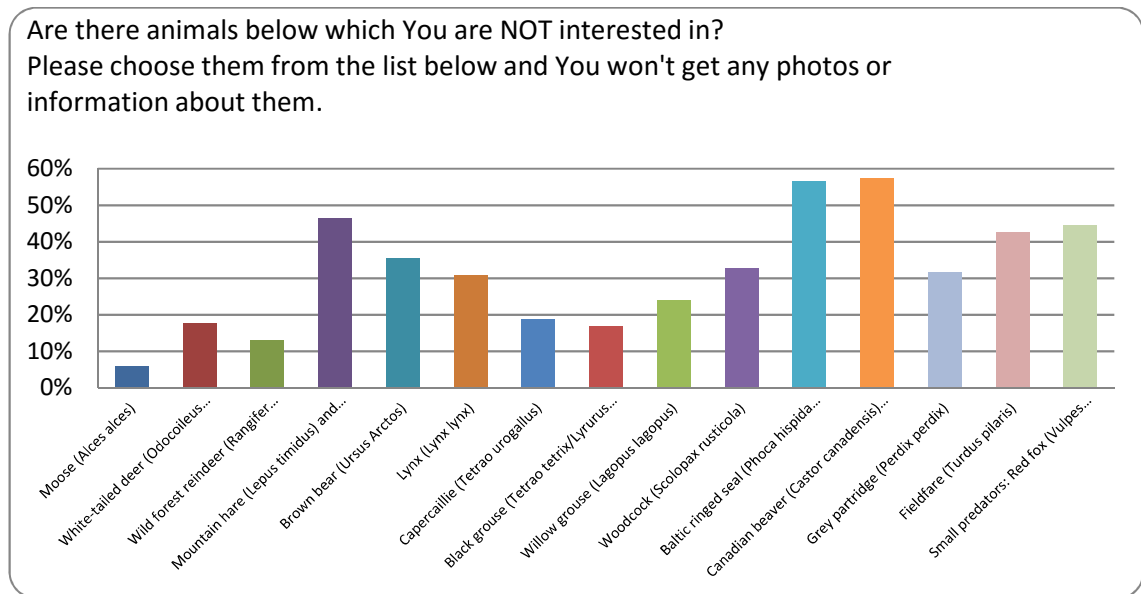


Table 12. The non-interest rate of answered persons on the Finnish game animals (n=101)

In the free word was said mostly that they weren't interest in shooting/hunting game which they have already in their own country. Finland was also seen as 'moose land' like Sweden. In the answers could be seen the difference between hunting traditions; some didn't see seals as game to be hunted. (n=36)

Following are hunting prices, which do not include travelling, accommodation, meals or trophy prices.

Moose (Alces alces)

The ones who were interested in moose hunting were willing to pay about one moose hunting day EUR 500 (median) while more than every fourth (28.8%) were ready to pay more than EUR 1,000. (n=111)

Hunting in Finland

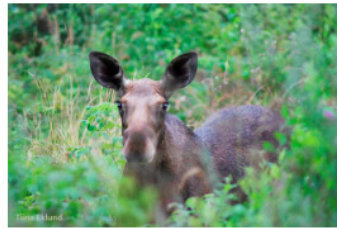
Moose/ Eurasian elk (*Alces alces alces*)

Annual number of hunted animals 35.000-50.000.

Size: Height 180-210 cm, length even 300 cm, males weight up to 600 kg

Antlers: Males regrow antlers every year. Two different types of antlers.

Hunting season: last Saturday of September - the 31st of December



Would You be interested in moose hunting in Finland?*

☐ Yes

☐ No



Photo 22. This is how was told about moose in Surveypal -inquiry first. If there was interest to moose hunting came the other page with photos of hunting and detailed questions.

About a CIC gold medal moose bull were ready to pay EUR 1,500 (median) and more than that until EUR 10,000 was interested to pay 47.7% of answered (n=106). Median price for moose cow was EUR 300 (n=103) and for calf EUR 150 (n=102).

There were comments that 'In Sweden is better changes to get the moose as target' and some answers that they weren't trophy hunters. (n=24)

White-tailed deer (*Odocoileus virginianus*)

As a price for one white-tailed deer hunting day was seen EUR 300 (median) (n=87) and as a price for one CIC gold medal trophy buck was seen EUR 1,000 (median) but in between EUR 1,500 – 5,000 were 37.5 percent of answers (n=86). For a doe was median prize EUR 150 (n=82) and for calf EUR 50 - 150 (n=79).

Finnish forest reindeer (*Rangifer tarandus fennicus*)

Median price for hunting day was EUR 400 (n=86) and for a CIC gold medal trophy male EUR 1,500 and about one third (35.4%) were interested to pay in between EUR 2,000 – 5,000 (n=85).

Black grouse (*Tetrao tetrix*) and Capercaillie (*Tetrao urogallus*)

The one day hunting price median for black grouse was EUR 200 (n=67) and for capercaillie it was EUR 250 (n=77).

Willow grouse (*Lagopus lagopus*)

The one day hunting price median for black grouse was EUR 250. (n=61)

The other game species

There was interest to the all game species, but lowest interest was to seals. There were very high single prices for the animals while median prices were lower.

4.3 Conclusions

From the survey results can be seen that there is demand for commercial hunting in Finland and our country is especially seen as 'moose land'. There is also high interest to our grouses, wild forest reindeer and to 'our gift from North-America' the white-tailed deer. But there is also demand for other game animal species.

The prices were depended to game species and highest prices were given to our moose bull, white-tailed deer buck and wild forest reindeer male. There was also given high single prices for all animals. Can be seen that median prices are giving advices of prices – but the highest offered single prices are great possibility for hunting arranger.

Was also noticed that people are buying commercial hunting and spending money; and there are great possibilities because the biggest sums spent to hunting yearly were over EUR 100,000. Interesting is also that people have leased hunting areas from foreign countries, which could bring income also for Finnish landowners. But there is accommodation and restaurant services which could also be potential income for the Finnish rural areas. Remarkable is that there were very high prices for leased hunting areas. This tells that landowners in Middle-Europe can get good income from the game.

There was noticed differences in hunting vocabulary between different countries. Word 'hunting' can mean stalking with rifle, 'shooting' can be bird hunting and the terms 'small game' and 'big game' give also different meanings in different continents. There

was also noticed some cultural differences in hunting and seal hunting was considered most non-attractive of the game species in survey.

More than trophy people were interested in local hunting and seeing animals. They had realistic view that it's not possible to get always game – but there should be some kind of possibility for it.

People were answering questions well until the end of the long inquire. This is also telling about their interest to the game animals.

5 DISCUSSION

From the examples around the world and as the result of the survey can be seen that game is a natural resource which could create more income and employment from the Finnish bioeconomy: There are foreign hunters who would be willing to pay for hunting in Finland and there are different types of game entrepreneurship around the Europe. In Finland we are having only a few game entrepreneurs. Why is Finland differing from many other European countries in game matters?

One thing seems to be that we are having a kind of “planned game economy” in Finland, which means that Ministry of Agriculture and Forestry is leading the organizations of the Finnish Wildlife Consortium by performance management and the size of some game animal populations are also planned by the management plans. Hunters important role is to fund the Finnish Game Administration by game management fees and furthermore to do a great amount of volunteer work among others for the Finnish Wildlife Agency, the Natural Resource Institute and SRVA assistance work for the police. This funding from hunters means that there is much less need for financial aid from the government to the Finnish Game Administration. Ministry can also decide the usage of the game management fees and have been supporting certain organizations with this money. This seems to be quite a good situation and hunters have done a great amount of good work.

But there seems to be arising problems from the hunters’ high age and declining number of them: There will be less people doing the volunteer work for the Finnish game research, SRVA and the game management work has already been decreasing according to research. The game management association managers have also seen the need for compensating the costs of the volunteer work – like is already done in similar VAPEPA assistance work for the police – and is compensated already in Sweden. Seems also that the volunteer work in associations is generally decreasing in Finland because of lack of time or enthusiasm.

One guess is that the government has been satisfied with the situation where hunting is mainly a loved hobby of hunters and the less employment and tax income is compensated with volunteer work. But if something is a loved hobby, could it be turned to loved work? This would mean more tax income and more employment.

This development to turn the hobby to work might also have a positive impact on the size of the game populations: according to this research, when hunting is sold – there should be some possibility for customer to get a catch. This means that game would benefit of this development with higher populations. The examples from game enterprises show also that they are doing good game management. This would also bring benefits for game animals – but game crops, feeding animals and bettering habitats would benefit also other animals than just the game.

Hunting is producing social benefits in Finland. Hunting clubs are increasing the vitality of villages and hunters are active operators there. Hunting as a hobby is creating wellbeing when being outdoor in the nature. But could it also create wellbeing as being an interesting work? Because hunting is mainly hobby and game meat is ending up mainly for hunters themselves in Finland, the value of hunting has been chosen to be counted from other figures than market turnover in many Finnish researches. There is also the value of volunteer work counted and increase of wellbeing with chosen prices in researches. But when money is changing owner in markets – when making business - it will bring wellbeing for producer, entrepreneur, employees and customer – increasing employment and bringing taxes for government. This is the reason I wanted to choose this market -point of view when evaluating the Finnish economics of wildlife.

One major problem is that the one who is forgotten in the Finnish game discussion is the landowner. The problem is that the landowner does not get almost any benefits when “leasing” land for hunters - but he/she will get the game damages. This turns many landowners’ attitudes against game animals and they are insisting lower game populations – or not wanting to have game at all.

This differs from many countries where private landowners are leasing hunting areas for hunters: hunters will compensate the game damages to the landowner. The hunting lease is also remarkable sum of money in many countries and some landowners get more money from hunting lease than from wood production in forestry. Finland differs from many countries because of low game population. If there would be more game, and more hunting possibilities – there would be also possibilities to make more business by selling hunting and game meat. The hunting lease could also be then higher.

One major problem nowadays is the supply of the Finnish game meat: There is demand and people are willing to buy the Finnish game meat, other countries are selling game meat to Finland and the Finnish game does not end up in the markets. If there would be more entrepreneurship – there would be more game meat on the markets. This would bring also benefits for some stores and restaurants.

Many things do not support the game entrepreneurship in Finland now. One is the political framework, which seems to be satisfied with the present situation and our game law does not recognize game entrepreneurship – like it recognizes farmers, reindeer herders etc. In Sweden hunting in fences allows many kind of game enterprises. Game populations can be very high and there will not be problems with game damages for neighbors or increased traffic accidents. Hunting in fenced areas is forbidden in Finland.

Possibilities

There are interesting models of the game economy around the Europe - and the closest in Sweden. There is also commercial hunting in protected areas. We would have many possibilities to develop our hunting so it would bring more employment to rural areas and income to our country. Albert Einstein has once said; ‘Imagination is more important than knowledge’. Let’s start.

Can we see moose as a great opportunity while now it is often seen as forest damage? If moose would bring income for landowner – would it turn the world upside down?

One possibility is to make hunting clubs more professional. They would produce meat for Finnish consumers, commercial hunting for foreign hunters and leases for the landowners. When they get income from moose, it would be possible to give money also for landowner: The more moose you have – the more you get income – and the more you can give money for landowner. And it is not only the moose because there are other game species and possibilities. Maybe wisents? For describing this development, I have created a theoretical model “the Game creating welfare” (Appendix 10) where my conclusion is that the financial value of the game animal supports its existence.

The development where the hunting clubs will come more professional is possible: some small development is seen already on this side. The raising age of hunters and decreasing amount of them is supporting this development. This would create more

employment in the countryside. But this would need consulting in business matters - and consulting in service creation and recognizing the needs of the customers.

Another possibility is to fence a forest area to produce game meat. This is allowed according the Finnish laws, but one problem is that hunting is not allowed. But people could fence their forest areas, raise animals and produce game meat. If animal density is not too high, there is possibility to get income of forestry and game husbandry from the same area. This would bring much more income for landowner. You'll get seldom income from forestry and there can be tens of years between thinning and clearcutting, but fencing the game means that You'll get income every year. Also depends which game animal you have fenced, because wild boar is much more productive than mouflon or deer.

On possibility is to establish a company which would lease hunting areas and arrange commercial hunting and sell game meat. There are already a few such companies which are operating on leased areas. The challenge is that game animal populations are quite low at the moment. If a company is willing to do a lot of game management and increase amount of game animals with conservation work – it does not mean that they would get more licenses. The Game Management Association decides the number of given licenses. In many cases the number of licenses is based on the size of hunting area and it does not acknowledge in any way the amounts of game management work. Somehow a supporting model which would encourage to wildlife conservation work should be created – and when it is seen that it produces higher game population - this would lead to higher number of licenses.

One possibility is to lease a hunting land area for foreign hunters. This would bring an amount of money for landowner but also there might be need for hiring personnel for game keeping and selling the meat. If foreign people would be interested in hunting in Finland – they would be keen to have enough game. This would mean increasing number of game, game keeping and game meat.

Game animal species vary in different parts of Finland and there are possibilities to establish game enterprises all around in Finland. Lapland has willow grouses and capercaillie, North-Karelia has the densest populations of large carnivores, moose can be found all around Finland and the white-tailed population is dense in South-West

Finland. It is also possible to rear and release game animals, like partridge and pheasant, but more research could be done with species like capercaillie, woodcock and grouses how to rear and release them.

The Finnish Wildlife Agency is concentrating on game management plans and licenses now. If there would be more game companies in Finland, the Wildlife Agency could focus more on advising game management in practice and consulting hunting business. This would bring more variability to their duties.

When there would come more money from the game business, there might be also raising demand for research and more employees would be needed to game organizations. This can be seen in forestry, where money from a tree is given for landowner, forest experts, officers, employees in mills, marketing and selling personnel, researches etc. When something is bringing income and value added – this will “feed” a huge number of employees in the production chain.

This was the first survey which was concerning commercial hunting and done for foreign hunters. There are still many questions without answers. Getting to know better the customers and their needs would be advisable. Also, more research on game conservation work and rearing different animals would be important. We should start testing, how the hunting clubs could become more professional - and how the landowner could get more income of the game.

It seems likely that well done wildlife economy is not away from anybody - but it would bring more for everybody.

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APPENDICES

Appendix 1. The Budget of Finland 2017, costs and income of game

(Tiina Eklund 19.4.2017)

THE FINNISH STATE BUDJET				
THE MINISTRY OF AGRICULTURE AND FORESTRY				
Is leading by performance-based management following organizations				
	BUDJET	INCOMES	estim.	
Metsähallitus, Game and Fisheries	5514000	4400000		
30.40.41 Compensation of Game Damages (Act) Also money for research and information systems for moose management	3400000	3400000	12.30.42	Hunting licenses for moose and deer Real income 2015: 3710714 310714 extra income
30.40.42 Compensation of Predator damages Money is used for previous year	7900000			
30.40.50 Support for Game Economy Money is directed according to the Strategy of the Finnish Wildlife Consortium 2012-2016	10130000	10130000	12.30.45	Hunting card payments Real income 2015: 10174031 44031 extra income
The Finnish Wildlife Agency "To promote sustainable Game Economy"	6770000			
The Game Management Associations	2340000			
Hunting Museum	405000			
Wildlife Consortium Strategy in action Like big predators counting and developing the information systems	615000			
Natural Resources Institue, Game Research Game Research costs 2015 percentage of total expenses	20640000 23550000 17,2 %	estim. 1889850 5937000 4,3 %	estim.	
ALL TOGETHER	COSTS 47584000	INCOME 19819850		
Total cost	27764150			
Without the costs of the Unit of Game and Fisheries of the Ministry of Agriculture and Forestry				

The money for the The Finnish Game Administration come from hunters; game management fee and hunting licenses for cervids. The Metsähallitus costs can include more than Game and Fisheries. The figures for Game Research are estimated from previous years (percentage of whole Institute costs 2015).

The Finnish State Budget 2017				
12.30.45	Hunting card payments	10130000		
30.40.50	Support for Game Economy	10130000	100,00	%
	Finnish Wildlife Agency	6770000	66,83	%
	Game management associatons	2340000	23,10	%
	Hunting museum	405000	4,00	%
	Wildlife Consortium...	615000	6,07	%
			100,00	%
	295 GM associations for one	7932,20	EUR	0,08 %
	304245 hunters for one	7,69	EUR	

Appendix 2. The Finnish game bag, area and species year 2015

(Natural Resources Institute Finland)

Game bag by Year, Area and Species

	Hares	Fur animals*	Deer	Other cloven-hoofed animals	Waterfowl	Grouses	Other game birds	Large carnivores	Seals	Unprotected birds**
2015										
WHOLE COUNTRY	217,600	282,700	75,550	511	409,500	209,200	299,100	582	157	272,700
Etelä-Häme	7,000	12,700	5,653	0	14,700	1,800	18,100	37	0	7,800
Pohjois-Häme	5,700	12,600	4,034	7	13,800	1,800	8,600	25	0	16,900
Kainuu	21,000	9,700	2,229	3	11,400	36,800	2,000	77	0	11,400
Pohjois-Karjala	28,700	11,300	2,019	5	26,300	20,700	18,800	68	0	8,500
Ala-Lappi	12,000	3,400	2,870	1	14,800	20,300	1,800	12	3	3,900
Keski-Lappi	3,500	5,200	2,965	0	9,800	22,000	1,200	39	0	4,200
Ylä-Lappi	500	1,100	426	0	1,200	33,900	0	7	0	1,000
Oulu eteläinen	18,000	2,800	4,308	3	51,200	9,100	42,400	34	23	25,800
Oulu pohjoinen	13,400	11,200	2,671	2	20,300	28,100	4,900	17	4	32,200
Pohjanmaa	15,700	16,300	4,392	1	41,700	5,100	42,500	22	0	34,100
Rannikko-Pohjanmaa	1,700	14,000	2,880	1	12,400	600	3,700	9	8	26,700
Satakunta	5,000	15,300	7,987	10	17,900	3,600	14,200	27	8	14,600
Etelä-Savo	8,700	46,800	3,699	50	27,900	4,700	11,900	33	0	15,600
Pohjois-Savo	31,900	16,300	3,466	3	38,100	9,700	18,800	42	0	9,000
Kaakkois-Suomi	7,900	21,400	2,535	300	14,000	3,100	15,100	26	7	8,000
Keski-Suomi	12,300	13,700	3,459	3	33,100	5,100	40,900	37	0	18,100
Varsinais-Suomi	6,300	26,000	12,922	17	27,700	1,500	17,100	41	35	13,800
Uusimaa	18,600	42,700	7,035	105	32,900	1,700	36,500	29	69	21,600

Hunted amount of deer means mainly species moose and white-tailed deer. There was 44,100 moose shot year 2015 (Suomen riistakeskus 10.2.2017)

Appendix 3. The Finnish Bioeconomy Strategy with correct numbers

(Tiina Eklund 9.4.2017)

BIOECONOMY	Output	Value added	%	Employed	VA/employed	Exports	Million EUR
FOOD	16093	4356	27,1	128400	0,03	515	
Agriculture	4822	1658	34,4	90100	0,02	0	
Food industry	11271	2698	23,9	38300	0,07	515	
Previous given in BES	29273	9317	2713	101400	47120	13819	-110
	difference	difference		difference		difference	
BIOECONOMY PRODUCTS	36966	12030	32,5	148520	0,08	13709	
Forestry	4232	2898	68,5	25000	0,12	68	
Wood products	6870	1542	22,4	36400	0,04	2077	
Pulp and paper	13653	2967	21,7	23300	0,13	9185	
Construction	9228	3344	36,2	58120	0,06	100	
Chemical industry	1644	434	26,4	1600	0,27	1347	
Pharmaceutical industry	1339	845	63,1	4100	0,21	932	
RENEWABLE ENERGY	4033	1903	47,2	5801	0,33	0	
WATER TREATMENT	610	400	65,6	2700	0,15	0	
BIOECONOMY SERVICES TOTAL	2993	1416	47,3	33900	0,04	0	
Nature tourism	2737	1226	44,8	32000	0,04	0	
Hunting	85	79	92,9	100	0,79	0	
Fishing	171	111	64,9	1800	0,06	0	
BIOECONOMY TOTAL	60695	20105		319321		14224	
Previous given in BES	60685	20104	1	319321	0	14248	-24
	difference	difference		difference		difference	

The correct numbers to the Finnish Bioeconomy Strategy. Differences in numbers are mainly under titles “Bioeconomy products” and “Bioeconomy total”. Hunting in blue colour.

BES= Bioeconomy Strategy (The Finnish Bioeconomy Strategy 2014)

Appendix 4. Value of shooting in UK

(BASC 2014)



MAIN FINDINGS

In the UK today...

- Shooters spend £2.5 billion each year on goods and services
- Shooting is worth £2 billion to the UK economy (GVA)
- Shooting supports the equivalent of 74,000 full-time jobs
- Shooting is involved in the management of two-thirds of the rural land area
- Nearly two million hectares are actively managed for conservation as a result of shooting
- Shoot providers spend nearly £250 million a year on conservation
- At least 600,000 people in the UK shoot live quarry, clay pigeons or targets
- Existing industry information shows that there are at least 1.6m individuals who shoot live quarry with an airgun
- Shooters spend 3.9 million work days on conservation – the equivalent of 16,000 full-time jobs

The full report can be viewed at: www.shootingfacts.co.uk

THE VALUE OF SHOOTING 3

GBP 2,5 billion (English pound) is about EUR 2,9 billion.

Appendix 5. Eriksberg game fence, Sweden 1(2)

(Eklund 2015)



Fallow deer and European bison (wisent) in Eriksberg safari-park 2015. (Eklund 2015)

Appendix 6. Eriksberg game fence, Sweden 2(2)

(Eklund 2015)



Eriksbergs' restaurant "Visenten" (photo above) and their butchery next to the restaurant (Eklund 2015).

Appendix 7. Red deer fencing on wintertime in Bayer, Germany

(Sipilä 2017)



Red deer are kept in fences in wintertime for feeding and keeping them in good condition - and preventing forest damages. Professional gamekeepers take good care of red deer and are able to sell good quality trophy individuals for well-paying hunters (Sipilä 2017).

Appendix 8. Game weeks in Finnish shops

(Eklund 2014)



There is demand for game meat by the Finnish consumers which has been noticed by shop owners. But the game which is sold is not from Finland: pigeon is from Scotland, hare is from Argentina and moose is from Sweden. The Finnish game meat does not end up to the markets (Eklund 2014).

Appendix 9. Examples of the game fence prices in Sweden

(Roslagens 2017)

Hunting dogs:	Wild boar training 1-2 hours	SEK 1,000
	Wild boar working diploma/ SJF	SEK 1,500
	Shoot wild boar from own dog	SEK 3,500
Bear training	SEK 1,900	
Fallow deer training/ 1-2 hours	SEK 1,600	
Moose training	SEK 1,700	
Badger training	SEK 200	
	Dog obedience training courses	SEK 1,900
Dogs behavior test (BPH) 30-45 min.	SEK 950	
Hunting	American bison, fallow deer, mouflon	
	red deer, wild boar (high seat, driven hunt, stalking)	
predator hunting: fox, badger, mink, crow,		
western jackdaw, magpie		
Meat	Wild boar	SEK 35/kg
Other services/	Selling living animals	
courses	Gift card for hunting possibility	
Safari-trips for families/adult	SEK 200	
	/children	SEK 100
Slaughter and piecing courses	SEK 1980	
Searching and hunting bear/ 2 days	SEK 2500	
Hunter's exam learning in practice		
Grilling festival 10-300 persons		
Shooting courses		
Always possibility to help slaughter own shot animal		

Prices for different services available in Roslagens Jatk & Vilt (Roslagens 2017). SJF means Swedish Hunters Association.

Appendix 10. 'Game creating welfare' by Tiina Eklund

Model for the "Game creating welfare for the Rural areas" which include a continuous improvement: 'The more moose You have – the more You'll get income – and the more You can give money for landowner'.

Moose is an example – the number of many other game animals can be raised.

Conclusion is also that the financial value of the game animal will support its existence.

