

41. TOWARDS RESOLVING RAPTOR-HUMAN CONFLICTS

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Summary

1. This concluding chapter examines aspects of human-raptor conflicts.
2. Three aspects are considered: numbers and status of raptors; research on predation; and the complexity of land use change.
3. Perceptions and the history of human-raptor interactions have an important bearing on the involvement of different parties in the debate.
4. We argue that fora are effective in bringing protagonists together in order to address areas of conflict, and to devise practical and policy measures to provide some resolution.

41.1 Introduction

Over the past century raptors have figured significantly in the psyche of conservation, and in considerations of how the countryside should be managed. Indeed, in recent decades the history of raptor conservation in the UK has parallels with the wider history of nature conservation (e.g. Marren, 2002). The interplay between raptors and some sections of human society has been problematic over much of this time (e.g. Brown, 1976; Anon., 2000). As with many such issues, there has been much conjecture, speculation and debate concerning the policies and management practices which have been put in place to ensure effective conservation. This book provides many significant examples of studies which address key areas in the so-called 'raptor debate'. It is an important development, building on the UK Raptor Working Group Report (Anon., 2000). That report made 25 recommendations for action, dealing with: a) raptor populations and conservation status; b) illegal killing of raptors; c) gaps in research; d) moorland issues; e) racing pigeon issues; f) birds of prey in the lowlands; and g) raptors and songbirds.

Many raptor populations declined to low levels in the 1950s and 1960s because of pesticides, to recover only slowly through the 1970s until recent times (e.g. Newton, 1979; Anon., 2000; Greenwood *et al.*, Chapter 2). The decline to near extinction within the UK has clearly contributed to some raptor species becoming figureheads or conservation icons. At the same time, the overall quality of rural habitats has declined (e.g. Tucker & Heath, 1994; Stanners & Bordeau, 1995; Mackey *et al.*, 2001; Usher *et al.*, 2002; Moorland Working Group, 2002), and some people have linked the changing fortunes of raptors to this change (e.g. Brown, 1964, 1976). In relation to the economic stability of the rural environment, it is arguable that a more precarious situation exists now than perhaps at any time in recent decades; for example, the numbers of people directly engaged in land management has fallen to the lowest level since the 1940s (Moorland Working Group, 2002). It is important, therefore, that land managers and owners are able to find ways of

balancing the economics of managing the countryside with maintaining biodiversity overall. In this context, an increasing public interest in raptors, and in the countryside in general, linked to a greater degree of leisure time available to individuals, is significant. More than a million people in Britain now routinely bird-watch, and many have a deep fascination and interest in birds of prey. There is, therefore, the potential for considerable debate and disagreement over the relevance and value of birds of prey to the countryside.

41.1.1 Some key studies of raptors

Many of the earlier chapters describe some of the significant contributions of work on raptors to conservation as a whole in the UK. For example, the re-introduction programmes of white-tailed eagles *Haliaeetus albicilla* (Bainbridge *et al.*, Chapter 30) and red kite *Milvus milvus* (Carter *et al.*, Chapter 31) have been at the forefront of nature conservation work in the UK (Marren, 2002). Research on hen harriers *Circus cyaneus* (Amar *et al.*, Chapter 29; Summers *et al.*, Chapter 38; Redpath & Thirgood, Chapter 39), golden eagles *Aquila chrysaetos* (Watson, 1997; Watson *et al.*, Chapter 10; Fielding *et al.*, Chapter 17; Whitfield *et al.*, 2003, in press), peregrines *Falco peregrinus* (Ratcliffe, 1993, Chapter 4, Hardey *et al.*, Chapter 5) and owls (Strigiformes) (Petty & Thomas, Chapter 6; Shaw & Riddle, Chapter 7; Taylor & Walton, Chapter 32) continues to make significant contributions to ecological work underpinning wider conservation activities. Moreover, there are important studies from outwith the UK (Nielsen, Chapter 24; Arroyo *et al.*, Chapter 35; Viñuela & Villafuerte Chapter 40) which provide important directions for further research across Europe. All of these studies, and others, form a significant pedigree of research which builds on earlier advances in ecology and conservation generally arising from work on raptors (e.g. Newton 1979, 1998, Chapter 1; Ratcliffe, 1993; Redpath & Thirgood, 1997; Anon., 2000).

41.1.2 Land use and management: stewardship

There have been major changes in land use and land management across Britain over recent decades (e.g. Tucker & Heath, 1994; Thompson *et al.*, Chapter 25). In the uplands, large areas (often estates) have been managed for red grouse *Lagopus lagopus scoticus* (as well as red deer *Cervus elaphus* in Scotland) and/or sheep *Ovis aries* and forestry, and there have been significant changes in the areas under each of these land uses (e.g. Usher & Thompson, 1988; Thompson *et al.*, 1995; Moorland Working Group, 2002). The situation in the lowlands is perhaps more complex, with a variety of regimes being maintained throughout lowland Scotland to varying degrees of intensity. However, the principle of stewardship, where essentially the current owners manage the land in a way which passes on benefits to future generations, is well-established in land management practices throughout Scotland (e.g. Warren, 2001). There is, therefore, a deep involvement of landowners in the care of the land and its wildlife, and a long history of traditional land management practices, particularly in the uplands.

The link between land stewardship and birds of prey is clear, and in many cases birds of prey populations are maintained, or indeed enhanced, through particular land management practices (e.g. Tharme *et al.*, 2001; Scotland's Moorland Forum, 2003; Taylor & Walton, Chapter 32; Marquis *et al.*, Chapter 36; Redpath & Thirgood, Chapter 39). For example, the management regime for an area in the uplands may serve to maintain populations of

golden eagle and hen harrier at sustainable numbers. But in some parts we have seen a culture of destruction of birds of prey which persists to this day (Thompson *et al.*, Chapter 25; Whitfield *et al.*, 2003, in press; Redpath *et al.*, in press). Tensions between different sectors of society which place different values on birds of prey have led on the one hand to a significant level of illegal persecution and killing throughout the second half of the twentieth century (Moore, 1957; Brown, 1964, 1976; RSPB & NCC, 1991a,b; RSPB, 1999a,b; Whitfield *et al.*, 2003; Redpath *et al.*, in press), whilst (and partly in response to this) national and international conservation legislation has been developed to give birds of prey some of the highest levels of legislative protection of any of Europe's wildlife (Tucker & Heath, 1994; Stroud, Chapter 3).

It is likely that persecution of wildlife will be punished more severely in the future, and the latest legislative proposals in Scotland point to tougher sentences being introduced to combat wildlife crime (e.g. Part 3 of the Nature Conservation (Scotland) Bill, as introduced in the Scottish Parliament on 29 September 2003). Encouragingly though, there is also a history in recent decades of dialogue between interested groups attempting to align land management practices with the ecological needs of birds of prey and, in particular, to eradicate persecution while maintaining other management practices (e.g. Moorland Working Group, 2002; Scotland's Moorland Forum, 2003; Redpath *et al.*, in press). The nature of legislative change, but also a realisation that conflicts are damaging all interests, is paving the way for more attempts at consensus building (see also Viñuela & Villafuerte's study in Spain, Chapter 40).

41.2 Raptor numbers and status

This book has been divided into six themes to highlight the various facets of research, conservation and management at the heart of many ecological studies. If any overall solution to achieving a balance between managing the countryside for raptors and people is to be achieved, then there are key areas where early agreement is required. For example, all parties involved should agree on the numbers and status of birds of prey throughout the country. Indeed, if we cannot agree on how many birds there are, and whether their populations are increasing, declining or stable, then the prospects of any wider agreement on how to resolve conflicts must be doubtful. Greenwood *et al.* (Chapter 2) and Table 25.1 in Thompson *et al.* (Chapter 25) provide the most up-to-date estimates of numbers and trends. As Greenwood *et al.* explain, a substantial amount of work has gone into verifying data and information sources, and peer-reviewing the work generally. In many ways Scotland is leading the way in Europe in drawing together data and information on raptors in a robust and systematic way. Seven bodies have signed a formal agreement to systematically collect, store, analyse and report on raptor information (Scottish Raptor Monitoring Scheme Agreement, 2002). This scheme will facilitate the sharing of raptor information between organisations and make data/information available for policy purposes and to inform practical action on the ground.

Gathering information on numbers is, of course, only part of the overall activity needed to underpin any decisions and to achieve a resolution of different opinions. It is important also to have longer-term studies which examine the ecology of a species in order to consider what its population trends are, and whether, in fact, numbers are being maintained through recruitment, or whether numbers are declining. Recent studies have highlighted that there

may be many subtleties here, indicating, for example, that peregrine falcon numbers may be increasing in some parts of Scotland, level in others, and declining in some parts of the north-west Highlands (e.g. Ratcliffe, Chapter 4; Hardey *et al.*, Chapter 5; Scottish Raptor Monitoring Group, 2003).

41.3 Research on the predatory behaviour of raptors

Much of the research in this book focuses on predation: the prey taken (e.g. Shaw & Riddle, Chapter 7; Nielsen, Chapter 24; Marquiss *et al.*, Chapter 36), the habitats used whilst feeding (e.g. Petty & Thomas, Chapter 6; Crane & Nellist, Chapter 18; Fielding *et al.*, Chapter 26) and overall impacts on prey numbers or distribution (e.g. Newton, Chapter 1; Dixon *et al.*, Chapter 20; Redpath & Thirgood, Chapter 39). These studies are vital in developing our understanding of the nature of raptor predation, but also the particular nature of the so-called conflict. As Thompson *et al.* (Chapter 25) show, it is extremely difficult to quantify the impacts of land use change on raptor numbers, range use and behaviour. Much of the raptor debate focuses on numbers of raptors, when in fact it is the nature of any impact on game or agricultural interests which is the key. There remains a need for studies to evaluate the impacts of raptors on their prey, but also to quantify the impacts of habitat and prey base changes on the raptors (e.g. Redpath & Thirgood, 1997).

41.4 Land use change

Land use changes, such as the conversion of grouse moor to forestry, changes in lowland areas from one crop regime to another, or increases in public access, are of key importance in determining which species of raptor may be found in any area (e.g. Thompson *et al.*, Chapter 25; Viñuela & Villafuerte, Chapter 40). The need to be clear about any significant changes taking place is of fundamental importance to predict how raptor populations may change in response to policy, land use and management shifts. For example, on a grouse moor, the extent and quality of heather-dominated versus grass-dominated habitats may be key determinants of numbers of meadow pipits *Anthus pratensis* and other prey species for hen harriers (Redpath & Thirgood, 1997, Chapter 39; and see Tharme *et al.*, 2001). The balance between heather and other habitats will therefore be of significance in determining not just the nature conservation value of a given upland block, but perhaps also its potential economic viability overall (e.g. Thompson *et al.*, 1995, 1997; Redpath & Thirgood, Chapter 39; Redpath *et al.*, in press). The ensuing balance could be manipulated to achieve different economic and wildlife gains. For instance, it may be possible to redress any take of grouse by hen harriers by providing suitable habitat for other prey species on areas currently less preferred by hen harriers, or by providing some form of supplementary or diversionary food supply (e.g. Moorland Working Group, 2002; Redpath & Thirgood, Chapter 39; Redpath *et al.*, 2001, in press).

A challenge for land users and for behavioural scientists in the future must be to work together to examine whether habitat-based solutions are more widely applicable. One useful example of such habitat manipulation is suggested in a booklet dealing with pheasant *Phasianus colchicus* release pens, published by the British Association for Shooting and Conservation (2002) (see also Allen & Feare, Chapter 33). Increasingly, of course, conservation management itself is a land use in its own right with agricultural and other support mechanisms aimed at enhancing the particular quality of land for biodiversity.

In some cases, these inducements focus on birds of prey, in particular. A prime example here are the Natural Care habitat and species management schemes introduced and managed by Scottish Natural Heritage. These schemes make positive payments to land managers for activities which directly benefit nature conservation interests in protected areas. For example, on Orkney such a scheme is targeted at recovering important, traditional rough grassland habitats required by the Orkney vole *Microtus orcadensis* and hen harriers (see Amar *et al.*, Chapter 29). Does such a targeted support regime have a wider applicability? We think so.

From the above examples it is apparent that obtaining clarity on the numbers, status and ecology of birds of prey is of fundamental importance to reaching any agreement. Detailed studies of behavioural interactions, in particular, but also consideration of the implications of land use change and of conservation management overall, are important, and have contributed greatly to our understanding of raptor ecology.

41.5 Examples of research which is helping resolve conflicts

Many of the key raptor-human issues have been examined in detail through research (e.g. Anon., 2000; Chapters 20-24, 33-36, 38-40 in this book). We can consider two of these in some detail.

41.5.1 Moorlands

The debate involving grouse moor owners/managers and raptor conservationists has a high public and media profile, and has been running for at least 50 years (Brown, 1976; Thompson *et al.*, 1995, 1997; Redpath & Thirgood, 1997; Anon., 2000; Tharme *et al.*, 2001; Moorland Working Group, 2002; Redpath *et al.*, in press). In November 1997, Scottish Natural Heritage (SNH) established a Moorland Working Group (MWG) to address these areas of conflict in Scotland. This group comprised SNH (in the chair), The Royal Society for the Protection of Birds, The Game Conservancy Trust, and its Scottish Research Trustees, Scottish Landowners' Federation and Buccleuch Estates (on whose land much of the Joint Raptor Study was undertaken; see Redpath & Thirgood, 1997); The Scottish Office (now Scottish Executive) had 'observer' status in the MWG. This group worked alongside the UK Raptor Working Group (Anon., 2000) and some common membership ensured that the groups worked together well.

In July 1998 the MWG initially produced a high-level statement of intent, summarising the main issues related to the conservation of grouse moors in Scotland (*Action for Scotland's Moorlands: a Statement of Intent*). Subsequently, the MWG worked to produce a series of non-technical publications which outlined best practice management of grouse moorland for biodiversity (Moorland Working Group, 1998) as well as the underlying trends in Scottish moorlands (Moorland Working Group, 2002); these were aimed at owners and managers of grouse moors and sought to develop understanding of habitat management options.

The Group developed an experimental protocol to trial supplementary feeding of hen harriers as a means of reducing raptor impacts on red grouse. A major field experiment was undertaken in spring and summer 1998 (Redpath *et al.*, 2001), and a popular 'how-to-do-it' guide was subsequently produced to encourage the uptake of this effective technique (Moorland Working Group, 1999).

The MWG was succeeded by Scotland's Moorland Forum (chaired by SNH) in 2002. The Forum comprises 22 member organisations working together to improve the care and management of moorland (24 organisations signed *Scotland's Moorland; Unique and Important: a Statement of Intent* in March 2002). In 2003 the Forum published a 'good practice' guide for moorland management (Scotland's Moorland Forum, 2003). An important next step for the Forum will be to trial novel conservation and management activities across several moors to determine whether or not these can help resolve the moorland game-raptor conflicts.

41.5.2 Raptors and racing pigeons

As Ratcliffe (1993, Chapter 4), the UK Raptor Working Group (Anon., 2000), Dixon *et al.* (Chapter 20) and Shawyer *et al.* (Chapter 21) detail, there have been long-standing disagreements between racing pigeon *Columba livia* 'fanciers' and raptor conservationists. As a result of a cross-party meeting of Members of the Scottish Parliament with the Scottish Homing Union (SHU) representing pigeon fanciers and SNH (in Edinburgh, in January 2001), a small working group was formed to address the issues. The group comprises members of the SHU and SNH, and is chaired by a Member of the Scottish Parliament, Alex Neil. The Group developed a research proposal which SNH, along with the SHU, subsequently commissioned to the Central Science Laboratory (CSL).

The research had three objectives, to: a) quantify the nature and extent of racing pigeon losses to raptors, primarily sparrowhawks *Accipiter nisus* around rearing 'lofts', b) quantify the nature and extent of losses to raptors, primarily peregrines, along race routes, and c) determine the efficiency of deterrents. CSL is due to report on this research towards the end of 2003.

41.6 Some common threads emerge

In considering the above examples, it is clear that there are a number of common threads underpinning these problems. In many cases, the historic perceptions of birds of prey being seen as a major problem have not stood the test of time or the test of rigorous, scientifically objective research (e.g. Brown, 1976; Marquiss *et al.*, Chapter 36). However, there are still occasions where birds of prey do have an effect on the overall management of the countryside, whether it be in relation to grouse moor management, pheasant shooting or some livestock interests. It does not seem obvious that any action should necessarily lead to the illegal killing or, indeed, to the legalised killing of birds of prey as part of any apparent short-term solution. There is clearly a need in each case to clarify if damage is actually being caused and then to quantify this accurately. We know that grouse moor management, for instance, was worth £14.8 million to the Scottish economy in 2000 (Moorland Working Group, 2002), and that open-air recreation was worth £730 million, supported by 29,000 full time equivalent jobs, in Scotland 1998 (Mackey *et al.*, 2001). This provides some context for finding sustainable, long term solutions to resolving any conflicts between different facets of countryside management. There is a rapidly increasing public interest in the conservation of raptors; any solution to raptor and land-use problems has to take this on board. There is likely to be more demand for visitor facilities to help enjoy raptors in the wild. This public interest is indeed likely to be an important driver in taking forward raptor conservation. Equally, it is likely to mean that the killing of raptors will remain abhorrent to the vast majority of the public in Scotland.

How then do we achieve any resolution to conflicts, or develop an agreed way forward? Communication between all parties, be they gamekeepers, conservationists or walkers in the uplands, or pheasant release managers, farmers or conservationists in the lowlands, needs to involve a dialogue which is open and inclusive. Perhaps the best examples come from the Moorland Working Group, and now Scotland's Moorland Forum, and from a similar forum established in Spain (Viñuela & Villafuerte, Chapter 40). In these fora, the key interested parties discuss the policy, public relations and research agendas. Developing ownership of such work in this way should lead to a more considered way forward and to a more participative approach.

Fundamentally, such fora need to achieve agreement on the numbers of birds of prey and their breeding success, the extent and significance of any predation, and alternative management measures (e.g. Redpath *et al.*, in press). Indeed, even to gain a shared understanding of the current legal situation affecting birds of prey has been important. This may seem self-evident, but has not been so in the past. Recent progress has been good and it is particularly important to stress the importance of openness and of sharing information and ideas.

The solution to many problems lies in the provision of funding and in creating opportunities for land managers to adapt their management, if necessary. Continued policy support for sympathetic management is important and here again, perhaps, SNH's Natural Care Programme, which is appropriately targeted on key habitats and species, and on their ecological requirements, primarily within protected areas, is a good model.

Public relations and perceptions do matter, however, and a recognition of the important role of land managers in helping to determine the overall direction and implementation of countryside change is important. Perhaps the conservation community could recognise more freely and openly the valuable role that land managers, gamekeepers and others play in the overall well-being of our countryside. In dealing with perceptions, many of the studies in this book have actually countered prejudices, and challenged the views held by some. Clearer recognition of and active support for independently-done, objective research, quantifying areas where there is a conflict in terms of the extent of damage, and in researching novel techniques to resolve this, are important for progress.

Perhaps more fundamental than anything is the need to develop an acceptance for change in land management practices. Importantly, this change needs to relate to conservation action and to the development of novel management techniques dealing with the problems outlined above. No one idea will solve all these problems; but bringing many organisations together to tackle the problem is perhaps going to lead to the greatest benefits in the long term.

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