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## **Private, Common, and Open Access Property Rights in Land – An Investigation of Economic Principles and Legislation<sup>1</sup>**

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**Abstract.** *According to standard economic theory, private property rights in land are considered superior to alternative institutional choices, such as common property or open access.*

*This article investigates the existence of differing property rights regimes in the field of Swedish real property law. The economic implications of the different institutional arrangements are examined, and support is found for varying property rights regimes, depending on physical and technical aspects of the land uses in question. In particular, when a certain land use presents economies of scale, common property rights can serve to reduce transaction costs.*

**Keywords:** *property rights regimes, private property, common property, open access, institutional choice*

### **1 Introduction**

Private property rights in land and real property resources are fundamental to modern societies. Advocates of private ownership maintain that this institution was a precondition of the growth of the western economies in earlier centuries (North & Thomas, 1973). Conversely, the slowness of economic growth in other parts of the world is put down to the insecurity or imperfections of private property right institutions (De Soto, 2000).

Land ownership in Swedish real property law is based on private ownership of property units. Aside from individually owned property units, however, there are also other kinds of tenure, e.g. joint property units and joint facilities, public water areas, fishery and game conservation areas, and so forth.

The overarching question addressed in this article is why the Swedish system of property rights presents a mixture of forms. Several of these are based on

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<sup>1</sup> The article is a revised and shortened version of Ekbäck (2008).

collective rights or the absence of rights, which would appear inconsistent with the economic importance of individual and exclusive property rights. The specific objective of this article is to investigate the occurrence of different property rights regimes and to analyse the economic implications of the legislator's choice of institution. The approach, then, is exploratory rather than evaluative.

The method used is standard in the field of law and economics (see e.g. Cooter & Ulen, 1988) and involves a combination of jurisprudential and economic perspectives. After investigation and structuring of existing law, the purpose of the institutional choice is examined and its economic consequences are analysed.

## 2 Theoretical framework

### 2.1 *Ownership as a bundle of rights*

The division of land into property units serves a number of purposes, probably the most important of them being to individualise objects of ownership and other rights in land. What exactly does ownership comprise? In a property rights perspective, ownership is not indivisible. On the contrary, it can be described as a bundle of various rights and obligations which the law, at any given point in time, confers on the owner of a property unit in relation to other individuals (cf. Alchian & Demsetz, 1973).

Ownership is a legal institution whose content at any point in time is defined by legislation.<sup>2</sup> Ownership of property units in Sweden is negatively determined, i.e. comprises all powers not circumscribed by law. But legislation changes with the passing of time, and so the content of ownership will also be changeable (Bergström, 1956).<sup>3</sup>

Even though the content of ownership is not a foregone conclusion, certain powers have to be included – to a greater or lesser extent – if the term ownership is to be of any relevance (cf. Snare, 1972): The right to *use* the property, the right to *exclude* others from using the property, the right to *transfer* the property, and the right to the *value* of the property.

These powers can be limited by law. For example, environmental legislation may include stipulations concerning the use of the property. A change in land use may be subject to permission. Purchase legislation may limit the number of persons entitled to acquire the property. The value and appreciation of the property can be taxed. And so on...

### 2.2 *Property rights regimes*

The above mentioned rights can – through legislation – be vested in individual parties, in limited collectives or in no one at all. The term “property rights regimes”

<sup>2</sup> In some societies, informal rights may be more important than legislation in defining ownership. Since this article is confined to Swedish context, that concept will not be developed here.

<sup>3</sup> This contrasts with limited rights – easements, rights of way, leaseholds etc. – the content of which is defined in positive terms by contract or statute.

is sometimes used (e.g. Bucht, 2006) to describe how rights in a certain resource can be structured. When discussing Swedish conditions, it may be appropriate to divide property rights regimes into three main types: open access, common property, and private property.<sup>4</sup>

Resources subject to *open access* can be claimed and utilised by anyone. There are no exclusive and transferable rights in them (Bromley, 1991).<sup>5</sup>

Resources which are *common property* are jointly owned – held in common – by a limited group of individuals. That group is entitled to exclude other individuals from using the property, and use of the property is decided and supervised by the group. Usually there are rules of some kind – statutes or suchlike – which may empower a majority to make binding decisions when matters are put to the vote (cf. Stevenson, 1991).

Where *private property rights* subsist in a resource, the various powers not circumscribed by legislation are vested exclusively in individual persons.<sup>6</sup>

### 2.3 Some observations regarding the superiority of different regimes

From an economic viewpoint, private property rights are normally seen as the more efficient institution. This is due to the occurrence of externalities in connection with open access and common property, and to the incentives which they create.

Consider, for example, a farmer setting out to farm his land. If the land is individually owned, a direct relation subsists between investments/work input and the income obtained. Under other property rights regimes – open access or common property – the link between individual inputs and returns will be weaker. There will be a risk of others free-riding on the farmer's work, in which case the rational course for him too will be to make less effort.

The reverse applies on the consumer side. If private rights in a particular resource – game, for example – are lacking, no hunter has any incentive for limiting his own hunting (cf. Demsetz, 1967), because the benefit of restraint will mainly accrue to other hunters in the same area. First come, first served, one might say. A similar situation applies concerning fisheries if there are no exclusive rights in fish stocks (cf. Anderson & McChesney, 2003, pp. 62–65). The upshot can be depletion and disappearance of the resource (Eggertsson, 2002).

“The Tragedy of the Commons” is the title of an article which has greatly influenced attitudes to both open access and common property. The author, Hardin (1968), used the example of grazing land open to all comers. This being so, we can

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<sup>4</sup> It may be pointed out that the different regimes of property rights merely indicate if and by whom a certain resource can be owned, but specify nothing about the content of ownership. Apart from these dimensions, public law regulations of land uses may restrict the right to utilize a certain resource or to undertake a certain measure, regardless of the different property rights regimes.

<sup>5</sup> The legal term is *res nullius*, which originates from Roman law and means “nobody's property”.

<sup>6</sup> Hybrid forms such as co-ownership or joint ownership will fit either into common property (if the ownership is dependent on group membership) or private property (if it is not). In the former case, ownership rights can only be transferred by leaving or entering the group.

expect each herdsman to try to keep as many animals there as possible. Due to the cost of each additional animal being shared between all the herdsmen, this system will eventually devastate the pasture.<sup>7</sup>

“[T]he rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another... But this is the conclusion reached by each and every herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit – in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.” (Hardin, 1968 p. 1244)

The establishment of exclusive, individual rights is the solution often advocated. If, for example, the land is divided into property units, both the cost of resource utilisation and the proceeds of management measures will devolve on the individual property owner – the externalities will be internalised by the transition to a private property rights regime.

“Individual ownership offers the most secure property rights and ties the welfare of decision makers most closely to the economic consequences of their choices.” (De Alessi, 2002 p. 109)

Development processes in different societies have been studied in several works of economic history. A common feature in many of these studies is an institutional change from an original state of open access or common property towards private property rights regimes. Topics have, for example, included the origins of hunting rights among Indian communities in present-day Canada (Demsetz, 1967), the establishment of individual land ownership in the colonisation of the USA (Anderson & Hill, 1975), the English enclosures (Dahlman, 1980), and the development of mineral rights in California (Umbeck, 1981). There are also similar studies of Swedish conditions. Lundgren (1987) analyses the institutional transformation of hunting and fishing rights, among other things, in the Lule River valley. Exclusive rights to these resources came into being during the medieval period as a consequence of the trade exchange which developed between Sami and the farming population. Changes in the Swedish property system can also be instanced with the land redistribution reforms which, between the 18th and 20th centuries, marked a gradual transition from common rights regimes to individual property units (Ekbäck, 1995).

Summing up, open access and common property are looked on as conducive to over-consumption, in that the users pay no heed to costs entailed by their own consumption but borne by other users. At the same time, the output from management measures proves insufficient, due to the inability of the individual taking these measures to garner their full benefit.

This “tragedy” could be avoided if all users were able to reach an agreement, e.g. for the limitation of use. But even if this were possible, the agreement could not be asserted against new users. The *transaction costs* of

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<sup>7</sup> It should be made clear that Hardin, although he uses the term “commons”, is in fact describing an open access system.

concluding agreements with all existing and potential users are prohibitive.<sup>8</sup> The more successful the existing group becomes in agreeing to limit its own utilisation, the more valuable the resource will be to others who are not bound by any agreement.<sup>9</sup>

In both theoretical models and empirical studies, the solution seems to lie in replacing open access and common property regimes with private rights.<sup>10</sup>

#### **2.4 Why are not all resources under private property rights?**

Although individual rights are apparently preferable to open access and common property regimes, there are many instances of resources to which exclusive and individual rights are lacking, e.g. the atmosphere and marine resources such as fish and minerals, and I mentioned by way of introduction that Swedish property law contains rules which are based on open access or common property.

Clearly, the benefits obtainable through individual rights have to be balanced against various costs which individualisation entails. In this section we shall consider two such items, namely the occurrence of institutional costs and what is termed economies of scale.

##### *2.4.1 Institutional costs*

Creation and maintenance of exclusive rights in land entails expenses. The territorial subdivision has to be documented by means of reference points, registers, maps or suchlike. Boundaries have to be marked and monitored. It must be possible for infringements to be proceeded against and prevented through public sanctions. These expenses are all *institutional costs* (cf. Schwartz & Tullock, 1975).

In order for a resource-demanding rights regime to be economically justifiable, its institutional costs must be offset by positive land use effects – *higher land values*. The positive effects come about through changed incentive structures and lower transaction costs for agreements on grants of rights, transfers etc. This argument is illustrated in figure 1, which shows how land use effects and institutional costs develop on the margin. A change to the right on the horizontal axis refers to the quantity of resources used to create and maintain property rights in land.<sup>11</sup>

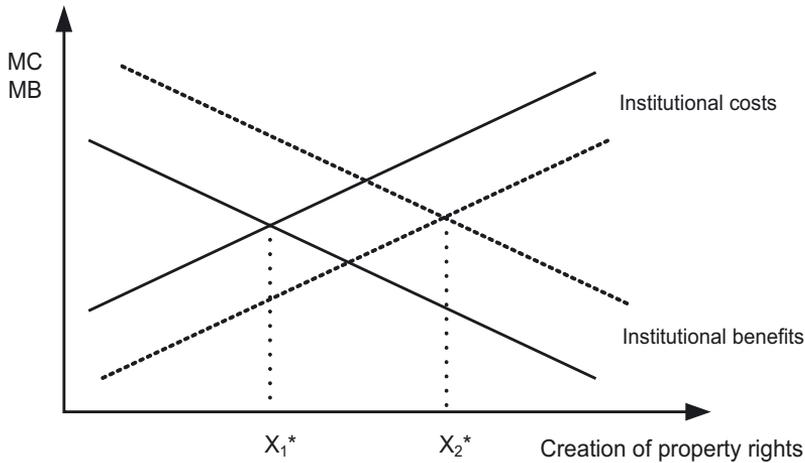
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<sup>8</sup> Transaction costs are normally taken to comprise the cost of creating, enforcing and implementing agreements, i.e. the cost of economic transactions (Eggertsson, 1990).

<sup>9</sup> Lack of closely defined and delimited rights as an impediment to the conclusion of effective agreements is the core of the Coase theorem (Coase, 1960).

<sup>10</sup> As an anonymous referee pointed out, the statement is simplified and does not hold true for all property right scholars (see e.g. Ostrom, 1990). Still, the superiority of private property rights is a predominant and persistent thought in literature.

<sup>11</sup> The curves should look essentially the same, no matter whether private or common rights are created, although in the latter case the benefits and costs are smaller in size. Assuming the joint property units to be larger in area, the boundary costs (marking and monitoring) will decline (cf. Field, 1989). The positive effects of exclusive rights also diminish as a consequence of internal decision-making costs of co-ordination within the collective (cf. Bromley, 1991).



**Figure 1.** Illustration of marginal benefits and costs in relation to the creation of property rights (Ekbäck, 2000 p. 91).

The benefits accruing from the change of property rights regime are presumed to increase, but at a diminishing rate. This is due to the declining marginal productivity of each single input factor. Instead the institutional costs increase on the margin, due to increasing opportunity costs of resources taken from other production in the economy.<sup>12</sup>

An efficient institution, then, should be designed in such a way that the increased value of the land use and the institutional costs will be equal on the margin. In a hypothetical situation this occurs in  $X_1^*$ . Population growth, changed production technology or the appearance of new markets can in this situation boost demand for the land resources, leading to an outward shift of the marginal benefit function. That shift implies an appreciation of the land resources and argues for the use of additional resources for the creation of property rights. If new technology reduces the costs of the new rights regime, the marginal cost curve will also be displaced outwards and a new, efficient equilibrium is obtained in  $X_2^*$ .

As is shown in figure 1, the presence of institutional costs means that complete privatisation of rights in all resources can never be economically efficient. Instead the equilibrium point means that certain resources will be jointly owned or will not be subject of any exclusive rights at all.

The magnitude of the institutional costs in figure 1 can vary between different types of resources, depending on the *physical and technical properties* of the resources concerned (cf. Bucht, 2006). *Common pool resources* – e.g. fish stocks, groundwater aquifers or game animals roaming large areas – are characterised by very high institutional costs in connection with the establishment and maintenance of private rights. The high costs mainly consist of *exclusion costs*, i.e. the cost of

<sup>12</sup> The appearance of the marginal cost curve presupposes a normal production technology. Economies of scale may conceivably occur in certain intervals where the system costs instead decline on the margin.

excluding others from using the resource (Ostrom, 1999). In cases of this kind, high exclusion costs may cause common property rights (cf. Ostrom, 1990) or even no rights at all (open access) to be more efficient than individual rights.

A special situation arises when facilities create *positive externalities* in their surroundings and excluding other individuals from these benefits is difficult or expensive. Land drainage enterprises are one example of such facilities. The risk then is that others will free ride on the party conducting the operation. Difficulties in financing such facilities may lead to an excessively low production level. In situations of this kind, there may be an advantage in common property rights.

#### 2.4.2 Economies of scale

The technology of certain land uses exhibits *increasing returns to scale*. That is to say the operation requires heavy initial investments, i.e. the fixed costs of production are high. Once these investments have been made, further benefits can be produced at a relatively low cost, at least until the facility's capacity limit is reached (Kreps, 1990 pp. 234–239).

Aquifers are one example of an operation with economies of scale (Ekbäck, 2007, pp. 3–5). The fixed costs of land surveys, test drilling, purification plant etc. can be very high. If a well is drilled deep into the bedrock, heavily aquiferous fissure zones may be discovered, in which case the facility can supply more than one property. A similar situation prevails in connection with irrigation facilities (cf. Ostrom, 1999, p. 346). Roads, sewage works or landing stages are also facilities that exhibit clear economies of scale.

In order for economies of scale connected with such operations to be utilised, there normally have to be several individuals participating on a joint basis. If the rights concerned are private, negotiations will have to be held and agreements concluded between the participants concerning the construction of facilities and apportionment of the costs. This can entail heavy transaction costs. If instead the rights are common property, no separate agreements will need to be negotiated between all the individual participants. The economies of scale can be utilised without resource-demanding agreements. On the other hand there will be costs connected with co-ordination and collective decision-making within the group.

### 3 Swedish real property institutions and territorial divisions

The time has now come for a brief overview of the legal institutions included in Sweden's system of real property rights, and for an account and analysis of the statutory rules on certain resources involving common property and open access rights.<sup>13</sup>

#### 3.1 Fundamental legislation and organisation regarding real property

The Swedish Land Code (*jordabalken*) deals with civil law aspects of real

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<sup>13</sup> The survey is not complete – this is merely a selection of the more central enactments in the field. Further provisions on common property and open access rights are contained, for example, in the Water Enterprises Act, Minerals Act, Joint Land Development Act, and Security of Tenure Act.

property. Its opening chapter lays down that real property is land and is divided into property units. The same chapter contains provisions on property boundaries. The Code also includes rules on the transfer of property units and the grant of limited rights such as mortgage lien, rights of user and easements.

The Real Property Formation Act (*fastighetsbildningslagen*) governs the forms and conditions of property formation. Property formation can lead to the creation of new property units (subdivision, partition or amalgamation), or can involve re-formation of existing property units (reallotment). The main rule is that property formation measures have to be stated on a map and new boundaries enduringly marked.<sup>14</sup> Boundaries must be numerically secured. Points of uncertainty regarding boundary definitions and rights issues can be examined and determined by property definition.

The Real Property Formation Act further makes clear that all property units have to be entered in the Real Property Register. More detailed provisions concerning that register are contained in the Real Property Register Act (*lagen om fastighetsregister*). The content of the register affords good retrospective coverage and comprises particulars of register designation, co-ordinates, ownership, mortgages, grants and possessions etc.<sup>15</sup> The cadastral index map forms part of the Real Property Register.

The Cadastral Authority (*lantmäterimyndigheten*) has main responsibility for property division and the Real Property Register. Questions of property formation and property definition are examined by means of cadastral procedure (*förrättning*). Decisions by the Cadastral Authority can be appealed in the Land Court, the Court of Appeal, and the Supreme Court. When the cadastral measures are complete, the general section of the Real Property Register and the cadastral index map are updated accordingly.

The Cadastral Authority is also Land Registration Authority (*inskrivningsmyndighet*), and handles title registrations such as ownership, mortgages, grants and possessions etc. Decisions in registration matters can be appealed in the general courts. Concluded measures are recorded in the land register section of the Real Property Register.

Disputes over ownership or other rights in property units or concerning the nature of property division can be examined and decided in *general courts* – District Courts, the Court of Appeal and the Supreme Court. As mentioned earlier, disputes concerning property division and rights can alternatively be settled through property definition.

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<sup>14</sup> The moving or removal or boundary markings is a criminal offence, and under the Penal Code (*brottsbalken*) constitutes forgery of a permanent mark. Encroachment on another person's property – over and above what is sanctioned by the right of public access (*allemansrätt*) – can lead to prosecution for trespass, misappropriation, interference or criminal damage.

<sup>15</sup> Terriers or land books (*jordböcker*) began to be kept in the mid-16th century. Mortgage liens have been entered ever since the 17th century, while property transfers began to be recorded in the 18th century.

### 3.2 Property units and joint property units

The Land Code lays down that real property is divided into property units. Not all land, however, is divided in the sense of belonging to a particular property individual. Provisions of the Property Formation Act sanction the formation of joint property units – i.e. land or water belonging in common to several property units.

Special provisions on joint property units are contained in the Real Property Formation Act (Chapter 6) which provides that a joint property unit may be formed for a purpose of enduring importance, if the purpose cannot be better provided for in another way.

There are something like 100,000 joint property units altogether. The commonest purposes include roads, ditches, water, fisheries and dumps or depots. Some 500 new joint property units are formed every year (Ekbäck, 2007 p. 24).

It is worth noting that the commonest purposes present typical *economies of scale*. This, as we saw in section 2.4.2, means that when the fixed overheads of a certain facility – a road, for example – have been covered, several properties can use the road at low marginal cost. The greater the number of properties affiliated, the lower the average cost per property will be. In such cases, then, it is efficient for the properties to join together in making permanent provision for the needs concerned.<sup>16</sup>

### 3.3 Joint facilities

Under the Joint Facilities Act (*anläggningslagen*), an existing or planned facility common to several property units and serving a purpose of enduring importance to them can be established as a joint facility.

Joint facilities are established by cadastral procedure, in the course of which questions of participation, surrender of land and compensation, and distribution of costs are also decided. The joint facility and the property rights in land are common to the property units participating.

The number of joint facilities exceeds 70,000 and about 3,000 new ones are formed annually. The commonest purposes are roads, water supply and sewerage, parking and play spaces (Björklund & Wedman, 2004).

The land uses concerned are characterised by manifest *economies of scale*. There may also be *economies of scope* involved in the formation of joint facilities, because a joint facility can include several different utilities which can “share” some of the fixed costs – e.g. common water and sewerage mains on jointly owned road land (cf. Ekbäck, 2007 p. 5).<sup>17</sup>

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<sup>16</sup> This is expressed in the so-called betterment condition (Chap, 5, Section 4), which among other things implies that the benefits of a reallocation must outweigh the costs and inconvenience which it entails, i.e. the measures taken must be economically profitable.

<sup>17</sup> Co-operation generating a profit is made evident by the so-called betterment condition (Section 6), which says that joint facility may be established only if the economic or other benefits outweigh the costs and inconveniences – the establishment must be profitable.

### 3.4 *Private and public water areas*

Water areas are divided into public and private water areas. Boundaries are governed by the Public Water Boundaries Act (*lagen om gräns mot allmänt vattenområde*).

Shoreline and coastal water areas are private under the statutory provisions. These areas form part of real property units and are subjects of ownership and other limited rights. Public water areas exist only in the sea and in four of the big lakes. These areas are not part of the real property division, nor do they have any owner in the legal sense.

The boundary between private and public water also constitutes the limit of the private right to fish vested in the property owner (cf. the Fishery Act).<sup>18</sup>

The Public Water Boundaries Act was co-ordinated at the time of its enactment with the ongoing reform of fisheries legislation, which defined the boundary between private and free fishing waters. The *travaux préparatoires* of the Act make clear that the extent of private fishing rights also came to govern the ownership of the water area (Government Bill Prop. 1950:59 pp. 28–30). The underlying grounds for the demarcation, however, were not touched on.

The division into free and private fishing waters derives from customary law. The principle can probably be put down to the natural resources today existing in public water areas having been less valued in earlier times when there was no technology for utilising them by means of fishing, extractive industry, drilling or the construction of other facilities. Thus the benefit of a division was probably negligible, at the same time as shipping was an important part of the transport system of the time; the value of the water areas consisted in open shipping lanes.

All that has now radically changed. Efficient utilisation of resources in public water areas – e.g. fishing or extraction – is, however, dependent on investments in special knowhow and technology, with the result that nowadays such activities are only undertaken on a professional basis.

Fishing stocks in the sea, however, are mobile resources, which mean that the creation, enforcement and protection of territorial property rights entail *high institutional costs*.

The *alternative institutional solution* opted for instead makes commercial fishing in public water areas subject to a ship's permit and to a personal commercial fishing licence, which are issued, following investigation, by the Swedish Board of Fisheries (*Fiskeriverket*) and the County Administrative Board (*länsstyrelsen*) respectively.

### 3.5 *Fishery conservation areas*

As mentioned earlier, the principle is that fishing rights in private waters are vested in the property owner, although there are certain exceptions. To co-ordinate the

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<sup>18</sup> The main principle of the property owner having the fishing rights in private fishing waters – whereas fishing is free in public water areas – is subject to several exceptions. For example, fishing with hand-held tackle is unrestricted along the coasts, even in private waters. At the same time, public waters are subject to restrictions concerning the type of fish which may be caught and the fishing methods permissible.

conduct of fishing and fishery conservation in a certain water area, the fisheries pertaining to or constituting a number of property units can be amalgamated to form a fishery conservation area. The provisions on this subject are contained in the Fishery Conservation Areas Act (*lagen om fiskevårdsområden*). The formation of a fishery conservation area does not affect rights of ownership in the participating property units in any other respect.

A fishery conservation area is managed by its members through an association, which for example can decide to limit the scope and volume of fishing or to take active fishery conservation measures such as the setting out of fish.

There are today some 2,000 fishery conservation areas, mostly concerning inland waters, and between 5 and 10 new ones are formed every year (Ekbäck, 2007, p. 28).

In connection with the passing of the Act, the legislator stated as follows concerning the need for and advantages of fishery conservation areas (Government Bill Prop. 1980/81:153 p. 24):

“The private fishery can constitute part of a property unit or, if the fishery is jointly owned, be owned in common by a group of properties. In exceptional cases the fishery can constitute a property unit in its own right. Usually the fishing rights in a certain water area are vested in so many parties that the fishery cannot be rationally utilised and effective fishery conservation is difficult to achieve. The division of a fishing water area between many co-owners is already inconvenient when the fishery is owned by a joint property unit. What is more, the fishing in a lake or along a stretch of river which in itself can be viewed as a natural management unit is often divided between several joint property units. If the fishing is partitioned, the units are often too small and co-operation between the fishery right holders is therefore necessary in order to achieve appropriate fishery conservation and rational utilisation of the fishery.”

A fishing stock is a *common pool resource* of the fishing right holders. Individual measures in a fishing water area generate externalities to other part-owners of the fishing water. The effects will be negative if fish are extracted in large quantities, positive where fishery conservation measures are concerned. *Co-ordination* is needed between the fishing right holders. Apart from that, fish is a mobile resource, which entails *high costs for exclusion*. Fishery conservation areas can thus be understood as a response to *high institutional costs* – for co-ordination and exclusion – in the private property rights regime.

A positive feature of this special form of joint property structure is that it also governs the procedures for joint decision-making.

### 3.6 Game conservation areas

Hunting rights in Sweden usually go with the title to real property, as is made clear by the Hunting Act (*jaktlagen*). Organised co-ordination of hunting and game conservation can be achieved by grouping several properties together into a game conservation area. Provision on this subject is made in the Game Conservation Areas Act (*lagen om viltvårdsområden*). The formation of game conservation areas does not impact on ownership of the participating properties in any other respect.

A game conservation area is managed by the members through an association which, for example, can decide on hunting restrictions or active game conservation measures.

There are some 1,800 game conservation areas altogether. One or two new ones are formed every year. (Ekbäck, 2007 p. 29).

When the present legislation was being enacted, it was argued that co-operation across property boundaries had a very important bearing on game conservation. Much land ownership involves units, the size and configuration of which render them unsuitable for game conservation (Government Bill Prop. 1999/2000:73 p. 26).

Just as with fish stocks, there are certain game species which roam large areas, regardless of property boundaries. This attribute will increase the *costs of exclusion*. Taxation of the stock of game generates negative externalities for nearby property owners, while game conservation measures create positive externalities. Controlled *co-ordination* provides greater opportunities for judging the size and composition of game stocks, managing the supply of game and conducting active game conservation. This joint property structure can consequently be defended on account of *high institutional costs* – for exclusion and co-ordination – under private property rights.

The institutional arrangement of game conservation areas also governs the procedures for joint decision-making within the participant collective.

### 3.7 Concluding overview

The actual institutions in the preceding review can be linked to the property rights regimes dealt with earlier in section 2.2; see table 1. As can be seen in the table, forms of territorial division with private property, common property and open access rights occur for the various types of resources studied.

Viewing land ownership as a bundle of rights, we can also note the following. Different property rights regimes concerning different bundles can overlay one another within the same territorial area. For example, a property unit (private property) can form part of a game conservation area (common property).

*Table 1. Combination of the institutions and property rights regimes.*

	Open access	Common property	Private property
Property units			×
Joint property units		×	×
Joint facilities.		×	
Public water areas	×		
Fishery conservation areas		×	
Game conservation areas		×	

Within the framework of open access and common property rights regimes, possession of a certain utility usually results in that which has been claimed becoming private property. Fish caught in a public water area – or in a joint property unit water area – become the private property of the individual fisherman.

This state of affairs generates incentives for active searching, fishing etc. on parties with the requisite resources – time, technology, knowledge, money etc. In connection with extensive land uses this leads to a more efficient utilisation of resources than if the resources had not been utilised at all. At the same time

there is a risk of a race ensuing for the utilisation of desirable resources, in which case the situation can be likened to the “tragedy of the commons” mentioned previously (see section 2.3). In the end, the resource may be depleted and lost.

If, however, a situation of over-exploitation, excessive wear or depletion arises, there is an alternative to privatisation, namely regulation by public law. *Public water areas* are among other things subject to the provisions of the Environmental Code (*miljöbalken*) on environmental consideration and conservation. The Continental Shelf Act (*lagen om kontinentalsockeln*) makes the prospecting and extraction of resources from the continental shelf subject to the grant of permits. Fisheries legislation, mentioned earlier, extensively regulates who may fish, where, what and how much.

Public law restrictions can of course also be used in connection with *common property rights* to counteract “the tragedy of the commons”. Within this property rights regime, the utilisation of resources can also be restricted through the internal regulations of the participant collective – statutes, for example – and the possibilities of joint decision-making, a topic I shall be returning to in section 4.2.

#### **4 Concluding remarks**

In section 2.4 we asked why the rights to all resources had not been privatised? As a point of departure I briefly outlined the theoretical foundations of different rights regimes – i.e. the occurrence of institutional costs and economies of scale. We can now return to the same question in the light of our reviews of the specific institutions in section 3.

##### **4.1 Factors counteracting private property rights**

Sweden has a basic system for the establishment and maintenance of private property rights in land. This means that the resources for establishing the system as such have already been invested. Needless to say, an institutional system with individualised rights in land, a fully-fledged property register and administrative authorities and courts confers economies of scale. The institutional costs of further privatisation regarding open access or common property resources are therefore, relatively speaking, likely to be fairly low on the margin.

However, when reviewing the statutory rules on certain kinds of land use and resources where common property and open access occur, we observed certain circumstances which can in various ways explain why other regimes than private property rights have been chosen for the institutions studied. These factors fit well into the theoretical outline on institutional costs and economies of scale. Table 2 is an attempted compilation of these factors.<sup>19</sup> For the arguments underlying these classifications, the reader is referred to the presentation of each institution concerned in section 3.

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<sup>19</sup> In table 2 only the factors or qualities with the clearest explanatory power have been plotted. We may add that the subdivision adopted does not provide mutually exclusive classes – there is a certain amount of overlap. For example, management of a common resource like a game conservation area can also imply economies of scale.

**Table 2.** Overview of factors significant for the institutional choice of common property and open access.

	Economies of scale	Institutional costs		
		Costly exclusion	Extensive use	Co-ordination
Joint property units	×			
Joint facilities	×			
Public water areas		×	×	
Fishery conservation areas		×		×
Game conservation areas		×		×

For public water areas – in which open access regime is present – are high institutional costs a credible explanation. These costs emanate from two features: Mobile resources and extensive use. The latter means that the benefits of establishing property rights will fall short of the costs.

The factors underlying common property regimes are somewhat divergent. Typical land use applications for joint property units and joint facilities are characterised by economies of scale. On the other hand, the two types of conservations areas are used for managing common pool resources. By way of common property, high institutional costs for exclusion and co-ordination are avoided.

We may note that the fishery and game conservation areas constitute solutions to facilitate co-ordination, i.e. internalising externalities from the land uses concerned. This observation may seem to contradict the prevailing view concerning the foundations of private property rights, touched on previously in section 2.3, where, it will be remembered, individual property rights were said to entail an internalisation of externalities!

Are these two viewpoints incompatible? No, the solution – which at the same time makes it possible to combine the two standpoints – lies in identifying the resources whose extent or mobility is independent of the individual property boundaries, e.g. groundwater aquifers, fish stocks or certain game species. Water joint property associations, fishing conservation areas and game conservation areas are formed for the management of resources which do not remain stationary within a certain property unit.

Without the statutory faculties of forming common property institutions, efficient co-ordination and management would require individual negotiations and agreements between all the participant property owners. This can entail heavy transaction costs. The institutional alternative of creating common property rights saves the participants having to negotiate separate agreements. On the other hand the group of participants incurs costs connected with collective decision-making, a point to be enlarged on in the section which now follows.

#### **4.2 Decision-making institutions within joint property associations**

If the common property rights regimes are perceived as institutions for reducing transaction costs – i.e. replacing the cost of negotiations and agreements with the cost of collective decision-making – a word should be said concerning current legislation in this field.

The management of *joint property units* and *joint facilities* comes under the Joint Property Management Act (*lagen om förvaltning av samfälligheter*), whose provisions indicate two forms of management – co-owner management with no formal organisation, or association management. With co-owner management, all decisions have to be unanimous. There are, however, provisions whereby a meeting can be held to decide a particular issue by putting it to the vote. In association management, decisions are made at a meeting of the association. Failing unanimity, the matter is put to the vote. A straight majority is sufficient on most issues. An association has to adopt statutes and appoint a governing body for the conduct of its day-to-day affairs.

Special provisions on the management of *fishery conservation areas* are contained in the Fishery Conservation Areas Act. Every such area is managed by an association which has to adopt statutes and appoint a governing body. Decisions are made by voting at an association meeting.

The management of *game conservation areas* is governed by the Game Conservation Areas Act. Every such area is managed by an association which has to adopt statutes and appoint a governing body. Decisions are made by voting at an association meeting.

Thus there are regulatory structures in place concerning the organisation, management and decision-making of the various types of common property associations, which properly reduces the cost of internal co-ordination and collective decision-making.

### **4.3 A comparative perspective**

Studying the institutional solutions in practical reality, one is easily tempted to compare the existing institutions with a hypothetical ideal state of affairs. There is a danger involved here, in that all the institutions observed, one way or another, present shortcomings compared to the abstract model.

A more fruitful approach is to analyse the different property rights regimes in a comparative perspective, i.e. to compare a certain institution with the practically feasible alternatives for each type of land use (cf. Ekbäck, 2000 pp. 95–98). Since the relative efficiency of institutions varies depending on outward circumstances, it is not unreasonable that open access and common property too should in certain situations be more efficient than individual rights.

*Open access regimes* are probably efficient in situations where there is nothing to be gained by establishing exclusive rights in the resource concerned. This can be due to the expenditure side – high institutional costs, above all for exclusion and surveillance. It may also be due to a low level of income or benefits. Resources in good supply – in relation to demand – may have such a low marginal value that exclusive rights will not confer any profit. With open access especially, it is also important to observe the possibility of public law restrictions, which can be a less expensive alternative to exclusive rights.

We may also assume *common property rights regimes* to be efficient when the cost of establishing exclusiveness for a group of users falls short of the earnings or benefits – at the same time as dividing up the resource between the individual users

would be very expensive. Land uses with increasing returns to scale or requiring co-ordination within a limited group are a typical instance.

On the strength of our previous argument, institutional solutions with common property can be said to replace the agreements which would otherwise be necessary between the property owners in order for them to benefit from economies of scale – or alternatively to internalise externalities – connected with a certain land use.

One alternative would then be to group all the property units concerned into a single unit. But if the scale characteristics only apply to certain specific functions or activities, the efficient course may be to separate these very bundles of rights from actual ownership! Similar arguments can be applied to land uses where open access is efficient.

We may conclude with the following reflection. Land ownership is privatised through the division of land into property units. Shares in different types of common property may pertain to property units. In addition, all individuals are entitled to exercise the powers stemming from the stipulations on public water areas.

The many bundles of rights affecting a specific land or water area overlay one another in a complex structure of different property rights regimes. The land uses corresponding to each bundle of rights present a variety of physical, technical and economic characteristics. In an efficient system, the thing is to optimise the choice of property rights regimes in several dimensions for one and the same land or water area.

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