

Managing small-scale private forests, a new commons?

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Introduction

The following paper looks at problems of small-scale private forestry how they are typical for most of Western and Central European countries and tries to discuss (an) institutional solution(s). We most elaborate on a solution, which is a common property regime. Identifying and analysing small-scale private forestry in Western Europe as a problem is far from new. Many generations of foresters considered it (Abetz 1955, 111-117; Endres 1905, 542). What is new in this paper is that we frame it from a different angle. We try to understand it as a problem from the perspective of property rights and common property theory. This is not only fruitful from the perspective of German or European small-scale private forestry. There is a huge effort in trying to understand collective action and collective management of forestry resources in the world (see e.g. the IFRI project)¹. However, those studies have in general a focus on the developing world, which has to face a completely different problem than those forests we describe here. Because of its fundamental difference, the regarded case might help us to understand collective action in forestry in general better.

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¹ International Forestry Resources and Institutions <http://www.indiana.edu/~ifri/>.

First, we provide some context information about small-scale private forestry in Germany². In the history of Europe and currently also from a world perspective the main problem related to forest has always been its overuse. Theory had quickly explanations for why this overuse is symptomatic for many forests. However, small-scale private forests in Europe can be characterised since various decades by a considerable underutilization, if we focus on timber extraction. The annual cut is well below the sustainable yield and therefore stocks are growing constantly. However, also other “products” of small-scale private forest (e.g. recreation; ecology), would have lain idol, if not the state would have provided them “for free” on behalf of small owners. The state does not want or will not be able anymore to provide many of those services in the future.

After exposing this (for an economist) astonishing phenomenon, we try to understand it with the help of property rights theory. Conventional property rights theory provides a good framework for describing the situation. However, it cannot explain why our forests are currently underutilized. Therefore, we refer to the “tragedy of anticommons”, which seems to be better able to explain the observed phenomenon. It explains the underutilisation with the help of too fragmented property rights. As a result, we argue in favour of a de-fragmentation of property rights with the help of a common property regime in form of a land fund solution. First, one might ask, why such an institutional solution hardly ever emerged yet, as the problem of small-scale private forestry exists since a long time. We argue that a change in the cost-benefit structure of the forest owners takes currently place, which makes it more likely that such a solution emerge. Second, we provide some arguments why we think that not a private but a common property regime will be chosen. We conclude that the tragedy of the anticommons is able to provide a diagnosis, but is not able to provide any solution to the problem. The solution is a collective action problem. It lies in the collective choice and operating rules, those joint owners agree on. This reunites these two phenomena observed in forestry, the “conventional” overuse and the astonishing underutilization.

² If we refer to empirical information we mainly refer to Germany, as our focus in our research projects is on German cases (www.zufo.de). However, the problem of small-scale private forestry is not only a German problem, but exists, depending on the history of the country, in many countries of Europe. Due to many restitution processes in Central and Eastern Europe, which are more and more finalised and which have often favoured a broad distribution to many small owners, many countries in Central and Eastern Europe are now newly facing a similar situation as, for example, Germany. They need to think about organisational forms, of how to organise small-scale private forestry in an efficient manner. There are many different definitions on small-scale private forestry. In our case, it does not matter to have a clear definition. The problems those forest holders face, might be very similar and just a matter of degree, no matter how small they are. You might imagine any forest owner, which holds any amount of property between 1 and 50 ha.

The Problem

What are the current problems of small-scale private forestry? The main problem might be that this type of forestry often does not take place. The Federal Forest Inventory (<http://www.bundeswaldinventur.de>) has shown clearly and we have known it before (Schaffner 2000) that actually forests under this ownership form are not harvested at sustainable levels, but are underutilized. This is so far just an economic understanding of sustainability. As many studies have shown, many owners of small-scale forests do not focus in their use on the economic functions of the forest (e.g. Schraml 2003). One could therefore argue that not using the forest commercially would not be seen as a problem from the perspective of the owner. Consequently, we should better stop our thoughts here, as there is at least no perceived problem.³ However, later on in the discussion we try to show that current property rights structure might also lead to underutilization in the ecological and social dimension, which are very much of importance for the forest owners. From a society perspective, one could as well argue that this type of underutilization of the resource is not a problem. Converting the areas of small-scale private forestry into untouched natural habitats, which they are de facto anyhow, might be the cheapest form of creating nature reserves. The owners convert their land by themselves into a nature reserve. However, one could question if this is what society and what the group of forest owners as a whole would see as an optimal use of this resource. Timber is an environmental friendly production factor. There is a huge demand for timber and sawmills would like to mobilise the timber in small-scale private forest, if it would not be that costly. The alternative for them is to get timber from far away and possibly from countries, which are not managing their forests sustainable. From a society perspective it might seem to be wise to use the locally and sustainable produced timber.

It is clear, if we discuss about small-scale private forest owners, we certainly cannot assume, as we might be able to do in other economic sectors, “simple” preference functions, where actors would try to maximise financial gains from their forest. Various studies show that many forest owners get value out of their forest in a very broad sense (Holthausen and Baur 2004; Madsen-LM 2003). A forest owner often would enjoy monetary benefits out of the forest, but he also values very much the recreation value, the tradition value (land of my fathers), the social value⁴, the ecological value⁵, etc.

³ On the other hand studies also show that many forest owners might not focus on the economic function of the forest. However, they are not opposed towards creating economic benefits from the forest (Schulz, et al. 2003).

⁴ The making of fuel wood often could not be explained with the help of narrowly defined economic cost-benefit models. People take their benefits from the pleasure of spending a Saturday with their pals in the forest, being the proud master of the over-dimensioned and somehow “uneconomic” chain saw.

What has led to this phenomenon of underutilization? In the past, this kind of small-scale ownership might have been useful, because it helped to provide the owner with fuel wood. It was also a way of making savings (Abetz 1955, 37). Today forest owners have often become “urbanized”(Schraml 2003), they moved out of agriculture and might have even moved far away from their parcel of land. They have neither the time nor the knowledge to work in the forest. Their (opportunity) costs of working in the forests, have increased substantially.

The technology for harvesting timber has changed. Huge harvesters or cable winches, for example, can often reduce harvesting costs substantially. If one wants to remain competitive, there is no other way than realizing those cost savings. However, these technologies have huge economies of scale, which could never be realized in small-scale private holdings, unless many owners join together in harvesting their forests. Fragmentized ownership also leads to high transaction costs in assigning the value of the timber to each individual owner or in organising the logistics of timber transport.

Market access has also become a huge problem. The sawmill industry is currently going through a process of restructuring. Less and less big sawmills are dominating a bigger share of the market. Those sawmills do not deal with any small-scale private forest owner. They are asking for suppliers, which can assure to deliver huge amount of timber just in time and regularly in front of the companies gate. However, this problem has tried to be dealt with by favouring forest associations, which are often active in marketing the timber of their members. Therefore, we do not focus on marketing activities in this paper.

We can conclude that competition on the timber market is strong. Forest owners are only able to sell successfully timber and making any profit under the current relative prices (high labour costs) if they are doing this in an efficient way. The current ownership structure does not seem to allow for such an efficient process and therefore the owner often does not actively use her forest for timber production.

We believe that the main reason for this situation is the current ownership structure. Therefore, we look at the actual property rights structure in this sector of forestry with the perspective of property rights/common property theory.

⁵ Studies on the motives and aims of small-scale private forest owners do not seem to be compatible with Olson’s zero contribution hypotheses. Many forest owners seem to hold their forest mainly for providing the public good, at least if one believes their discourses. How much this is due to the small proportion of income they get from the forest. In how far this discourse is a legitimisation for them, not having anyhow any other option than creating “just” those benefits (you do not get what you want, but you want what you can get (Bromley). Or, if they want to create with their environmental behaviour a feel good factor in an area of their lives, where it does not hurt too much their purse, is another discussion.

Small-scale forestry, property rights and common property theory

The situation is somehow completely different to what the property rights or common property theory literature often describes. Usually, following the story of Demsetz (1967/1988), we have a situation, where open access, or less restrictive defined property rights are at the beginning (e.g. Eggertsson 1998). Then a particular change takes place, e.g. scarcities change (for example, due to overuse) or new exclusion technologies emerge. This alters the cost benefit relationship of a particular ownership regime. The various actors involved will evaluate the situation and in case they think it would be in their interest and many others think it is in their interest too, they might overcome the collective action problem, given in any emergence of a new property regime. They will eventually install a new property regime. This is the rather simple version of the story, what Eggertsson (1990; 1998) calls the “naive” Property Rights Theory. It regards the necessary political/collective action process as a black box. However, for our purposes and at this moment, this version is enough. Depending on resources’ characteristics, this will lead to either a common or a private property regime. Particularly the “naive” Property Rights theory assumes that more we move into the direction of private property, the lower gets the inefficiency out of overuse and therefore the higher get the benefits. As defining property rights is not for-free, it depends then on those costs, which property regime is actually the adequate for the particular resource (Barzel 1989). This understanding also often underlies the common property theory. Bromley (1992a, 5), for example, explains many common property regimes emerging in developing countries with the fact that the return out of the resource is actually not high enough to finance the definition of exclusive private property rights. The direction from less to more exclusive property rights seems to be kind of unidirectional if we look to the theoretical contributions, but also if we look to empirical cases investigated (Berge and Stenseth 1998; Bromley 1992b). This might be the most comprehensively and intuitively logic direction: scarcity increases and institutional/exclusion technology becomes more sophisticated and cheaper. However, there is no theoretical reason, why this should be a unidirectional process. Also empirically we can observe that different attributes of property rights are even left again into the public domain, because the cost benefit situation has changed and makes it worth to change the property rights somehow “backwards” (Barzel 1989). We argue that this would be exactly the useful direction to take within small-scale private forestry and to convert the current private property regime into a regime with many common property regime

characteristics (see Figure 2). For making the argument, we need to come back to the current situation in small-scale private forestry.

The problem revisited under a property rights perspective.

Currently de jure every single square meter of forest land is well defined and belongs to an owner, might it be a private forest owner, might it be a commune or a state. Open access is long since gone. In the field of private small-scale forestry mainly individuals are owners of parcels, which sometimes are not bigger than a couple of square meters. Often parcels are just a couple of meters wide. In German, we call this “towel pieces”. The extent of fragmentation depends on the inheritance laws, which differ in different areas of Germany. At the land registry office we find maps, in which every single owner is well noted in a particular parcel. The frontiers between the different parcels are well defined. However, we often realise that the owner indicated in the map must be long since dead and the rightful owner never thought it to be necessary to change the land title, being it too costly. Therefore, it implies substantial transaction costs to find the owner, if it is at all possible.

De facto the property rights are not that clearly defined. Many owners do not know where their actual land is lying and nobody knows where many landmarks are. In such a situation it is extremely difficult to determine to whom belongs a particular tree in case the person wants to cut it and wants to sell it.

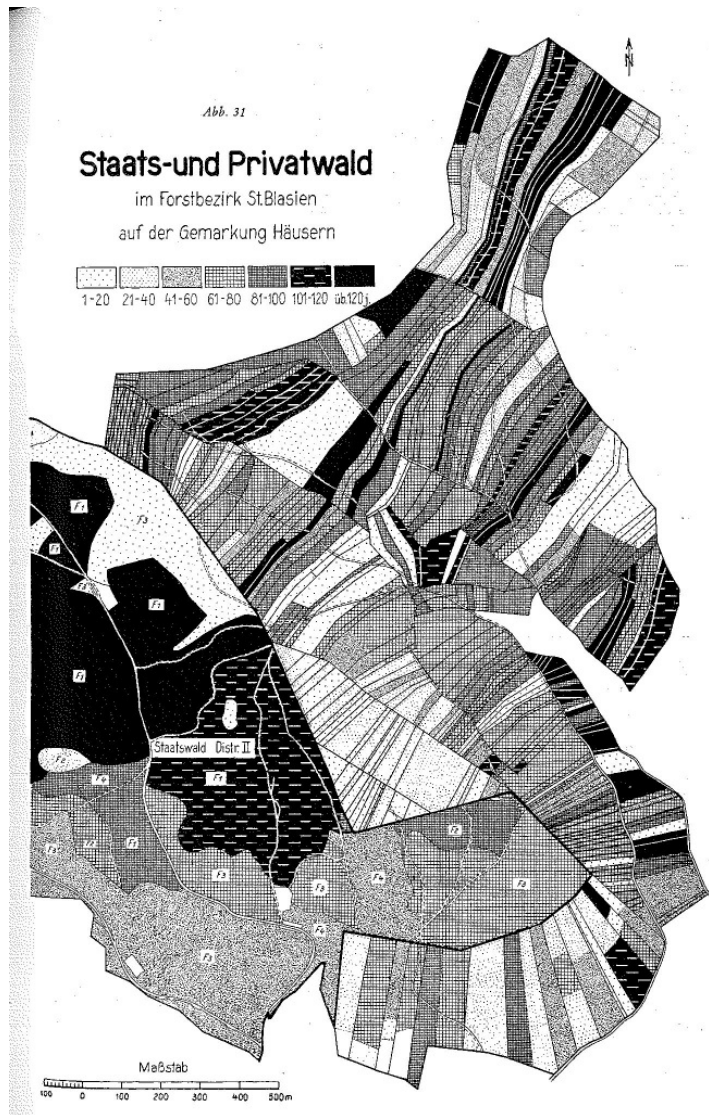


Figure 1: map of small plots (Abetz 1955, 99)

Small-scale private forestry is so far described here as a pure private property. Forest production is a combination of the production of public and private goods. Therefore, it seems to be unavoidable, if we understand the property rights as a bundle of attributes, that those various attributes are placed differently on the continuum between open access and private property. Walking in a forest or picking mushrooms, is a traditional open access right in Germany. The hunting right, for example, is at least in all cases of small-scale forestry, taken away from the individual and by law organised with the help of a common property regime, the so called hunting co-operatives. Obviously, also many private property rights in relation to silviculture and harvesting are restricted, for example, you need a permission of the forest administration in Baden-Württemberg for a clear-cut more than one hectare (Forest-Law for Baden-Württemberg, §15,3). However, most of the property rights in relation to silviculture and harvesting are with the private landowner (see figure 2).



Figure 2 Moving in different directions? Property rights theory and small-scale private forestry on the continuum of property rights

As discussed above, economies of scale have become important in relation to harvesting technology. However, we do not think only about harvesting, but also, for example, in silviculture economies of scale are clearly involved. Small parcels, lying closely together, are so much interconnected that it does not make sense to have heterogeneous silviculture strategies⁶. In case the individual owner does not know anymore anything about silviculture and needs to contract anyhow somebody to do this for her, it only makes sense to organize this activity jointly with neighbours. Those economies of scale also hold for many ecological functions of the forest. Providing a habitat for certain insects, bacteria or other wild life animals is only possible in a larger area. Creating a water protection area is not feasible on a small plot⁷. Certain risk prevention measures (e.g. bark beetle, storm damage) involve considerable externalities and economies of scale. One cannot realise them on a couple of square meters no matter what the preferences of the particular owner are.

The problem we observe in small-scale forestry is just the opposite of what we usually observe with natural resources. The forests are not overused, but they are underutilized. Due to fragmented ownership, nobody can realize the necessary economies of scale for being competitive and therefore the resource is not used.

Small-scale private forestry and the tragedy of the anticommons

The problem of underutilization of resources has been framed first by Michelman (1982) and more recently by Heller as the “tragedy of the anticommons” (1998). It has been framed as a kind of parallel process to the conventional tragedy of the commons (Buchanan and Yoon

⁶ If one owner makes a clear cut, her neighbour to the east might have substantial storm damage in the following years.

⁷ Claiming any compensation for restrictions on the use from the water board might be even more difficult, if many owners start to negotiate.

2000), first shown by Hardin (1968) and since then being a long source of dispute within common property scholars (Ostrom 1990). Heller applied the “tragedy of the anticommons” first to property use under transition. Another application of the mechanism is in innovation theory⁸.

The tragedy of the anticommons emerges out of an over-fragmentation of the bundle of property rights. Each of these core rights can function as a right of exclusion. Therefore, the resource actually cannot be used, if not every right holder gives her agreement on use. If those rights of exclusion are dispersed between too many owners, then it might become an unsolvable coordination problem to use the resource at all. The following figure from Heller explains the idea of the tragedy of the anticommons.

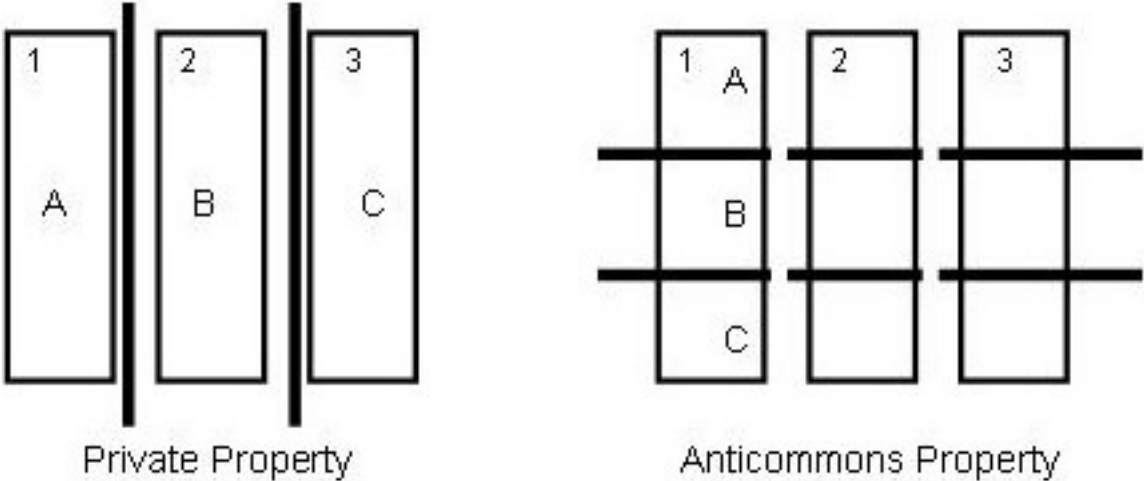


Figure 3 The Distinction Between private and Anticommons Property (Heller 1998, 56)

We imagine resources 1,2 and 3, which could be each a forest plot, and we imagine resource owners A, B, and C. In the case what Heller calls private property, one owner holds the entire bundle of property rights on a particular resource⁹. Therefore, she can determine what will happen with the resource and therefore use it optimizing her own interest. In the anticommons situation the bundle of rights are split up between many different actors. This leads to a process, where the resource can only be used in case all the different right holders agree to a use. Finding an agreement might be so costly that nobody uses anymore the resource.

⁸ Heller was astonished to observe that in Moscow after the revolution nice shops remained vacant, but instead street vendors emerged. In relation to innovation, it is argued that for innovating something new, based on some already existing technology, one has to negotiate with that many already existing patent holders that innovation becomes too costly.

⁹ It is somehow miss leading that Heller calls a situation private property, when the entire bundle of property rights lies in one hand. First Bromley (Bromley 1989) pointed out that this situation might hardly ever exist and second, property rights theory, has shown clearly that in many cases it is desired and raises efficiency, if we can split up the bundle of rights and allocate it to different people. However, it would remain private property.

Buchanan and Joon (2000, 4) explain the problem with the help of a car park – in case there is no restriction to entry a typical example of the Tragedy of the Commons. This particular “anticommons” car park is characterised by various actors holding the right to exclude others from entry. You can only access the car park in case each right holder grants you the permission. This might involve such a complicated bargaining process that the car park is actually not used. In small-scale private forestry you would need to find an agreement between that many right holders that the costs of finding an agreement exceeds the benefits you get from it¹⁰.

Schulz et al.(2002) frame the tragedy of the anticommons, in parallel to the tragedy of the commons, as a problem of externalities. When the holder of an exclusion right determines, if a use by a third party is allowed or not, she does not consider that her decision has an impact on the benefit stream of other right holders. Plot holder A does not consider the benefits arising to the plot owners B-H when taking her decision on allowing, for example, to use a harvester or not (see Figure 4)¹¹. However, looking to this argumentation, one could reply with the same argument that was brought forward towards Hardin’s argumentation about the tragedy of the commons (Ostrom 1990): Why shouldn’t the actors not communicate and therefore know about the joint benefit they would get out of cooperation and solving the anticommons strategy. Using this argument the problem evolves back, similar as in the tragedy of the common, into a collective action problem that needs to be solved¹².

Legal vs. spatial anticommons

Heller distinguishes into legal and spatial anticommons. A legal anticommons is, when the bundle of rights to one object is split and held by too many actors. This is what we have described in the paragraph just above and what is shown on the right side of Figure 3. A spatial anticommons instead exists, if each “owner receives a core bundles of rights, but in too

¹⁰ Heller (1997, 60) argues that the reasons for tragedy of the Anticommons are finally transaction costs. In a transaction cost free world, anticommons rights would be rearranged into usable bundles. However, we would argue that the reasons for remaining an anticommons would not only have to be one of transaction costs, but also could be explained by different preferences. In case I am the holder of a small parcel in the middle of a particular area and I know that I could prohibit others with my right I hold to use their forest in a particular way, the way I do not like, e.g. the use of heavy technology, then I might be willing to hold my property right, even if a transfer would be rather cheap.

¹¹ Imagine, for example, a forest owner, who detests the scenery of a recently harvested forest with a modern harvester (Suda 2000), because it looks devastated. Obviously, assuming this owner to be an individual utility maximizer, she will not consider the losses she induces on other users by blocking the use of the harvester. However, she will consider the benefits she gets from the fact that nobody of her neighbours can use this technology because of her decision.

¹² Parisi and Depoorter (2004) argue that fragmentation of property rights would be far cheaper than de-fragmentation, because fragmentation is an individual decision, de-fragmentation is by definition a collective decision. First, this is only true if we start from a private setting. Second, it might be a question of the complexity of the fragmentation process. Redefining the bundle of rights obviously implies transaction costs.

small a space for the most efficient use” (Heller 1998, 57). What type of anticommons do we then have in small-scale private forestry?

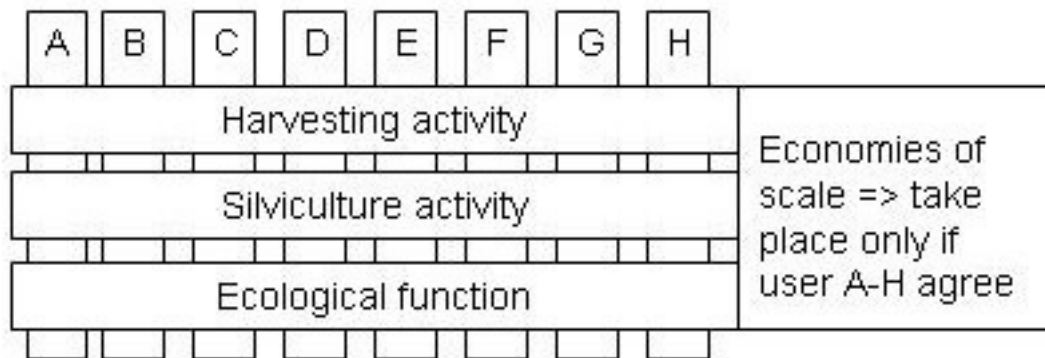


Figure 4 Spatial anticommons in small-scale private forestry

The answer about the legal anticommons might be difficult to give. The discussion about it is certainly as old as the discussion within forestry about the role of common and private welfare within the sector. The answer depends very much on the standpoint of the person arguing. Somebody who is mainly interested in the commercial use of the forest or who wants to convert it into a gravel pit might argue that property rights are far too fragmented^{13,14}. The bureaucratic burden, the amount of stakeholders involved in decision making on forest use would be seen as far too high. Therefore, the forest will just not be used in the indicated sense. A forest contractor in Switzerland, for example, who is working in small-scale private forests, told us that getting the demanded timber is so difficult for him, as long as the local forester, who is ideologically opposed to recently introduced private contracting in the sector, still has the exclusive right to mark the trees, which are allowed to be cut.

The environmentalist would certainly argue that there is so much public interest at stake that we are well advised to split up the exclusion rights to the forest, to those different stakeholders, who all have legitimate claims to the forest. What is certainly the case is that the characteristics of the resource imply that forests are producing a variety of goods ranging from public to private goods (Glück 2000; McKean and Ostrom 1995). This might indicate (not necessarily (Ostrom 2000, 337)) that also a variety of different property rights regimes might be appropriate and that for an efficient and welfare maximizing use, rights should be

¹³ See also the argumentation of the AGDW (German Association of Private Forest Owners), against the amendment of the forest law under the social democrats and green coalition.

¹⁴ Buchanan and Yoon (Buchanan and Yoon 2000, 12) use the tragedy of the anticommons, for example, to argue in how far environmental legislation, which gave, in their opinion, too many (environmental) actors the possibilities to exclude people from use (e.g. block development), so that the actual use of the resource was blocked.

unavoidably allocated to various levels within the society (see Figure 2). In this paper, we certainly do not find any conclusion to this question. From an institutional economist perspective, one would argue that – considering efficiency – different actors holding exclusion rights to forests might be unavoidable and desirable. Nonetheless, one should assure to design rules, which lower decision-making costs and therefore do not prevent the use of the resource, might it be for public or private purposes. We do not want to discuss the issue further here, which would require another paper.

We rather want to point out the problem of a spatial anticommons, which seems to be the more serious problem existing in small-scale private forestry. In small-scale forestry every owner of a parcel holds important exclusive property rights, like harvesting trees. She holds the important property rights, for determining the silviculture or ecological strategy in her forest. Converting her forest into a leisure part would be forbidden or she would need consent. However, within the per se boundaries of the law, she can do with her forest, what she wants, without consulting anybody. The only problem is that she holds the right for such a small portion of land that she only can realistically exercise her right in case she would join together and agree with a huge amount of other users¹⁵. To transform her property right into a benefit stream, which might be pecuniary or non-pecuniary is only feasible in relation to many functions of the forest, in case she joins together with many of her neighbours. It does not matter, which case of the anticommons we describe, the effects are in both cases the same: Due to fragmentation of rights, a use of the resource becomes impossible.

De-fragmentizing property rights in small-scale private forestry; solving the tragedy of the anticommons with a common property regime?

Property Rights Theory and the tragedy of the anticommons both indicate that it might be appropriate to think about a property rights regime change. We discuss in the paper a land fund solution as a common property regime, which might be a solution for solving the anticommons. We do not believe that this solution is a one for all and an always likely solution. In many cases – maybe the most, the forest will similar to today not been used in the future. In some cases a private entrepreneur might arise and will restructure the ownership pattern buying parcels, possibly a leasing market might emerge or other institutional

¹⁵ Heller (1998, 80) uses the „Fractionation of Native American Allotted Land”, where each native got such a small part of property that actually using it individually was impossible and finding an agreement of joint use was so complicated that actually the property wasn't used at all. Fragmentized property blocked the development.

structures might be found. In this section we want nevertheless present first a possible common property regime, which we think has some potential. However, this institutional solution is rather unlikely from an empirical and from an economic point of view. Many of the problems of small-scale private forestry are rather old. However, in the past nothing has changed. Therefore, we need to make the case, why we believe that now it is more likely that change might occur. In a second step, we need to convince the economist, why we believe that against conventional economic wisdom the de-fragmentation will not result in a private property, but a sort of common property regime.

The land fund solution

In this paragraph, we briefly present a common property regime, which we think is worth to be considered as a solution for the tragedy of the anticommons. Since many years the state has recognised the problems of small-scale private forestry and has therefore helped the creation of forest-associations. They could be but would not necessarily need to be the promoters of this change, we are suggesting here. Currently most of the forest owner associations are focusing on marketing of timber for their members, because market access was traditionally the most severe problem for them. A smaller part of their activities are more extended services to forest owners. As far as we know, so far forest owner associations do not offer any leasing agreements or a 100% service to their members. The institutional form we have in mind and want to discuss here is a lot more far-reaching than what most of the forest associations do, but might indicate their way forward. Private Property owners would bring their land into a land fund and would get in return a virtual share of this land fund back. Many property rights would be handed over to the group. Decisions on the use would have to be taken jointly according to collective choice rules of the group (Ostrom 1990, 52) (see Figure 5). This is not a new suggestion (Hostettler 2003). There exist also traditionally many of those land funds in certain parts of Germany. Since many generations, a group of families in a village holds together the ownership of a forest (Endres 1905, 529-555).

The land fund solution would possibly have to be combined with a land reform. This would allow people to choose, if they want to continue to hold their private property as a private property or if they want to bring it into the land fund. All owners, who want to give up individual ownership would get a virtual share, which corresponds to the size and the value of the land brought into the land fund. Obviously, different land funds would find different rules on how to manage the land. Owner groups who are not very much involved in forestry might find a solution in which they remain only the property holders but lease many other

rights out to a service provider, who then actually is managing the forest. The only joint decision to make would then be to whom to lease the land. This leasing option might create principal agent problems between the land fund and the service provider (Ruppert 2006). Other land funds might want to play a more active role in deciding what happens with their forests. Some of the members might provide part of the services. Land funds might also differ in terms of goals they pursue. Some funds might clearly focus on business-oriented forestry. Others might prefer to focus on providing ecological functions with their forest.

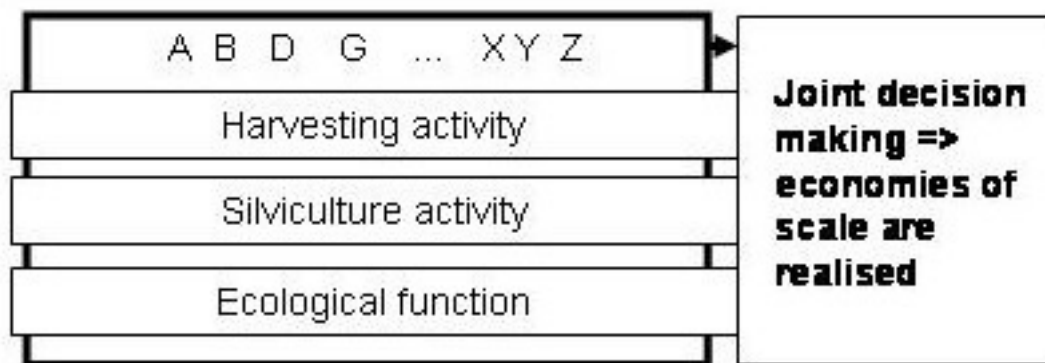


Figure 5 A land fund solution with joint ownership

Why should institutions change now?

Property rights theory and the tragedy of the anticommons literature would be similar in their suggestion, when it is likely that a change in the property rights structure will arise. In case there is a change in the perceived cost benefit structure, there will be agents of change. If the gain of changing from anticommons distribution of property rights to a distribution of rights, which allows for sustainable use are rather high, then we could imagine that such a process takes place rather quickly (Heller 1998, 65). In the past the problem within the forestry sector was certainly that the possible pay off out of a change, would have been so low for any agent of change, that it was not worth to promote such a change. There are a couple of changes taking place, which change the cost benefit situation of forest owners and therefore might lead to a change.

We tried to show that due to economies of scale associated to technological changes the possible benefits out of managing forestland jointly have constantly increased over the last years. This argument should be linked to the constant change in relative prices we observed in Europe over the last decades. Labour became more and more costly. However, for the traditional small-scale forest it does not hold, as his opportunity costs of labour has been particularly low. It did not matter that much, if his harvesting costs, have been higher as in

other ownership forms, as the work in the forest was done in periods, where the workload in agriculture was low. However, over the last decades the situation has changed. Many forest owners are not working anymore in agriculture, therefore not having anymore idol time. Their income might have gone up. They might have moved far away, which makes visiting the forest more costly and complicated. They might not have anymore the necessary knowledge for working the forest or the necessary network connection, for then marketing the timber (e.g. with the help of the forest association). This certainly changed the cost benefit situation for many forest owners and the demand for “hassle free” arrangements might rise considerably.

In the past land reforms in forestry has often been impossible because of the high monetary and particularly bargaining costs associated with such a reform (in comparison to the possible low additional returns, with current timber prices). A land fund solution would make similar valuation processes necessary as in a case of a land fund solution. Valuation of a forest is rather costly. The value of the different plots vary considerably, depending, for example, on the age of the stand, the species or the quality of the trees (König 1985). This often created huge bargaining problems between the different owners¹⁶. There are two aspects that have changed over the last years. First, the relative importance of forestland as an asset has decreased considerably over the last years. Most owners have expended other income sources and the income from the forest has decreased considerably over the last years due to low timber prices and higher harvesting costs. Therefore, from a financial perspective small-scale private forestland has become a worthless or even a negative asset. This might increase the willingness of finding a consensus on the necessary valuation of the land. Additionally, and this aspect will become more important in the future, when more and more land is passed on to the next generation, the emotional links to a particular parcel (this is the tree which my great grandfather planted for me) will decrease. The particular plot will be less often visited and the particular square meters, of individual ownership will not be known anymore as it is already the case, with many very small owners. This will also help to agree joining the property.

In the past many ownership obligations of a forest owner had been taken over by the state in the case of small-scale private forestry. For example, securing safety for visitors

¹⁶ Degenhardt (2005) describes such a process of creating a land fund recently. This is one of the rare cases. The author describes that first, the costs of valuation, which are the main set up transaction costs, have been carried by the state forest administration. Second, he thinks that one of the important reasons of success was that many of the owners had several generations of experience being joint owner of another forest, which is held in a common property regime.

(Verkehrssicherungspflicht) was secured by the local forester in case the owner was absent. The same applied to the control of bark beetle. This subsidised to a certain degree and therefore conserved this ownership form. Looking to all the reforms of different forest administrations in Germany, the state is not willing or capable, because of empty treasures, to provide this service for-free anymore in the future. It is very likely that the cartel office prohibits the state to provide those services free of charge or for a very low cost in the future (Reh 2005). If owning forests in the future implies more costs, more forest owners, will consider possibilities on how to cover at least those costs.

Why common and not private property?

When we first tried to approach the question if a common property regime would be suitable for solving the tragedy of the anticommons, we browsed the literature for some indicators, telling us something about the usefulness of a common property regime, depending on the resource characteristics. We found various indicators and applied the list of five criteria, which Ostrom (2000, 344) developed from Netting (1976; 1981). Applying this list¹⁷ to the current situation of small-scale private forestry showed us immediately that a common property regime would be useful. Four of the five criteria apply totally. However, the situation we observe is different to most situations discussed in literature – mainly about developing countries. In our case, the starting point is not undefined property rights, where a definition is costly. We start from a situation, where private property rights are given. The economist, following a conventional economic wisdom, would argue that in such a situation, we are better off in restructuring the sector into bigger units – as we did in agriculture, but remaining with a private property regime, instead of going into the hassle of collective management. Hence, if we want to convince any economist, we need to argue why not a private but a common property regime is more likely to emerge. We divide our arguments into two strains. On the one hand, we need to look to the market and its private entrepreneurs and try to understand why they do not provide an option for useful restructuring. On the other hand, we will provide some arguments from the perspective of current landowners, which would rather argue in favour of a common property solution.

If it pays, there should be a private entrepreneur, who re-bundles the property rights. The market should solve the problem. So far, there does not seem to be such an entrepreneur. The negotiation costs with all the potential owners (e.g. thousand people) would be extremely high

¹⁷ The five criteria are 1. low value of production per unit of area; 2. high variance in the availability of resource units on any one parcel; 3. low returns from intensification of investment; 4. substantial economies of scale by utilizing a large area; and 5. substantial economies of scale in building infrastructures to utilize the large area.

and the potential risk that no agreement is found and land is not joined together is rather high. A private entrepreneur might not be able to take such a risk. The risk might be more easily shared in a group of landowners. The high risk involved certainly does not correspond to the potential return on investment, which one is able to get from forestry related projects in Germany. It will be certainly below the average return in the economy. This also links to the considerable capital requirements for such an entrepreneur in case any forest land is purchased. The entrepreneur would not be able to find any investor, who would like to invest heavily in the purchase of forestland.

We also have to look to the conditions on the land market and on the leasing market for understanding better the lack of such a private solution. The main problem is that the market for forestland is hardly existing – at least if we look at those small parcels we are dealing with in this paper. Hardly any transaction takes place. The price for the land that is sold does not reflect in many cases the economic value of the land (so what you could earn with the land doing forestry on it). The price is influenced by other considerations like, the willingness to have forestland or ecological purposes etc. From this perspective one does not seem to have another choice, if we want to move away from the small-scale private forestry, then to swap to a kind of common property regime.

Currently a forest plot, particularly if the boundaries are not well defined, often cannot be sold, allowing for a restructuring via the market. With the help of a land fund solution, small-scale forestland or better said forest shares might become more fungible. We could imagine that different forest owners trade with each other to allocate, for example, their land in a land fund, which corresponds most to their personal preferences.

Why do not use the leasing market for reallocating the land? For a long time leasing contracts have been nearly absent in the forestry sector in Germany. This might be due to the long time horizon of production. This leads to a difficult contractual relationship as the time horizon between the owner and the leaseholder vary considerably. However, in the last years more and more companies have offered leasing contracts within the forestry sector. They might not involve a positive rent or just a very small one, but they provide the forest owner with a peace in mind contract, where she does not have to worry anymore about her forest. Stora Enso – a huge paper mill company, which is also working in forestry services – offers, for example, this type of contracts. They use these contracts to secure the provision of their paper mills with timber (they hold then all the important property rights, for regulating the timber flow during the harvesting process). However, if they want to realise the economies of scale, which

are necessary to be competitive in forestry, then they cannot be interested in small-scale private forest owners as lessors. They only offer this type of leasing contract to communes (or private owners) who own a couple of hundred hectares. Therefore, small-scale private forest owners would have to solve the collective action problem of joining the land anyhow first, if they like to participate in such a market. Additionally, due to the principal agent problems described above, endemic for forestry, it might not be very wise as a forest owner, in case I do not have a lot of forestry knowledge, to let a company, with a rather short-term contract work on my land.

From an owner's point of view, the reason for a land fund solution is related to issues of trust, which are of particular importance for contracting in the forestry sector¹⁸. Many forest owners want to keep an influence on their forestland, which they do not want to sell. They might not be interested in exercising their management rights by their own, but they also do not want to give those management rights to private entrepreneurs, particularly if they are in any respect linked to the big timber industry. There is a strongly perceived asymmetry in interested between those two groups.

As many studies show those small-scale private owners get many different benefits from their forest than just the timber value. They fear that a private entrepreneur might not deliver anymore those benefits. This distrust of private business is coupled with a kind of "blind trust" (which is not always understandable from an outsider perspective) into the local forest association. "The forest association that are us". The next generation might be willing to sell the land, but the current generation is so much attached to the land and wants to know it in secure hands. Their problem just is that their sons and daughters do not want to work it anymore.

From a society's perspective, it might be also wise to favour a common property regimes within forestry. Many studies show that the financial orientation of a forest owner is directly correlated to the size of the forest. Financial values out of the forest become understandably more important in comparison to other values received from the forest. Thus, a more private property solution might result in a more severe suboptimal provision of the more public goods out of the forest.

¹⁸ The following arguments result out of research projects at our Faculty. In a future version of the paper, the arguments will be made more sound from a methodological perspective.

Conclusion

We have briefly identified the current problems of small-scale private forestry in Germany. In other European countries, similar problems exist. We tried to understand the problem with the help of property rights and common property theory. The current problem of small-scale private forestry is not one of overuse – what is the problem of most forests in the world, but of underutilisation. We argued that this problem needs to be framed from a theoretical standpoint somehow “the other way around” than the problem of overuse. Instead of not clearly enough defined property rights (might it be private, owned by a group or by the state) the problem in small-scale private forests is one of having too fragmented property rights. First, we used property rights theory/common property theory and second, we used the tragedy of the anticommons to make our argument. Too fragmented property rights give exclusion rights to a forest to too many different actors. This makes it prohibitively costly for the individual to use the forest, not being able to realise the necessary economies of scale in the different areas of forest use.

If we want to understand the governance of forests, then we think it to be important to understand also the required institutional change in those small-scale private forests not only the “typical” problems described in the common property literature on resource use. We argued that a de-fragmentation of property rights, towards a common property regime would be a helpful solution. We presented then a land fund solution, a common property regime, in which fragmented forestry plots are joined together and then managed collectively. The private individual land title is exchanged with a virtual share of a land fund. This move towards common property could help solve the tragedy of the anticommons. We could use this resource in a sustainable and for the society and the owner beneficial way instead of leaving it idle, as it is currently. However, we also realise that this diagnose we deliver does not yet provide a solution to the problem we observe. It is just the first step. The problem of underutilization is, similar to the problem of overuse, finally a problem of collective action. That is where the two problems – overuse and underutilisation, which we differentiated in the paper, are finally joined together again and we can come back to what the literature on common property theory has to tell. This focus from a collective action perspective also shows very clearly that such a land fund solution will only be feasible and bring additional benefits to the landowners under certain conditions. The group of owners needs to adopt collective choice and operating rules, which signify a considerable transaction cost saving in comparison to fragmented ownership. The transaction costs of the common property regime should not lag behind too much in comparison to a pure private regime (however, we tried to

show that there does not seem to be any private entrepreneur around, who would like to enter currently into this business).

There is an extensive literature, which tries to understand the reason for successful collective action in resource use, particularly forestry e.g. (Baland and Platteau 2000; Poteete and Ostrom 2004). This literature focuses and extends the discussion on collective action, which Olson (1965/1998) started. They focus on heterogeneity and group size and institutional environment factors. German forest political science has also had an extensive look on group characteristics of small-scale forest owners (Bittner 2003; Härdter 2003; Kvarda 2004; Schaffner 2000; Schlüter 2006; Schraml 2003; Ziegenspeck, et al. 2004). Comparing the two strains of literature, which are both exploring extensively on heterogeneity influencing the ability of collective action, one get the impression that analysing and connecting the two sets of factors would be also a fruitful enterprise (However, this would need to be done in a different paper). Where the commons literature focuses on factors like differences in ethnicity, religion, wealth etc. (Poteete and Ostrom 2004, 438) these factors do not play any role in the literature about small-scale forestry in Germany¹⁹. Here, the main factors are urbanised vs. farming owners (Schraml 2003), differences in values orientation/ideologies (Schlüter 2005). The difference in foci shows how fruitful such a comparison would be. However, the difference shows, in how far this joint analysis would have to start with an explorative qualitative phase. We conclude that we are still far away from developing a closed theory of collective action in common property regimes, with an easily testable and quantifiable set of factors.

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¹⁹ Interestingly Abetz (1955, 48) characterized in 1955, while writing about the farmers forest owners, the various owners along ethnic/regional lines.

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