Nature Conservation 7: 29–50 (2014)
doi: 10.3897/natureconservation.7.6497
http://www.pensoft.net/natureconservation

RESEARCH ARTICLE

A peer-reviewed open-access journal
Nature Conservation
Launched to accelerate biodiversity conservation

Why do some institutional arrangements succeed? Voluntary protection of forest biodiversity in Southwestern Finland and of the Golden Eagle in Finnish Lapland

Juha Hiedanpää[1], Suvi Borgström[2]

1 *Finnish Game and Fisheries Research Institute, Turku, Finland* **2** *Environmental Policy Centre, Finnish Environment Institute (SYKE), Helsinki, Finland*

Corresponding author: *Juha Hiedanpää* (juha.hiedanpaa@rktl.fi)

Academic editor: *Irene Ring* | Received 24 October 2013 | Accepted 19 May 2014 | Published 23 July 2014

Citation: Hiedanpää J, Borgström S (2014) Why do some institutional arrangements succeed? Voluntary protection of forest biodiversity in Southwestern Finland and of the Golden Eagle in Finnish Lapland. Nature Conservation 7: 29–50. doi: 10.3897/natureconservation.7.6497

Abstract

Despite global, regional, and national policy efforts, biodiversity is on the decline worldwide. The purpose of this paper is to explore the critically important institutional and social features of those economic instruments that in practice motivate beneficiaries and stakeholders to protect biodiversity. The paper presents two case studies: the natural values trading (NVT) scheme in southwestern Finland and the protection of the golden eagle (*Aquila chrysaetos*) in Finnish Lapland. NVT builds upon the voluntary actions of landowners, payments for ecosystem services, and a fixed-term period of protection (ten years). The protection of the golden eagle is based on tolerance payments. This paper combines legal studies and institutional economics to abduct the reasons underlying the success of both cases. In both cases, institutional entrepreneurship promoted the confidence of stakeholders and beneficiaries in the schemes and the consequent trust amongst the agents encouraged the actors to modify their behaviour.

Keywords

Environmental law, Institutional economics, Biodiversity conservation, Economic instruments: Payments for ecosystem services, Pragmatism

Introduction

In recent years, economic instruments for biodiversity protection have regained their lustre as the concept of ecosystem services has gained attention amongst governments, civil societies, and the media. Ecosystem services have rapidly become the mainstream means by which to describe the benefits of nature (ecosystems, biodiversity) to society. This concept is now used for many purposes (Gómez-Baggethun et al. 2010), such as estimating the economic value of ecosystems and justifying the use of market-based instruments for biodiversity conservation (TEEB 2010, MEA 2005). A wide variety of payments for ecosystem services (PES) schemes are used around the world (Ten Brink et al. 2011). Most PES schemes reward actors who enhance or maintain ecosystem services (Jack et al. 2008) and in some cases, a PES scheme is intended to reverse behaviour or activities that negatively influence the ecosystem service (Hiedanpää and Bromley 2014). Schemes may also encourage the creation of habitats or otherwise ecologically valuable areas (Bullock et al. 2011). In different circumstances different institutional arrangements seem to work (Farley and Costanza 2010).

In most payment schemes, a government pays for ecosystem services (Engel et al. 2008). However, not much is known about the social preconditions and institutional conditions of economic instruments that in practice motivate stakeholders and beneficiaries to act for biodiversity. Our purpose here is to report two cases that have motivated policy makers, stakeholders and beneficiaries to participate in biodiversity protection. The first case is the natural values trading (NVT) scheme in southern Finland (Gustafsson 2008, Hiedanpää and Bromley 2012), and the second is the protection of the golden eagle (*Aquila chrysaetos*) in Finnish Lapland (Ollila and Ilmonen 2009).

Natural values trading

The launch of the Natura 2000 nature conservation programme in 1997 attracted unprecedented attention in northern Satakunta. As a culmination, four local forest owners went on a hunger strike to protest how the reserve network had been planned, saying that their opinions had not been considered and that social and cultural considerations and values had been completely side-lined in the planning process. Their campaign attracted nationwide attention, including personal visits by the Minister of the Environment and the Minister for Agriculture and Forestry. As a consequence, the boundaries of some of the sites were redrawn (Hiedanpää 2002).

The idea of NVT was first floated in the mid-1990s by Raimo Hakila. First principles of it were drafted during the development phase in 2001–2002. The phase gave credence to the idea that NVT was indeed a viable approach to tackling the problem of forest biodiversity, even at the national level (Hakila 2002). It was put to a practical test as part of the Finnish Biodiversity Programme for Southern Forests, METSO, in 2003–2007. To set the experimental phase in motion, a collaborative steering group was founded involving five key regional organisations and administrators: Regional Forestry

Centre, Regional Environment Centre, The Central Union of Agricultural Producers and Forest Owners (MTK), Finnish Private Forest Owners Association, and the Finnish Association for Nature Conservation in Satakunta. Funding for the project (€400,000 annually) comes from the Ministry of the Environment and the Ministry of Agriculture and Forestry. The NVT pilot project was extended to the whole of southwestern Finland in 2005 and was completed in 2007. In 2008, NVT was introduced in the Act on Financing Sustainable Forestry (Law on the Financing of Sustainable Forestry 544/2007). However, the key principles envisioned in the local regulatory experiment for NVT differed substantially from what was eventually adopted in southwestern Finland.

In essence, NVT, as it was tested as part of the METSO programme in 2003–2007, provides forest owners in certain ecologically valuable areas with a voluntary choice between producing natural values or timber. There were two buyers in NVT: the Regional Forest Centre and the Regional Environment Centre. The eligible sellers included all those forest owners (in total 45 000) in southwestern Finland who had sites and habitats in their forests that meet the specified criteria. Local municipalities and businesses are not parties to NVT because they are not eligible for benefits under the Act on the Financing of Sustainable Forestry. The contracts have terms of ten years; they are not agreements in perpetuity.

It was preferable that the contract sites fulfilled the Biological Nature Conservation Criteria (BNCC). The criteria are based on the forests structures and dynamics important for biodiversity and valuable forest habitats. Forest structures include, e.g. coarse woody debris, burned wood, old individual stands of hardwood and other deciduous trees, especially aspen. The criteria for certain forest habitat types include firstly primary criteria for identifying the forest habitat and its representativeness, secondly criteria for landscape ecological location and area, and thirdly complementary criteria for additional biodiversity values. Forest habitats include forests in a natural or semi-natural stage, forested mires, hardwood swamps, herb-rich forests, rich heath forests, and semi-natural grazed forests. (Ministry of the Environment 2003, 71.)

During the experimental phase, from 2003 to 2007, 158 contracts were signed. The contract area covered 1,520 hectares, 1,193 hectares of which fulfilled the BNCC. The average size of the area covered by the contracts was 8.8 hectares. The average payment was €155 per hectare per year, whereas on the sites that did not fulfil the biological criteria, the average payment was €31 per hectare per year. In total, 356 land owners committed forestland to NVT. There were more sites offered than accepted and more sites than contracts, although some contracts covered more than one site. However, every contract covered sites that fulfilled the biological criteria. Most of the contracts were agreed upon because there was decaying wood on the site; that is, old, dry, peaty forest. Managerial conservation actions were included in 35 of the contracts (Gustafsson 2008, 15).

Golden eagle compensation scheme

The golden eagle has been protected in Finland since 1962, when the population had declined to between 20 and 50 pairs. Since then, conservation efforts have led to a

substantial recovery of the species. In 1999, there were 175 known nesting territories. However, the recovery of the species has led to a conflict between species conservation and reindeer husbandry (Suvantola 2013).

Because the golden eagle preys on reindeer calves, the conservation of this species has been in conflict with reindeer herding in Finnish Lapland (Ollila and Ilmonen 2009). To ease this conflict, a new scheme that seeks to provide an incentive for reindeer owners to tolerate the eagle was implemented in 1999. Under this scheme, reindeer owners receive compensation based on the headcount of the species, not based on damage caused in individual cases, as was the case previously (Reply of the Parliament of Finland 228/1997). The initial idea for the scheme was based on a similar scheme implemented in Sweden, in which compensation for losses caused by wolverines is based on estimated killings rather than on damage caused in individual cases.

The Ministry of the Environment then began to develop the scheme, and the core idea of the Swedish model was taken as a point of departure. The preparation of the golden eagle compensation scheme continued as collaboration between the Ministry of the Environment and the Forest and Parks Services. The proposed design was then discussed with the representatives of the Sami people, the Association of the Reindeer Co-operatives, the Regional Environmental Centre of Lapland, and a representative of the individual reindeer owners. Consultations led to amendments to the proposal and the final scheme. For example, the golden eagles nesting in neighbouring countries were taken into account. It was clear from the beginning that to gain acceptability, the design and implementation of the golden eagle compensation scheme would require strong co-operation among the stakeholders.

The golden eagle compensation scheme was implemented in 1999 (Council of State Decision 373/1999, later replaced by Council of State Decree on Compensation of the Losses Caused to Reindeer Husbandry by the Golden Eagle 8/2002). In conjunction with the adoption of the scheme, a negotiating group was set up. The group consists of the representatives of the Forests and Parks Services, the Regional Environmental Centre of Lapland, the Association of the Reindeer Co-operatives, the Sami Parliament, the Finnish Game and Fisheries Research Institute, and the Ministry of the Environment (Below 2000). The purpose of the group is to monitor on-going research on the effects of large predators on reindeer husbandry to make it possible to assess the accuracy of compensation (Government decree 1077/2011).

The incentive scheme is based on information about the golden eagle's known nesting territories (Suvantola 2013). There is an annually revised compensation rate for an occupied territory. Currently (in 2013), the rate is €694 (amendment 566/2012). In mountainous areas, the payment for an occupied territory is twice the standard rate (Government decree 8/2002 4 §). This higher payment is based on empirical studies that indicate that golden eagles prey more on reindeer in mountainous areas. If a golden eagle pair produces offspring in its territory, the compensation is three times the standard rate in forest areas and five times the standard rate in mountainous areas (Government decree 8/2002 3, 4 §). The purpose of these terms is to cover the additional prey of the species needed to feed the offspring. It also aims at providing a

continuing incentive as the amount of compensation increases with increased nesting and reproduction of the species.

The financial payment is made to individual reindeer co-operatives (Government decree 8/2002 6 §). If it can be proven that a golden eagle has killed a reindeer belonging to an individual reindeer owner, the co-operative must compensate the owner for the value of the reindeer (Government decree 8/2002 7 §). Otherwise, the co-operative decides how to use the annual payments. For example, the funds can be divided among the reindeer owners who have suffered losses, or the funds can be used for collectively beneficial projects, such as product development or meat production facilities (Suvantola 2013). This is the key difference compared to the Swedish model, where the payments are made to the political Sametinget, the Sami Parliament (Sellethin and Skogh 2004). The Swedish model was developed to increase the equitability of the scheme. By making the payment to those co-operatives where the territory of the golden eagle is situated, the occurring costs of the conservation are more likely to be met (Suvantola 2013).

Approach and materials

Our empirical task is to analyse the social preconditions and institutional conditions underlying the motivational success of these cases. We define success not only by positive ecological outcomes but also by positive social, cultural and political outcomes. These instruments have been viewed as acceptable and legitimate amongst those affected and, consequently, have had positive effects on how biodiversity and its protection have been perceived (Paloniemi and Varho 2009, Horne et al. 2006, Suvantola 2013).

Nevertheless, both schemes are intended to provide incentives for biodiversity protection rather than merely relying on traditional direct regulation that prohibits certain types of activities and punishes violations. However, we argue that also other features have contributed to the success of these governance experiments leading to wider effects on biodiversity governance in Finland. Identifying some of the critical similarities and differences between these two cases should enable us to reach conclusions concerning the critical conditions for the institutional and regulatory design of nature conservation that motivates beneficiaries and stakeholders to participate and act.

The approach taken in this study is a combination of institutional economics (Bromley 2006, Hodgson 1998) and legal studies (Posner 2003), with a strong emphasis on pragmatism (Talisse and Aikin 2011, Dickstein 1998).

In institutional economics, pragmatism implies that "[i]ndividual habits both reinforce, and are reinforced by, institutions. Through this circle of mutual engagement, institutions are endowed with a stable and inert quality. Further, institutions play an essential role in providing a cognitive framework for interpreting sense-data and in providing intellectual habits or routines for transforming information into useful knowledge" (Hodgson 1998, 171). Habits – the repertoires of potential actions that sustain life – develop and change in environmental transactions that happen within

and between institutional, social and technological domains (Dewey 1988, Herrmann-Pillath 2013; Hodgson and Knudsen 2013).

In legal studies, pragmatism implies that the approach to law is instrumental. Law is seen as an instrument used to achieve societal objectives by creating new formal conditions to change habits that are considered problematic (Posner 2003). Legal pragmatism entails that policy making is understood as a process of institutional experimentation (Hoffman 2011, Bulkeley and Castán 2012). From the point of view of research, pragmatism entails an empirical and abductive approach (Cooke 2006, Haack 2009).

Our research materials consist of legal and policy documents and scientific literature concerning both cases. In addition, we have applied qualitative research methods, namely, theme interviews and participant observation. The first author participated as an observer at the meetings of the NVT steering group (Punch 2005, 183). Between July 2003 and August 2006, the NVT joint group convened on 20 occasions. The author systematically documented every statement made at these meetings, recording verbatim what was said and taking note of the drift and tone of the argument. These meetings constitute the most important empirical material for understanding the NVT case. He interviewed five members of the NVT collaborative steering group in August 2005. The focused interviews addressed NVT and the organisational and institutional changes that NVT had brought about in the region of Satakunta. The second author conducted two interviews with the key persons behind the golden eagle compensation scheme in 2012. One was the practical contributor and the other the legal advisor of policy maker. The themes of the interviews included the birth of the instrument, the process of making it an instrument, and the functioning of the scheme.

The following result section is a thick description (Geertz 1973) of the institutional and social ground of these two instruments and policy experiments. Following the logic of abduction (Paavola 2004), the discussion section constitutes *the case*, i.e. we answer to our theoretical research question how habits and more formal institutions got stabilized.

Results

Defining natural values

NVT

The collaborative steering group soon recognised that for natural values to become tradable goods, they had to be identified and itemised apart from their environment. The identification and definition of natural values for the purposes of NVT is based on the biological nature conservation criteria (BNCC) specified in the METSO program (Ministry of the Environment 2003). These criteria are effectively functional and structural characteristics of the environment that are considered valuable from a biodiversity point of view. No laws or other official norms stipulate the value or the requirement to protect the NVT sites. Habitats of special importance (as specified under

section 10 of the Forest Act) and conservation areas designated under section 25 of the Nature Conservation Act are not eligible to be NVT sites.

In NVT, a natural value is owned by the person who owns the land that features a valuable structural or functional characteristic. From the landowner's point of view, NVT refers to a fixed-term contract concerning a certain land area, such as a patch of old-growth forest. In this way, the natural value becomes a transferable private commodity that the landowner can either sell or withhold from selling. Therefore, the state-as-buyer is primarily interested not in the land itself but rather in the ecosystem services produced by that biologically valuable patch of land. In other words, the natural value of the land is an intangible public commodity that the state wants to conserve.

The BBNC were adopted in the NVT scheme. However, these criteria have not been rigorously applied in every transaction, although the collaborative steering group has allowed for local exceptions, and the ministries have not objected. In this way, landowners have effectively been involved in defining the criteria upon which ecological characteristics have been defined as tradable commodities and the prices paid for them. In cases in which the conservation criteria have not been met but NVT contracts have been signed, the areas concerned have either been close to a nature conservation area or have been part of some other valuable habitat or the contract has involved management or restoration measures aimed at increasing biodiversity at the site.

The collaborative steering group decided that the prices of natural values would be determined based on losses sustained from forgoing timber production. In addition, payment was done for the natural value of the site and any forest management measures undertaken. Once the pilot project was underway, the emphasis shifted rapidly from the compensation of losses from forgoing timber production to natural values. The prices of these values were based on the surface areas of valuable habitats, standing trees, and the structural ecological characteristics of natural values. The latter included exposed decaying wood, burned wood, and broad-leafed deciduous species, especially aspen. Management measures are compensated for according to the Act on the Financing of Sustainable Forestry. The government has also contributed by declaring income from NVT to be tax exempt.

Instead of a fixed price table, the collaborative steering group created a five-tiered pricing framework for forest structures to help determine the economic value of each NVT site. The forest owner's tendering price could be higher or lower than that indicated by the pricing framework. If the asking price was higher, the forest owner was asked to give reasons for her or his price. No reason was needed if the price was lower, but the forest owner needed to be informed that he or she could have received a higher price. The referendary had a 15 per cent bargaining leeway in either direction. The price paid for natural values could not exceed the top level, but it could be lower than the lower limit.

Golden eagle

In Finnish legal culture, wild animals have been regarded as *res nullius*, nobody's property (Määttä 1999, Francione 1995). Wildlife is part of nature, and the related risks

are natural risks, which in principle are borne by private actors. Therefore, it could be argued that the state is not legally bound to pay compensation for losses caused by wildlife. By definition, monetary payments for "natural" losses are *subsidies* that the state pays voluntarily rather than compensation that the state has a legal duty to pay. However, it has also been argued that by protecting the damage causing species the state has removed the right of the people to defend themselves and their property against these natural risks and thus, the state could be held as liable for covering the losses caused by protected species (de Klemm 1996).

It is rational for the state to cover such damages; otherwise, those who suffer harm from wild animals would have an incentive to harass or kill the species that cause damage. The way in which the state compensates for the damage is relevant. By choosing the compensation measure, the legislature can regulate behaviour, habits, and perceptions regarding biodiversity protection. In the case of the golden eagle, the legislature created an incentive for conservation by paying for the natural values instead of for the damage caused by the species.

Previously, the presence of the golden eagle only created an economic burden for reindeer owners; now, they have an opportunity to gain economic benefit from the presence of the bird. This argument was used to convince the reindeer owners to commit to the scheme (Ollila and Ilmonen 2009). Under the verified damage compensation scheme, the golden eagle represented a loss of income and additional work for reindeer owners; under the incentive scheme, however, a found nest represents income. As the reindeer owners receive compensation each year, regardless of what damage has occurred, there is also an incentive to focus on protecting the reindeer rather than poaching or harassing the golden eagle. This behaviour is rational for both reindeer husbandry and conservation of the golden eagle.

Attuning the organisations

NVT

Raimo Hakila took an active role in exploring new alternative approaches to protect and produce natural values. During the experimental phase, he was on the payroll of the Satakunta branch of the Central Union of Agricultural Producers and Forest Owners (MTK) (Hakila 2006). This type of activity is unusual for someone in his position as a well-known nature conservationist. Hakila wanted to arouse enthusiasm about the idea of NVT among landowners and their interest groups because the success of the project would ultimately depend on their commitment. His efforts eventually paid off as the opposition between conservation and protection began to fade and MTK members began to realise the potential of NVT.

Science also played a role in changing old habits. As soon as NVT was initiated, the collaborative steering group decided to convene an informal multidisciplinary group of researchers who would potentially be interested in studying the social and

ecological conditions for NVT. The circle of researchers from several universities and research institutes held its first meeting in Pori on 13 June 2003, just one week after the first official collaborative steering group meeting. A large number of researchers were interested in this voluntary arrangement for biodiversity conservation. This habit of convening in Pori once a year continued throughout the pilot.

The motivation for encouraging multidisciplinary research stemmed from the desire to gain a clearer picture of how NVT works in practice and what impact it has. The collaborative steering group primarily worked to achieve institutional goals, i.e., to create and establish the rules and practices of trading. However, the group has had confidence in the positive economic and ecological impacts of NVT. Most of the researchers who accepted the initial challenge to study NVT were social scientists, particularly economists. The composition of the circle is different from that in the Biodiversity Research Programme MOSSE (2002–2006), for instance, in which natural scientists are in the majority. The results were encouraging for the NVT pilot project (Horne et al. 2006, Juutinen et al. 2008, see also Hiedanpää and Bromley 2012, Primmer et al. 2013).

Golden eagle

As noted above, the golden eagle compensation scheme was subsequently revised as the responsibility for compensation was transferred to the Ministry of Environment. Therefore, it was easy to build a new scheme at the administrative level because there were no old organisational habits or structures to be changed.

The greatest organisational change was the increased collaboration among the authorities (the Ministry of the Environment, the Forest and Parks Services, and the Regional Environment Centre in Lapland), volunteer bird watchers, and reindeer owners. This collaboration was formalised with the establishment of the working group in conjunction with the adoption of the scheme. The group follows on-going research on the golden eagle and its effects on reindeer husbandry (Suvantola 2013).

The systematic search for golden eagle nests started as early as 1958, and the Forest and Parks Services have been responsible for the identification and management of golden eagle nests since 1983. Given that the golden eagle compensation scheme adopted in 1999 is based on information about known nesting territories, there was a need for more research and information sharing between the reindeer owners and researchers to ensure the accuracy of the payments. The territories are monitored twice annually: decorated nests (occupied territories) are counted in May, and the offspring are counted in occupied territories in June. Each year, the Forest and Parks Services inform the representatives of each reindeer co-operative about known nests. In turn, the reindeer owners inform the Services representative about potential or suspected nests, which are then monitored by the Forest and Parks Services (Suvantola 2013). Most of the fieldwork is conducted by 30 volunteer bird watchers who have been authorised by the Ministry of the Environment (Below 2000). Thus, the role of the bird watchers was formalised as a result of the adoption of the compensation scheme.

Matching the instrument to local customs and habits

NVT

In NVT, forest owners now had two alternatives: they were compensated for refraining from doing anything or for making an active choice to do something. In the passive approach to natural values production, forest owners simply allow natural values to exist. In the active approach, they may increase the amount of exposed decaying wood, remove species that do not belong to the habit in question, or perform other management or restorative activities to preserve or strengthen natural values. Approximately 40 of the 115 NVT contracts involve active measures by forest owners. Compensation for forest management measures is paid in accordance with the Act on the Financing of Sustainable Forestry.

Hakila and other members of the collaborative steering group were been unanimous in their view of landowners: with respect to the protection of biodiversity, landowners are motivated not by a sense of moral obligation but by the possibility of financial profit. Hakila in particular stressed that individual motives for action are not important in instrument design; what matters is that agreements are reached, that the principles of NVT are more widely adopted, that people learn what the programme is about, and that trading achieves a more established position in the protection of biodiversity. According to Hakila, the sense of moral obligation will follow later of its own accord.

One of the ways in which forest owners' sense of profit were bolstered was by helping them identify natural values in their own forests and determine the price of these values. The collaborative steering group repeatedly emphasised the need to strengthen landowners' commitment to voluntary conservation. Traditionally, nature conservation areas have been kept strictly separate from land designated for forestry use. Hakila, in particular, argued for the need to combine these two categories into a concept of a commercially managed forest in which forestry is practised in such a way that no danger is caused to the typical or unique natural values of the area or, indeed, where those values are reinforced by the practice of forestry. By giving up a small slice of the traditional value added by forestry, it is possible to protect biodiversity and increase economic activity at both the individual and regional levels.

Hakila also attempted to integrate economic history and local activity as part of the protection of biodiversity and sustainable use. Virtually all areas that are significant from a biodiversity perspective, have been objects of human activity and that the safeguarding of biodiversity in these areas requires the continuation of that activity. This was a positive message for farmers in two ways: first, they were no longer accused of impoverishing biodiversity, and second, their active contribution was needed to help resolve the biodiversity problem.

Golden eagle

What makes the golden eagle case especially interesting is that reindeer husbandry is a traditional source of income for the Sami people. The Sami, who are the only indigenous

people in the European Union, are a minority whose language and culture are protected by provisions such as Article 27 of the International Covenant on Civil and Political Rights. This article allows special treatment (positive discrimination) for the Sami to protect their culture and may also be used as a material basis for the protection of their culture. Both forms of protection are safeguarded by the fundamental rights set out in the Finnish Constitution. In addition to the conflict that the recovery of the golden eagle has caused between the conservation of the species and reindeer herding, other environmental conflicts related to the traditional livelihoods of the Sami have arisen. For example, the conflict between state forestry and Sami reindeer herding led to appeals to the UN Human Rights Committee (UNHRC) (Raitio 2008). Although indigenous people are often viewed as ideal nature conservationists, it is important to recognise that not all indigenous lifestyles are necessarily compatible with environmental conservation (Heinämäki 2010). Practices such as hunting and the harvesting of natural resources may conflict with environmental legislation.

According to a survey conducted in 2005, the reindeer owners' attitudes towards nature can mostly be described as utilitarian. Most reindeer owners accept the presence of carnivores in reindeer herding areas, but only if the damages are fully compensated; they also feel that humans have the right to regulate the population of wild animals as they wish (Sippola et al. 2005). Thus, to gain acceptability, a conservation scheme must facilitate the sustainability of reindeer husbandry and be compatible with local customs and habits. Compared to the verified damage compensation scheme, the incentive-based scheme is more successful in this regard, as it makes it unnecessary to look for carcasses, which saves fuel and labour costs associated with verification (Rollins and Briggs 2006). Participation in the scheme does not necessarily require the reindeer owners to conduct any active work. The co-operatives receive compensation each year, regardless of what damage has occurred and regardless of their active participation in the identification and management of golden eagle territories. Naturally, it is in the herders' interest to report the nests they find, as the compensation is greater when more nests are found.

Nevertheless, the scheme did not gain full acceptance immediately. The Supreme Administrative Court in Finland had to review the incentive scheme, as one of the co-operatives made an appeal against the compensation decision in 1999 because the compensation did not cover the confirmed losses of the co-operative. The co-operative consisted mainly of Sami people and argued that the scheme was contrary to Article 27 of the United Nations International Covenant on Civil and Political Rights (1966). That covenant states that in States containing ethnic minorities, for example, persons belonging to such minorities shall not be denied the right, in community with the other members of their group, to enjoy their own culture. The Supreme Administrative Court found in its decision (KHO 12.9.2002 file 2154) that the incentive scheme did not deny the right of the Sami people to enjoy their culture.

Over the years, however, the reindeer owners have learned to trust in the accuracy of the compensation, and the scheme has gained acceptance (Sippola et al.

2005). The role of the research and the trust towards the researchers have been important in this regard. As reindeer owners have become convinced that the compensation rate would increase as new occupied territories were found, but not vice versa (that is, there is no collective punishment for destroyed nests, as the compensations already paid are not required to be paid back), the trust felt by reindeer owners towards the scheme and authorities has increased (Suvantola 2013, Ollila and Ilmonen 2009).

The incentive-based scheme has enabled a shift in reindeer owners' behaviour. Instead of using time and money to find reindeer carcasses and verify damage, they are now able to act for golden eagle conservation because they have incentives to both inform the authorities of nests found and protect their reindeer from damage.

Normalisation of the success

NVT

NVT became standardised with the renewed law on "Financing Sustainable Forestry" (Law on the Financing of Sustainable Forestry 544/2007) in 2008. However, the original parameters have not survived unscathed. The authoritative agents changed some features as the policy innovation was formalised. First, natural values (ecosystem services) are not actually paid for; only the values of timber losses are compensated, according to the list price of €39 per hectare per year. This modification was required because the EU forbids the Finnish government to support forestry in a way that might distort competition with regard to forest-related goods (European Commission C (2008)460/2, Brussels, 13 II 2008.) Second, *all* accepted sites must fulfil the Biological Nature Conservation Criteria (BNCC) (Ministry of the Environment 2003).

The NVT scheme needed to be revised because the EU Commission required the scheme to be consistent with the state aid regulations of the Treaty on the Functioning of the European Union. According to the commission, the forest owners can only be compensated for loss of income (European Commission C (2008)460/2, Brussels, 13 II 2008). Thus, the state cannot offer any compensation that is greater than the loss of income resulting from forgoing timber production, even for sites that would be highly valuable for nature conservation purposes.

In the initial scheme, the price varied according to the ecological significance of the natural values being protected, timber losses, and completed management work, and site selection was contingently stretched outside the criteria of the BNCC. This approach enabled forest owners to suggest the inclusion of areas of lesser importance in the same conservation package as significant areas. However, all contracts must include sites that fulfil the BNCC. In these cases, payments for minor natural values were minimal. In addition, the latitude in price negotiations (+/- 15 per cent) was removed from the formalised NVT. One other change from the original NVT

scheme is that most of the new contracts are permanent rather than for a period of ten years. The new formal policy instrument is now very different from what was successfully implemented in southwestern Finland. In other words, NVT changed as it became formalised. The EU and Finland redefined it to suit their purposes, their authorities, and their competencies. The new product differs from the original general idea. This formalisation process highlights potential institutional barriers to experimenting or learning through experiments, such as inflexible legal norms or their interpretation.

Golden eagle

The golden eagle compensation scheme has been in place since 2000. During this time, the number of known nesting territories has increased from approximately 175 in 1999 to 310-390 in 2012 (http://www.metsa.fi/sivustot/metsa/fi/Luonnonsuojelu/Lajitjaluontotyypit/Uhanalaisetelaimet/Maakotka/Sivut/Maakotka.aspx (17.05.2012). In ecological terms, the scheme can be considered a success. The scheme has also earned the approval of those involved. A survey conducted in 2005 indicated that the reindeer owners were roughly split between those who were fully or mostly satisfied (48 per cent) and those who were not (41 per cent), even though a larger share had a positive view of the scheme (Sippola et al. 2005). However, attitudes changed when the reindeer owners were asked about their willingness to maintain or change the existing incentive scheme. One-fifth of the reindeer owners wanted to maintain the golden eagle incentive scheme as it was, and half wanted to maintain it with some amendments. Only 3 per cent were willing to restore the confirmed damage compensation scheme, and 6 per cent felt that another scheme would be better (Sippola et al. 2005). Therefore, it appears that the overall principle of the incentive scheme has been widely accepted even though the reindeer owners do not consider the design of the scheme to be entirely satisfactory.

Apart from the changes made to the compensation rate, which has increased with the market price for reindeer meat, the scheme has remained almost the same over time. An amendment (amendment 839/2005) was made in 2005 to take unoccupied territories into account if decorated nests or offspring had been found in the previous two years. This amendment was based on the fact that golden eagles may have several nests in a single territory, some of which may not be known, and a pair may change its nesting site from year to year (Suvantola 2013).

According to a representative of the Forest and Parks Services, co-operation between the researchers and reindeer owners has been smooth (Ollila and Ilmonen 2009). To enhance the search for nests, which is largely based on voluntary work conducted by bird watchers, the Forest and Parks Services began to pay awards of €100 for new nests found in the spring of 2012. This procedure was consistent with proposals made by reindeer owners when they were asked how the scheme could be revised. According to the survey, 10.8 per cent of the reindeer owners suggested improved nest surveys and clarification of the size of a territory (Sippola et al. 2005).

Discussion

Having covered some key features and properties of these two PES schemes, the question of why these instruments have succeeded remains. We argue that there are three major elements to the success of these schemes. These elements are institutional entrepreneurship, trust, and crowding-in.

Institutional entrepreneurship

One citizen – Raimo Hakila – was particularly active in NVT. He had the entrepreneurial creativity that the scheme needed. This breed of entrepreneurship is institutional because it led to the renewal of the entire setting of organised and unorganised collective action (Battalina et al. 2009). In the final analysis, it was not just Hakila who made the difference but rather the entire network of collaboration that produced and mobilised different types of capital. In the same vein, the golden eagle case was built on the activism of key people. In this case, however, those entrepreneurial minds did not emerge from the civil society but rather from the realm of legal advisors. The original task was to copy the wolverine compensation scheme used in Swedish Lapland to address the problems with the golden eagle protection scheme used in Finnish Lapland. However, the process was not as simple as copying the Swedish scheme; rather, it entailed institutional design, adjustment, and fine-tuning, of which one civil servant took charge.

A few common features in entrepreneurial activities help explain why they become successful. As a radical invention, NVT promised to change habits of thought and organisational routines that hindered the ability to view protection and production as coexisting, i.e., protection as a mode of production. Because of these changes in thinking and routines, the protection of forest biodiversity no longer meant that the protected areas were permanently excluded from the realm of meaningful use. Instead, as part of NVT, the protected areas came to be seen as part of the economic realm. The incentive not only motivated the forest owners and administrators to act in new ways but also motivated them to think differently, which is one aspect of successful habit change. In other words, the habits of thought (language use) changed, and the concept of *Luonnonarvokauppa* (natural values trading) came to denote all types of voluntary and fixed-time protection and became a metaphor that created opportunities for productive protection. A similar shift in habits occurred in Lapland. Under the new scheme, the presence of the golden eagle is an economic asset, not a nuisance that hinders economic activities. The protection of biodiversity is internalised in the practices of reindeer husbandry.

One could say that the habits of the regulator and the agents changed. The space of possible economic actions was altered, which had long-term effects on forest owners and reindeer herders and on the principals in charge of how these instruments are exercised and developed. Drawing from the legal literature, we can see that the legal

equivalent of the principal – the regulator – does have the final say in terms of how the instruments are designed and implemented. The regulatees faced an NVT that was quite different after the experimental phase written into the Law of Sustainable Financing of Forestry. The habits of mind of the regulatees had, however, already changed in favour of NVT. The strong positive image of its principles was sustained even though the scheme itself was now much tighter than it was in the experimental phase. This type of institutional surprise did not occur with the golden eagle because of the scheme's tight initial design.

Both of our cases indicate that the Schumpeterian creation of a new product, producer, seller, field, and market requires more than simply a shift in language and modes of speaking; it requires motivated action (Schumpeter 1980). In the cases considered here, the conditions of motivation point in a similar direction, namely, towards intensive collaboration between the principals and the agents (stakeholders), i.e., the regulator and the regulatees. This collaboration provided the conditions for experimentation, persuasion, and immediate feedback.

Producing trust

In modern law, the key normative function of the legal system to provide security and stability is achieved ideally through fixed norms and standards. Regulatory instruments based on voluntary action and flexible norms, such as the instruments considered in our case studies, seem to contradict these key legal values (Ruhl 2012). However, as our case studies show, other mechanisms can also be used to provide the stability and security of expectations needed for success. The success of the voluntary instruments builds on the level of confidence in the workability, results, and continuity of these instruments. In our cases, building trust between the regulatees and the regulator has been the key element in this regard. Almost paradoxically, this trust and confidence rest on the trustworthiness of the regulator and the managerial principals. In the case of NVT, not all the regulatees were pleased with the new legal interpretation of NVT in 2008 (Hiedanpää and Bromley 2012).

Trust has been defined in various ways, but a common feature of all the definitions is reciprocity (Fukuyama 1996). For trust to exist, there must be one party that trusts and another party that is trusted. Trust is not only a volitional feature of human interaction; it is also a property of more tacit interrelation and interactions, that is, the interdependence between people and their environments. Together with reciprocity, trust can be characterised by the concept of the security of expectations (Commons 1990).

In our cases, the legislator enabled trust to be built by choosing the use of voluntary instruments. The use of coercive rules and criminal sanctions can deprive people of the experience of being trusted, which destroys the possibility of trust. In that case, legal norms become surrogates for trust. Seen from another perspective, the regulatee must have confidence in the institutional arrangement, broadly understood, that the regulator has initiated and implemented (Sennett 2006). The relation of confidence

is between the regulatees and an institutional arrangement. In both of our cases, the regulatees exhibited confidence in the principles and workability of the schemes, which again helps to explain the success of these schemes.

What is relevant for our case studies is how the sense of being trusted affects individual behaviour and character and identifying the effects in a wider setting of collaboration. Being trusted means being held accountable for the trust of the truster, being held to a standard of behaviour that allows relationships to form and be sustained, and being held responsible by social approbation and feelings of guilt and failure (Mitchell 2001). According to Mitchell, perhaps most importantly, to be trusted is to be considered trustworthy. He also notes that to be told we are trustworthy requires us to behave in a way that reflects that gift (Mitchell 2001). Hakila is widely held to be worthy of trust in the field of forest biodiversity protection in southwestern Finland, and he has actively used this collectively assigned position to expand the positive influence of it. Similarly, in the golden eagle case, trustworthiness is a feature of active and necessary collaboration that constitutes and maintains the workability of the compensation scheme.

The theory of reciprocity suggests the importance of building trust rather than relying on criminal sanctions and coercive regulations, as trust motivates people to act in certain ways (Kahan 2002). This theory is based on social science evidence that individuals in collective action settings do not adopt a materially calculating posture but rather prefer a richer, more emotionally nuanced reciprocal posture. When individuals perceive that others are behaving co-operatively, they tend to be motivated by honour, altruism, and similar dispositions to contribute to the public good, even without the inducement of material incentives or sanctions (Kahan 2002). Individuals thereby help to secure the environment of security of expectations. Trust can motivate people to contribute to the common good because individuals who have faith in the willingness of others to contribute their share will be more likely to voluntarily respond in kind. The logic is that if some individuals conclude that those around them are inclined to contribute, they will respond by contributing in kind, prompting others to contribute, and so on until a highly co-operative state of affairs takes root (Kahan 2002). This process is exactly what we witnessed in our cases.

In addition to creating conditions that enable trust to be built, trust must be sustained. As multi-round public good experiments have shown, communication and interaction are critical elements in producing and sustaining trust (Ostrom 2000). This feature of continued interaction and communication is present in both of our exemplary instruments. A good example of how the lack of communication can lead to distrust and unwillingness to contribute to the conservation is the establishment of the Natura 2000 network in Finland. The distrust between the forest owners and the environmental authorities has had a far-reaching effect on their relationship (Hiedanpää 2002). The NVT scheme has attempted to rebuild that trust.

Communication is also relevant to the question of what binds a trusted person. Although potential harm to reputation and personal loss serve as motivations to maintain trust, those are not expressions of trust as such but rather calculations. According to Ben-Ner and Putterman (2001), these calculations serve as surrogates for the personal

contact that most effectively builds trust. Experiencing, understanding, and accepting the responsibilities that we have as trusted persons is what makes trusting possible without the need for calculation at all. Even if trust begins with calculation, calculation cannot sustain trust. Positive consequences of the exercise of trust produce more trust. Positive consequences of confidence produce more confidence. These processes contribute to a legal and social environment that can be characterised as having higher a security of expectations. Mere rational calculus does not sustain trust. Continuity also involves a moral dimension, which relates to what has been termed "crowding-in".

Crowding-in

When selecting regulatory instruments to be used, a pragmatic legislator may sacrifice the coherence of the legal system to achieve the best societal outcome. In our case, the best outcome is biodiversity protection. For instance, financial incentive schemes such as NVT and the golden eagle compensation scheme might contradict the legal system, which prohibits the intentional destruction of biodiversity. In other words, why should society pay people to obey the law?

The use of voluntary and economic instruments has been accused of contradicting the polluter-pays principle and moral norms (Oksanen and Kumpula 2008). The argument maintains that individuals do not deserve a reward for complying with legal norms, and if an individual violates the norm, he or she should be punished. When we take a more pragmatic starting point and consider all the information and social context, compensation for damages caused by golden eagles to reindeer husbandry and payment for forest owners to conserve biodiversity on their land are justified.

The question of whether the state has a legal duty to pay compensation for losses caused by wildlife is legally unclear and even debatable, but it is certainly reasonable to cover these losses to avoid more serious harms and conflicts. Refusal to compensate those losses would contribute to the strengthening of the emotional regime in favour of the illegal killing of damage-causing animals (Oksanen and Kumpula 2008). The question of how to compensate for the damages then becomes more important. Compared to the verified damage compensation scheme, the incentive-based scheme has a clear advantage in terms of preventing the moral hazard problem, i.e., a situation in which those suffering the losses receive full compensation and thus have no incentive to carry out damage-abatement measures (Rollins and Briggs 2006).

There is also a concern that economic incentives create an unsuitable attitude towards conservation: the intrinsic value of biodiversity will not be honoured, and biodiversity instead becomes a means to receive income. For instance, payments for ecosystem services have sometimes been shown to have an adverse effect by decreasing the intrinsic motivations to contribute to ecosystem services. This phenomenon, also called "crowding-out", occurs when internal intrinsic motivations are in conflict with external (economic) incentives (Bowles 2008). For example, the institutional change in blood donation systems based on financial payments reduced the total amount of

blood received. Most donors consider blood donation to be a moral obligation; therefore, a change in the rules of the game eroded the moral grounds of the practice of "giving" blood. Payments corrupted the moral order of blood "donations". This change could also occur with PES programs (Dedeurwaerdere 2005).

But notice that if the actual payment is not cash but, for instance a health service that is worth money the crowding-out effect does not exists to the same extent (Lacetera et al. 2013). The purpose of blood donation is to support life and health. If the purpose of the donation scheme is the same, then it is considered more acceptable. There is evidence of the emergence of order of the opposite type. The crowding-in effect means that people conform and entrain with a new norm that may also become a new moral standard (Vatn 2005). We could conclude that this change occurred in southwestern Finland with NVT. The key to the crowding-in effect was that the programme enabled new mental habits concerning biodiversity protection as an economic activity. Hence, the PES program unintentionally strengthened the moral commitment to safeguard biodiversity. Landowners, as sellers of natural values, felt it was important for them to have real-life contacts with the buyers as they discussed and agreed upon the terms of the trade (Hiedanpää and Bromley 2012). In the case of the golden eagle, the reindeer owners are concerned about their income and the continuity of their traditional livelihoods. The eagle has become a real and tangible symbol of these concerns. As such, reindeer herders are not primarily motivated by a sense of moral obligation. Paradoxically, then, the crowding-out effect is not likely to become a problem. The same is true for the NVT case: as far as the protection of biodiversity is concerned, landowners are motivated less by a sense of moral obligation than by interests of financial profit. Furthermore, there is evidence that those who would conserve nature for altruistic reasons rather stayed out than entered a contract (Primmer et al. 2014).

Conclusions

The purpose of this paper was to explore why NVT and the protection of the golden eagle can be considered successful biodiversity policies. We have provided a detailed description of the substantive and procedural details of these instruments. We have identified the following reasons for the success of these schemes. First, there was an institutional entrepreneur, that is, an active individual or a group who initiated the key principles of the scheme. Second, this entrepreneur created social incentives for the stakeholders to collaborate in drafting the rules, principles, and practices for the schemes, which in turn, developed agents' confidence in the schemes and trust amongst the agents. Third, due to the collaborative changes in habits of mind and action, the schemes fit with the productive practices and customs of local livelihoods and encouraged the agents and regulatees to voluntarily adjust their behaviour.

This study also highlights the potential institutional barriers that may prevent learning through regulatory experiments and developing governance accordingly. On the one hand, regulatory flexibility and willing regulators are needed for experiments

to take place. On the other hand, adaptability and reflexivity in the legal system are needed to learn from those experiments. As the NVT case clearly indicates, the strict interpretation of EU norms did not allow the scheme to be implemented in its original form, despite its success. Thus, ways to enhance the adaptive capacity (Ruhl 2012, Craig 2010) and reflexivity of the legal system to respond to the changes in social and ecological systems and new knowledge gained may need to be developed.

Acknowledgements

Juha Hiedanpää would like to thank the Academy of Finland (253750) and Juha Hiedanpää and Suvi Borgström would like to thank the BIOMOT- project (FP7 grant agreement 282625) for inspiration and funding.

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