



## Gamekeeping on Heather Moorland

High quality gamekeeping and the sympathetic management of the world scarce habitat of Heather Moorland is probably one of the best examples of sustainable management and sound conservation based on everyday practice. Gamekeepers have been carrying out their moorland management in a similar manner for the last 150 years.

Britain has approximately 75% of all the heather moorland to be found anywhere in the world and this unique habitat, which is so very important for a particular group of bird species, needs to be carefully managed and maintained. An E.U requirement that all the statutory nature conservation sites in the country should be surveyed and these findings published by 2004, was carried out by English Nature. They used mainly external contract staff to do this and initially it was suggested around 75% of sites were failing to meet the criteria. It is now generally accepted by moorland managers that the survey was inconsistent, and the data was flawed. Moorland managers consider that in future to obtain that consistency English Nature staff, with knowledge of the history of the land would need to do such a survey themselves. A recent survey has now established that the loss of heather on moorland managed for grouse is far less than on non managed moors.

The red grouse is indigenous to Britain and is a wild bird. It is dependant on heather moorland for its existence. It is now scientifically accepted that what is good for the grouse is good for almost all the other moorland species including golden plover, curlew, lapwing, dunlin, short eared owl, merlin, as well as many mammals and amphibians. Well managed moorland has a diverse mix of flora and fauna species including seasonal bird migrants, which all utilise the diversity of habitat created by the moorland gamekeeper. RSPB work done in the 1990's, by A Tharme, showed far higher wader densities on grouse moors than on other moorland.

Keeping a viable population of grouse on the hill is primarily controlled by three activities:-

- a) Habitat management – mainly by planned heather burning and regulated grazing.
- b) Predator control.
- c) Managing the grouse population itself as near as possible to the established carrying capacity for the moor.

### Habitat Management

- (i) Heather Burning. On a typical 1,000 acres of well managed hillside there could be as many as 100 strips of newly burnt heather each year. The angle of these fires on the moor will be determined by the prevailing wind on the day they were burnt. The sheer diversity of regenerating habitat created will mean that something is benefiting at each stage in the process. While the Merlin and short eared owls nest in the older heather most of the waders prefer the bare areas of the fresh burned ground.



## Gamekeeping on Heather Moorland

The red grouse make use of all the different ages of heather, for food, shelter and nest sites, during the course of the year.

Such a management practice can also actually help to stop fires, should they occur, which are burning out of control., In 2004 a fire lit by a grazier got out of control on the Lancashire Pennines and it was eventually stopped when it reached a managed grouse moor. The fire had already burnt hundreds of acres but the 'strips' of newly burnt heather on the managed moor served to break up the front of the runaway fire giving the fire fighters the opportunity that they had been looking for to regain control.

Heather burning is legal from 1<sup>st</sup> October to the 15<sup>th</sup> April. The dates were carefully chosen to avoid damage to wild life including the grouse. Such a wide window is required because the correct conditions are critical for effective heather burning. The old, long heather needs to be dry enough to burn, but the ground surface must not be too dry or the peat may be scorched and the heather seed bank damaged. Sensitive plants like sphagnum and sundew could also be damaged. Each year the perfect conditions on any given hill may only exist for a few days. This will vary from one part of the moor to another, and estate to estate. In general, the higher the moor the less the growth rate of the heather, therefore the longer the burning rotation. Many moors have a ten to fifteen year rotation between burns on the same ground. Liaison between English Nature, The Game Conservancy Trust, the National Gamekeepers Organisation and other stakeholders is ongoing regarding new regulations and the code of good practice. Burning could be curtailed if current proposals are implemented.

- (ii) Grazing by sheep and cattle in suitable numbers may be beneficial, but should be carefully managed to avoid any overgrazing of the heather resource. Many thousands of acres were lost following the intensification of grazing due to livestock subsidies. Remember we still have 75% of the world's heather resource, we did have more!
- (iii) Controlling Bracken; Bracken is generally not a problem on moors above 1600 feet but on the North Yorkshire moors, where there is currently 35,000 acres of bracken, the spread is estimated to be at some 10% per annum. It spreads even more rapidly into fresh burnt ground and therefore burning should only be undertaken adjacent to bracken when control itself is going to take place.

The bracken canopy cover severely limits diversity of flora and fauna; spores are carcinogenic and particularly dense in late summer; it harbours ticks which can be a



## Gamekeeping on Heather Moorland

problem to animals and birds, causing the spread of the disease 'louping ill' in grouse, other birds and livestock, especially lambs and also Lyme disease in humans.

Attempts to reduce bracken beds have been ongoing for many years and for large sites are best achieved by spraying from helicopters. Few chemicals are a hundred percent safe for aerial spraying but the best is a species specific herbicide 'asulox' which is a long established "safe" chemical.

Modern research has revealed that the peat mass on Britain's moorlands represents the UK's largest single terrestrial Carbon 'sink'. There is more Carbon stored in U.K. peat than all the forests in Britain and France. It is estimated that there is circa 23,600 km<sup>3</sup> of peat bog present in the U.K. (Haines and Young et al 2000). It has been calculated that currently catchments are annually losing 11 grams of Carbon / sq m.

To place this 'leakage' in some sort of numerical context, the total loss of Carbon from the peat 'sink', if reversed, would satisfy the UK's annual Carbon emission undertaking under the Kyoto protocol.

On a high percentage of open moorland it was found that drainage by ploughing resulted in serious erosion. This government sponsored practice was widely used on the moorlands following the Second World War in a bid to increase grazing and hence food production. Increased peat particles in the water courses leads to increased acidification, this in turn has an effect on the invertebrates, fish, birdlife and even vegetation in the watercourses from the top of the moor to the estuary. On Raby Estate in Teesdale some fifteen years ago a major drain blocking programme began which has shown that this damage to the environment can be halted and reversed. This example is now being used as a demonstration site to show the benefits of such work.

### Predator Control

Almost all the birds breeding on the uplands are ground nesting and are therefore vulnerable to almost every predator. Predation of grouse is just as important as for the other wild birds present; more so in some ways because it is the income from grouse shooting which pays for the management. In some areas Mustelids cause the greatest damage, with stoats top of the list followed by weasels. Mink are less abundant and limited in their location but can also do a great deal of damage. Foxes tend not to be found on the higher moors in large numbers but moorland adjacent to commercial afforestation tends to have more problems with this species. The woodlands also harbour Corvids including carrion crows, magpies, rooks and jackdaws which can be a serious problem particularly on eggs and chicks at nesting times.



## Gamekeeping on Heather Moorland

Langholm Moor, where a consortium of organisations ran an experiment for a number of years, proved without doubt that uncontrolled numbers of Hen Harriers caused a severe reduction in both the red grouse and the wading birds on the moor. Such was the impact of these birds that grouse shooting was no longer viable and the gamekeepers were removed from the moor. Following the gamekeepers removal the Harrier population collapsed from nearly twenty pairs to only two pairs, as they in turn were eaten by foxes and other predators.

### Managing the Grouse Population

Analysis of data from shooting estates over many decades has shown that shooting most of the surplus grouse each season to reduce the population to the traditional 'carrying capacity' of any given moor is the best way of ensuring long term success. Over population may lead to an increase in parasites although the weather is the critical factor in the equation. Given the ideal conditions the parasitic nematode worm (*trichostrongylus tenuis*) population may increase and cause mortality in the adult grouse the following spring. This reduces the potential breeding stock and also debilitates the ones that survive. Severely cold temperatures leading to prolonged frosts, or very dry conditions can help, as they both reduce the breeding success of the worm, but mild, wet weather allows high parasite hatch rates and the immature worms climb the damp foliage to be eaten by the grouse which in turn pass out even more worm eggs and the cycle starts all over again.

The experienced moorland keeper knows almost exactly how many grouse his moor can carry. He carries out stock counts in the spring – breeding pairs of birds on a set area of moor, followed by an average brood size counts in July. He then calculates that year's estimated population and is then better equipped to decide how many to shoot that coming season. If the moor is a commercial one shooting will have already been let; early days are the most expensive and shooting will stop on the moor when the bulk of the surplus birds have been removed. In a poor year this can lead to disappointment for those booking the later days as they will be cancelled. Revenue from grouse shooting pays for all the activities on the moor, ensuring its continued viability as a thriving ecosystem, and therefore the optimum chance of good grouse shooting next year.

**'Keeping the Balance'** is the never-ending challenge facing any gamekeeper and nowhere is it more critical than on Heather Moorland.

However, some predators, found on the moor, such as peregrine falcons and hen harriers, are protected but their increasing numbers can cause quite a serious problem for other species. Black grouse are known to be the second fastest declining bird species in Britain. In 2002 the population in Northumberland was estimated at only 212 'lekking' males probably equating to less than 450 birds in total.



## Gamekeeping on Heather Moorland

The Black Grouse population is more than holding its own in the core area in Co Durham, and there is a local recovery project helping to advise landowners on habitat and predator control. However what is not well publicised is that the peregrine population in the U.K. is increasing rapidly, and there are currently five times as many as in 1960. Cumbria now has the highest density of Peregrines anywhere in the world. The Game Conservancy Trust's own survey into raptor kills showed that 1/5 (18%) of all radio tagged Black Grouse killed were due to birds of prey including Peregrines, Hen Harriers, Goshawks, Buzzards and Sparrow Hawks. They are probably also having a similar effect on Red Grouse and other moorland species. It is in the spring/early summer when chicks of all species are about on the moor and the birds of prey are catching them to feed their own young that predation by birds of prey, particularly if they are abundant, can have a significant affect.

So maintaining an improving raptor population is only achieved at a cost and has real consequences for other rare species which those managing the moors are well aware of and have to tolerate.

**Keeping the Balance** is a very clever trick with one hand tied behind your back