

Institutional evolution and forest owner perceptions in a policy-mix for voluntary conservation in Finland

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Abstract

Policies addressing biodiversity and ecosystem services are not designed from scratch but they are added onto on a pre-existing institutional basis. As policies are introduced in sequence, their formulation is shaped by previous experiences. At the same time, not all pre-existing instruments are abandoned with the introduction of new ones, which lead to a broadening policy instrument mix. Understanding the evolution of policies requires attention to the formal decisions as well as the perceptions of those actors who design policy and whose behaviour the policy eventually should change. We analyse the evolution of Finnish voluntary forest biodiversity policy instruments to cope empirical analysis of the way instruments are perceived by non-industrial private forest owners. We do this by unravelling the institutional constraints of the formal policy as well as by deriving operational questions for assessing the influence of these constraints and analyzing legitimacy perceptions by forest owners. Our paper reports the ex-post analysis of the institutional evolution that has led to forest-owners making conservation contracts against a compensation type payment.

1. Introduction

The combination of an acute need for increasing nature conservation and strong resistance against establishing conservation areas in a top-down fashion in privately owned forests in Finland produced innovative experiments on biodiversity conservation in 2002 (Hiedanpää, 2005; Paloniemi and Varho, 2009). The payments for nature values were experimented by forest-owners as well as practitioners and administration in the pilot phase of a biodiversity program during 2002-2007 (METSO 2002). Despite the enthusiasm during this pilot phase, the payments for protecting and enhancing biodiversity values were not institutionalized as an environmental policy instrument. Instead, the piloted instrument was amalgamated into the

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pre-existing financing mechanisms with timber market price as the main basis for payment both for the permanent contracts made by the environmental administration and for the temporary grants for valuable habitats under the forest administration (METSO 2008).

As current biodiversity policy discourse puts is heightened emphasis on increasing connectivity and improving nature management in forest biodiversity conservation as well as supplying a range of ecosystem services (Draft Biodiversity Strategy, 2012), there is a need for a broad evaluation of the conditions of generating impact by conservation incentives for non-industrial forest-owners. These over 600 000 private people own 60% of productive forests in Finland. In this paper, we initiate this evaluation by laying out the historical evolution of conservation policies, by reporting the current policy instrument mix in which the payments for environmental services are embedded. These institutional conditions are an essential target of analysis when further inquiries of the behavioural changes generated by the payments are made. Our analysis scopes the institutional contingencies that pre-existing policies generate for their successors and the institutional interplay that shapes current policy implementation.

We start by analyzing the evolution of Finnish forest biodiversity conservation, laying out the sequence of policy instruments. We then briefly analyze the interplay of the instruments in the current mix. Finally, we operationalize the institutional factors that potentially have an impact on the success of the current instrument-mix where payments have a role. The paper builds on the scoping work and early analysis done in the Finnish Case study of the project 'Assessing the role of economic instruments in policy mixes for biodiversity conservation and ecosystem services provision (POLICYMIX)', funded by EUFP7.

2. Evolution of policy instruments

Policy instruments typically emerge in a sequence (Ring and Schröter-Schlaack, 2011). Sometimes the new instruments are merely fine-tuned modifications of previously existing instruments, other times they can introduce radical changes (Zito et al., 2003). New instruments are designed to tackle problems that previous policies did not manage to solve but they can be the result of a response to criticism against pre-existing governance mechanisms and regimes as well (Paavola et al., 2009). To understand how biodiversity policy instruments develop as a sequence, the evolution of Finnish forest biodiversity conservation instruments will be analyzed here.

Conservation programmes

Towards the end of last century, Finnish nature conservation was carried out under targeted conservation programmes adopted between mid-1970s and mid-1990s. These programmes were based on inventories of certain habitat types, e.g. fertile herb-rich forests or old-growth forests (Table 1). Implementation of the programmes was partly overlapping and partly followed by the Natura 2000 conservation network implementation after Finland joined the European Union in 1995. These programmes could be called traditional regulatory instruments in that they were centrally designed and adopted by the Government (Fromond et al., 2009). With the programmes targeting certain habitat types (Table 2), also on the private lands, their implementation entailed environmental administration initiated negotiation and typically purchase of the land to the state, which in some cases led to fierce resistance and law-enforced takings (Suvantola et al., 2006). Generally, there was strong polarization

between those who were for conservation and those who were for economic utilization of forests (Hellström, 2001; Rantala and Primmer, 2003). Particularly the Europea Union Natura 2000 programme implementation raised conflicts (Hiedanpää, 2005).

Table 1. Sequence of biodiversity conservation policy instruments.

	Establish. , year	Implem. Admin.	Nr of areas	Area 1000 ha	Originally stated criteria		
					Ecol. criteria	Other criteria	Socio- econ. criteria
National parks ¹	1923	Env. / MH ²	35	885	X	National heritage, large size, recreation	
Protected areas on private land ^{3,4}	1923	Env. / MH ²	7 773	59	X		
Strict nature reserves ¹	1938	Env. / MH ²	19	154	X	Research, education	
Other protected areas on State land ¹	1938	Env. / MH ²	39	49	X		
Mire conservation areas ¹	1977	Env. / MH ²	171	460	X		
Wilderness areas ⁴	1991	Env. / MH ²	12	1489	X	Sami culture	Nature- based livelihood
Protected herb- rich forest areas ³	1992	Env. / MH ²	52	1	X		
Protected old-growth forest areas ³	1994	Env. / MH ²	91	9	X		
Forested Nature Conservation Act habitats ³	1997	Env.	NA	2	X		
Forest Act habitats ^{5,6}	1997	For.	>120 000 ⁶	160	X		
Habitats of especially protected species ³	1997	Env.	NA	20	X		
METSO Pilot PES 2002-2007 ⁷	2003	Env.&For.	121	1.22	X		Cost- effect.
METSO II PES 2008- ^{6,8}	2008	Env.	NA ⁸	5.36	X		Cost- effect.

¹Environmental administration 1.1.2011

² Metsähallitus governs the state-owned land.

³Finnish Forest Research Institute, 2011

⁴Since 2008, Protected areas on private land have been established under the METSO II (METSO, 2008)

⁵Finnish Forest Research Institute, 2007

⁶The number is inaccurate, as all habitats have not been inventoried (Kotiaho and Selonen, 2006). By the end of 2006, 120 000 habitats had been inventoried on private non-industrial lands only (Finnish Forest Research Institute, 2007)

⁷METSO Pilot fixed term contracts in the nature values trading pilot project (Syriänen et al., 2007)

⁸Tapion vuositilastot, 2007, 2008, 2009, 2010

⁹Reported together with Environmental subsidy (Tapion vuositilastot, 2007, 2008, 2009, 2010).

Conservation of small-sized valuable habitats

In the 1990s, biodiversity conservation was integrated also to conventional management of forests. This was notably done through an obligation to conserve particular small-sized valuable habitats defined in the Forest Act (1996; Table 1). These Forest Act habitats were inventoried by the forestry administration (Yrjönen, 2004, 2006) but their small size, large number and sometimes difficult distinction from the surrounding habitat generated challenges for their thorough identification (Kotiaho and Selonen, 2006; Pykälä, 2007; see also Timonen et al. 2010). In practice, the identification and delineation of these habitats depended largely on the resources of forestry professionals and administration (Tikka, 2003; Paloniemi and Varho, 2009; Primmer and Wolf, 2009; Primmer and Karppinen, 2010). Although the habitats had an obligatory conservation status through possessing particular characteristics (Table 2), forest-owners were entitled to compensation for the economic loss from conservation under a so-called environmental subsidy if the loss was considerable. However, this compensation would generally be triggered only in situations where the area was planned to be logged. The compensation, along with funds for nature management planning and implementation projects, were allocated from the budget under the forestry financing that was principally aimed at supporting silviculture and improvement operations aimed at sustainability of timber production in non-industrial private forests (Act on Financing Sustainable Forestry 1996). The introductions of the Forest Act habitat conservation obligations coincided with habitat conservation obligations from the Nature Conservation Act (1996) and later on the relatively numerous nesting and resting sites of the EU Habitat Directive Annex 4 species, the Siberian flying squirrel. The administration responsibility of these small-sized flying squirrel habitats was with the environmental administration but principles on information sharing between environmental and forestry administration were agreed on in 2004³.

Piloting incentives for conserving Southern Finland forest biodiversity in METSO

The need to conserve forest biodiversity in Southern Finland became acute along with the recognition of insufficient preservation in southern parts of the country towards the end of the 1990s. With only less than 2% of the forest land preserved in this area, the need for increasing conservation was obvious (Ministry of the Environment, 2000). However, because of small-scale private land-ownership dominating in the area, and the earlier experienced conflicts, the programme that was drafted to address biodiversity conservation in Southern Finland introduced instruments that relied on voluntariness of land-owners (METSO, 2002; Table 1). The so-called payments for nature values were experimented by land-owners, natural resource managers and decision-makers in the pilot phase of national biodiversity program during the following 6 years.

³ Ministry of Agriculture and Forestry and Ministry of the Environment 2004. Liito-oravan lisääntymis- ja levähdyspaikkojen turvaaminen metsien käytössä: Metsäkeskukset, alueelliset ympäristökeskukset. Ohje 30.6.2004.

Table 2. Habitat types / ecological criteria for conservation with different policy instruments.

	Herb-rich, fertile	Dead wood, old age	Small water-courses and springs	Mires and woody peat-lands	Swampy and flooded areas	Shores and coast-lines	Rocky areas and cliffs	Sandy habitats
National parks ¹	X	X	X	X	X	X	X	X
Mire conservation areas				X	X			
Protected herb-rich forest areas	X							
Protected old-growth forest areas		X						
Forest Act habitats ²	X	X	X	X	X	X	X	X
Forested Nature Conservation Act habitats ³	X	X	X	X	X	X	X	X
METSO Pilot 2002-2007 ⁴	X	X	X	X	X	X	X	X
METSO II 2008- ⁵	X	X	X	X	X	X	X	X

¹Typically large nature areas include several habitat types; altogether national parks cover all habitat types, although they are not always specifically stated.

²Immediate surroundings of springs, Brooks and rivulets, small lakes, Grass and herb-rich hardwood spruce swamps, Eutrophic fens south of Lapland, Fertile patches of herb-rich forest, Heathland forests on undrained peatland, Gorges and ravines, Sandy Soils, Exposed bedrock and boulder fields, Sparsely forested mires, Alluvial forests (Forest Act 1996)

³Wild woods rich in broad-leaved deciduous species, Hazel woods, Common alder woods, Sandy shores in their natural state, Coastal meadows, Treeless or sparsely wooded sand dunes, Juniper meadows, Wooded meadows; and prominent single trees or groups of trees in an open landscape (Nature Conservation Act 1996).

⁴Heathland forests with plenty of decaying wood, Wooded mires, Flooded woodlands and wooded flood meadows, Successional stages of forest on rising coast land, Sunlit slopes on sandy esker ridges, Wooded heritage biotopes (Kriteerityöryhmä, 2003)

⁵Herb-rich forests, Heathland forests with plenty of decaying wood, Forests adjacent to springs and pools, Wooded mires and the wooded margins of open mires, Swampy woodlands and wooded flood meadows, Sunlit slopes on sandy esker ridges, Biodiversity sites along emergent coastlines, Wooded heritage biotopes, Wooded habitats on calcium-rich bedrock and ultra-alkaline soil, Wooded cliffs, bluffs and boulder fields important for biodiversity (METSO 2008)

This METSO pilot shifted the attention in policy from regulatory instruments producing hectares or numbers of certain habitat types, to instruments triggering voluntary conservation of sites with certain characteristics (Table 2, Paloniemi and Varho, 2009; Primmer et al., 2011). The piloting was carried out in a region where many of the payments for nature values ideas had emerged (Hiedanpää, 2005). The eligibility of the sites was to be negotiated between the land-owner and the administration: *"The environmental and forestry authorities will consider proposals ..."* (METSO, 2002, 4). Notably, the two traditionally segregated administrative sectors, environmental and forestry administration, collaborated in implementing the pilot. The nature values trading was based on a set of ecological criteria, defined particularly under the pilot programme (Kriteerityöryhmä, 2003). They were further operationalized during the implementation, to account for the nature values existing on the site corresponding to certain euro per hectare per year payment levels (Paloniemi and Varho, 2009, Primmer et al., 2011).

Institutionalisation of METSO economic instruments

The regionally experimented METSO pilot was followed by another programme for the years 2008-2016 (now continued to 2020) (METSO 2008; Table 1). This programme that would cover the entire southern Finland listed the habitat types targeted (Table 2) and was also followed by a guideline on habitat criteria application (METSO-ohjelman luonnontieteelliset... 2008, Table 2). The criteria and their application were standardized through a number of training courses for managers in the administration and forestry organizations (Koskela et al., 2010). The administration would be focused on the eligibility of

the sites, and also searching the sites and marketing the opportunity to conserve areas meeting the set criteria (Paloniemi et al., 2010; Primmer et al., 2011).

In the METSO II, the payments for nature values were acknowledged under two actions points. First, "*Environmental and natural value support*" (METSO 2008, 5) incorporated the payments into the environmental subsidy for forestry, which had existed under the Act on Financing of Sustainable Forestry (1996) already prior to the pilot (Table 2). This financial subsidy was targeted to compensating for economic loss from conserving Forest Act habitats as well as the newly defined METSO habitat types was mandated to the forestry administration. With this change, the emphasis in METSO payments shifted from particular nature values and ecological characteristics to full compensation for economic loss: "*Forest-owners will be fully compensated for the costs of such measures and any consequent loss of income*" (METSO 2008, 3; Primmer et al., 2011).

The second action where METSO II utilized the lessons from the piloted nature values trading PES was the land-owner initiated offers of sites that would be compared before making contracts: "*The environment and forestry centres draw up, on an annual basis, a joint invitation to tender for natural values based on the ecological selection criteria*" (METSO 2008, 7). However, this activity was also incorporated into the general governance system pre-existing METSO, in which land-owners were generally attracted to offer sites that fulfil the habitat criteria for the establishment of private protected areas or sale for state. The implementation of this instrument was the responsibility of the environmental administration (Paloniemi et al., 2010). Tender competition was not applied systematically.

Although the METSO PES fell under the traditional administrative responsibilities and instrument characteristics; fixed-term conservation with the forestry administration under the Act of Financing Sustainable Forestry and permanent conservation with the environmental administration under the nature protection budget, it set the scene for land-owners enrolling voluntarily to conserve under contracts induced by positive incentives. These PES instruments merit attention as a new economic instrument that has emerged in the sequence of nature conservation instruments largely starting from habitat and implemented by negotiation and enforcement. The legitimacy of the METSO PES is at a very high level, and they are likely to generate a positive starting point for potential new instruments that rely on voluntary take up of incentives.

3. Interplay of policy instruments

In addition to the policy instruments emerging in a sequence, as described above, they co-exist and influence each other as they are implemented in parallel (Young, 2002; Ring and Schröter-Schlaack, 2011). Instruments can support each other, or be in conflict and even outweigh the generated benefits (Pannell, 2008; Urwing and Jordan, 2008). Those characteristics of the instruments that are not contested can be considered institutionalized. As each of the different Finnish forest biodiversity conservation instruments has continued to exist in some form (Table 1), it is relevant to consider their current interplay with the latest payment type instruments.

The different forest biodiversity conservation instruments in the current mix supplement each other in potentially attracting different types of land-owners (Pannell, 2008). More preservation oriented owners who do not consider the environmental administration to overrun their autonomy might choose a permanent private protected area while more forestry income oriented ones preferring to deal with forestry administration might choose the fixed-

term METSO-PES. It is also possible that preceding and concurrent implementation of the conservation programmes provide motivation for taking up less restrictive instruments (Hiedanpää, 2005; Paloniemi and Tikka, 2008), functioning as 'regulatory assurance' (Langpap and Wu, 2004).

The main conflict that the METSO-PES has generated has been the broad scale channelling of METSO funds to Forest Act habitats that have a legal protected status based on their characteristics, and compensation is not the primary focus of the original instrument. The ambiguous interpretation of criteria for funding and the longer history of Forest Act habitat identification and delineation has allowed (or forced) the forestry administration to prioritize Forest Act habitat compensations over fixed term METSO-PES, with the two types of payments coming from the same budget pot. This demonstrates the strength of status quo in PES design (Vatn, 2010), and the significance of the choice of whether the payment is for rewarding for biodiversity preservation, for producing biodiversity, or a mere compensation (Pascual et al., 2010). In Finland, the observed emphasis on compensation reflects the persistent idea of timber production as the main function of forests (Primmer et al., 2011) and the formal requirements of European Union law (Raitanen et al., 2012). Additionally, the introduction of PES always has the risk of crowding out some forest-owners who would have conserved their sites without compensation (Vatn, 2010).

4. Operationalising observations to frame empirical analyses

For analyzing the influence of previous policies and the current mix of policy instruments, their characteristics must be identified. Often, property rights are considered the crucial institutional characteristic when regarding payment for environmental services type instruments (Pannell, 2008; Pascual et al., 2010, Vatn, 2010). Other important institutional factors to be considered are the different rights and responsibilities held by administration and also other actors engaged in conservation and use of the forests (Primmer, 2011a; Primmer et al., 2011b). In addition to being formally defined, these rights are often also characteristically embedded in informal customs and practices (Primmer et al., 2011a; 2011b), and can therefore be difficult to elicit from formal documents. Similarly, although attention is rigorously paid to the payment levels and length of the contract (Horne et al., 2009), the legitimacy of the contracting process and the contract terms remain poorly understood.

Characterizing rights and responsibilities and measure their strength in influencing decisions can be done through a survey of the actors in applying the policy instrument. Forest-owners are crucial actors in voluntary conservation, as the decision to take up a conservation contract against a payment rests with them. A forest-owner survey can evidence the influence (or lack of influence) of the policy instrument mix as a sequence and interplay, by operationalizing the questions on institutional factors (Fig. 1.). Further, the factors underlying the success of an instrument can be assessed with this type of survey data.

Underlying instrument mix question	Empirical instrument mix question	Empirical assessment question
How did criticism against biodiversity conservation that is designed centrally and implemented by environmental administration influence the development and implementation of the policy instrument mix for forest biodiversity conservation?	Does previous experience with conservation programmes have an impact on contracting?	Do contracted and non-contracted land-owners differ in their views on administration, the contracting process and rights of different actors?
How did obligatory conservation of numerous small-sized habitats administered principally by forestry administration influence the development and implementation of the policy instrument mix for forest biodiversity conservation?	Does awareness of the presence of a Forest Act habitat on the forest-owner's land have an impact on his contracting?	Do contracted and non-contracted forest-owners differ in willingness to accept compensation and in the weight placed on payment and contract terms?
How did voluntary conservation and nature values payments administered together by forestry and environmental administration influence the development and implementation of the policy instrument mix for forest biodiversity conservation?	Do forest-owners contracted during the pilot-phase differ from those contracted after regarding their views on administration?	Do forest owners contracted with different contract types differ in their views regarding biodiversity conservation and ecosystem services production?

Fig. 1 Questions for analyzing instrument mixes empirically.

5. Conclusions

For scoping the relevant empirical questions in an institutional context where a policy instrument is designed and implemented, it is essential to thoroughly understand the evolution and interplay of policy instruments. This paper analyzes the sequence of forest biodiversity conservation instruments in Finland and the current instrument mix. Based on these analyses, it lays out the institutional questions that can be addressed empirically by a land-owner survey.

The analysis demonstrates that sequence of the policy instruments has clearly played an important role in the emergence of the Finnish forest biodiversity payments under the METSO programme. Without the criticism against the preceding conservation programmes and the implementation of the Natura 2000 network, the METSO incentives would have not been developed. Similarly, the success of these payments have largely relied on the new opportunities and new practices brought by the voluntary scheme implemented in collaboration between the environmental and forest administration during the pilot, parting

from the old role-division. As our analysis of the institutional evolution demonstrates, the current application of the payments has reverted back to many institutional features that existed prior to the METSO pilot. Further analysis should rigorously test the prevalence of the different institutional factors that influence contract uptake currently and also examine how different institutional arrangements characterize the potential outcomes of future policy-mixes.

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