

A history of organized persecution and conservation of wildlife: species categorizations in Finnish legislation from medieval times to 1923

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Abstract Attitudes towards wild animals are reflected through history in various categorizations of species. For example, changes in the useful-harmful dichotomy of species have affected policy decisions during the long history of organized pest persecution as well as during the much more recent rise of nature conservation. The first hunting legislation in Finland dates back more than 650 years, to times when the country belonged to the Kingdom of Sweden. From those times to the early 20th century various acts of law exhibited a marked variation in placing species into useful and harmful categories. The dichotomy seems to be based upon fundamental

ecological interactions between humans and other species. We show that the varying interest in pest persecution as well as important conservation milestones have been associated with contemporary human-animal relations such as the attitudes of decision makers and laymen towards wild animals, and the public awareness of species conservation issues.

Keywords Attitudes, Finland, history, hunting legislation, persecution, pest control, species categorization.

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Introduction

The characteristics, intensity and significance of human-animal interactions sets the basis for how people value wildlife. This value laden interface between people and wild animals has always shaped and affected people's everyday lives, and people have adopted positive, negative or neutral attitudes towards the interactions and hence towards the species. This has led to various classifications or categorizations. The archetype of categorizations, that of dividing species into useful and harmful, arises from the benefit or burden of species to humans. Being food or other direct material resource is an obvious value of an animal species, but through its role in an ecosystem a species can also benefit humans indirectly by promoting the emergence, abundance or exploitability of other material resources. Pests pose both direct and indirect threats for human welfare and sustenance, and are thus disliked.

Early conservation attempts were targeted at maintaining the existence of useful species, and for pests the

legislator's goal was to try to extirpate their populations whenever possible. The idea of sustainable population management was not applied to pests until the late 20th century as modern conservation thinking emerged (see for example Kruuk, 2002 for changing views of carnivores). Here we examine the historical development of animal categorizations in Finnish hunting legislation from the 1300s to 1923.

Brief history of the region

The large area of land between the Kingdom of Sweden and the Russian province of Novgorod was already called Finland during the Viking Age, between the 8th and 11th centuries. At the Treaty of Pähkinäsaari in 1323 the area was divided into Russian and Swedish spheres of influence, and Finland became a Swedish province. Swedish rule lasted until 1809. Sweden was defeated by Russia in the Finnish War, and Finland became an autonomous Grand Duchy with the Czar of Russia as its ruler. In the aftermath of the Bolshevik Revolution in Russia in 1917, Finland declared its independence. A more detailed history of the area is given by Singleton & Upton (1998).

Material

The first hunting and game management regulations in Finland were in 1347 within King Magnus Eriksson's Law of the Realm. This Law included lists of useful and

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harmful species, and it was thus taken as a starting point for our study. During Swedish rule there were six major laws on hunting. They were enacted according to the existing circumstances in Sweden, and were implemented in Finland when applicable. Under the period of Russian rule the Senate in the autonomous Grand Duchy of Finland enacted two Imperial Hunting Decrees, which were formulated in relation to Finnish conditions. During the period of independence there have been five major legislative processes related to hunting and game management. Of these we examine only the first two, as they included the last major changes in the categorization of useful species and pests.

The statute laws are published in the law collections of Sweden (1347–1809) and Finland (1809–). The law preparation documents are available only from the mid 19th century and they are published in the yearbooks of the Finnish Senate and Parliament. For a bibliography of statute laws, see Appendix in Pohja-Mykrä *et al.* (2005). All legislative documents were gathered from archives of Turku University Library and the Hunting Museum of Finland.

The earliest laws lack an explicit division of species into useful and harmful. Exact species lists of pests and game (typical in the laws of the 19th and 20th centuries) were either missing or were incomplete, as in addition to the species precisely categorized there were indications elsewhere in the legal text of further species belonging to these categories. We refined the textual evidence into certain criteria that we used to define the exact status of species (Table 1). Difficulties because of changes in nomenclature were overcome by referring to von Wright (1859), von Wright & Palmén (1873), Sundström (1877), Mela & Kivirikko (1909) and Häkkinen (2004). We examined all law texts to determine which particular species ought to have been mentioned if a comprehensive categorization in each law had been made, and in this

way we listed the categorized species from every law and decree (Table 2).

Species categorizations in legislative acts

The number of species in both ‘useful’ and ‘harmful’ categories were few in the earliest laws. The number of species categorized as useful increased over time, but the number of ‘harmful’ species fluctuated irregularly (Fig. 1). The number of species perceived as pests peaked in the mid 18th and late 19th centuries, and fell markedly in the last act of law after the emergence of the conservation movement (Vuorisalo & Laihonen, 2000) and the rise of animal welfare concerns in the late 19th century (Nieminen, 2001).

Swedish rule over Finland

King Magnus Eriksson’s Law of the Realm in 1347 was the first legal code for the Kingdom of Sweden (Holmbäck & Wessen, 1962), and it also included the first written regulations on hunting in Finland. Similar rules were repeated in King Kristoffer’s Law of the Realm in 1442. In these two laws a few species were acknowledged as useful or harmful, all of which were mammals, and only the most prominent predators and those with a significant economic value. These laws also contained the earliest species conservation rules in Sweden and Finland. Cervid species were protected from Shrovetide in late February to Olaf’s Mass in late July, i.e. for the period of calving and lactation. The protection of red squirrel *Sciurus vulgaris*, pine marten *Martes martes* and stoat *Mustela erminea* extended from mid Lent in April to All Saint’s Day in November.

The 1647 Royal Decree was the first law in the Kingdom of Sweden enacted specifically to regulate hunting. Compared to the Laws of the Realm the numbers of both

Table 1 Justifications for categorization of animal species as ‘useful’ and ‘harmful’. In addition to straightforward categorizations, other indications of decision makers’ positive and negative attitudes towards a species were assumed to depict its status in the useful/harmful dichotomy.

Attitude towards a species was assumed *positive* and species categorized as *useful* if

- 1) it was associated with some positive characterization (useful, valuable, beautiful, etc.) in the law text
- 2) it was fully protected, or there was a close season for its hunting
- 3) there were regulations against disturbance during its breeding
- 4) its hunting was privileged to the nobility
- 5) its hunting was restricted to landowners

Attitude towards a species was assumed *negative* and species categorized as *harmful* if

- 1) it was associated with some negative characterization (harmful, pest, predatory etc.) in the law text
 - 2) it was hunted year round without any kind of protection
 - 3) a hunting bounty was enacted for its killing
 - 4) it could be hunted and killed on anyone’s property
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Table 2 Useful and harmful species in Finnish hunting legislation during 1347–1923. The order of species as well as composition of certain assemblages follow the original form printed in the law texts. Numbers in parentheses denote the number of species in that group or guild. Species numbers are from Mela (1882) and Mela & Kivirikko (1909). Species in bold are protected year-round. During the Swedish reign (~1809) the original laws were written in Swedish. Deviations in the species lists in Finnish translations are mentioned. All laws from 1868 onwards were written in Finnish.

Legislation & year	Useful species	Harmful species
Law of the Realm, 1347	moose <i>Alces alces</i> , roe deer <i>Capreolus capreolus</i> , squirrel <i>Sciurus vulgaris</i> , pine marten <i>Martes martes</i> , ermine <i>Mustela erminea</i>	brown bear <i>Ursus arctos</i> , wolf <i>Canis lupus</i> , red fox <i>Vulpes vulpes</i>
Law of the Realm, 1442	moose, roe deer, squirrel, pine marten, ermine	brown bear, wolf, red fox
Royal Decree on Hunting, 1647	moose, wild forest reindeer <i>Rangifer tarandus fennicus</i> , roe deer, mountain hare <i>Lepus timidus</i> , black grouse <i>Tetrao tetrix</i> , capercaillie <i>Tetrao urogallus</i> , hazel grouse <i>Bonasa bonasia</i> , willow grouse <i>Lagopus lagopus</i> , partridge <i>Perdix perdix</i> , whooper swan <i>Cygnus cygnus</i> , bean goose <i>Anser fabalis</i> , 'ducks' (14)	brown bear, wolf, red fox, lynx <i>Lynx lynx</i> , pine marten, goshawk <i>Accipiter gentilis</i> , kite <i>Milvus migrans</i> and 'other birds of prey' (14)
Royal Decree on Hunting, 1664	moose, wild forest reindeer, roe deer, mountain hare, black grouse, capercaillie, hazel grouse, willow grouse, partridge, whooper swan, bean goose, 'ducks' (14)	brown bear, wolf, red fox, lynx, pine marten, and 'goshawk, kite and those alike' (14). Finnish translation (1754) deviated from the original Swedish Code by also including 'owls' (8), 'divers' (2) and 'others alike'.
State Law, 1734	Useful species list according to the 1664 decree, as 1734 State Law dealt with pest species only.	brown bear, wolf, red fox, lynx, wolverine <i>Gulo gulo</i> , pine marten, otter <i>Lutra lutra</i> , beaver <i>Castor fiber</i> , 'seal' (3), 'eagle' (2), 'hawk' (13), kite, eagle owl <i>Bubo bubo</i> , 'other raptors' (8). Wolverine was missing from the Finnish translation (1759).
Royal Decree on Avian Pests, 1741	Useful species list still according to the 1664 decree, as 1741 Royal Decree dealt with avian pests only.	'eagle' (2), goshawk, eagle owl, kite, sparrowhawk <i>Accipiter nisus</i> , hobby <i>Falco subbuteo</i> , 'owl' (7), raven <i>Corvus corax</i> , hooded crow <i>Corvus corone cornix</i> , rook <i>Corvus frugilegus</i> , jackdaw <i>Corvus monedula</i> , magpie <i>Pica pica</i> , house sparrow <i>Passer domesticus</i> , 'buntings and finches' (4). Mammals according to the 1734 State Law, as 1741 Decree dealt with avian pests only.
Imperial Hunting Decree, 1868	moose, beaver <i>Castor fiber</i> , wild forest reindeer, mountain hare, whooper swan, eider <i>Somateria mollissima</i> , bean goose, capercaillie, black grouse, partridge, golden plover <i>Pluvialis apricaria</i> , woodcock <i>Scolopax rusticola</i> , willow grouse, common starling <i>Sturnus vulgaris</i> , 'mallard <i>Anas platyrhynchos</i> and other ducks' (14), great snipe <i>Gallinago media</i> , ruff <i>Philomachus pugnax</i>	brown bear, wolf, lynx, wolverine, red fox, pine marten, 'eagle' (2), eagle owl, 'hawk' (13), osprey <i>Pandion haliaetus</i>

Table 2 Continued

Legislation & year	Useful species	Harmful species
Imperial Hunting Decree, 1898	moose, mountain hare, wild forest reindeer, mallard, wigeon <i>Anas penelope</i> , pintail <i>Anas acuta</i> , teal <i>Anas crecca</i> , garganey <i>Anas querquedula</i> , shelduck <i>Tadorna tadorna</i> , shoveler <i>Anas clypeata</i> , goldeneye <i>Bucephala clangula</i> , velvet scoter <i>Melanitta fusca</i> , common scoter <i>Melanitta nigra</i> , tufted duck <i>Aythya fuligula</i> , scaup <i>Aythya marila</i> , long-tailed duck <i>Clangula hyemalis</i> , eider, whooper swan, bean goose, woodcock, great snipe, common snipe <i>Gallinago gallinago</i> , corncrake <i>Crex crex</i> , curlew (2), golden plover, sandpipers (5), ruff, partridge, capercaillie, black grouse, hazel grouse, willow grouse, other tetraonids (2), 'woodpecker' (4), cuckoo <i>Cuculus canorus</i> , common starling, 'small birds' (70), 'thrush' (5), waxwing <i>Bombycilla garrulus</i>	Brown bear, wolf, lynx, wolverine, red fox, pine marten, polecat <i>Mustela putorius</i> , European mink <i>Mustela lutreola</i> , otter, 'lake seal' ² , golden eagle <i>Aquila chrysaetos</i> , white-tailed eagle <i>Haliaeetus albicilla</i> , eagle owl, hawk owl <i>Surnia ulula</i> , snowy owl <i>Nyctea scandiaca</i> , 'all hawks' (13 species including goshawk), osprey, great black-backed gull <i>Larus marinus</i> , skuas (2), black-throated diver <i>Gravia arctica</i> , red-throated diver <i>Gravia stellata</i> , grebes (2), red-necked grebe <i>Podiceps grisegena</i> , cormorant <i>Phalacrocorax carbo</i> , raven, hooded crow, magpie, jay <i>Garrulus glandarius</i> , Siberian jay <i>Perisoreus infaustus</i> , house sparrow, shrikes (2)
Amendment to Hunting Decree, 1923	Useful species list of 1898 revised with puffin <i>Fratercula arctica</i> , smew <i>Mergus albellus</i> , ring-necked pheasant <i>Phasianus colchicus</i> , quail <i>Coturnix coturnix</i> , pochard <i>Aythya ferina</i> , jack snipe <i>Lymnocyptes minimus</i> , mergansers (2) and ptarmigan <i>Lagopus mutus</i> . Additional total protection for wild forest reindeer, whooper swan, shelduck, puffin, smew, female eider and its brood, female pheasant, quail	Brown bear, wolf, lynx, wolverine, 'seal' (4), golden eagle, eagle owl, goshawk, sparrowhawk
Nature Conservation Act, 1923	Total protection for crane <i>Grus grus</i> , storks (2), herons (2), coot <i>Fulica atra</i> , curlews (2), lapwing <i>Vanellus vanellus</i> , sandpipers (5) and 'other waders' (16), grebes (3), auk <i>Alle alle</i> , guillemots (3), gulls (5), terns (3), fulmar <i>Fulmarus glacialis</i> , skuas (2), kite, common buzzard <i>Buteo buteo</i> , rough-legged buzzard <i>Buteo lagopus</i> , honey buzzard <i>Pernis ptilorvus</i> , harriers (2), kestrel <i>Falco tinnunculus</i> , hobby, red-footed falcon <i>Falco vespertinus</i> , great grey owl <i>Strix nebulosa</i> , long-eared owl <i>Asio otus</i> , short-eared owl <i>Asio flammeus</i> , tengmalm's owl <i>Aegolius funereus</i> , pygmy owl <i>Claustridium passerinum</i> , woodpeckers (4), cuckoo, wryneck <i>Jynx torquilla</i> , roller <i>Coccyzus garrulus</i> , hoopoe <i>Upupa epops</i> , bee-eater <i>Merops apiaster</i> , kingfisher <i>Alcedo atthis</i> , nightjar <i>Caprimulgus europaeus</i> , swift <i>Apus apus</i> , rook, jackdaw, nutcracker <i>Nucifraga caryocatactes</i> , oriole <i>Oriolus oriolus</i> , common starling, thrushes (4), waxwing and 'other small birds' (70), bats (4), hedgehog <i>Erinaceus europaeus</i> , flying squirrel <i>Pteromys volans</i>	Total protection did not apply to woodcock, great snipe, common snipe or jack snipe, which were considered as game species; nor did it apply to certain harmful species, namely fieldfare <i>Turdus pilaris</i> , great black-backed gull, glaucous gull <i>Larus hyperboreus</i> , shrikes (2) and house sparrow.

¹Loose species group of 'buntings and finches' included 20 species, but a brief description in the 1741 Decree indicates that possibly four species (yellowhammer *Emberiza citrinella*, linnet *Carduelis cannabina*, goldfinch *Carduelis carduelis*, tree-sparrow *Passer montanus*) were considered worth persecuting.

²Term 'lake seal' applied at that time to two endemic subspecies of ringed seal *Phoca hispida*.

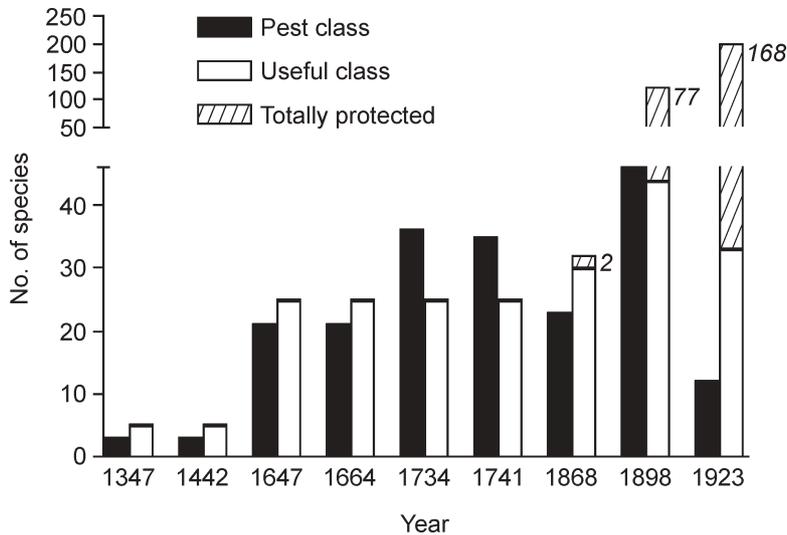


Fig. 1 The number of species categorized as 'useful' and 'harmful' (see Table 1) in Finnish hunting legislation between 1347 and 1923.

useful species and pests were greater, and the Decree was also the first to add avian species to both categories. The practice of paying bounties for killing of certain pests was introduced for the first time in this law (see Pohja-Mykrä *et al.*, 2005). The February–July protection of cervids remained, and the closed season for small game, including useful birds, was again April–November. The Decree omitted the smaller useful fur-bearing mammals that were considered worth protecting in the earlier codes. Pine marten, for example, which was previously considered useful, was now categorized as a pest.

The form and content of the next hunting law, the 1664 Royal Decree on Hunting, followed that of 1647. The 1664 Decree was the first printed in Finnish, although the translation was not published until 1754. The Finnish version deviated from the Swedish original in many places, and the translator had made some exemptions to the animal categories. At the time of the translation the subsequent 1734 State Law had been valid for 20 years, and some of the pest regulations in the Finnish version were thus already outdated.

Because the paragraphs on hunting in the 1734 State Law dealt only with pest species, the useful game category of the earlier 1664 decree was still legitimate. In the 1734 law the number of pest species rose to 36, including wolverine *Gulo gulo*, otter *Lutra lutra*, beaver *Castor fiber*, ringed seal *Phoca hispida* and grey seal *Halichoerus grypus*. This appeared to be the first time that decision makers explicitly acknowledged resource competition between humans and pests over resource other than terrestrial game. Otters and seals were deemed a menace on fishing grounds and beavers' interests in logging and hydraulic construction works was not praised. The 1734 State Law was translated into Finnish in 1759, only 5 years after the translation of the 1664 decree.

Although pests were fully acknowledged in the 1734 law reform, the growing governmental interest in pest control led to the enactment of a specific Royal Decree on Avian Pests in 1741. The 1734 State Law remained valid for mammalian pests. The 1741 Decree was never translated into Finnish, and for the Finnish speaking population the situation must have been confusing in the late 18th century after translation of the partly out of date laws of 1664 and 1734.

In the 1741 Decree avian pests were further categorized into three categories according to their known or assumed harmfulness. (1) The 'greatest damage' was attributed to large raptors already mentioned in the earlier laws, and the group was extended to include sparrowhawk *Accipiter nisus*, hobby *Falco subbuteo* and 'owl'. (2) Corvids were blamed for 'nest predation and crop damage'. (3) 'Garden damage' was carried out by house sparrow and 'buntings and finches'. The condemning of a loose species assemblage such as 'buntings and finches' to extermination has been regarded as characteristic of the destructiveness of 18th century society (Erkamo, 1990). However, the original law text included an exact description of the damages caused, and indicated that the number of intended species in the group may be limited (see footnote, Table 2). The list of useful species in the 1664 decree remained legitimate throughout the rest of the period of Swedish rule over Finland. Renewed hunting legislation was enacted in Sweden in 1808, but in the tumult of the Finnish war (1808–09) it did not take effect in Finland (Pohja-Mykrä *et al.*, 2005).

The autonomous Grand Duchy of Finland

Under Russian rule the Finnish Senate enacted two Imperial Hunting Decrees, in 1868 and 1898. These were

the first legal hunting acts in Finland formulated for domestic conditions by domestic authorities and experts. They were also the first discussed in written sources and, particularly in the case of the 1898 law, the process of lawgiving was well documented.

Certain distinctive adjustments took place in the useful-harmful categorization in these two Decrees that suggest the lawgiving was alluding to an emerging revolution in human-nature relationships. The 1868 Decree conceptualized Finnish fauna in a novel way by categorizing species into three categories: (1) 'useful creatures' worth sustaining and protecting, (2) 'noxious animals and robbing birds' that were to be exterminated, and (3) 'other creatures', whose protection or destruction were not explicitly considered. Unlike the previous dichotomies this categorization was comprehensive in terms of species coverage, although the third category consisted of all the species that had no role in human welfare, enabling people to lawfully do to them whatever they wanted. The list in the 1868 Decree was the first update of useful species since 1664. The slight increase in the number of useful species was mainly because of the inclusion of waders that were regarded as good game. In terms of attitudes towards species conservation, the most significant turning point in the formulation of the useful category was not, however, the inclusion of waders but rather the year round protection of moose *Alces alces* and beaver and the addition of common starling *Sturnus vulgaris* to the useful species list; at that time total protection of declining species and the legal recognition of a 'song bird' were important acts.

Moose became almost extinct in Finland and western Russia in the mid 19th century (Mela & Kivirikko, 1909). The cause of this decline is poorly understood, but may be related to poaching and exceptional increase of wolves (Kivirikko, 1940, Löyttyniemi & Lääperi, 1988). By the end of the century the population had recovered, and in 1906 licensed hunting of moose was again permitted.

The first known records of the usefulness of beaver date back to the 16th century (Olaus Magnus, 1555; medicinal use and pelt), although the first appearance in legal texts was in the harmful species list of the 1734 State Law. It is, however, probable that because of its valuable fur the species has been considered throughout history to be valuable game rather than vermin. Intensive trapping had already decreased the population by the 17th century, and the species went extinct from Finland in 1868 (Mela & Kivirikko, 1909). Ironically this was the year in which it finally gained legal protection.

Although defining starling as a useful creature may seem unimportant, it is an important point in Finnish law making. For the first time a relatively insignificant animal species was acknowledged in a legal statute. Starling was perhaps considered a useful insect predator

(Anon., 1893, 1907, 1909; Renvall, 1896), and from 1868 it was legally protected from 15 March to 9 August. The protection also applied to eggs and nestlings. The law preparation included a suggestion for protection of the breeding of all 'little birds and song birds' and wood pigeon *Columba palumbus* (Anon., 1867), but this did not gain enough support.

In the 1868 Hunting Decree the Senate listed only the large carnivores and raptors and some medium-sized predators as pest species, fewer than in the 1741 Royal Decree, but the list became longer in the Hunting Decree of 1898, including more species than ever before. The 1868 Decree had been criticized as ineffective throughout the latter half of the 19th century (Anon., 1878, 1887, 1895; Viljanen, 1965), and preparations for the 1898 Decree started in 1881 when the Finnish Hunting Association submitted the first proposal for improvement via Czar Alexander III to the Four Estates. The complex preparation process resulted in at least twelve formal documents by 1898 (Appendix).

In the final version of the 1898 Decree the number of pests peaked at 46 species. The 121 useful species, 77 of which were totally protected, was the greatest number so far listed, indicating that a profound change in attitudes to wildlife began in the latter half of the 19th century. A good example of the older outlook is that although there had been child-eating wolves in at least five regions in Finland during the 19th century (Linnell *et al.*, 2002), people had been reluctant to participate in wolf hunts. This was because wolves were commonly seen as a force of nature, and thus uncontrollable (Teperi, 1977). Intensive wolf hunting, however, begun in the 1880s, and the species went extinct from southern Finland within three decades. The more comprehensive categorization of useful and harmful species in the new Decree thus suggests, however, that instead of regarding themselves as being at the mercy of the forces of nature, people were beginning to consider wildlife populations as manageable entities. By the late 19th century the Finnish vertebrate fauna had been well described (von Wright, 1859; von Wright & Palmén, 1873; Mela, 1882) and thus the species lists in the 1898 law were accurate. Previous laws had included many peculiar taxonomic assemblages, but in the 1898 Decree only a few such assemblages remained (e.g. 'small birds', 'other hawks'). The development of animal categorizations in the preparation of the 1898 Decree is presented in more detail in the Appendix. The non-protected third category of 'others', introduced in 1868, was omitted for some reason; the 1898 Hunting Decree gave a precise list of pests, declared closed seasons for each individual game species, and named the species with year-round protection. Brief species lists and lack of a collective 'others' category meant that several species and groups (e.g. small rodents, some

raptors) were totally ignored in the legal text. Some conservationists claimed that the species ignored thus formed an undefined fourth category (Palmén *et al.*, 1916; Anon., 1921) that lacked any legal status.

Republic of Finland

Since independence the Parliament of Finland has made four reforms to the hunting legislation, in 1923, 1934, 1962 and 1993. The first Nature Conservation Act was enacted in 1923 and modifications have been made throughout the 20th century. Here we treat only the two 1923 laws (the Amendment to the Hunting Decree and the Nature Conservation Act) as they form the basis for the modern categorization of protected species and pests in Finland.

The 1923 Amendment to the 1898 Hunting Decree was not a separate legislative act but was prepared concurrently with the new Conservation Act. The introductory words of the 1922 Government proposal that led to the enactment of 1923 laws indicate that a public debate on a general reform of hunting legislation was occurring. An expert committee had been appointed in 1918 to prepare a reform in hunting legislation, and in 1921 the committee published a report that included a totally reformed proposal for hunting law. Compared to the 1898 Decree the proposal took a more comprehensive view of vertebrate species, not by pooling the insignificant species as had been the case in 1868 Imperial Decree, but by precisely naming all species or genera of birds and mammals.

In the reform there were, however, too many open-ended issues, and because the Nature Conservation Act was already in preparation the Government considered that despite the Committee's work an amendment to the 1898 Decree would be adequate to update hunting legislation. As the nature conservation movement, animal welfare concerns and ecological thinking started to gain more advocates, peoples' relationship with nature and attitudes towards animals was restructured and became more complex (Thomas, 1983; Franklin, 1999). This resulted in legislation being subject to intense inspection by conservationists, and loopholes were not tolerated (Renvall, 1912; Palmgren, 1915). The fundamental change in animal categorizations in 1923 was that, in addition to the fact that the number of species on the pest list decreased markedly, the Nature Conservation Act provided total year-round protection to nearly all of the species that had lacked any legal status in the 1868 and 1898 Hunting Decrees. This indicates that conservationists, and also the general public, had started to acknowledge ecological values as well as the intrinsic value of wildlife, and species economically or otherwise insignificant were no longer regarded as unimportant.

Protection of economically valuable game was enacted in the hunting decree amendment, and thus the two laws of 1923 together covered the Finnish vertebrate fauna comprehensively by including nearly all species into the categorization of pests, game and protected animals.

Discussion

Our investigation has shown that the legislative categorization of species into 'useful' and 'harmful' has a long history, dating back at least to the Middle Ages in Northern Europe, and the number of species in both categories has varied through time. A major part of the 600-year period was characterized by government-organized pest persecution, and only during the 50 years up to the 1920s did the non-governmental wildlife conservation movement have any influence on legal animal categorizations.

Legislation on hunting both reflects and shapes attitudes toward wildlife species and guilds, and the actual (although rarely emphasized) purpose of species' categorizations in law texts is to regulate the predatory and competitive behaviour of humans. The term 'useful' has been a synonym for 'edible', whereas 'harmful' species have predominantly been those interfering or competing for resources with humans. The useful-harmful dichotomy thus has its basis in the ecological interactions between humans and other species. The reasons behind species' categorizations have been practical, and even in the earliest categorizations we did not find any evidence for spiritual or superstitious justifications. Only the categorization of fur-bearing carnivores has been occasionally controversial; it was seemingly difficult to set goals for population management of harmful creatures that also bear valued fur. From the 12th to the 16th centuries the Finns paid their taxes mostly with furs (Lampio, 1972). Export statistics from the Middle Ages suggest a severe decline of fur animals (Lampio, 1972), and it seems likely that their inclusion in the first two laws arose from the need to protect overharvested populations. As money gradually replaced furs, the useful species lists of the 17th century laws included only edible game and, for example, the previously valued pine marten was characterized as a pest.

The fact that harmful species lists included in particular the carnivorous mammals and birds shows that game protection was the primary motivation for pest persecution. Decreasing predation pressure was assumed to increase populations of edible game. Opponents of the 1898 decree were the first to criticize this reasoning; the lawgiving documents show that conservationists and the scientific community actively questioned the categorizations. Concern on the effects of such categorizations in Finland seems to have arisen in the 1890s (Renvall, 1896), and continued in the early 1900s (Renvall, 1912;

Palmgren, 1915; Palmén *et al.*, 1916). However, it was not until after the Second World War that modern game ecology gradually replaced the traditional emphasis on pest persecution in Finnish game management policies (Vuorisalo & Laihonon, 2000).

The early conservationists were justified in their concern because negative attitudes are commonly manifested as persecution, and this has in many cases led to population decreases and extinctions (Teperi, 1977; Gosling & Baker, 1987; Eldredge, 1998; Paddle, 2000). Only recently have there been cases of the opposite process, where positive attitudes have resulted in population growth (Simons *et al.*, 1988; Haapanen, 1991; Stjernberg *et al.*, 2003). Attitudes seem to be density dependent, as becoming rare brings about a 'softer' outlook towards the persecuted species. Large mammalian predators, for example, that were once a threat to human welfare, are nowadays highly valued symbols of conservation (Kruuk, 2002).

The period from the 1860s to the enactment of the first Nature Conservation Act in Finland in 1923 has clear connections with developments in other countries. The idea of bird conservation was well known in the late 19th century, especially in Central and Northern Europe. Actions were inspired by concerns over the overexploitation of migratory birds in the Mediterranean region, and by the increasing use of feathers in the millinery trade. As a consequence bird conservation clubs or societies were established in many countries, including Sweden in 1869 (Topelius, 1874), Germany in 1875 (Kongo, 1998) and Britain in 1889 (Evans, 1992). The early European bird conservation movement was entirely focused on the protection of 'useful' species (Lyster, 1994).

In Finland bird conservation was promoted by the writings of Zachris Topelius, who in 1870 established the Spring Society to promote bird conservation among schoolchildren (Topelius, 1874). Topelius, whose primary interest was to develop the moral education of children, believed that involvement in conservation would make children understand the need to help 'the weak and helpless' in later life (Stadius, 1898). In 1878 c. 30,000 Finns (1.5% of the population) were involved in the activities of the Society (Stadius, 1898), and it is therefore likely that the familiarity of the Finnish people with bird conservation contributed to the legal protection granted to most passerines in the 1898 Hunting Decree.

This investigation has shown that the long-term development of species categorizations in wildlife-related legislation can be a useful tool for analysis of temporal changes in attitudes to animals, and also in documentation of the emergence of conservation thinking. This study has, however, examined the circumstances in one country only. A comparative survey across

several countries and cultures would provide further information on the influence of the conservation movement on the development of wildlife-related legislation. It would also be of interest to examine what kind of broader societal and cultural changes the enactment of wildlife-related legislation responds to.

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Appendix

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Biographical sketches

Sakari Mykrä is carrying out research on animal categorizations, with a focus on the development of human-animal relations and animal attitudes. His earlier work has related to the effect of boreal forestry on forest dwelling animals.

Timo Vuorisalo has carried out research on the evolution and ecology of modular plants, herbivory, conservation history and urban ecology.

Mari Pohja-Mykrä is carrying out research on historical hunting practices, predator control and attitudes to animals. Her earlier studies focused on the complexity of meeting the demands of the Convention on Biological Diversity in inventorying global biological diversity.