

Appendix 1:

A Review of different options available for collecting and reporting cull data

Detail of administrative arrangements and licensing systems operating in other countries

The summaries presented in this Appendix are derived in large part (although not exclusively) as extracts from materials assembled for inclusion in [Apollonio, M., Andersen, R. and Putman, R.J. \(eds.\) Ungulate Management in Europe: Problems and Practices](#) (currently in press). They are presented here in support of the current report but, for copyright reasons, should not be included in any version subsequently made public (e.g. on the web) where instead, reference should be made to the volume cited.

Also, please note: For this exercise countries are not arranged in alphabetical order, but in geographic clusters, moving north to south and west to east. This also accords (approximately) with degree of 'relatedness' of management system. Text is inserted more or less as received, so that editing on my part does not alter the sense.

Finland:

Overall control of hunting is vested in the Department of Fisheries and Game at the Ministry of Agriculture and Forestry. Under the governance of the Department, the Hunters' Central Organization coordinates hunting throughout the country in the 15 Game Management Districts (GMD) that are each divided into several game management associations, 298 in total.

GMDs are provincial, governmental-type organisations having regulatory power e.g. over hunting licences, except on large predators that are hunted with the Ministry permits only. Size of the GMDs varies from 8135 km² to 93003 km² land area. The area of game management associations is usually based on communal, administrative boundaries.

The GMDs give necessary licences to ungulate hunting, where basic unit is one licence. With one licence it is allowed to kill one adult or two calves. However, a female followed by a calf is protected. In addition, GMDs can also give recommendations or regulations on the harvest structure e.g. in respect to share of calves in the harvest. Hunting groups or consortiums of several groups may apply licences from the local game management association, which gives a report on the application and delivers it further to GMD for decision making.

After the hunting season, each harvested animal has to be reported to the local GMD. This report must include information on the ungulate sex, age (adult/calf), site of the kill and antler tine number. These reports are an important source of information on population density, since every hunting group has to estimate the number of animals left in the area after the hunting season. Wild boar and mouflon kill do not have to be reported.

Sweden:

The hunting right on all game is granted to the land owner. The landowner in his turn may lease out the hunting right to another person or group of persons, and this is common in Sweden.

[Only for moose is there any statutory intervention](#)

As the hunting rights are tied to the landowner or leaser of the hunting ground, game management in Sweden is a private affair. On most smaller hunting grounds, the management is at best of an informal trial and error type, without any written management plans.

Where small hunting grounds have been united into voluntary “Game Management Areas” [approximately equivalent to our Deer Management Groups] often covering 5,000 ha or more, the management may be a little more formal. Usually hunting statistics are collected annually, and rough shooting plans are issued each year after consideration by the GMA board. In many of the GMA’s, all stakeholders are allowed to personally hunt over the whole area irrespective of the size of his or her own hunting ground.

In Sweden a statutory return on number of harvested animals is compulsory only for moose and large carnivores. However, since 1939, the Swedish Association for Hunting and Wildlife Management has collected bag records on all game species from its members on a voluntary basis. Response frequencies to the annual requests for bag records vary strongly between areas and periods.

Norway:

The right of hunting belongs to the landowner (2/3 of total land area private, 1/3 state-owned). An increasing emphasis is put upon local population management plans developed by the landowners. However, since the mid 1950s, a *wildlife board* within each municipality (approx. 430 in total) sets the quotas for moose, red deer and roe deer.

The general mechanism of regulating number of moose, reindeer and red deer to be harvested is a quota system with licences issued by local or regional authorities. Quotas are specified to sex and age categories (calf, adult female, adult male) or alternatively, may simply define number of individuals to be shot where the hunting area already has an approved population management plan of 3-5 years duration, since this plan is itself supposed to define the yearly cull of each sex and age category. Landowners are free to lease the quota, or part of it, to other hunters, however, it is the responsibility of the landowner to pay the obligatory fee to the municipality for each individual shot.

Local population management plans and licence system.

Although the wildlife boards in each municipality have specific management goals, large landowners or groups of collaborative landowners may be treated as an independent management unit, and be allowed to develop their own population management plans for moose, red deer and roe deer. For moose and red deer such plans have to describe in detail the number and proportion of each sex and age-category of animals which it is proposed to be harvested during the planning period, normally spanning 3-5 years. To be approved, the management plan must show that it is adapted to the municipal management goals, e.g. to what extent the local authorities want the moose or red deer density to increase or decrease.

For roe deer, management units formed by landowners covering more than 500 ha of land may be granted an exemption of no limit in numbers.

Hunters are obliged to submit records of all animals shot and the report contains statistics on number and sex of hunters, the annual number of cervids and small game harvested, recorded mortality of carnivores and non-harvest mortality of cervids. A hunting statistics report is issued annually and contains a comprehensive survey on hunting statistics collected by Statistics Norway based on data from hunters, municipalities, counties and the Directorate for Nature Management.

Denmark:

Game hunting licences are issued by the National Forest and Nature Agency. To obtain a game hunting licence the applicant must have a permanent address in Denmark, be 16 years old and pass the hunting test.

All persons holding a Danish shooting licence are registered in a central database in the Forest and Nature Agency. When applying for a game licence for the following season, all hunters about 172,000 per year, are obliged to give information on their personal game bag each year according to species and county. That is, it's the individual hunter who reports their individual hunting bag, not the landowner/hunting area. The deadline for the reporting of the bag of game is at the end of October. Until 2000/2001 the Game Bag Record was published by Statistics Denmark. From 2001/2002 the National Environmental Research Institute (NERI), the Department of Landscape Ecology, Kalø, (Danske Miljøundersøkelser – DMU) receives the basic data, compiles the statistics and writes a report and releases it at the end of the year.

Netherlands:

In principle anyone in the Netherlands is entitled to hunt. However, there is a minimum requirement of a hunting area of ≥ 40 ha, a recognised hunting exam and a requirement to possess a licence. The last needs to be renewed every year and costs Euro 80. Hunting rights for a given area belong to the user of the land who may in practice give permission for hunting and/or counteracting game damage to other persons, i.e. licensed hunters.

The law also obliges licenced hunters to organize themselves into Fauna Management Units (FMUs). An FMU is a cooperation of landowners and licenced hunters and is responsible for the management, including damage prevention and control, in a certain area. The lease period for a certain hunting area is generally 6 years. The area covered by an FMU should be at least 5000 ha and at present almost all of the country is 'covered' by a total of about 500 FMUs. These FMUs have to make Fauna Management Plans (FMPs) on a five yearly basis (Ministerie van LNV 2002).

Belgium:

The Belgian law stipulates that the hunting rights belong to the landowner, being a private person or a national, regional or local public authority. The landowner can decide to exercise his right by hunting himself or he can lease the right to hunt on his property to a third party.

To achieve the management objectives, the Flemish authorities fully rely on private hunters.

Whoever wants to hunt needs to have the hunting rights on a minimal unbroken area of at least 40 ha. In an effort to improve management the Flemish government recently (1998) introduced a system of game management units. Game management units are associations of private hunters with adjoining hunting territories that total up to at least 1000 ha.

Shooting plans are submitted by the hunters or by the game management units to the forest administration. Based on the information supplied in the shooting plan, such as population estimations, habitat information and the number of animals shot during the previous three years, the forest district inspector evaluates the requested cull. He approves the shooting plan, imposes slightly different quotas or declines the shooting plan. Both the population estimation as well as the requested cull have to be subdivided in adult male (>1 year), adult female (>1 y) and fawns (disregarding the sexes).

For each (roe) deer that has been culled, a form has to be filled out and send to the forestry administration. On these forms following information must be filled out: date and place where the

animal was shot, person who shot the animal, sex and age class of the animal and eviscerated weight of the roe deer. Facultative information such as the jaw length, number of embryos, kidney fat index and on the antlers can be added. This information is stored in a central database for further analyses by our institute (The Institute of Forestry and Game Management).

Germany:

Hunting is only allowed in a *Revier*, the minimum size of which differs slightly between the states, but is around 75 – 80 ha for an area belonging to just one owner, and 250 ha for a group of landowners (*Jagdgenossenschaft*). In the Alps the minimum size is 500 ha.

For all wild ungulates except wild boar an annual harvest plan has to be made which has to be signed by the authorities. The plan has to be fulfilled

The dominant objective for ungulate management in Germany is the efficient control of population densities in order to prevent intolerable damage to crops and forests. The priority of damage prevention is clearly stated in the federal hunting law: “Hunting has to be carried out in a way that the demands of agriculture and forestry are not being injured” (transl. by the author). **Clearly, the interests of farmers and foresters have priority over hunters’ interests.**

The management of ungulates – planning, harvesting, distribution of venison, and reporting to the authorities – is the duty of the owner or lessor of a given hunting ground or revier. The smallest unit for ungulate management is the individual ~~hunting ground or~~ *Revier*, the size of which may be from 75 to several thousands of ha, but on average is between 250 – 350 ha (WOTSCHIKOWSKY unpubl.). In practice, in order to achieve effective management of a population of animals in the larger, more mobile species, a number of hunting grounds are organized in a *Hegegemeinschaft (HG)*. Depending on the ungulate species a HG may cover 20,000 up to 50,000 ha and more.

These annual harvest plan (whether at the level of the individual revier, or the Hegegemeinschaft) must be approved by the regional authorities who also collect from the revier holders harvest reports. An annual shooting plan is required for all ungulate species except wild boar. The plan has to be based on the status of the forest vegetation and on a fair estimate of the population size and composition. Because selective hunting is required the numbers of game to be shot have to be planned separately for the different age and sex classes. The plans are discussed among the hunters of the *HG* and finally approved by the local authority (*Untere Jagdbehörde*). At the end of the hunting season the total number of game harvested is to be reported to the authority.

We might note, however that in practice there is no real mechanism for enforcement of this requirement for a shooting plan, or harvest report.

Hunting bag records

As mentioned earlier, all hoofed game harvested has to be reported to the hunting authorities (*Untere Jagdbehörde*). On a state basis, the German Hunting Association (*Deutscher Jagdschutzverband (DJV)*) publishes the results every year. For smaller units, however, statistics are seldom published. Further, because even those reports which are submitted are not being checked, their validity remains questionable.

Austria:

Each of the 9 Austrian provinces has a separate hunting law that establishes the legal framework for ungulate management. Within all provinces hunting is organised in hunting-districts. This district-hunting system consists of about 12,000 hunting districts (wildlife-management units) in Austria with a minimum district size of 1.15 km² and a mean size of 7 km² per district. Landowners with at least 1.15 km² continuous area are able to decide whether to hunt themselves

(if they have the qualification as hunter), to sell some or all ungulates to hunters, or to lease out one or more of their hunting districts to hunters.

Landowners with less than 1.15 km² area hold the hunting right but they are not allowed to use it themselves. They have to connect their area with areas of other small landowners and to lease out the total area to hunters, or to connect and lease out the area to a neighbour district that is large enough to use the right to hunt.

The hunting laws regulate wildlife management. **That means that the hunters are responsible for the management of wildlife.** For each hunting district the hunters must appoint a special qualified game warden with a advanced hunting education and public responsibility to prevent illegal hunting activities; a few of them are full-time professional hunters (employees of hunt leasers or landowners).

Hunters must produce shooting plans for all ungulate species (except wild boar). They have to be created in spring before the hunt starts, yearly or in 3-year intervals (depending on the province). The plan must include a minimum and maximum number to be culled, or only a minimum determined in relation to the observed level of ungulate impact on vegetation (more flexible for the hunters). Cull figures have to be determined separately for each species, sex and age class. Injured and sick animals are mostly allowed to be shot in addition to the numbers planned.

The results from the yearly hunting-bag records, given by the chief hunters of each hunting-district, are collected within the official Austrian hunting statistics

Poland:

The whole area of Poland is divided into 5,112 hunting districts, each covering at least 3,000 hectares. Hunting districts are leaseheld by hunting clubs of the Polish Hunting Association (93%) or managed by State Forests (SF) and other institutions (7%) for a period not shorter than 10 years. The leaseholder or manager of a hunting district is obliged to remunerate damage done by wild boar, moose, and deer in agricultural crops (but not in forests, see below).

Hunting districts are in general too small to manage ungulate populations effectively. Therefore, larger units called game management regions (each comprising, on average, 15-25 hunting districts) are established and their coordinators are recruited from the State Forests personnel. The coordinators are responsible for organization of annual censuses and preparation of game management plans.

There are two types of plans:

(1) Long-term (10-year) game management plans are developed for each game management region by directors of the Regional Directorates of State Forests, in cooperation with regional (voivodship) authorities and councils, and the Polish Hunters' Association. The plans outline the objectives of game management, and determine the desired numbers of ungulates that could be reconciled with the goals of forestry.

(2) Annual hunting plans are developed by leaseholders or managers of hunting districts, then consulted with community council, Polish Hunting Association and finally approved by forest district officer or the director of the Regional Directorate of State Forests. The annual hunting plans must conform to the objective of the long-term plan. As regards ungulate game, they report on the number of harvested animals in year n , their sex and age (juvenile or adult, age classes of males), and cases of natural mortality observed in the field in year n . The annual plans set the hunting quotas for year $n + 1$ (year = April 1 – March 31).

Hunting quotas are planned in the form of a number of adult males (in three age classes), adult females, and juveniles of each species. Moreover, the general rules of selective shooting of male

deer are observed with the aim to cull out the weakest individuals from the population and improve the quality of trophies, although the effectiveness of such selective shooting has been questioned.

As noted there are two sorts of hunting district: those managed by Polish Hunting Association and by those managed directly by the Forest Agency. In case of former harvest plan and number of harvested animals are accepted by local forest headquarters and sent higher to regional and then to central headquarter of the Polish Hunting Association. In case of the latter the plans and numbers of animals killed are again collated by regional forest agency headquarters. Finally they are gathered by General Forest Directorate (central headquarter of forest agency).

Baltics:

The state through its governing bodies such as the State Forest Service (Latvia) or the Ministry of Environment (Estonia and Lithuania) controls hunting in each country. E.g., in Estonia, this is done through the head hunting specialist, 15 hunting specialists in the County Environmental Department, and the Game Monitoring Department of the Centre of Forest Protection and Silviculture which was established in 2005.

All three countries are divided into hunting units within forestry districts. Hunting is public and regulated by the state (e.g., by the State Forest Service in Latvia and by the Ministry of Environment in Lithuania). Hunting rights belong to the owner or user of the land. He/she needs to have a hunting licence as the major pre-requisite. On his own land he can hunt so-called 'unlimited' game species (foxes, racoon dogs, hares etc.) but he/she needs to buy a season's licence. Purchase of the licence for each individual of the 'limited' game (including big game such as ungulates) is necessary.

In 2005, the Minister of Environment confirmed the order of preparing formal management plans for the hunting grounds (Lithuania). The project must evaluate environmental conditions and carrying capacity of the grounds, game stock, and conditions of game use (including minimum and maximum recommended density), biotechnical measures etc. Such plans should be renewed in no less than 10 years. The project must include data on wildlife surveys and population assessment, assessment of cervid pastures, game bag in the last 10 years, the assessment of carrying capacity for cervid species, cervid rutting places (mapped), planned measures of additional feeding of game in wintertime, measures for reducing the damage to the forest and for conservation of rare plant species and habitats.

In Latvia, the state or another land owner grants the hunting right to the hunter clubs. Annual fee is approximately 0.5 EUR per ha of woodland in the state forests, however, the payment may be much less for private land. Shooting permits are issued according to the annual quotas for big game without particular payment. The hunters' clubs only pay minor administrative costs for printing permits and collecting them back at the end of the season for aggregation of statistics.

The state through its governing bodies such as the State Forest Service or the Ministry of Environment is responsible for organising game census, setting up annual hunting quotas and issuing licenses. The state institutions responsible for hunting control carry out the official annual census using a variety of methods (pellet count in spring, hunters' estimations based on the all year round observations etc.).

Czech Republic:

Game management may be carried out only within recognised hunting areas which are determined by the local authority for game management. Within these hunting areas, landowners (state or private) may create a hunting guild with a minimum acreage of 500 ha of continuous ground (or at least 50 ha in fenced game reserves) to establish hunting ground (5674 hunting guilds in total are registered in the Czech Republic, 2004).

The hunting guild can exercise the hunting right by themselves or rent the right to hunt to another user. There are at the moment 4978 rented hunting grounds across the country (Ministry of Agriculture of the Czech Republic, 2005).

The users of any given hunting ground must appoint one game- keeper (or game-warden) for each 500 ha of continuous hunting ground for the term of ten years, and in addition must also appoint a game manager. The game- warden should ask from any persons encountered within the hunting ground with firearm to show firearms licence, firearms certificate, hunting licence, hunting permits and compulsory insurance.

The game manager has the responsibility to develop the game management plan for the ground and compile statistical reports on the game populations and hunting bag in each hunting ground. It is also usually he or she who leads any collective hunt and he or she is also responsible for the shot game and its tags. (Persons hunting individually have to attach the tag on the shot game immediately after the kill.)

According the Game Management Act (2003) the person who exercises the right to hunt over any piece of ground has to make a census every year of numbers of all game species present and develop a harvest plan for that hunting ground. Cull statistics are returned based on compulsory reports of every culled animal (species, sex, age and weight).

Slovakia:

The designation of a hunting ground requires the following process. One or more landowners have to apply the county administration body for the designation of a hunting ground on their own land. The applicants suggest the size and the shape of a contiguous hunting ground. Besides this several other criteria must be fulfilled. Within the hunting management zones where red deer is the main game species, minimal area of the hunting ground has to be 2,000 hectares. In the case of management zones predominated by roe deer the smallest size of the hunting ground is 1,000 hectares. Allocation of a hunting ground imposes responsibilities on the owners of such designated hunting areas as well as the right to stalk game and retain venison and trophies.

After the designation of a hunting ground, the owners can either keep the hunting right for themselves or rent it to a third party. The process of designation of a hunting ground is the same on governmental as well as non-governmental land.

Within every hunting ground, hunting of ungulates has to be undertaken according to an approved plan. Preparation of such a management plan is a legal requirement. The main determinant of such a plan is a requirement to keep population densities at the level slightly below that of the carrying capacity.

The Ministry of Agriculture is in charge of co-ordinating hunting management at national level. Currently there are 40 governmental regional forestry offices responsible for forestry and hunting management. These offices are in charge of gathering and approving hunting management plans for each hunting ground within their territories for the current year, **as well as statistical forms on the numbers and culled animals from the previous year.**

The leader of the hunting ground is required to complete a statistical form about estimated numbers and the numbers of culled animals from the previous year and to submit it to a regional forestry office by the 10th of February of a current year. After approval this form is submitted by the 15th of February to the National Forest Centre, which summarises the data for the whole territory of Slovakia and produces the Annual Report on Hunting Statistics. Hunting statistics have been compiled annually from 1968.

Croatia:

Wildlife is property of the state. Any individual may gain the right to hunt as long as they have passed the appropriate hunting exam. Management of actual hunting grounds (or game management areas) is however carried out by individuals or organisations who are formally registered for hunting in that area.

Management of hunting grounds is carried out by licensed hunting ground holders, who have the obligation of maintaining the numbers of game species at an economically acceptable level. They also have an obligation to pay compensation for all damage caused by ungulates on the hunting ground they manage. While primarily tasked with maintaining stable populations they may also apply to reduce the numbers of animals if they become “too numerous”. They can do this however only with the explicit permission of the responsible ministry (Ministry of Forestry, Agriculture and Water Management) by submitting a request supported with receipts for compensation paid or with the signature of subjects who had the damage (Official Gazette, 140/2005.).

Each hunting ground given on lease/concession must have an approved management plan. That management plan must be approved 90 days after concluding a contract of hunting district concession (or leasing). The management plan can be prepared by professional companies specialising in preparation of such Plans and which employ forest engineers, agriculture engineers or vets (Official Gazette, 40/2006.).

Each hunting ground is obliged to send census data and records of numbers of animals shot or otherwise ‘lost’ (e.g. due to road traffic accidents or predators) to the Statistical department of the Croatian state, every year. Each hunting ground also receives at least one inspection per year. If it is found that hunting ground holder has not been managing the ground according to the agreed contract, the contract is cancelled, and the hunting ground offered again for lease/concession ; the former lessee may not apply .

Slovenia

For the purposes of wildlife management Slovenia is divided into 14 Wildlife Management Areas with areas of between 1000 - 1500 km². The Wildlife Management Areas contain some eleven State Wildlife Reserves with an area of about 2720 km² (about 13% of Slovenia).

The rest of the Wildlife Management Areas are sub-divided into 415 Hunting units with a total combined area of 1760 km², where hunting is performed by the members of local Hunters clubs (in Slovenia called as Hunters Families), currently with about 22,000 members. The area of each Hunting unit varies between 20-90 km², and affords the hunting opportunity for 40-100 member hunters.

Wildlife management plans covering a 10 year period are prepared by the District Wildlife Officers of Slovenia Forest Service, for each of the different Wildlife Management Areas. Yearly management plans, including the harvest quotas for game wildlife species, the extent of interventions concerning the habitat improvement, etc., are prepared for any of the Hunting units in the cooperation between Slovenia Forest Service and the members of Hunters Families. Each Hunting unit must appoint an 'official hunter' responsible for management of the Unit.

Since 2004, there has been established the so-called "Core Slovene Register of Large Game Species and Large Carnivores", which from that time has maintained individual records of all animals harvested by hunting (or otherwise recorded dead - from accident or disease). The register was established on the initiative of University of Ljubljana and it incorporates all organizations in Slovenia which are involved in hunt of big game species including ungulates, and of large carnivores. The register thus covers the whole of Slovenia.

Within it the following data are collected individually for every specimen shot, or otherwise found dead: species, sex, net body weight, estimated age, value of trophy, hunting district, geographical location (with a km² spatial accuracy!), cause and date of death.

For each animal shot, it is necessary to attach a unique numbered tag. A form (with all essential data such as species, sex, estimated age, body mass, date and place of shooting) **has to be fixed on the animal's body** by the authorized hunter in the hunting ground where the animal was shot, **and accompanies the carcass until its final dismemberment**. A second half of the same form has to be kept by authorized hunter in the hunting ground. The unique identification code (identical as on the numbered tag) has to be written also in the "Core Register" (above), in which all information on eliminated (shot, road-killed etc.) animals are provided. And, finally, this number has to be written also in the electronic version of "Hunter information system", where it becomes available (using internet) for all authorized persons (e.g. employed by Slovene Hunter Association, Slovene Forestry Service, hunter's inspectors etc)

Switzerland:

The Federal Hunting Law sets the basic directives for topics such as definition of protected species, management measures for protected species (ibex), protection periods for huntable species, prohibited weapons and other aids, prevention and compensation for wildlife damage, etc. However, it requires the cantons to enact their own hunting laws and to work out management plans for all huntable species.

According to federal law the cantons are responsible for hunting and have to set up annual management plans for all huntable species. In all cantons these are discussed with commissions consisting of representatives from hunt, forestry, agriculture, communities, nature conservation and animal welfare. **The cantons also have to keep records of hunting bag statistics and as far as possible of population numbers and to send these numbers to the Federal Office for the Environment every year, for their national statistics.**

Game wardens appointed by the cantonal authorities are responsible for controlling hunting, and they also have policing rights. The canton then issues licences to individual hunters.

Depending on the canton, hunters either have to show the culled animals to the game warden or else the warden gives out a limited number of tags to each hunter and the hunter then has to attach a tag to each culled animal and fill in a form.

Hungary:

In the Hungarian system of administration the actual managing authority of first instance is at the level of the counties (19). Accordingly, in each county's Office for Agriculture a Hunting and Fishery Inspectorate is responsible for game management and hunting issues. At the county level the inspectorates have a wide range of mandates: supervise hunts and shoots, issue hunting licenses, approve game management plans, approve local hunting regulations, keep a register of game keepers, keep a register of legal entities possessing hunting rights, hunting and game management data collection, and participate in hunter's examination.

Game management organization.

In the Hungarian system the game management unit (GMU) is the basic functional unit. The GMUs are responsible for all game management and hunting activities in accordance with the provisions of the Game Act. GMUs are usually leased by Hunters' Association or local Hunting Club. The GMU must have an approved long-term management plan as well as an approved annual game management plan. According to the law, each GMU should employ 1 professional game keeper per each 3000 hectares of hunting area.

Most GMUs are managed by hunting clubs meaning that game management is primarily based on non-professionals. As expected the most important motivation of club members is sport shooting and not management.

Spring reports on population size and composition.

It is compulsory for GMUs to report the spring population size of all ungulates occurring on their area. The data contains sex and age information (adults by sex and young, for example, in case of red deer: number of adult stags, number of adult hinds, and the total number of calves). The deadline for reporting is February 15 each year. GMUs are also by law to make an annual return of report game bags (shootings) as well as live captures at the end of the hunting year (March 1 – February 28/29). Harvest reports include all small and big game species. In case of ungulates harvest reports require detailed sex/age data similar to spring reports. Additionally the number of animals live captured should be provided, and the information is also divided by the number of animals taken in open areas and hunting parks. GMUs report the venison sold and used locally. Hunting reports are generally considered more reliable than spring population reports, but they can be biased by non-reporting of some animals taken, or misreporting when sex/age data are manipulated. Information on poaching is also missing but can be significant depending on game species (e.g., because of its smaller size roe deer is more suitable for poaching than red deer).

Trophy scoring. Since 1970 it is compulsory to present each antler (cervids) and horns (mouflon) of ungulates taken for a trophy evaluation (scoring). In case of wild boar tusks longer than 15 cm should be presented for evaluation. The trophy evaluation is done according to the CIC rules of trophy measurements.

Romania:

Responsibility for game management rests with the Central Public Authority responsible for forestry. (Currently this is the Ministry of Agriculture, Forest and Rural Development). This

authority arranges management of property and approves rights and liabilities. An authorized party is a Romanian legal entity entitled by law and is allowed to manage the game stock of a certain hunting territory.

The authority assures the right for hunting (1) for those natural or legal entities who own at least 51 % of the hunting area, (2) for the state in case the area is minimum 51 % state-owned, (3) for the owner, individual or a society if they own less than 51 % of the hunting area in case points (1) and (2) cannot be validated. The party for hunting enters into a 10 year contract with the authorities, and pays a fee twice a year for the administration.

Managing contracts are made between the Central Public Authority and the authorized party for hunting. The latter could be a forest holder, a joint tenure, a hunting society, a state forest manager or an institution providing education and research for hunting. The contracts are for ten years, but in some cases they can be terminable (if, for example it is seen that there is some reduction of the population over the permissible rate, that the authorised hunting authority is considered to be overstepping the approved harvest ratio or if they are failing to supply the supplementary food determined by the contract etc.)

According to the regulations of the law, the Central Public Authority responsible for forestry gives the authorized party the administration of the hunting area and controls the management carried out on the basis of the plans. **The authority approves the number of species to be shot, and controls the implementation of the plan.** Authorized hunters must provide one game warden within one hunting unit who is responsible for the protection of the game stock. Management plans must contain the size of the actual game stock, which should be stated on the occasion of the game census each year.

Portugal:

In Portugal, game species belong to the Portuguese State, and the hunting activities are regulated by the Roman law *res-nullius*, which defines that the game species do not belong to the landowner. The management of game may be allocated to clubs or hunters associations or to private companies, which become responsible during a defined period for managing game species in accordance with the parameters established by the Portuguese State at the beginning of that period.

There are, in practice, two possible ways in which Hunting Areas may be allocated. One mechanism defines a given area as an Association Hunting Area or Tourist Hunting Area and rights to hunt within this area are leased to Clubs, Hunters Associations or private companies in return for an annual fee. Game species and the right to hunt them belong to those organizations during the concession period. The other possible mechanism is direct management transference, in which the Portuguese State specifically delegates the management of a defined area with game potential to another organization (Clubs/Hunters Associations or City Councils). This second mechanism of management transference is the one that allows the implementation of National or County Hunting areas, where hunters are allowed to hunt for a given number of days.

In the managed areas, the administrative organizations are required to produce a Game Management Plan (harvesting plan) for the agreed Hunting Area, which must be approved each year by the State Authorities. In most cases, those cull plans simply propose the total number of individuals to be killed. However, in game areas located in protected areas, as well as in National and County Hunting areas, these annual plans are more detailed and should include quota estimations based on age and sex classes for each species.

The definition of hunting quotas in each Game Management Plan does not follow any general rule or legal recommendation. Each administrative organization presents their quotas in the Game Management Plan, based on their perception of the amount of animals that can be culled in the

next game season. However, the State Authorities have always the final say in terms of granting approval of these quotas.

Spain:

In Spain, hunting regulation and the conservation of nature are under the administrative authority of autonomous regional administrations and are independently regulated by each regional administration. Hunting licences are also specific for each region, so that several licences may be necessary to anyone who wants to hunt in several areas within Spain. Different autonomous regions may also differ in prerequisites and fees.

The general pattern of management of hunting areas and populations tends to be different between Northern and Southern Spain. In the North, ungulates are mostly within game reserves in large (>30,000 has) mountainous, forested areas managed by public administration. Density of ungulates is usually moderate compared to Southern areas, and management is also of lower intensity than in the South. Southern hunting areas are usually private estates that cover many well-preserved areas of Mediterranean shrub and forest usually with large areas of open savannah-like woodlands (dehesas) as well as traditional livestock lands. In many cases, these properties are fenced with 2 meters high mesh fences that prevent the movement of ungulates and permit management of discrete populations in isolation from populations of neighbouring Estates

In most regions of Spain, for an area to be authorized for hunting exploitation, there is a prerequisite of the elaboration of a management plan. This plan is a project of management and hunting relating to the next several (typically five) years. The plan must include estimations of population size and dynamics, including the intended hunting quotas. Plans should be renewed for every period (e.g. five years) and approved by the administration. The goal is indeed reasonable, but the practical application is not free of difficulties and whether produced by individual landowners or by consultants, these plans may be extremely variable in quality and rigour.

Hunting is programmed in hunting plans (management plans, see above) for one or several hunting seasons, including the type of hunt to be used and the number of animals to be culled. Additionally, each hunting action should normally be authorized by the local government prior to its celebration in a particular date. Agents of regional administrations may register hunting bag data to check their agreement with the hunting plan, and for statistics, but this is not true in every case.

In Spain, meat from hunted ungulates can be used for commercial purposes. **Veterinary inspection in the field is compulsory before transportation of carcasses**, and data from these inspections become useful to know the health status of populations as well as to provide another source of hunting bag statistics.

France:

Regional policies for the management and conservation of wildlife and their habitats are drawn up in each autonomous region with a view to promoting sustainable management, while taking into account regional forestry plans and local agricultural priorities. An assessment of the main trends in population size and habitat suitability is thus required, as well as the identification of the threats posed to managed species by human activities, and the damage caused to human activities by the managed species. These regional Wildlife Policies are established by each Regional Environment Agency (DIREN) and the National Hunting and Wildlife Agency (ONCFS) after discussion with the local and regional authorities and are validated by the "Préfet de region".

Department management plans are then set up for a renewable period of five years. These plans are drawn up by the departmental hunting federations in partnership with the owners, managers and users of the hunting areas, taking into account the departmental agricultural and forestry land

management rules. After the assessment by the departmental hunting and wildlife council, the management plan is validated by the “Préfet”. The plans are implemented by the departmental hunters’ federation under the supervision of the “Préfet”

In each department, a hunting commission has to fix each year the quota for a given species in the department. The hunting quota areas are fixed in relation to the economic value of the forest in most areas and the level of the population in agreement with the departmental plans of hunting management. The “préfet” has the legal power to take the final decision concerning the hunting quotas.

These quotas are numerical and, in some departments, may also specify numbers by age- or sex-class as well as overall quotas. It determines for each species the maximal number of animals that the hunter is allowed to kill, and the minimal number that he must harvest to regulate numbers and limit damage. The shooting plan is usually annual but can also be valid for a period of three years.

It is actually implemented and controlled by the issuing of the determined number of official tags that must be attached to the hindleg of the shot animal before its transportation. The minimum charge for each tag (equivalent to a licence to cull an individual animal) is defined at the national level and depends on the species. However, each FDC can increase the cost of the tag to raise funds to be used to pay compensation for damage caused by ungulates.

Hunters must submit a record for each animal culled (linked to the carcass tag number) to the local Federation Departementale des Chasseurs (one for each French Departement). These statistics are subsequently forwarded by each Departement to the Union Nationale des Federation des Chasseurs and then the Office National de la Chasse et de la Faune Sauvage for them to collate national statistics.

The actual record form asks for tag number, date, number of hunters, shot gun or rifle, lead shot or bullet, weight (weighed or estimated), dead or clean, male/female, antlered or not, in velvet or not, antler height, female lactating or not. However my informant notes: “ from personal experience, I know that the info is not worth the paper it is written on, apart from maybe (and I say maybe) the number of animals shot (I know of hunters making up extra roe deer as they didn't want to shoot any more and they have financial penalties if they don't)”.

Italy:

Management of ungulates in Italy is carried out by each management unit under the supervision of the game administration section of the provincial governments, and there is no overall state-controlled management. In fact, in Italy there is not a national level of control on hunting management beyond those overarching laws established by regulations 152/92 and 157/92.

Shooting plans are mandatory to allow hunting of cervids and bovids: they must be prepared by the authorities responsible for Hunting Districts or Municipal Reserves, with detail as appropriate for any small hunting district defined within these larger areas and must be approved by the provincial government. They have to be detailed, prescribing not only the overall number of heads to be culled but also the number of individual of each age and sex class to be shot.

In some cases there are official prescriptions related to the proportion of heads that can be hunted and the sex and age structure of such harvest : these apply on a provincial basis and can be suggested by the National Institute of Wild life Biology. When individual hunters apply for a licence to hunt, each will be allocated a specific number of animals within defined sex and age classes

[In contrast, shooting plans for wild boar, if present at all (only in 37% of provinces), are mainly referred to an overall number of boars to be culled without any indication of sex and age class.]

Hunting bag records

In most hunting regions, each hunter must record dressed weight for each cervid shot, provide the lower jaw and display the trophy where appropriate. In some instances they also have to collect additional body measurements, and information on reproductive status.

In contrast, for wild boar, while in a few limited instances the hunting team must collect or estimate weight, age class, and collect reproductive tracts, in general no data are collected. In consequence hunting bag records are available for cervids in all provinces but for wild boar in only 56 % of them .

Requirement for tagging of carcasses (and submission of cull records) differs between provinces. This is compulsory only in the Apennine, i.e. where deer hunting is a relatively new hunting (20 years) and all was organised in order to have the highest possible control. The tag should be placed in the leg (between the tendon and the cannon bone) immediately after the recovery of the shot animal. On the Alps you may have different situations, more or less where deer hunting has an old tradition you have no tag to put (traditions are not always good) but where deer hunting is recent (i.e. on the western Alps) you must put tags.