

PRINCIPLES OF DEER MANAGEMENT

Source: **WILD DEER MANAGEMENT IN IRELAND: STALKER TRAINING MANUAL** (2005) by Liam M. Nolan & James T. Walsh.

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The aim of every deer manager, amateur or professional, should be to maintain deer in a healthy condition, with numbers appropriate to and in balance with local conditions.

This means that he must ensure that deer numbers are kept within levels commensurate with available food supplies and within whatever levels of tolerance are accorded locally, having regard for landowner interests, in particular forestry, given that a majority of stalkers will find their shooting focussed on land owned by Coillte Teoranta and managed by them for timber production. Damage to surrounding agricultural land and farm crops will also be a useful indicator of local deer populations. The farming and farm forestry sectors are acutely aware of increasing levels of damage from deer. The stalker must be aware of signs of measurable damage to forestry or agricultural interests and he must be prepared to cull deer carefully and systematically when called upon to do so. In doing this he must operate within an environment which is not always directly controlled by him and which conforms to objectives set down by others.

In recent years, a range of factors has led to a substantial increase in the wild deer population, locally and nationally. These factors are examined elsewhere in this manual but meanwhile have necessarily led to a review of practices, procedures and objectives in deer management, especially on lands owned or managed by Coillte Teoranta. This, coupled with a corresponding increase in the number of non-professional deer hunters now applying for an annual licence to hunt wild deer, has in turn led to a recognition for a greater knowledge and understanding of principles of wild deer management amongst even occasional deerstalkers. Considerations of efficiency as well as of safety also demand highest standards of best practice. In summary, it is recognised as incumbent on the non-professional deer hunter that the requirements for knowledge are no less for him than they are for the person engaged professionally.

The density of deer acceptable locally must be decided upon and decisions taken also as to how to balance the need for objective cull criteria with the simpler sporting activity of deer hunting. A procedure must be set up to set a cull and assess its success or failure.

Effective deer management is founded on the following essential choices:

- 1: Reduce damage to trees and agricultural crops. This is impossible to prevent but can be kept to a minimum with an acceptable harvest of deer.
- 2: Keep the deer population healthy and in balance with the food available. This can be achieved by either:
 - (a) Artificially feeding the deer. Seldom practical and with inherent disease risks.
 - (b) Reduce the deer population to such a low level that interference with normal forest operations is minimal or non-existent. Again, rarely practical or possible, particularly in thick conifer woodland, also questionable ethically on the ground of woodland biodiversity.
 - (c) Increase the natural food available, by leaving unplanted 'deer glades' and stream edges, at the same time reducing the deer population to a point where naturally growing food is sufficient to avoid serious crop

damage. Although this option at first sight appears to reduce the area of productive land available for agricultural or forestry use, it may reduce crop damage to an acceptable level.

3: Balance the losses due to deer damage against the benefits which they may bring in terms of amenity value, both from being viewed by the public, the rent accrued from stalking leases and in the case of some private estates, the income from venison sold. In fairness to deer, in relation to forestry damage, a distinction must be drawn between damage caused by deer and that caused by sheep and both the deer manager and the forester must learn to recognise the difference. It is still custom and practice in many places for sheep farmers to let their flocks graze freely in forestry, with or without formal permission or right.

Where deer numbers must be controlled, the only practical way of doing it is with a rifle. The stalker must be safe, knowledgeable and competent. The basis of this manual is to educate the stalker to the level where he can assess and manage a deer population properly and humanely, understanding the responsibilities that go with it. However there is no substitute for experience. The novice stalker should make it his business to go out with those who are more experienced and learn at first hand, by observation and shared experience, the potential for damage by deer and how to deal with it. He should talk with the landowner or forester to discover where the deer are feeding, learn their movement patterns and the possible numbers involved and gain some insight into age and gender breakdown.

It is the number of adult females in a population that governs the rate of increase of a population. The following example shows the rate of increase of a herd of twenty adult females over a five-year period if no management is applied. It assumes a 90% calf survival to one year and a 50:50 sex ratio at birth.

	Adult Females	Adult Males	Yearlings	Juveniles	Total Population
Spring Year 1	20				20
Autumn Year 1	20			18	38
Autumn Year 2	20		18	18	56
Autumn Year 3	29	9	18	26	82
Autumn Year 4	38	18	26	34	116
Autumn Year 5	51	31	34	45	161

If the basic concept of management is to control the number of deer in an area to the carrying capacity of the ground, then there are a number of factors which need to be considered. These include assessment of the number of deer involved and the level of damage sustained in the given area of land.



*Wild goats can also cause damage in forestry plantations.
Feral goats are not a protected species under the Wildlife Act, 1976 (as amended)*

Planning the cull

A great many stalkers, if not a majority, will hunt their quarry on Coillte forest property, in which case they will be attempting to achieve the designated cull for the forest area in question. The designated cull is based on local observations and estimates of deer population, and the amount of actual or potential damage from deer. It is simply stated as X number of male deer and Y number of female deer. This cull is the licensee's primary target and to some extent, continued access to deer hunting depends on achieving it.

In other situations, the stalker may also be a manager and have the opportunity of planning the annual cull with an eye to varying objectives.

For many years, management planning has elsewhere been based on alternative theories, depending on factors such as nature of terrain, deer species, levels of damage and local objectives as to maintenance, reduction or increase of deer numbers, or trophy quality.

One such theory is based on the Hoffman Pyramid, much written about but complex to understand and difficult to implement – and almost impossible to employ under conditions of heavy woodland. Nonetheless it remains a useful starting point and all stalkers should familiarise themselves with the underlying theory. To this end, a detailed explanation is set out as an appendix to this manual.

In Ireland, environmental considerations demand a more immediate approach, especially in the context of a rapidly expanding population of deer and the serious potential for damage as populations expand exponentially.

Focus must therefore be on culling of female deer, as discussed in detail in this chapter. Where numbers are a measurable problem, females *of any age* should be culled. After that, juveniles of either sex should be the target. Mature males are next on the list – bearing in mind that the number of adult male deer culled has very little impact on the overall population. Consideration should be given to allowing adolescent males to mature and thus offer some trophy potential. Cull planning starts with population assessment.

Methods of population assessment

Unfortunately, it is next to impossible to accurately assess the number of deer in a given population. It is of course easier in an open mountain situation, but deer move in and out of a given area depending on the time of year and on disturbance. Time

spent in reconnaissance is never time wasted – indeed, it is absolutely essential for efficient deer management. It is vital to know what deer are on the ground, including details of species, age and gender, for only when you know how many deer you have can you plan the cull and so guard against future damage. In many situations deer are missed and not counted and in some, there are cases of double counting. A good initial guide is to assess for evidence of deer damage to trees growing in the area. This is a good indication as to whether the deer density is too high, though the farmer or forester may already have told you this. Identification of deer damage is discussed elsewhere in this manual but it must be distinguished from that caused by rabbits, hares, sheep and goats. COFORD (National Council for Forest Research & Development) have also identified grey squirrels as a significant pest species in woodland.



Learn to differentiate between damage caused by hares, sheep, goats and deer. Hares are protected under the Wildlife Act, 1976 (as amended) and (excluding certain townlands in Co. Wexford) may be hunted from the 26th day of September in any year to the 28th day of February in the following year, both dates inclusive. No licence is required other than the licence associated with an Open or Unlimited firearm certificate for a shotgun. They may not be shot with a rifled firearm.

There are a number of different methods of assessing the population in a given area. All will give a guideline but seldom an accurate reading. For the purposes of deer management, an estimate is sufficient. A truly accurate count is virtually impossible, but the trend as to whether the population is increasing or decreasing is important. It is important that each count is conducted at the same time of year so that numbers can be compared and population trends can be deduced. Where possible, the assessment should be done by the same team of people each year. As well as giving a reasonable idea of deer numbers, visual deer counts can also provide a sex breakdown and an assessment of age and general body condition of the herd. If the area being counted is of sufficient size and any movement of deer in and out of the area is consequently at a minimal level, then it can be a useful tool to help adjust the cull level for the following year.



The grey squirrel is now an established pest species in Irish woodland.

It is not a protected species under the Wildlife Act, 1976 (as amended).

Note however that red squirrels are fully protected at all times in Ireland under the Wildlife Act, 1976 (as amended)

Open ground counts

Open ground counts are only suitable for red and sika deer on the open mountain. March is the best time of year for visual deer counts. At this time of year, it is still easy to distinguish between hinds and calves, the stags still retain their antlers and vegetation levels are at their lowest.

The best way to conduct an open ground count is for a sufficient number of people to line up abreast across a hill and move in a prearranged direction. It is important to minimize the amount of dead ground that could hide deer. The counting team members should chart the number and sex of the deer they saw, where they were, time seen and the direction in which the deer moved. These notes and maps are then compared at the end of the day to eliminate double counting and a population assessment is arrived at.

While once-a-year counts are probably sufficient, in areas of open ground a more accurate result might be obtained with a subsequent count about a month after calving, and combining the results of both surveys.

Woodland counts

Estimating deer in woodland is quite a different proposition. Visibility is obviously a problem, especially in thick conifer woodland. In these cases pellet group counts are probably the best option to assess deer density. However as the feeding in conifer forestry is often poor, the animals using it usually leave the wood to feed at night and a good estimate can be achieved by lamping surrounding fields at night. This requires a licence from National Parks & Wildlife Service.

Remember that deer have a preference for young forestry, where they can graze between the trees. As the trees grow and light becomes shade, the vegetation beneath then dies off. It then increases again as trees are thinned and the canopy is broken. The feeding value decreases and the deer generally move to a different area or section of the plantation. It then increases again as trees are thinned and the canopy opens. Care must be taken not to assume that the density of deer will be the same in different age class blocks.

One method of counting deer that can be used in suitable woodland blocks is to move deer slowly so that they cross a ride line or road on which a number of people are positioned, another team of people walk slowly, preferably with steady dogs and push the deer towards those counting. The beaters should move slowly and quietly, gently tapping trees with a stick. This will not work in thicket-stage conifers where most deer tend to lie up and wait for the line to pass.



Sika pricketts are easily counted in the late summer and early autumn

Vantage point observation

This is a relatively effective method where the topography of a forest allows. It involves watching an area of woodland edge and possibly a few forest clearings from an elevated point for a few hours, with binoculars, at dawn and at dusk - periods of peak deer activity. Deer are assessed in groups as they move and graze. Make-up of these groups is important as it means that they can be discounted from another observer's total should they move into his view. These counts should be repeated a number of times over a few days and the highest count taken as the estimated population for the observed area. Should say, one-fifth of a block of forestry be counted in such a way, the total count can be extrapolated as five times the count as the total for the whole forest only if the counted area is a good average of the age and species class for the whole block.

Tracks and slots

A stalker can gain a good idea of the number of deer on his ground by simply looking at the tracks left in wet or boggy areas. While not a strict count, the tracks seen on banks and crossing points of ditches will give some idea of density. Familiarize yourself with the difference between deer and sheep footprints. Try to visit your ground after a fall of snow, when a good assessment of deer numbers can often be obtained from looking at the number of deer tracks.

Red deer

Fallow deer



Sika deer



Sheep

Pellet group counts

Pellet group counts involves the counting of piles of deer faecal pellets in a strict fashion in plots along a transect line. Obviously the presence or abundance of deer pellet groups will be related to the density of the deer. There is a variation in the rate of decay of faeces dependant on the site involved. In wet or high rainfall areas pellets will break down faster than on sheltered ground. Although the methodology of this form of population assessment is too detailed for the scope of this manual it may be the only reasonably reliable method capable of being used in large thick forestry plantations.



Pellets – but are they deer, sheep or even rabbit? Learn to recognise the difference



Fresh deer scat

Cohort analysis

Probably one of the most accurate methods of measuring deer numbers, cohort analysis is retrospective and extremely time consuming. It involves aging all deer shot and working back to their date of birth. For example – take a hypothetical situation where, in a ten-year window all the stalkers have shot forty deer in a particular forest, all of which can be traced back, by jaw aging, to having been born in one particular year. Assuming 80% calf survival (remembering that calf survival rate will depend on species, weather conditions, food supply and general habitat, amongst other considerations), then there had to have been a minimum of fifty hinds on the ground in that year.

A cruder method of analysing the cohort is by assessing prickets. In the early part of the season, sika prickets in particular are quite easily seen and differentiated from one another by their antler shapes. Should you see or shoot ten different prickets, assuming for each one of them there is a female yearling, that makes twenty calves, and using the previous example therefore, there would have been a minimum of twenty-five hinds the previous year. Remember to make allowance in your calculations for any females culled after calving the previous year.

All the above methods are time consuming and therefore costly when man-hour cost is a factor. It is important to understand the basis of assessing deer density but in reality the results will not be very accurate. At some stage the stalker or landowner will have to estimate a number for a particular area, having regard for habitat type and age class of the trees, and set a cull accordingly. From this regular assessment of indicators of deer damage, allow for adjustment in succeeding years.

A high deer density in a particular area may not be a problem if further assessment shows low levels of deer damage. However in another area, with different conditions, a much lower density of deer could be doing a higher level of damage. The deer stalker must understand that in such areas it is quite justifiable to shoot heavily to allow establishment of a young crop, while in later years the planting will be less susceptible to damage.

In many parts of the country it has now become essential to protect broadleaf plantings with two metre high deer fencing or with individual tree guards, because

deer are causing unacceptable levels of damage. This has huge cost implications on the viability of forestry as an alternative farming enterprise. Even in native broadleaf plantations, natural regeneration is being hampered by the presence of excessive numbers of deer.



Alder tree with individual tree shelter

Assessment of age profile and reproductive capacity can be obtained by the stalker by examining jaws and ovaries/uteri of culled deer. For the deer species found in Ireland, where the possibility of twins is negligible, and assuming an equal number of males and females in that population, the cull should be approximately 25% of the spring census (equal numbers of males and females). In reality, there is likely to be a sex imbalance with more females than males in the population so perhaps a more realistic figure, particularly for sika deer, would be 30-33% of the Spring count. However if an under-estimate has been made in the census or if damage is worse than expected, the cull should be increased, with emphasis placed on removing more females. Shooting any number of male deer will have no effect on the rate of increase of a deer population.

Record Keeping

Accurate record-keeping is essential for effective deer management. Cull targets are based on estimates generated in the field but may not always be accurate, having regard for itinerant deer and fluctuations in resident herd numbers. All stalkers should carefully record all deer seen in the course of field outings, together with a detailed record of all deer shot. Records should include:

- Date
- Time of day
- Weather conditions
- Number of deer seen, broken down by species, age and gender
- Note any and all special circumstances e.g. any special characteristics or behaviour of deer seen
- Number of deer shot including details of species, age and gender and any and all special features or characteristics (and especially including any factors impacting on health of deer shot)

The number of deer seen, as well as the number culled, will provide the basis for the ongoing management plan for the area and will remove elements of guesswork. Coillte Teoranta require a detailed cull return as a term and condition of the annual deer stalking licence. Renewal of the annual deer hunting licence by National Parks & Wildlife Service also requires a return of deer shot, including details of where shot, species and sex.

Specific problems associated with deer management

Habitat

Attaining the cull is the essential prerequisite of any deer management plan. In Ireland this problem has historically been exacerbated by extensive blocks of thick coniferous woodland, planted with little thought to the eventual culling of the deer population. In many of these forests deer can live in a small area, never really moving to a place where they can be culled. The size of red deer in particular can sometimes make carcass extraction near impossible in some areas of extensive forestry which have poor access.

Thankfully, a little more thought has been put into forest planning in recent years but unfortunately it takes time for plantations to mature and to be replanted with deer management in mind. Areas of the forest should be left unplanted to form deer lawns – open glades where deer can graze and where the deer manager can see the deer, whether to count, to assess or to cull. The banks of rivers and streams provide good grazing and the gentle curves on the edge of forestry often constitute productive areas for stalking. Areas of hardwoods should be planted or at least include sections of larch, a deciduous conifer, to give relatively open areas during the culling season. Rides should be left wide enough in conifer woodland for light to get in and to allow grasses to grow. This not only provides feeding for deer and reduces tree damage, it also provides good open areas for shooting.



Browsing damage can occur even in deer glades

Disturbance of deer

The great mistake when stalking deer is to continually put them under stress through disturbance over the entire culling season. This has a couple of negative aspects to it; firstly, it makes it much more difficult to achieve the cull and secondly, the added stress keeps the deer inside the woodland for longer periods of time, often only emerging well after dark. Both or either of these factors may increase the damage levels within the forestry block.

Unfortunately, the rising cost of many Coillte deer hunting licences (and indeed, licences to hunt wild deer on other privately-owned land) has meant that many primary licence holders or sporting rights leaseholders have to take in additional stalkers to meet the financial outlay and the ground is hunted three or four times weekly. Fallow deer in particular will often move out of such an area altogether until the season is over. Deer become alert and jumpy and it becomes impossible to meet the cull. Stalkers should be aware of their responsibility to meet the designated cull and if necessary, limit stalking activity to short periods of high intensity, with a number of rifles placed in prearranged places at the same time. The forest should then be given a few weeks rest in between if at all possible. High seat shooting, to be discussed later, greatly reduces disturbance.

Shooting from vehicles is both illegal and counterproductive. While initially a number of naive deer can be accounted for, they very soon associate the sound of a vehicle with danger. A fear of vehicles then makes it difficult to assess the number of deer in a forest come the end of the season.



Shooting from high seats minimises disturbance on the stalking ground

Insufficient cull of female deer

For many years there has been a substantial imbalance between the number of male and female deer shot. This is due to a number of factors, not least that historically the male deer season ran for six months while the female season was only three months in length, with the exception of Dublin and Wicklow where the season ran for four months. Recent changes in seasons are designed to help to address this imbalance.

It is regrettable that many stalkers do not take their hind cull seriously. They assume that shooting *any* deer will lead to a reduction in the local deer population. Many of these deer shooters are also involved in game shooting and with the onset of the hind and doe season coinciding with the opening of the pheasant season, their attention is drawn elsewhere. This situation is not helped by inclement weather during the latter half of the season. On some private estates where pheasant shooting is a commercial business, the amount of woodland disturbance from November to January makes the female cull very difficult even where the stalker puts in all the time needed.

One of the main reasons why the culling of female deer is more difficult than that of male deer is that from November onwards the days are shorter and deer can feed all night undisturbed. Deer at this time of year do not have large demands on energy (a natural phenomenon in deer known as *winter inappetence*). However, towards the middle of February the foetus in the hind is getting larger, demand for food becomes greater and the days become longer. At this time of the year female deer spend more time grazing and become increasingly available for culling at dawn and dusk (subject to Open and Closed Season dates).



When a hind and calf are encountered together, especially early in the season, shoot the calf first

The stalker as deer manager should try to shoot as many females as possible in early November, as they become a good deal less visible from December. It also helps to reduce pressure on the grass and bramble available for feeding over the winter months – in itself reducing the damage to the tree crop. Preference at this time of year should be given to shooting calves and yearling hinds. When a hind and calf are found together, always shoot the calf first. If you must shoot an accompanied female first, it is often possible to take the calf by remaining concealed for a period of time. This can occasionally work in reverse. If a calf doesn't return to the area of its mother's carcass within a reasonable time, it may or may not be old enough to live independently – although evidence does suggest that survival rates of early-orphaned calves (whose dams have been culled early in the season) are very poor. The better practice is to always shoot the calf first.

When attempting the female cull every opportunity must be taken to attain the required number. While not recommended for the novice stalker, a neck shot will drop a deer with less disturbance to a group than a chest shot, which causes the deer to rush forward. Correct shot placement is discussed in detail later. Sound moderators are also useful where multiple animals are required to be removed, and have become increasingly popular in recent years.



.243 rifle fitted with bipod and sound moderator



Close-up of sound moderator on .243 calibre barrel

Natural movement of deer

The biology of deer and the individual characteristics of each species will be discussed later. The stalker must understand that there is a change in behaviour of deer at different times of the year and that this will effect the census and cull plan on any given forest or estate. The deer species found in Ireland are non-territorial in nature. Mature males and females live apart for most of the year.



Sheep fencing can occasionally lead to loss of deer, which may become entangled in wire and subsequently die

Farmers often experience heavy grazing on spring grass from deer in March and April. The season is closed and ordinarily, it is unlikely that a licence will be issued to shoot them out of season unless damage is severe. Deer are likely to be drawn to the area only because of the lack of feeding elsewhere and they may not be seen in the same area in the autumn. These are the worst months of the year for feed availability. Well-fertilized spring grass, particularly near forests or heather uplands, is likely to draw in large numbers of deer at this time of year, but within a short period they will usually have dispersed. Nonetheless, it may be necessary from time to time, in specific circumstances, to cull deer out of season under a “Section 42” licence, where unacceptable levels of damage, including grazing on grassland, is experienced.

Deer can cause crop damage in any area in the summer months. Often there are very few female deer in the area and most of the animals involved are stags. As soon as September comes and the season opens, the stags disperse. It can then be difficult to shoot the target number and the problem recurs the following year.



Water proves no obstacle to the movement of deer where they are motivated to enter or cross it

These are some of the practical problems associated with deer management. In some cases it is possible to get a licence to shoot deer out of season or with a lamp at night. These licences, known as “*Section 42 licences*”, are issued by the National Parks & Wildlife Service, but only on a case-by-case examination by a local Conservation Ranger. As a matter of policy, where out-of-season control becomes necessary on Coillte forest property, Coillte will themselves take the appropriate action; Coillte sporting licences allow the licensee and any nominated stalkers to hunt deer only during the designated open season.

Fallow deer management

Proper management of a fallow deer population has different problems than those associated with red and sika deer, where dense plantations are the biggest obstacle to control. Lowland fallow deer habitat is often overgrown with bracken and bramble and fallow range over a much wider area. A small block of woodland may be devoid of deer when visited by the stalker but be home to a herd of twenty or more transient deer a week later. Stalkers must be aware that they will in all probability share the herd with a number of other stalking groups in the vicinity and a cooperative stance should be decided upon when it comes to the management of numbers.

Fallow bucks are often over-exploited, prickets and two-year-old bucks being relatively easy to shoot during the rut. Few fallow bucks make it through to maturity, by which time they have learned to live an almost nocturnal existence during the open season. Males are also vulnerable because they tend to travel over a wide area in the course of the year.



Fallow deer can cause significant damage in agricultural crops

Fallow are extremely sensitive to disturbance and will leave an area if disturbance is excessive. This relates not just to stalking but to bird shooting, trail-bike riding and also some forestry operations. They quickly learn the usual stalking routes in a forest, particularly if used regularly every weekend, as is often the case. In problem areas, a number of stalkers operating together in a controlled way can be productive as it tends to get fallow deer up, slowly moving and visible. High seats are particularly useful for the management of fallow deer.



Fallow deer in woodland

Public Relations

In the case of Coillte forest licences, shared forest usage is a feature of the annual shooting plan and this is recognised within the limitations of the Coillte licence e.g. hours of access and during which deer may be shot, whether or not mid-week stalking is permitted or any special requirement associated with public use of forest areas. The restriction on shooting along or across forest rides is another example.

In this context it behoves the deerstalker to practise sensible public relations at all times. Remember, you are in the forest as a licensee, not by right, and you must avoid all occasions of confrontation with a public which may be less than aware of the value of the function you are performing as someone entrusted with achievement of the

necessary cull. The same principles apply if shooting on privately owned farmland, with the added onus of ensuring best possible relations with the landowner and any members of the public whom he may ordinarily allow to access his land, for whatever purpose. You may be doing the farmer a service but he is providing you with a sporting resource, which is to be protected. Make yourself aware of “The Country Code” as outlined in the appendix to this manual and practise it always.

None of this is to suggest that you need to be at all defensive about your role in deer management. The fact is that (as previously stated) culling by shooting is the only practical way to control deer numbers, to the benefit of both deer and human economic interests. Your role is to control deer numbers and to cull surplus animals, especially old or infirm animals or those for which the available food supply is insufficient. In so doing you are contributing to the health and overall conservation of the local deer population and for this, you need never apologise.

Nonetheless it is important to be aware of a level of public ignorance of the mechanics of population control and conservation through passive preservation may be the over-riding thought of a member of the public who happens to stumble on the end result of the cull exercise. If necessary, be prepared to give a simple explanation of what is involved, having first established your *bona fides* and legal entitlement to do what you are doing. Avoid confrontation or rudeness or any insensitive attitude towards public feelings. If in doubt, or if faced with aggressive behaviour, do not respond with aggression or rudeness. Follow best-practice guidelines at all times.