

# Emerging forest ecosystem service entrepreneurship in Finland and Peru

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## SUMMARY

Ecosystem services have been under intensive research and policy interest during the past two decades, resulting in advanced theoretical understanding and a variety of innovative policies. However, as economic approaches to ecosystem services are gaining foothold, co-creation of ecosystem services through entrepreneurial activity has been almost totally neglected in scientific discourse. By focusing on recent developments in the forests of Finland and Peru, we show how forest ecosystem service entrepreneurs are introducing new ecosystem service-related livelihood initiatives, business models and economic mechanisms. Scientists and policy-makers are showing a growing interest in how these bottom-up initiatives actually happen and what it takes to create new socioecological opportunities. The new discourse is critical toward the habit of mind to see a wide ontological and epistemological gap between the use and protection of ecosystems as well as between the abstracted practices of many ecosystem service approaches and particular forest use practices.

Keywords: development discourse, ecostructure, ecosystem services, entrepreneurship, forest livelihoods

## L'émergence de l'entrepreneuriat dans le domaine des services écosystémiques forestiers en Finlande et au Pérou

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Les services d'écosystèmes ont été l'objet d'une recherche intensive et d'un intérêt marqué dans le domaine de la politique au cours des deux dernières décennies, donnant en résultat une avance de la compréhension théorique et une variété de politiques innovatives. Toutefois, bien que les approches économiques envers les services des écosystèmes gagnent une place mieux établie, la co-création de services par le biais d'activité entrepreneuriale a été quasi totalement négligée dans le discours scientifique. En se concentrant sur des développements récents dans les forêts finlandaises et péruviennes, nous montrons que les entrepreneurs de service d'écosystème forestier introduisent de nouvelles initiatives de création de revenus, de modèles de commerce et de mécanismes économiques liés au service de l'écosystème. Les scientifiques et les créateurs de politique portent un intérêt croissant à la manière pratique dont ces approches "de bas en haut" se réalisent et à ce qui est nécessaire à la création de ces nouvelles opportunités socio-écologiques. Le nouveau discours est critique envers la pensée habituelle qui voit un important hiatus ontologique et épistémologique entre l'utilisation et la protection des écosystèmes, ainsi qu'entre les pratiques abstraites de plusieurs approches de service de l'écosystème et les pratiques particulières d'utilisation de la forêt.

## Emprendimiento emergente en base a servicios ecosistemicos del bosque en Finlandia y Perú

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Los servicios ecosistémicos han sido objeto de gran interés científico y político durante las dos últimas décadas, resultando en sólido conocimiento teórico y una variedad de políticas innovadoras. No obstante, mientras que se consolidan acercamientos económicos a los servicios ecosistémicos, su co-creación por medio de actividades emprendedoras ha sido casi completamente ignorada en el discurso científico. Enfocándonos en los bosques de Finlandia y Perú, demostramos como los emprendedores de servicios ecosistémicos están introduciendo nuevas iniciativas de sustento y negocios, además de nuevos mecanismos económicos. Investigadores y diseñadores de políticas ambientales muestran un creciente interés en el actual desenvolvimiento de estas iniciativas surgidas "de abajo arriba", tanto como en las condiciones favorables para la creación de nuevas oportunidades socioecológicas. El nuevo discurso es crítico hacia el hábito mental de ver una amplia brecha ontológica y epistemológica entre el uso y la protección de ecosistemas y entre las prácticas abstraídas de muchos de los acercamientos a servicios ecosistémicos y las prácticas concretas de uso del bosque.

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## INTRODUCTION

The degradation of ecosystems (Shepherd *et al.* 2016), including the loss (Hooper *et al.* 2012) and change (Dornelas *et al.* 2014) of biodiversity from global to local levels remain among the main concerns of humankind. As a response, almost 13% of the world's terrestrial surface has been designated as protected areas (Watson *et al.* 2014) and a variety of other approaches seek the sustainable use and management of ecosystems through the initiative of private land owners or holders, and under such labels as integrated conservation and development (Kremen *et al.* 1994) or community-based conservation (Berkes 2007).

One key concept, ecosystem services (i.e. functional features of ecosystems activated by humans for improved wellbeing and livelihood), has been under intensive research (Kremen 2005) and policy (Braat and de Groot 2012) interest during the past two decades, resulting in advanced theoretical understanding and a variety of innovative policy approaches. To some extent, human agency has been incorporated into ecosystem service models, with emphasis on societal processes (Spangenberg *et al.* 2014) and on their political nature (Hausknot *et al.* 2017). Nevertheless, most of the current approaches treat ecosystem services solely as benefit streams that need to be protected and the resulting loss of legal economic opportunities compensated or redistributed (Farley 2012, Hahn *et al.* 2015). The problem is principally observed as a game of trade-offs between different uses of land and resources (Mönkkönen *et al.* 2014, Rodríguez *et al.* 2006) and, despite all the progress in the theory and practice, mainstream environmental policy still applies a rather narrowly economics-based understanding of ecosystem services, hindering the employment of their full potentiality (Hiedanpää and Bromley 2014).

The current trend in biodiversity policy is to introduce economic instruments for the purpose of bringing about new behaviours in regions of contested natural resources (Anton *et al.* 2010, Gómez-Baggethun *et al.* 2010). For instance, the schemes of Payments for Ecosystem Services (PES) and Reduction of Emissions from Deforestation and forest Degradation (REDD+) have become the icons of new environmental policy (Corbera and Schroeder 2011, Norgaard 2010, Rosendal and Schei 2014). In addition, biodiversity-related certificates are an economic instrument with which to indirectly address how ecosystem services are treated in different land and resource use options. Some of these economic approaches are predominantly market-based, while others build on other economic mechanisms, e.g. compensation of some kind (Hahn *et al.* 2015) or higher levels of public involvement in mechanism design and implementation (Pirard and Lapeyre 2014).

However, inducing a long term change in the behaviour of actors among human populations through such economic instruments is difficult (Banerjee and Duflo 2011, Rodrik 2011). The demand for new environmental behaviours (e.g. local changes in land and/or resource use) can originate at different levels, but it is often the case that those who seek these types of changes are either national authorities implementing environmental policies or the representatives of

environmental non-governmental organisations (NGO) or international organisations such as the United Nations Environment Programme (UNEP) (Koellner *et al.* 2008). These organizations can be considered to be the potential buyers, brokers or initiators of new markets of new environmental behaviours. The sellers of these behaviors (i.e. the rural land-owners or resource users), then, are expected to be eager for new sources of income and to make the desired environmental moves when they are offered reimbursement or payments to do so. However, if the underlying societal conditions, governance structures, or income/wealth distribution patterns have not changed, the behaviour reverts back to where it was when the payment is gone; opportunity costs being considered. This is so because the underlying habits, customs and social norms have not changed.

Our purpose in this paper is to shed light on what might be changing this picture. What is still poorly understood is how new economic opportunities from ecosystem services may emerge from the local-level entrepreneurial activity, contributing to long term economic development and livelihoods on a particular area. As various economic approaches to ecosystem services are gaining a strong foothold, this kind of entrepreneurial activity has been almost totally neglected in scientific discourse.

We focus on forest ecosystem services in all kinds of forests in human use, drawing on two countries, Finland and Peru, both of which have modern forest and biodiversity legislations within very different policy cultures, administrative structures, economies and civil societies (Hiedanpää *et al.* 2015, Salo *et al.* 2013). In both settings, new ecosystem service-related inventions are emerging. We are interested in the types of livelihood initiatives, business models and economic mechanisms that are being initiated, how they come about and how to facilitate the development of new forest ecosystem-based opportunities.

Our abductive purpose therefore is to articulate what might be happening; how new locally created economic opportunities seem to be emerging from the forested ecosystems through particular innovations. In short, abduction is a creative logic of reasoning (Paavola 2004, Peirce 1997) that begins with a surprise, continues to a tentative rule (theory) and results, and finally concludes with a case, i.e., with a hint of what might be the key aspects of this initial surprise. This differs in a fundamental way from both deduction and induction. Deduction sustains the theoretical core ideals and the assumption of a particular epistemic community and empirical practice. In its strict sense, deduction does not produce new knowledge: it only may affirm the already existing hypothesis. Induction, instead, goes from particulars to generals deriving knowledge from empirical experience based upon a system of handling empirical data. Inductive inference is not necessary inference, as is deduction (Peirce 1955).

## THEORETICAL PERSPECTIVE

As humans, we depend on countless interrelated ecosystem functions to survive, and the same is true for just about every

other species on earth. However, only some of these ecosystem functions become services. They become services due to a change in human experience and habit. Central to the new understanding is, however, that the change in experience is accompanied by subsequent innovative activity. We posit that this emerging line of discourse requires that ecosystem services entail not only human presence (they do not simply flow from A to B), but creative human action is also required for there to be services in the first place. We must underscore this point here. It is an elementary characteristic of a service that there is co-production of service (see Palomo *et al.* 2016) and that services are produced and consumed simultaneously (Katzan 2011) – this is what we call co-creation of service experience and value.

Our argument is that the mainstream conception of ecosystem services as benefits flowing from ecosystems is in itself too vague to constitute sufficient ground for understanding how new opportunities and livelihoods emerge. The attempts to overcome the divide between protection and use will fall short as long as a richer conception of ES is not available. Ecosystem services are end-directed, and they exist to fulfil a particular purpose, directly or indirectly. If there is no purpose to serve, there is no beneficial activity, there is no service, and only the underlying ecosystem that functions. By following the Peircean (after the pragmatist philosopher Charles S. Peirce) teleodynamic thinking of Deacon (2012) and Herrmann-Pillath (2013), we posit that it always takes entrepreneurial activity to break old mental and corporeal habits, i.e. discourses and routines, and initiate something new. Human livelihoods and their development are based on entrepreneurship of this nature (Hiedanpää *et al.* 2015).

Already Schumpeter (1963, 66) noted that entrepreneurial activity is multilevel action. An entrepreneur is someone who (1) launches a new product or a product with essential new features in the marketplace, (2) creates a new production method, (3) opens up a new market, (4) obtains a new source of raw materials, (5) re-organises a certain field of activity or (6) establishes a business using existing approaches but in a new context. As we see, all these break existing societal customs and patterns in different ways. It follows from this Schumpeterian definition that there are different types of entrepreneurship. These include new-venture entrepreneurship (Bayrasli 2015), technological entrepreneurship (Mokyr 1992), social entrepreneurship (Ziegler 2008) and institutional entrepreneurship (Battalina *et al.* 2009). All of these approaches have different roles and purposes in modifying the settings and circumstances and finding new long-term ways to utilise the forested environment.

As such, entrepreneurship is rather widely studied in the contexts of environment and rural development (Pato and Teixeira 2016) and environmental problems. Concerning the latter, there is a field of research that addresses ecological entrepreneurship (Marsden and Smith 2005), environmental entrepreneurship (Meek *et al.* 2010), sustainable entrepreneurship (Dean and McMullen 2007, Patzelt and Shepherd 2011) and ecopreneurship (Schaper 2012). A common thread to all of these entrepreneurs – as we ponder on them from our perspective – is that they do not pursue only economic gains

to the entrepreneur but also non-economic gains to ecosystems and communities as well as to nature and society as a whole; their aim is to simultaneously sustain nature, life supporting processes and communities.

The concept of habit is the key to understanding changes in Schumpeterian entrepreneurial processes. Entrepreneurs are in the business of changing habits. We should bear in mind that habit is not a repetition of action – a dull routine. Habit is a spectrum of potential behaviours and actions, a latent recurring tendency. For Peirce (1934, paragraph 317), habit is a general term that refers to regularities of behaviour that arise in both corporeal and mental contexts. As Deacon explained further, '[t]he concept of constraint is, in effect, a complementary concept to order, habit, and organisation, because it determines a similarity of class by exclusion. . . Constraints are what is not there but could have been, irrespective of whether this is registered by any act of observation' (Deacon 2012, 191–192). Indeed, from this perspective: invention breaks the habit and innovation facilitates habit taking.

What, in fact, are ecosystem service entrepreneurs doing when they are in the business of breaking habits? They are modifying habits in order to bring something not yet existing to the fore. Recall that habits may be functional features such as organisational routines, productive customs, technological lock-ins, predispositions, and furthermore, path dependent regimes of how administration uses reason, judiciary follows its legal reasoning, and policy makers justify their political decisions (e.g., Hodgson 2013). Regarding the context in which the modification of habits is embedded, Colander and Kupers (2014) take up an important concept, "ecostructure". By ecostructure, they refer to a formal and informal institutional incentive structure that constitutes a particular setting for economic and social activity. They argue that through the ecostructure, bottom-up solutions and top-down interventions take effect and produce their intended results and unintended consequences.

Here their thinking is aligned with that of Dewey. We should notice that habits are environmentally constituted. Dewey noted that ". . . customs persist because individuals form their personal habits under conditions set by prior customs. . ." (Dewey 1988, 42). He goes on to suggest that "Habits incorporate an environment within themselves. They are adjustments of the environment, not merely to it" (Dewey 1988: 38; emphasis in the original). We will follow Dewey (2008) and expand Colander and Kupers's (2014) view and incorporate social, cultural and ecosystem aspects into the ecostructure. Ecostructure is then the setting in which particular ecosystems function, ecosystem services are brought to the fore by entrepreneurial activity and various ecosystem-based livelihood projects are exercised. Ecostructure is contingently constituted by particular constraints and habits, ecosystem service entrepreneurship, and governmental interventions.

## THE CONTEXTS

We presented above our theoretical perspective to identify emerging discourses in the context of forest livelihoods. Here

we present our abductive results in the context of two very different countries, Finland and Peru by drawing examples from two regions therein: south-western Finland and Peruvian Amazonia. We address forest use in all kinds of forests, including both primary and secondary forests as well as both intensively managed production forests (even forest plantations when applicable) and extensively utilised multi-use forests. The differences between the two countries and regions are manifest in the provision of nature-based opportunities such as the levels and characteristics of biological diversity and ecosystem functions but also in relation to such constraints as the rule of law, presence of corruption and land ownership patterns. Despite many striking differences, the cases also show similarities; both countries are in the midst of the implementation of new and modern forest and nature conservation legislations.

## Finland

Three quarters of Finland's land area is covered by forest, most of which is a relatively species-poor boreal forest. For centuries, the use of forest resources has formed one of the economic cornerstones of people's livelihoods in Finland (Pappila 2010). While most forests in southern Finland are privately owned small-holdings, towards the north and north-east, the proportion of publicly owned forests grows significantly.

Finland is a liberal social-democratic Nordic country with a hundred year tradition of representative democracy, a strong confidence in an uncorrupted government and a strong resistance to state-run biodiversity conservation planning and implementation (Hiedanpää 2002). During the 20<sup>th</sup> century, Finnish forestry became industrialised, and the forest owners became suppliers of the forest industry that, together with the successive national governments, concentrated on making this supply as large and stable as possible (Siiskonen 2007). Recently, however, this has been challenged. The Forest Biodiversity Programme for Southern Finland (2003–2007), known as METSO I, initiated a new era in Finnish biodiversity policy; more emphasis was given to individual forest owners, their values, interests and willingness to act for nature voluntarily (Primmer *et al.* 2013). Moreover, Hetemäki and Hänninen (2009) estimated that by 2020, only approximately 40% of annual forest growth would be harvested because of the diminishing demand by industry and sawmills. The incentive structure of Finnish forestry was historically not designed for this kind of change but rather to maximise the annual forest growth, to keep forest owners obedient, and ensure that they receive reasonable timber-related revenues, while also ensuring a secure wood supply to forest industry and enhance the competitiveness of the industry (Ollonqvist 1998, Siiskonen 2007).

The situation is volatile, however. METSO II (2008–2025) proceeds in its aim to halt the ongoing decline in forest biodiversity and establish stable favourable trends in Southern Finland's forest ecosystems, but the overall biodiversity goal is becoming ever more challenging to meet because of new bioenergy demands brought on by the transition towards

bioeconomy (Ministry of Agriculture and Forestry 2015) and decreasing public funding for biodiversity conservation (METSO 2016, Primmer *et al.* 2013). As Finland becomes more committed to global climate actions, energy production is depending more on bioenergy. While the climate effects of this choice are debated (Repo *et al.* 2015), in practice, the trend is toward logging residue, including the stumps, being collected from clearing sites (Vanhala *et al.* 2013). This creates an increasingly more intense conflict of interest between protection and the use of forest resources and ecosystem services because of the growing alteration of the forest floor and the soil that is associated with the increasingly intensive removal of woody matter. This is happening while forest owners are looking for new alternative economic opportunities in their forests.

This situation indeed may trigger pressure to the current incentive structure of Finnish forestry: the national commitment for safeguarding and maintaining forest growth is challenged, and new purposes and possibilities are called to the fore. Further, new entrepreneurial initiatives are emerging from the bottom up. If we recall the Schumpeterian definition of what entrepreneurs do, we can identify three general fields of activity in Finland: ecosystem service initiatives that alter the institutional environment, those that incite new economic activity by new products and those that create new markets altogether. In general, some of these are nature conservation initiatives, some involve inventions in nature-based tourism and some are novel health services and products that are derived from forest ecosystems (Nummi 2015).

For instance, in Finland, institutional entrepreneurship is exercised in schemes such as Natural Values Trading (NVT) (Hiedanpää and Bromley 2012) and the Golden Eagle (*Aquila chrysaetos*) Compensation Scheme in Finnish Lapland (Hiedanpää and Borgström 2014). The purpose of NVT was to explore how a voluntary, fixed-term, payment- and incentive-based scheme for forest biodiversity protection might perform. As a result of the experiment (2003–2007), the principles of the scheme became a formalised part of Finnish forest and nature conservation legislation and policy in 2008. Unlike NVT, which was invented by an Environmental NGO member, the Golden Eagle compensation scheme was initiated in 1999 by a well-known national politician. According to this scheme, damages to reindeer herding are not compensated, but the presence of breeding eagle pairs and the breeding success are rewarded. Both schemes came into being because of entrepreneurial activity, albeit of different types (Hiedanpää and Borgström 2014).

Landscapes (amenity value), game species (use value) and wellbeing (health value) are becoming richer sources of new venture and environmental inventions and entrepreneurial activity. Regarding the landscape values, the principles that were adopted from the NVT are introduced in a new context to compensate for the harm caused to nearby housing by landscape alteration due to the construction of windmill farms; the power company may negotiate with the forest owners to exercise a certain type of forest management to keep the windmills invisible for those living near the area. This novel (yet to date not implemented) deliberative PES scheme has been envisioned by the forest administrator (Nummi 2015).

Second, Green care is the catch phrase around which various business models are emerging (Renfors and Ruoho 2015). These inventions are based on the health effects of ecosystems either through recreation in the forest (Korpela *et al.* 2014, Tyrväinen *et al.* 2014) or through forest ecosystem-based health products, i.e., health drinks from certain parts of trees (phloem and cambium), the sap tapped from birch trees (*Betula spp.*), or health products from other tree-living organisms such as the Chaga mushroom (*Inonotus obliquus*) (Ludvig *et al.* 2016). There are some rather surprising institutional constraints concerning nature-based edible products, however. For example, according to the EU legislation (EC/178/2002), if the product was already in use before EU membership, health assessments are not mandatory. In the case of more recent products, these assessments are mandatory and for small businesses they may be next to impossible to accomplish. Third, while there are particular cultural, social and institutional constraints on how for example moose hunting can be commercialised on private lands (Soini *et al.* 2016), new such approaches to hunting tourism are nevertheless underway in Southern Finland (Matilainen and Keskinarkaus 2010).

In Finland, berry and mushroom picking are allowed on private lands according to the customary everyman's right (Salo *et al.* 2014: 7–8). Now, due to entrepreneurial activity, there is a flow of berry pickers from Thailand and Vietnam, and this development is challenging the traditional rules of berry picking. Informal adjustments are already underway (signs prohibiting foreign berry pickers to enter the “community” land) (La Mela 2014). Berries as ecosystem services and berry picking as an activity are getting new, refurbished, meanings.

As these examples indicate, there is a rich variety of local-level entrepreneurs trying to create business opportunities that are based on new modes of utilization of forest ecosystem services. Previously the Finns grew trees, sold hard wood and pulp and exercised their everyman's rights. The emergence of the alternative types of entrepreneurial activity is challenging the existing habits and ecostructure.

## Peru

Peru is a global megadiversity country with vast tropical rainforests on the eastern slopes of the Andes Mountains and in the adjacent Amazonian lowlands (Mittermeier *et al.* 1997). Diverse forest use includes e.g. hunting, harvest of non-timber forest products and selective logging of valuable trees among a diverse assembly of species (Salo *et al.* 2014, Sears and Pinedo-Vasquez 2011). Large tracts of Amazonia have been designated as forest, oil and gas concessions, protected areas and indigenous lands (Finer *et al.* 2015, Salo *et al.* 2011, Salo and Toivonen 2009). The Peruvian State owns the majority of all forests, granting use rights to communities, individuals and companies. Since the early 2000s, a political decentralisation process embedded in a liberal market economy has been ongoing, with a particular emphasis on extractive economies (Orihuela 2012). Like the rest of Latin America, Peru has adopted elements of a “green state”, such

as a ministry of the environment (in 2008), an environmental impact assessment law and forest protection regulation (Orihuela 2014).

However, Peruvian governments have had difficulties in enforcing their forest policies, thus resulting in low levels of sustainability as well as a dubious development of the forest-related economy (Oliveira *et al.* 2007, Salo *et al.* 2013, Sears and Pinedo-Vasquez 2011, Smith *et al.* 2006). The Peruvian forest sector started to articulate forest values in more diverse economic terms during the 1990s and 2000s, with new forest laws entering force in 2001 (Salo *et al.* 2013, Salo and Toivonen 2009, Smith *et al.* 2006) and 2015. In 2016, the Law 30215 entered force to regulate “the mechanisms of Payments for Ecosystem Services”.

Peruvian Amazonia homes a number of REDD+ projects that usually involve multiple stakeholders and a complex mix of social, institutional and venture entrepreneurship (Evans *et al.* 2014, Hajek *et al.* 2014). Additionally, more exclusively venture-type of enterprises are emerging, including for example novel for-profit (Matta 2013) and for-benefit (Argumedo and Pimbert 2010) markets of biodiversity products, ecotourism businesses (Kirkby *et al.* 2010, 2011) and certified extractive industries (Quaedvlieg *et al.* 2014), as well as combinations of these.

The National Programme for Forest Conservation (hereafter Programa Bosques) explicitly claims to intend to halt and reverse greenhouse gas emissions from deforestation in Peru by the year 2020 through conserving 54 million hectares of forests (Hiedanpää *et al.* 2011, Rosa da Conceição *et al.* 2015). This ambitious – someone could say unrealistic – goal means that many types of forest designations qualify under the programme, including protected areas, wetlands, indigenous territories and NTFP concessions, as well as rural community lands and timber production forests.

Despite the broad approach and the various types of Schumpeterian entrepreneurship the Programa Bosques entails, the main attention thus far has been on legally recognised indigenous and rural community lands. In these areas, Programa Bosques functions as an incentive-based conservation endeavour. The direct transfer of 10 Peruvian Nuevos Soles (PEN) per hectare per year is equivalent to c. 3 US Dollars and is conditional to forest protection through a conservation agreement. The money is deposited on a bank account that the community organization needs to open, this requirement serving to promote the formalization of communities as juridical and economic actors.

The Peruvian state considers this transfer explicitly a subvention and not a PES scheme (MINAM 2011: 15; but see Boerner *et al.* 2016: 407). This arguably is because the aim is to promote conservation by incentivising venture-type entrepreneurial activity through the introduction of ecosystem service-based business plans and not to pay for the provision of specific ecosystem services. The use of the revenue, within the limits of the contract, is therefore decided upon by the community members through representative community organization (under the supervision of a community assembly). Notably, up to 20% of the total sum transferred can be used to increase social investment to address development

needs. This was a key feature of the scheme to be established in the first place (Rosa da Conceição *et al.* 2015). The flat hectare of forest-stock-based payment is simple to implement but may not be the best option from the distribution of benefits viewpoint (see Boerner *et al.* 2016).

With regard to Schumpeterian entrepreneurship, REDD+ projects are intended to untap a new market while the certifications schemes (also) re-organise an existing field of commerce. The Brazil nut harvesters are one example of how these connect. Their concessions are commonly under both REDD+ and certification schemes, both pursuing higher incomes as compensation for forest conservation. However, the hierarchically constituted Brazil nut value chain has little space for harvester entrepreneurship, reducing the concessionaires' role to mere providers of raw material. Brazil nut harvesters' associations have developed independent processing facilities, but their commitments with companies mean that they cannot sell their product elsewhere when e.g. the prices drop (Quaedvlieg *et al.* 2014). These disadvantages are not only related to their dependence on the for-profit exporting companies but also on the social entrepreneurship skills of the NGOs that facilitate the certification processes – without their help, the transactions costs would be unbearable.

Recently, a new set of entrepreneurs have emerged along with a political discourse adopted by the Peruvian state promoting venture-type entrepreneurship in the fields of “bio-business” and “biocommerce” (Promperú 2014, Prompex 2013). These entrepreneurs are after new markets by launching modified biodiversity products to satisfy the differentiated tastes of urban consumers. In particular, this can be seen in the “gastronomic revolution” of Peru in which new fusion kitchen incorporates Andean and Amazonian ingredients with new ethical and health features (e.g., Matta 2013, see criticism e.g., García 2013).

Ecotourism is expanding in Peruvian Amazonia (Kirkby *et al.* 2010, 2011). The new institutional arrangements introduced by the Peruvian government include concessions for conservation and for ecotourism as well as conservation easements (voluntary agreements between a land owner and a government agency or NGO who acquires the right to restrict land use, see Rissman *et al.* 2007). Several concessions for ecotourism purposes are already functioning in the country, and the Peruvian Government has facilitated these businesses through low tax rates to tourism enterprises (Kirkby 2010).

Various watershed protection initiatives based on a PES scheme are underway in Peru involving social and institutional entrepreneurship. In 2009, the region of San Martín implemented a payment scheme that adds a monthly fee equivalent of up to 0.33 USD in the water bills (Alvarado *et al.* 2010, Montoya-Zumaeta and Nolazco Cama 2015). This revenue is then invested in measures to control colonisation-related land cover changes in the upper watershed areas that supply the city of Moyobamba with fresh water.

The above examples indicate that in Peru, a variety of entrepreneurs are pursuing new business opportunities from forest ecosystem services, and revenues from these activities are expected to grow. Indeed, Peruvian legislation and political discourse are increasingly addressing the need to capture

ecosystem service value. While it is clear that this means a shift from a more traditional extractivism toward an increasingly diversified economic valuation of ecosystems, a debate remains on whether this means only a turn to neoextractivist agenda or to truly post-extractivist approaches (Gudynas 2013).

## EMERGING DISCOURSES

In both countries the natural resource and conservation planning and decision-making are becoming increasingly sensitive and receptive to novel ecosystem service-based business models and policies. In this section we abduct the case concerning how to understand the still hidden but emerging features of this change.

### Realisation-orientation

A feature of societal change is a new-born awareness that when trying to initiate and boost local forest-based livelihoods it does not suffice to focus on getting formal institutions and policy instruments right. Instead, the challenge is more broadly about getting the functioning of the ecostructure right, e.g. enabling structures for improved consequences of actions. According to Amartya Sen (2009, 5–6), the approach of *getting institutions right* can also be called *transcendental institutionalism*, and it has two specific features: “First, it concentrates its attention on what it identifies as perfect justice, rather than on relative comparisons of justice and injustice. . . . Second, in search of perfection, transcendental institutionalism concentrates primarily on getting institutions right, and it is not directly focused on the actual societies that would ultimately emerge”. Transcendental institutionalism is a fundamental feature of how, for example, neoliberal ideology portrays the structure and functioning of ecostructure and the role of markets and entrepreneurship therein.

Those doing realisation-focused comparisons have often been interested in identifying and solving practical problems that lead to injustices and other problematic consequences and not so much in getting institutions transcendently right. Sen (2009) calls for realisation-orientation in development planning. It is not only about policy will and institutional scaffolding (e.g., modifications in property rights) that support the fulfilment of societal purpose, but it is also about what type of society actually emerges. Here we see that the intertwined types of entrepreneurial activity that harness ecosystem functions and co-create ecosystem services and thereby novel products, means of production, and markets generate an ecostructure that allows and responds to new realisations.

In both our case countries, the policy discourse builds on the need to make ecostructure more diverse and receptive for the concept of ecosystem services and ecosystem service entrepreneurship. However, the actual change in ecostructure may be slow and in itself it takes entrepreneurial activity. In 2014, a new forest law came into effect in Finland, and its

articulated purpose was to improve the state of biodiversity and the entrepreneurial opportunities of the forest owners. According to critical evaluations, the legislation may push activities in the opposite direction and diminish biodiversity by allowing cuttings in habitats that were previously outside of active forest management (Anon. 2012, Siitonen 2013). The governmental will was, no doubt, in favour of the articulated purpose of the renewed forest law. Forest owners were indeed given more liberties in their selection of forest management practices, but because of institutional inertia only one percent of the forest owners have chosen management for continuous cover silviculture (Metsäkeskus 2016).

Real-life realisations take time, and they do not appear without further institutional entrepreneurship. Both in Finland and Peru, the new forest legislation (and in the case of Peru, the legislation on ecosystem services as well) is an initial step, but administrative routines are in this case the great conservative force of forest use. We think this feature is exactly what makes the concept of ecostructure and its call for the collaborative bottom-up solutions and creative and courageous government so important and attractive.

Indeed, not all of the attempts to modify ecostructure come from above, from the higher levels of government. In southwestern Finland, the PES scheme known as Natural Values Trading was initiated from the bottom up fifteen years ago (Hiedanpää and Bromley 2012). Along these lines, a three-year EU Funded Leader project, “Ecosystem services in southwestern Finland,” began in January of 2016. The project is led by the Finnish Forest Centre (SW-Finland). Its main purpose is to identify new ecosystem service-based enterprises and to inform land owners about the economic meaning and significance of forest ecosystem services. The forest administration in SW Finland is now actively looking for pioneer forest-owners to become showcases of forest ecosystem service entrepreneurship and the human resource of peer-to-peer learning and habit change. Ecosystem services-related capacity building is starting to take shape.

The purpose of the project is to contribute to an understanding of what it entails – culturally, institutionally, ecologically, socially and economically – to have an ecostructure that promotes ecosystem service entrepreneurship. Such an ecostructure would produce and allow more diverse set of entrepreneurial motivations. The motivation is not only that of for-profit but also that of for-benefit. The latter covers a broad range of positive social and moral consequences (in addition to economic revenues) of ecosystem-based activities to the localities (see, Colander and Kupers 2014). Some local and small-scale entrepreneurs may be willing to forgo higher profits in exchange for other non-financial values as Pokorny and Pacheco (2014) have indicated. This seems to be a common feature in social (Ziegler 2008) and sustainability entrepreneurship (Shepherd and Patzelt 2011).

Sufficiently diverse and policy-facilitated ecostructure promotes what Colander and Kupers (2014, 214–236) call *laissez-faire* activism. Indeed, almost all of the novel ecosystem service entrepreneurial initiatives that we found in the Finnish context, and some of the Peruvian examples (e.g., the launching of new biodiversity products or markets), originate

from the civil society entrepreneurial activity which is facilitated and supported by multi-scalar institutional entrepreneurship within that particular ecostructure.

### De-institutionalized mind

One reason why novel ecosystem service-related business models and mechanisms are emerging so slowly is the current habit of understanding ecosystem services not actively imagined and co-created but more like passively enjoyed benefits (see Palomo *et al.* 2016). This also fuels the ongoing debate over the use and protection of ecosystem services. Somehow, in much of the literature, this has turned to a philosophical debate between those who categorically oppose monetary valuation and commodification and those who see it as the only way forward (Kallis *et al.* 2013, Kosoy and Corbera 2010). We see this changing, as the social-ecological understanding about the origin and delivery of ecosystem services develops (Mononen *et al.* 2016). Habits of mind die hard on both sides of the commensurability and incommensurability debate about nature of ecosystem service values. Incommensurability of values means that there is not necessarily a common metric to measure and compare the benefits derived from ecosystems. Those people pushing for commensurability think there is such a measure, price for example (see O’Neill 1993). You make your particular asset a commodity, put a price tag on it, the customer enjoys the service. If you are able to show that also biodiversity benefits from your venture e.g. through conservation or restoration efforts, you may expect that the critics are satisfied as well. If we take a broader view and take, as an example, an international business enterprise that purchases biodiversity off-sets, the debate quickly takes on an ethical content (Dhanda and Hartman 2011, Rosendal and Andersen 2011). The debate is not a disagreement over a particular aspect of biodiversity; rather, the matter is concerned with abstracted biodiversity.

However, the change in discourse is underway and it is accompanied by real-life entrepreneurial activities, both in Finnish and Peruvian forests. The emerging discourse is critical to the habit of mind to see a wide ontological and epistemological gap between more *abstract* mechanisms such as REDD+ and other PES and Offset Schemes and the *particular* business practices of ecosystem services and land uses. In this, one is not evil, and the other is not good but both potentially share the same functional constituency and the same types of global features (Knippenberg 2013, 32). From the entrepreneurial perspective, the message is that the difference or similarity of small scale enterprise and related innovations and bigger scale institutional arrangements originates in their purpose and realisations, not of their nature as such.

For example, cash transfers, such as those that are implemented in the Peruvian Programa Bosques, can enable governments to address two challenges by simultaneously promoting conservation and development, including “bio-trade” or “biobusiness”. From this viewpoint, the interesting question is not necessarily whether this public investment is able to notably favour forest conservation *per se* but rather whether it will be able to create enabling conditions for

associated local small-scale ecosystem service entrepreneurship and go beyond the use–protection divide, offering a path toward a more lasting change of habits. It is important to bear in mind here, that such change is entangled with political struggles and goes beyond the portrayal of indigenous communities as living in harmony with nature and the critique of this idealization as naïve by the “ironic scholar” (Hope 2017).

For a long time, it has been argued that ideology matters in how ecosystems are treated (Söderbaum 2000). In Finland, because most of the land is owned by private smallholders, the ideology is grounded in private property and the liberty of landowners. However, the institutional setting has made sure that the landowners fulfil the general societal purpose as they exercise their liberty (Hiedanpää *et al.* 2011). As such, this setup has not received much criticism in Finland. As the forest owning populace becomes more diverse in their beliefs, interests and values, the administrative habits of mind are under a pressure to change. It is not a matter of who *may* do what within the institutional setting anymore, but it is becoming a matter of *can*, i.e., the positive liberty to take part in how to own forests and also how local forests are managed (on positive liberty, see Berlin 2006, Commons 1995).

In other words, the balance in prevalent political ideologies is changing, and this affects how the formalised administrative routine is pushed to shift towards practical relevance (Primmer *et al.* 2013). In the 1960s, a Finnish forest owner would be called to court and sentenced if (s)he embraced forest biodiversity in the wrong way, i.e., exercised selective cuttings and continuous cover silviculture. These habits are still deep-rooted; they survive through changing legislation that has made the management for more multiple-aged forests possible as the forest legislation was renewed in 2014 (Forest Act 1996/1093). We see neoliberal tendencies in how forest-owners are now not taken as *docile bodies* but more as *entrepreneurs* who act, create and initiate on their own behalf within the institutional setup that has been readjusted for this general purpose (see, Foucault 2008, Mirowski 2013). There seems to be an accompanied hope that this not only leads to more diverse livelihood opportunities but also to improved biodiversity conservation.

## CONCLUSIONS

According to our abductive work, forest ecostructures are increasingly incorporating ecosystem service entrepreneurs that are in the business of diversifying particular social-ecological functionings by introducing new ecosystem service-related livelihood initiatives, business models and economic mechanisms. Our purpose has been to articulate these still very much invisible aspects from a different angle and show how realisation-orientation is challenging the prevalent institutionalized habits of mind. We hope that we have been able to give these aspects new meaning and significance.

This new discourse is emerging with a critical stance toward the habit of mind to see a wide ontological and epistemological gap between the use and protection of ecosystems as well as between the abstracted practices of many PES

schemes and particular ecosystem services aspects. On the surface level, it is still poorly understood how new economic opportunities emerge from ecosystem functions and related social-ecological functioning. Indeed, PES schemes and new local ventures emerge and contribute to long term economic development and livelihoods. This development is not only a problem of science but also of government and administration. So rare are the cases in which enterprises and civil society actors contribute to the invention of new forms by which to benefit from ecosystem services.

We have argued that emerging discourse is constituted by the following three features: entrepreneurship, the consequent habit breaking and habit taking, and the multilevel ecostructure modifications. Ecosystem service entrepreneurship shapes the ecostructure, i.e., the social-ecological setting in which ecosystem-based livelihood activities are exercised. More bottom-up initiatives and reflective governmental actions are needed in the face of entrepreneurial initiatives. We admit that the line between “opportunity” and “necessity” in entrepreneurial activities may be thin. Neoliberal policy tends to promote economic structures that not only support questionable forms of commodification of abstracted environmental values but often also lead to vulgar forms of micro-entrepreneurship that becomes based on little more than survival. This is not the view that is being put forward in this paper, although the emerging general habits of mind may easily be interpreted also in this way. Similarly, the new discourse is potentially more sensitive and reflexive in the face of the ecological consequences and sustainability issues of new livelihood initiatives. But the real-life manifestations of this sensitivity remain to be seen.

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