

# CHAPTER 8

## DISCUSSION

### THE BRITISH FALCONERS' CLUB

#### CODE OF CONDUCT

This Code sets out the general standards which are asked to observe. Members are asked to observe. Members are asked to observe. Members are asked to observe. Members are asked to observe. Members are asked to observe.

Members of the Club are required to observe the Code in all circumstances.

THIS CODE IS TO BE MADE AVAILABLE TO ALL INTERESTED PARTIES

## DEMONSTRATIONS BY BIRDS OF PREY

### Guidance to Show Organisers and Display Teams

- These notes have been prepared by the British Field Sports Society in consultation with other groups interested and experienced in falconry.
- The notes are considered necessary, particularly in today's political climate for field sports. In drawing public attention to the protected species used in falconry, there is a risk of stimulating a demand for participation that cannot be satisfied.
- It is hoped that this leaflet will be helpful to both Show Organisers and Display Teams in setting out what is expected of those responsible for demonstrations. Displays must be well organised, and well executed.

### COMMITMENT OF BIRD OF PREY AND OWL KEEPING

Realisation of the time and costs involved in keeping, looking after, and breeding birds of prey. The time, facilities and care should be given to the bird is...

## CHAPTER 8: DISCUSSION

### ◆ The Scale of Activities

In the late 1970s and early 1980s falconers or keepers of raptors were relatively few in number. With the advent of the WCA some of those few went about developing and advancing the techniques of captive breeding. Their successes and the introduction to this country of species such as the Harris Hawk led to a ready supply of captive bred birds. This supply was great enough to fuel an increasing interest in raptor keeping. Today, in the 1990s, specialist raptor centres, raptor flying displays at zoos and public events, falconry, commercial bird clearance and captive raptor keeping are relatively commonplace.

It is predicted that the upward trend will continue as awareness of the associated pursuits continues. As so many of the raptor keepers (including falconers) surveyed took up raptor keeping because family/friends/colleagues were keepers or falconers, then it would seem that with more people involved currently, more people will be attracted in the future. The availability of birds, equipment and courses will facilitate this increase.

### 8.1

#### *LIMITATIONS OF THE STUDY*

It is acknowledged by the authors that there are some areas of the research from which no, or only limited, information could be gleaned. Occasionally, reasoned assumptions and extrapolations have had to be made. Three specific areas are highlighted:

#### ◆ Welfare of Privately owned Raptors

Access to privately owned raptors was problematic and on the whole welfare had to be assessed by default via a questionnaire survey. A wholly representative sample of private raptor keepers could not be found as no such organisations exist.

It is postulated that in many cases, standards of welfare of privately held birds are not as high as those in public collections due to the requirement of a zoo licence for the latter and the comparative lack of welfare legislation, and hence motivation, for the former.

Due to their anonymity, it was impossible to assess the attitudes or practices of falconers not belonging to falconry clubs.

#### ◆ Assessment of Owl Numbers

A complete lack of definitive data relating to the scale of owl keeping in this

country has hindered this research. Estimations have been made although these may be crude. It is assumed that Barn Owl breeding projects will reduce in size in the forthcoming years and subsequently reduce the numbers kept. As the survey of vets showed, the experience of owl keepers appears to be less than that of diurnal raptor keepers.

#### ◆ Diet

As seen from Chapter 6 there has been criticism from specialist raptor vets about the quality of diet fed by some raptor keepers (sections 6.3.2d and 6.4.1). The nature of this research project did not allow access to keepers over long periods of time to take account of dietary intake. The dependence of some keepers on day old cockerels as a sole food source remains a problem both from a nutritional and bacterial load perspective.

## 8.2

### CONSERVATION

To summarise findings from Chapters 4-6, raptor keeping impacts both positively and negatively on conservation.

#### ◆ *Ex situ*

The elegant research, educational and captive breeding opportunities discussed by Ryder and Feistner (1995); Whitehead (1995); and Mallinson (1995) respectively, are not the reality of the great majority of public raptor collections in the UK today. In short, there would appear to be little development of *strategies* which are vital for effective conservation in zoos (Bristow, 1995).

Awareness can be raised via the use of birds as educational tools although the received message may be distorted depending on the messenger and the recipient. Conservation education involves sowing seeds of interest in the listener, allowing the interest and concern to flourish and develop. However, it is about sowing *appropriate* seeds, if the seed sown is merely one of how appealing it could be to keep a captive bird then not only has an opportunity been wasted, but more harm may have been done than sowing none at all.

Coordinated captive-breeding can be achieved, but at present breeding for conservation purposes is a minority pursuit carried out by those involved in the relevant TAGs and some Zoo Federation members. Their role, however, remains vital.

Tudge (1995) endorses the role of the private aviculturalist in captive breeding for conservation but cautions strongly against the production of hybrids. As discussed in Chapter 5 (section 5.7.3), hybrids may be produced to create a bird with hybrid vigour or merely as a result of a keeper hybridising birds available to him

or her. Moreover, they may be produced to satisfy the desire to produce something novel. Breeders cannot pertain to any conservation interest if their only desire is to hybridise.

◆ *In situ*

Accepting that "if it pays, it stays", however palatable or unpalatable, perhaps falconry is of use to conservation. This is manifest through encouraging return of revenue from the countryside, via field sports, and by putting a value on raptors as a resource for falconry which, if managed appropriately, could be sustainable. The Raptor Research Foundation (1996) have estimated sustainable harvests from large, stable or increasing populations of North American raptors.

Raptor management and falconry skills are useful for rehabilitation, hence, it would seem appropriate to maintain these skills within the community. Moreover, falconers and/or their techniques have been involved in reintroductions (e.g. Evans *et al.*, 1994). The Goshawk in Britain has been re-established following deliberate (and possible accidental) releases of birds by falconers and researchers using falconry techniques (Kenward, pers. comm.).

Present levels of impact of falconry on quarry species are probably negligible, although populations of quarry species such as Skylarks and Song Thrushes are in steep decline due to changes in agricultural and other land use. The possible inefficiencies of the system for quarry licensing have been discussed in Chapter 5 (5.7.7). A review of the value of returns and reliability of information returned by falconers with respect to number of protected species killed under licence should be undertaken.

Unfortunately, there exists a minority of falconers and others who persist in stealing or dealing in eggs and chicks from the wild for the purposes of falconry.

Escaped and released birds *may*, in the long term, present a real conservation problem. The catalogue of disastrous consequences for conservation following introductions of non-indigenous genes or species (whether hosts or pathogens) is extensive. Examples are plentiful even within the UK.

Chapter 5 (section 5.7.3), reviewed the potential threat of genetic pollution to indigenous populations posed by hybrids of one or more allopatric raptor species. As discussed, the Raptor Research Foundation has recommended stopping the production of allopatric hybrids for falconry and imprinting others hybrids on humans to avoid risk of interbreeding (1996). In the Middle East mechanical sterilisation of hybrid falcons is being advocated (Forbes, pers. comm.). Furthermore, imprinting other alien species at risk of becoming established should be considered, although as imprints some larger species, such as Red-tailed Buzzards, may be dangerous to their handlers.

Beyond hybridisation, a conservation problem could be caused by establishment of populations of non-endemic species which could subsequently compete for resources, the availability of which may alter with changes in land use and other such dynamic factors. Regardless of the conservation problem resulting from an introduction, the ethical and practical problems of extermination of an alien species, such as the Ruddy Duck, can be avoided by precluding initial establishment of non-native populations. As argued elegantly by Myers (1993) it would seem prudent to apply the Precautionary Principle to the biodiversity problem (defined as the mass extinction of species currently underway). He quotes "*where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing cost-effective measures to prevent such environmental degradation*" which he feels is a sentiment which should be applied as a guideline for tackling actual and potential environmental problems.

### 8.3 **WELFARE**

For centuries, falconers have been the custodians of the skills of raptor keeping and husbandry. In the latter half of this century those falconers in Europe and North America have been the pioneers of successful raptor propagation. Yet, no institution should resist positive reform and improvement. As the scale of raptor keeping activities is probably at its greatest since Medieval times, it would seem that the time is ripe for any such necessary change.

#### 8.3.1 **◆ The Spectrum of Welfare Standards**

The human attitude toward animals is determined by many factors including previous experience, age, religion and culture. Therefore, it is not surprising that humans treat those animals in their care in different ways. With any taxon of animals kept in captivity there is bound to be a spectrum of welfare standards. This was found to be the case with raptor keepers. What needs to be done is to determine the distribution of these standards between keepers. In the upper range of the distribution are those individuals who, usually because of love for the birds, seem to crusade for improvements. However, for the sake of the birds there is a greater need to identify the individuals in the lower range of the distribution of standards (whose love for the birds may be as great) and either educate them to bring them up above the minimum acceptable standard, or determine a method whereby they cannot be given the opportunity of compromising the welfare of a bird.

#### 8.3.2 **◆ Keeping Captive Raptors: unique management required**

Why should raptor keeping be considered any different from psittacine keeping? With respect to aviaries, their fundamental requirements are similar i.e. shelter, refuge and so on. Raptors, like many psittacines, have specialised diets which

some keepers clearly find hard to accommodate. What sets raptors apart from the management of other commonly kept taxa is the nature of the birds. Some would argue that raptors bred beyond the F2 generation are domesticated animals (Fox, 1992). Yet, the placidity that humans have selected for in so many of our domestic animals is missing from captive raptors (again it could be argued that captive breeding may have selected for those birds "placid" enough to breed in captivity). Instead, raptors maintain their wild and aggressively predatory instincts. Parry-Jones (1993) compares her relationship with her birds and her dogs by commenting "*Much as I love my birds and know them well, I don't think they would pine for me if I dropped dead tomorrow, but my dogs would definitely miss me. Yet when a dog comes when called, it is not so special as when a bird comes back*". The unique relationship established, is one of with a captive wild animal, benefitting merely from humans helping it to hunt, or merely feeding it, and the human benefitting from the company of a wholly engaging creature.

Many raptors species are designed to fly fast and many are, by nature, nervous and aggressive birds, some far more so than other commonly kept avian taxa. Hence, when managed in an aviary, this flightiness and predatory nature make them particularly prone to injuring themselves and each other.

The main management difference which separates the keeping of raptors from that of any other higher vertebrates is the use of tethering and allowing the animal its liberty periodically rather than keeping it permanently in a cage or aviary. The tying of a bird (which is discussed further in section 8.3.3), in itself, creates problems such as physical trauma, mental stress and inability to evade danger or the elements. The training period is especially fraught with mental and physical stress. When a bird is flown at liberty it faces all the dangers of a wild bird. Moreover, in comparison to a wild raptor it is probably not as fit and adept at flying, nor as capable of fending for itself should it get lost. It can be put at the additional danger of entanglement from the straps hanging from its legs.

Once flying loose many raptors are prone to flying accidents due to their speed and their predatory nature which makes them prone to attacking one another, or being injured by prey. These aspects highlight why it is so important for the raptor keeper to be well versed with first aid procedures, more so than the keeper of psittacines, for example.

Nevertheless, the processes of manning, training and tethering allow a keeper to develop a far closer relationship with an individual animal. This familiarity probably results in the keeper gaining a better understanding of his or her bird's needs and being able to recognise, at an earlier stage, the presence of health problems. Such health problems in birds loose in an aviary which are never handled (and possibly not looked at as much) may not be subject to such immediate diagnoses. Moreover, the physiological fitness of a bird flown free regularly is far greater than that of a bird maintained in an aviary (Plate 8.2).

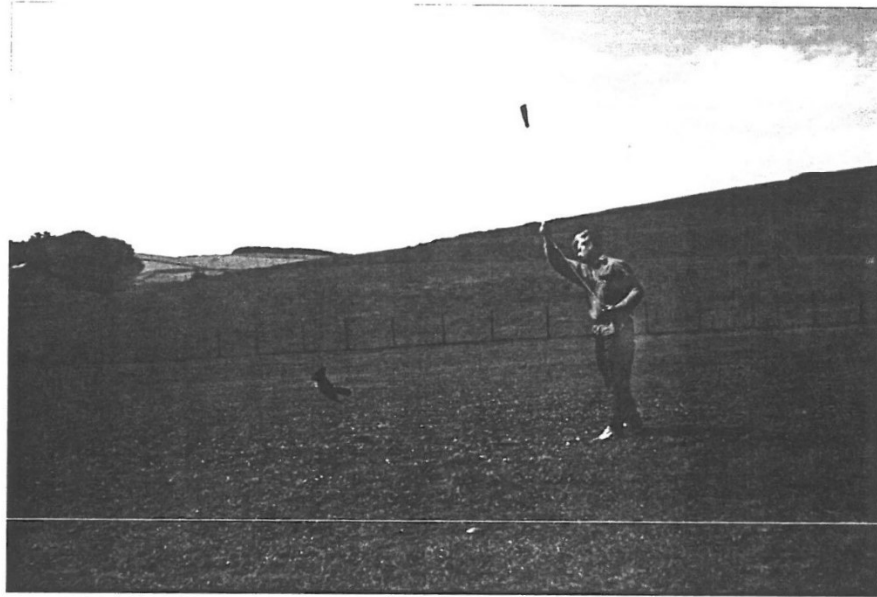
## 8.3.3

## ◆ Tethering

The subject of tethering is contentious and deserves further discussion here. The theory of captive management involving tethering was discussed in Chapter 3 (section 3.8.3) and proposes that tethering is an acceptable procedure as long as the bird is flown regularly i.e. daily. However, from the results it would seem that practice sometimes digresses from acceptable procedure. For many birds in training the private keeper or falconer will be busy with other things, like going to work, and so the ideal treatment will not be possible. This need not necessitate the lengthy tethering of a bird. When the keeper or falconer is presented with a busy period when flying or hunting the birds is inconvenient (or it is outside the hawking season for a falconry bird) then a bird should be managed so that it can be returned to an aviary or mew where it can be kept untethered. When it is tied to its perch careful choice of furniture and other equipment can reduce or eliminate altogether potential problems which tethering can incur. This is where the experience of the falconer and the rapport he or she has with a particular bird helps with management and husbandry.

Perhaps in the UK, keepers and falconers are not as willing to experiment with new techniques and equipment as, say their North American counterparts. There is certainly still scope to improve further tether and perch designs, and also to experiment with alternative techniques such as free lofting. If eminent proponents of falconry and raptor keeping such as Phillip Glasier and Harry McElroy feel that maintaining flying birds loose in an aviary is practical, perhaps this is a system which should be developed as the norm. It depends, however, on new approaches to training both the raptor and the keeper.

While *fundamentally* not flawed as a part of the falconry regime, the practice of tethering can nevertheless be abused if it is seen as the sole way of keeping a bird or as merely a space and money saving device so that many birds can be kept in one establishment or by one keeper.



**Plate 8.2:** The benefits of flying free: a level of physiological fitness not found in aviary maintained birds.

## 8.4

**ADHERENCE TO THE CODES OF CONDUCT AND GUIDELINES**

Whilst some legislation is in place to preserve animal welfare, most raptor keeping is self-governed. To assess the efficacy of self regulation this section evaluates adherence to the voluntary codes of conduct and guidelines used by raptor keepers in their various activities.

◆ **BFSS Code of Welfare and Husbandry of Birds of Prey and Owls (1993) (Compiled by a subcommittee of the BFSS Falconry Committee and the Hawk Board).**

As was stated in Chapter 2 (section 2.11), this is the most all encompassing document of voluntary guidance (Appendix 1.1). It begins by pointing out clearly the commitment required by any raptor keeper. It highlights the time and cost associated with raptor keeping.

There is a small disclaimer at the beginning of the document which points out that there may be exceptional circumstances under which the guidelines do not apply. In the following discussion it will be considered whether or not cases are exceptional circumstances.

Quotations from the code are boxed and italicised and comments are made subsequently.

◆ *Suitable Quarters.*

*These must be made available before the arrival of the bird.*

At a small number of public collections this was not found to be the case. Birds bought for lives in aviaries were bought prematurely before aviaries were constructed. Whilst awaiting construction of aviaries birds were given accommodation in weatherings where they were tethered permanently without being flown. This situation is easily avoidable by delaying or not buying the birds i.e. it is not an exceptional circumstance.

*As no bird can be flown continuously year in year out, any potential falconer or keeper of birds of prey or owls must have a suitable aviary for those times when the bird is not being flown, e.g. moulting and therefore, should not be tethered.*

From site visits to a small number of private keepers' premises it was found that

some birds (many in one case) were moulted out whilst tethered. Results from the falconers surveyed and conversations with a small number of falconers found that they similarly used this practice. Some public collections also tethered birds indefinitely throughout the moult. These are not exceptional circumstances.

*The smaller owls should not be tethered following the initial training period.*

The previous discussions in Chapters 5 and 6 (sections 5.3.2q and 6.3.1j) have shown the dispute over the tethering of small owls, with opinions split evenly within keepers, although Forbes (1995) errs with the stance of the Code. As seen from Chapter 4 Barn Owls and Tawny Owls (Table 4.27) are found relatively frequently tethered in public collections (section 4.4.3a). In addition, reputable organisations such as Raptor Rescue use tethered small owls for fund raising activities.

◆ With respect to *Suitable Quarters*

*...they should be free from damp, fungal spores and easily disinfectable*

The survey of vets would suggest that some aviaries are not free from damp nor free from fungal spores.

*Thin wire netting is not suitable.*

A small number of public collections used chicken wire in construction of aviaries (with apparent physical damage to the occupants).

*A fresh, clean supply of water should be regularly available to both tethered birds and those loose in pens.*

It was difficult to assess whether or not a bath i.e. access to water, was provided at some time of the day for those tethered birds witnessed. However, 30% of aviaries assessed in public collections had no available water for bathing or drinking if birds felt so inclined.

◆ With respect to *Food*

*A suitable, varied, hygienically stored, continuous supply must be located before obtaining a bird and must be available to the owner at all times.*

From the results of the questionnaire survey of vets, it would appear that a (possibly high?) proportion of raptor keepers do not feed a varied diet. In addition, from the frequency of bacterial infections recorded from contaminated food, it would appear that hygiene is not always of an acceptable standard (either due to standards of the suppliers or the keepers).

◆ With respect to *Training Methods*

*The danger of early tethering of young immature birds whose bones are not fully formed must be considered*

Also from the results of the questionnaire survey of vets it would appear that although the fragility of the bones of immature birds may be considered by the keeper, fractures still occur. This probably indicates that insufficient care (possibly through inexperience) is taken by some keepers at this critical stage in the training of a young bird.

◆ With respect to *Perches and Weathering*

*Diurnal...birds of prey should not be tethered except when flown daily, in genuine training or under veterinary treatment.*

Repeatedly this has been shown not to be the case. Tethering has been found to be used as a space saving device by private keepers and at public collections.

*Once trained, small owls should not be tethered. They can be flown very successfully outside whilst being kept loose in aviaries at all other times.  
(Second reference to tethering of small owls)*

Small owls were found to be tethered by both private keepers (seen on site visits) and at public collections or public events.

*No tethered birds should be left unsheltered from heat or inclement weather, or unprotected from stress, or possible predators including man.*

At most public collections shelter was provided for birds but at a small number, birds were left without shelter on extremely hot days. The public collections were visited in a summer when the weather was particularly hot, however, on one of the days when it rained torrentially, birds were tethered outside in the rain all day. Accounts of tethered birds being predated are frequent.

◆ With respect to *Jesses*

*Flying birds should wear either field jesses, e.g. slitless straps, or if traditional jesses are used, the slits should be covered in such a way that they cannot catch on anything.*

The great majority of flying birds at public collections flew with slitted mews jesses. A number of falconers also admitted to flying their birds with mews jesses. Photographs of falconry birds in books and falconry magazines often show birds flying free wearing mews jesses e.g. Plates 4.12 and 5.2.

◆ With respect to *Breeding Birds of Prey and Owls in Captivity*

*...and most importantly, breeders should make sure that prospective owners are suitably prepared and experienced to handle their new bird.*

The majority of those surveyed verbally questioned prospective owners. It is open to debate how much can be ascertained from such informal inquiry.

◆ **BFSS Demonstrations by Birds of Prey: Guidance to Show Organisers and Display Teams (February 1994)**

These guidelines (Appendix 1.2) were produced by the BFSS in reaction to the reflection that raptor flying displays at country shows may have on the field sport of falconry. The intention for the production of these guidelines was to avoid falconry being brought into disrepute. They were not intended to act as guidelines for flying displays in public collections but some of their spirit could be applicable (Kester, pers. comm.).

The guidelines specify the responsibilities of both show organisers and the demonstrators.

The small number of shows assessed quantitatively precludes conclusive correlation with the guidelines. However, the following points are highlighted as those *not* adhered to by all six display teams assessed:

*It is recommended that owls, other than eagle and horned owls should not be displayed.*

*It is suggested that no more than six birds should be brought to shows.*

*Signs giving the species of the birds should be visible and easily legible.*

*All birds except the bird being flown at the time should be either in a vehicle, well out of view or on the sheltered weathering lawn with an attendant.*

*Full bathing facilities should be available to the tethered birds of prey throughout the day with the exception of birds prior to the flying display.*

*For a variety of safety reasons the participation of small children in displays is to be discouraged.*

*Birds should be flown with telemetry and field jesses whenever possible.*

*The Display Team should wear country dress and behave properly at all times and avoid undue sensationalism.*

Although the essence of the guidelines would be a relatively useful code of conduct for the welfare of birds in all flying displays, it is felt that the guidelines for the commentary accompanying the display are appropriate only for country shows. The guidelines on the commentary are very falconry-centric and it is felt by the authors that within the context of a zoo or raptor centre a commentary should be a more integrated talk with emphasis on educational aspects of the birds' biology, ecology and conservation. However, the commentary guidelines in points 6b and 6c (Appendix 1.2) are essential points for any commentary whether at country show or raptor centre. These points stress that:

- ◆ raptors do not make satisfactory pets and are protected by law
- ◆ training a raptor is a difficult and demanding activity
- ◆ **RBA: Code of Conduct**

The RBA Code of Conduct is appended (Appendix 1.6). The intent of the Code is excellent, however, from the questionnaire survey it is impossible to determine the extent of adherence of members to it.

◆ **Hawk and Owl Trust: Guidelines for Birds at Shows, produced by The Hawk and Owl Trust Projects Committee**

A set of stringent guidelines is produced to provide information to those attending country shows with live birds to display at Hawk and Owl Trust advertising stands. As a conservation charity it has members with very different views on captive raptors and their use for display to attract the public. Throughout the research Hawk and Owl Trust stands at public events were visited on nine occasions. On only one of these occasions a Barn Owl was present. The small sample size precludes any meaningful assessment of adherence to the guidelines.

*Rehabilitation:*

- ◆ **British Wildlife Rehabilitation Council: Ethics and legal aspects of treatment and rehabilitation of wild animal casualties (Appendix 8.1)**
- ◆ **RSPCA: Standards for Wildlife Rehabilitation**
- ◆ **The Wildlife Hospital Trust: Code of Practice (Appendix 8.2)**
- ◆ **Raptor Rescue: Raptor Rescue Policy on Euthanasia and Permanent Retention of Physically Disabled or Socially Disordered Wild Raptors (Appendix 1.7).**

The first three sets of guidelines provide general guidance for all taxa of sick or injured wildlife. The latter policy relates specifically to raptor rehabilitation.

The problems associated with rehabilitation have been discussed in Chapter 6 (section 6.7). It is unknown whether those individuals responsible for the welfare problems are members of Raptor Rescue.

◆ **Raptor Rescue: Fund Raising Rules and Code of Practice for Use of Live Birds**

It is assumed that the individual pointed out by Robbins (1993) had membership revoked following non-adherence to these guidelines, as discussed in Chapter 6 (section 6.7.2e).

◆ **Zoo Federation**

As shown in Chapter 4, the Zoo Federation institutes, on average, had higher standards of welfare and education than non-Zoo Federation institutes. These results show concurrence with those principles enshrined in their constitution.

However, two collections were notable exceptions to their generally high standard.

Presently the Zoo Federation are organising the compilation of the Management Guidelines for the Order Falconiformes. These guidelines will provide husbandry guidelines for both raptors maintained in aviaries and those tethered and/or flown in displays. These, which will have constructive input from the authors of this report, will set out the standards expected from Zoo Federation members but will be useful also as a guide for those involved in issuance of zoo licences.

◆ *Other comments about public collections in general*

Public collections of raptors represent welfare standards on display. They are the merchants of messages: whether good or bad. Therefore, they have a responsibility both to the public they may influence and to any birds bought as a result. Plate 8.3 shows a baby Barn Owl in a bird cage at a public collection: what is the 'take home' message?

Regarding the issuance of zoo licences in accordance with the Zoo Licensing Act (1981), it is felt that more rigorous inspection and much stricter criteria must be used in future. It is speculated that one of the problems is that at present there are too few inspectors with specialist expertise in existence. In addition, it may be perceived that there is a conflict of interest if the inspector is a proprietor of a raptor centre or zoo.

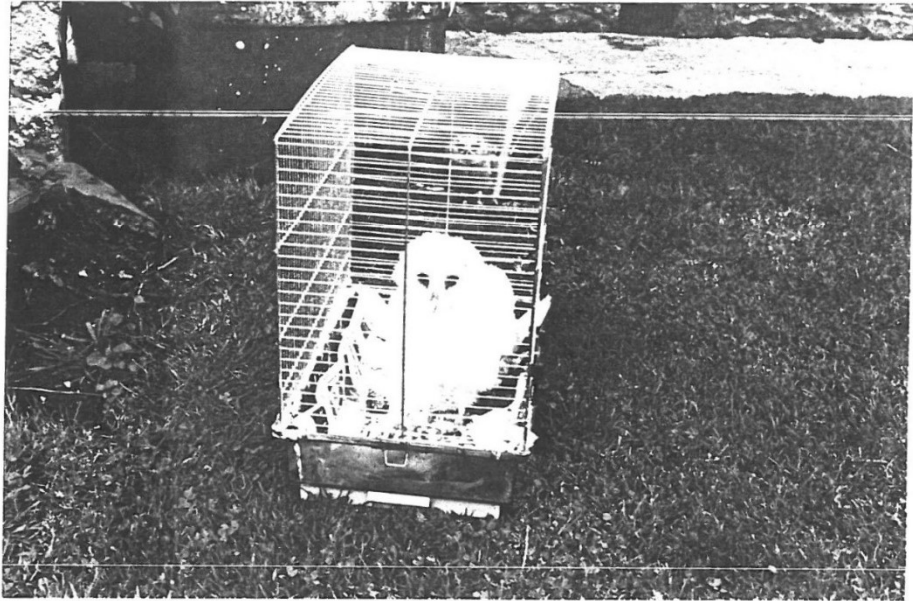
The regulation of welfare in today's zoos is a dynamic situation and it is hoped that proposed controls on welfare standards and staff training requirements are brought about with expediency (Bristow, 1995).

#### 8.4.1

##### ◆ **Conclusions from Self-Regulation Analyses**

The production of sets of guidelines for members of any association is to be commended. They provide a reference point and attempt to make members understand what is required of them.

The problem arises when they are deviations from these standards. The practicalities of self-regulation result in colleagues attempting to assess standards in a contemporary. This is undoubtedly a problematic situation which necessitates great diplomacy. It is particularly difficult when so many keepers arrogantly assume their husbandry to be the most appropriate. It is known to the authors that both the RBA and Zoo Federation have had difficulties in these situations.



**Plate 8.3:** Baby Barn Owl *Tyto alba* in bird cage.  
Public Collections: standards on show - what is the message for the public?

Whilst the desire to recommend minimum standards required by the production of codes of conduct is laudable, it results in organisations being hoisted by their own petard where these standards are not met by members. The efficacy of self regulation is dependent on two factors:

- ◆ the ease with which control measures can be implemented
- ◆ the penalties for non-conformation which determines the motivation of the participant

The former is dependent on the scale of an enterprise and hence may begin to present difficulties when an organisation becomes too large and loosely knit. As the scale of raptor keeping has expanded perhaps it was inevitable that mavericks would exploit a situation with financial gain as a main incentive. With respect to the latter factor, none of the organisations which produce guidelines seem to advocate or enforce strict penalties, other than termination of club membership in extreme circumstances, which in practice seems to occur very infrequently. For self regulation to work the *motivation* to conform must be paramount.

Other than inspections for zoo licences or DoE inspections for those holding species retained on Schedule 4 there are now no inspections from any individual with legal authority. The results from RBA members showed that 76.9% (30/39) felt that deregistration of the majority of birds from Schedule 4 would adversely affect welfare of captive birds. The DoE inspectors did not inspect the welfare of birds but their presence provided an air of accountability which seems now to be lacking.

Raptor keepers have been subject to restrictive and sometimes cumbersome legislation in the past by comparison to other animal keepers. It would be imagined that all raptor keepers would be thankful for an end to this burdensome administration. Although, as the results from the questionnaires to RBA members and falconers show, some, including The Hawk Board (Chapter 2, section 2.10.2c; Appendix 2.7), are pleased at the demise of the legislation, many others feel it is a retrograde step for the welfare of raptors.

When the original restrictions for raptor keepers came into force in the early 1980s with the WCA, there was a level of outrage within the raptor keeping community. However, it seemed that the administration that accompanied it became accepted fairly readily.

## 8.5 "INSTANT EXPERT SYNDROME"

From discussions with those involved with captive raptors, from reviews of the literature and from first hand evidence gained during the course of the research it was apparent that the raptor keeping world is beset with "instant experts". These instant experts are the individuals who within months of first owning a bird are apparently capable of instructing others, or opening a centre, or offering courses to train other would-be keepers or falconers, and so on.

Interestingly, this has led to what seems to be a majority proclaiming themselves to be experts whilst damning others i.e. a hierarchy of snobbery has evolved. This was the most surprising when the individuals maintaining low welfare standards would condemn others. One wonders how bad the "others" were.

A culture has developed where proud people are quick to criticise other's standards. Everyone seems to know of someone who has particularly low standards and associated anecdotes are numerous. In this atmosphere it is difficult to understand how the learner (who may not necessarily be new to raptor keeping) approaches another to seek advice on a problem. The awareness of poor welfare has created an air of embarrassment for those seeking advice and disdain in those from whom advice is sought. In these cases welfare problems will be hidden away and birds in need of assistance may not receive it. Such examples are known of by the authors where welfare has been compromised yet admission to experienced peers would have been too embarrassing.

As Parry-Jones (1993) is at pains to point out, and as the survey of vets supported, it is invariably poor management that results in welfare problems rather than the bird's innate behaviour. Damning those in need may be not be in a bird's interest. *However*, if such criticism dissuades the unsuitable from taking up the pursuit then on balance the welfare problems may be fewer by taking this critical and non-constructive approach.

There is a dilemma for the new or would-be raptor keeper or falconer. If many existing keepers and falconers are keen to dissuade people, from where does the persistent newcomer, who will take up a bird anyway, seek advice (e.g. V.B. 1995)? If it is not from the concerned individuals, then perhaps it is from those one of the so-called "cowboys" (Stevens, 1994) whose standards are less high yet whose pockets are willing to gain from such provision of tuition (e.g. Heming, 1994).

Membership of a club may facilitate an exchange of a plethora of information which might not be forthcoming from the individual.

## 8.6 THE WAY FORWARD

### 8.6.1 ♦ The Need for Legislation or Education?

The laws regulating raptor keeping have changed. Accepting that there are welfare concerns within the raptor keeping community as seen from the results of previous chapters and from the previous discussion of adherence to guidelines, what can be done to alleviate the situation?

In a position statement by The Raptor Research Foundation (1996), a call is made for international standards for the practice and regulation of falconry. If the problem in Britain is one of bringing up the standards of those at the lowest end of the spectrum of standards, how can this be achieved? If education is the solution how can raptor keepers be reached? Other than attending many courses, at present the only way keepers have access to first aid courses, informative talks, hearing the ideas of others is via a club. Once in a recognised club they can also hear the views from The Hawk Board (the role of the new Hawk Board is discussed subsequently, section 8.7). Over 90% of falconers surveyed felt that new falconers should join a club like their own (103/114) (although fewer felt it should be compulsory, 62/115 53.9%).

Club membership could also provide access to training schemes, the majority of RBA members (83.3%, 35/42) felt that they should. The majority of RBA members and falconers felt that new raptor keepers or falconers should demonstrate some level of competence prior to acquiring a bird or take an apprenticeship scheme (35/41, 85.4%; 86/113, 76.1% respectively). Such schemes could be run by all clubs. Recently the British Falconers' Club has begun to run its own scheme. Details of the scheme are appended (Appendix 1.3). In essence a potential new falconer is given two years' instruction via two "mentors", one of which is a local practising falconer, the other a specialist on the species owned, or intended to be bought, by the novice. Progress of the novice falconer is assessed annually. It is this form of on-going practical, as well as theoretical, instruction that is vital for understanding the needs of a raptor and appreciating how to furnish those needs. The establishment of such a scheme is to be commended.

Taking this concept of training one step further, when RBA members were asked if a new keeper should require a *compulsory* licence i.e. some index of competence, to keep a raptor, the majority felt that was a good idea (30/38, 78.9%) including the Committee members of the RBA.

Those surveyed are those with inside information about welfare standards in the raptor keeping community. It would seem that they are aware of the problems and are willing to accept new controls.

### 8.6.2 ♦ Training Schemes used Abroad

Falconers are not born overnight; training is surely prerequisite. Some countries e.g. Germany, USA and Zimbabwe have apprenticeships implicit in the legal framework under which falconry operates. The US Fish and Wildlife Services' regulations for falconry are described below as an exemplar as to how this can be organised.

In the USA there are three classes of permits: apprentice, general and master.

#### ♦ *The Apprentice*

The apprentice must be at least 14 years of age and be sponsored by a falconer of either of the more advanced classes with the proviso that the falconer has no more than three apprentices. The apprentice may own only one raptor during the first year of apprenticeship and this bird may be replaced only once during a 12 month period. They are eligible to possess raptors taken from the wild of the following species: American Kestrel, Red-tailed Buzzard, Red-shouldered Buzzard or a Goshawk (the latter in Alaska only).

#### ♦ *The General Permit Holder*

General permit holders must be at least 18 years old and keep no more than two raptors of any species other than Golden Eagles or threatened species. During any 12 month period only two replacements are allowed.

#### ♦ *The Master Falconer*

Master falconers must have at least five years' experience and may keep three birds of any species as long as a number of conditions are met. These conditions include satisfactory facilities and equipment as inspected by a state representative and scoring of at least 80% in a supervised written examination on topics relating to husbandry and regulations etc.

It can be seen that the emphases of this system are the competence of the falconer and the welfare of the few raptors in his or her possession. Admission into the system depends upon a would-be falconer paying an appropriate fee and becoming a member of *one* of the recognised regional falconry clubs. It should be noted that raptor breeders in the USA may keep more birds, but these are held also under permit.

### 8.6.3 ♦ Courses

In the absence of a British would-be falconer taking up one of the British Falconers' Club apprenticeship schemes, he or she could learn the practical skills from friends or a course. Those surveyed as part of this research have, on the whole, rated any raptor management or falconry courses as satisfactory or above. However, the frequency of letters and articles relating to the poor quality of courses (e.g. Heming, 1994; Norman, 1994; Stevens, 1994) suggests that those surveyed have been either:

- ♦ lucky
- ♦ discerning enough to select only quality courses (which undoubtedly exist)
- ♦ happy with what they have learnt in the absence of knowing any better

As someone involved professionally in a well respected falconry business, Norman (1994) is in a position to make pass comments about the adequacy of courses. She says of courses "*five days tuition will teach just about enough to keep the bird in good health, two days enough to cost out and realise the commitment involved, one day is just a pleasant day out*". She goes on to call for some form of standardisation of teaching procedure.

At present the plethora of courses available of undetermined quality may result in the interested newcomer selecting a course at an attractive price or locale rather than on the basis of quality. If some courses were identified as *the* courses to take i.e. there was a standardised level of teaching and some form of quality approval, the situation could be improved. Such a system was suggested by the authors as part of the role of the new Hawk Board, discussed below.

## 8.7 THE ROLE OF THE HAWK BOARD

The Hawk Board has, by self admission, been ineffective to some extent in that it could neither reflect the views of all raptor keepers nor disseminate information to them, because there was no means by which to contact them other than indirectly via infrequent DoE mailings (Hawk Board, 1995).

Now that the DoE will no longer be in a position to contact the majority of raptor keepers, that avenue of communication is closed. Instead The Hawk Board has had to review its role. As with most committees of people they have been subject to much criticism from some individual raptor keepers spoken to. Whether such criticism is founded or not, The Board remains the only unified forum speaking on behalf of, or advising, all aspects of raptor keeping.

At the beginning of 1995, a sub-committee of The Hawk Board met to discuss its new role. Feeling that this was an opportunity for some substantive changes in

welfare standards across the board, the authors tabled a discussion document at the meeting. This document is appended (Appendix 8.3) and calls for the new Board to act not only as a focus for communication, but also the quality auditors of the raptor keeping world. The only feedback from this came from Neil Forbes who constructively felt that it was already too late for such mechanisms although he agreed with the sentiment.

Instead, the new Hawk Board will continue to deal with issues of raptor keepers, as before, on a case by case basis where necessary. In addition, it has called for all raptor keepers to join recognised clubs to facilitate communication via the club structure. It feels in this way club members will also conform to club Codes of Conduct although there will be no formal means of accountability. Accepting that funding may be problematic, it is disappointing that a role of quality auditor was not adopted in some form.

The new Hawk Board constitution is detailed in Appendix 8.4.

## 8.8 ***ANIMAL WELFARE AND CONSERVATION: COMMON AIMS FOR POLARISED PARTIES***

One of the apparent problems suffered by the raptor keeping community comes from the real and perceived threat to them from organisations with which they come into conflict, whether it be conservation organisations, anti-field sports organisations or animal welfare organisations. This wall of antagonism precipitates a closing of ranks of those who feel they must band together and speak with one voice in their own defence. To expose those within their ranks who need to be expelled for welfare or conservation violations brings public attention to them and these opportunities are likely to be exploited by those aforementioned organisations. The result may be the shielding of the indefensible.

If 74.4% (29/39) of the RBA members surveyed say that there are welfare problems in the raptor keeping community then now is the time for a constructive approach to resolve the problems and prevent their recurrence. For self regulation to work a brave stance must be taken in castigating those not conforming to standards.

With the exception of the arguments relating to the morality of field sports, the objectives of the polarised parties are the same i.e. animal welfare or conservation. As their views are the same, then let neither party leap to attack the other for purposefully weakening their stance by exposing their own failures. Instead, there could be a more constructive reconciliation of the polarised parties establishing the wholly apparent common ground and realising the common goal. Those at the extremes will be left behind as the centre ground moves toward their aim. Utopian perhaps, yet it would seem that the North American falconers successfully fill this niche.

This report has been written to highlight good and bad practice. No-one could deny there is neither. Let it form the basis from which the following recommendations can make reality the aim of healthy captive raptors which have only beneficial impact on the environment.

## 8.9 RECOMMENDATIONS

### Welfare

- ◆ Extensive, or even compulsory, use should be made of passive injectable transponders for identification of individual birds (to be paid for by the keeper). This would reduce the risk of theft and allow lost and found birds to be reunited with their owner more easily.
- ◆ Consideration should be given to an accompanying DNA profile to be sold with each bird. Such a profile would allow breeders to make reasoned decisions when considering breeding birds.
- ◆ The Hawk Board, or some other body, should take on the role of quality auditors to provide "approval" status for raptor management courses and raptor keeping and falconry clubs. Approved clubs should run apprenticeship schemes such as that put in place by The British Falconers' Club. Would-be keepers and falconers should be encouraged to take an approved course and/or apprenticeship scheme. Consideration should be given to making this sort of tiered apprenticeship scheme and approved club membership compulsory.
- ◆ To reduce the risk of birds becoming lost and subsequently suffering, further training should be given to keepers (via compulsory club membership?) to make them appreciate the necessity for bells and/or telemetric devices when flying birds at liberty.
- ◆ All raptor clubs should host and fund first aid and/or animal health courses with emphasis on dietary needs. Attendance by members should be mandatory.

- ◆ A central body, such as the Hawk Board, should continue to collate data from the keepers it represents. From this, analyzed data and considered reports should be published (as has been done to some extent previously) indicating trends and scale of raptor keeping activities. Subsequently, some form of voluntary regulation could then be developed concerning e.g. which species are kept in breeding programmes to avoid problems of surplus birds.
- ◆ The checklist of welfare criteria from this report (Chapter 3) should be used as an aid to more thorough and rigorous zoo inspections, as part of the Zoo Licensing scheme. Local authorities should be urged to ensure all establishments requiring licences are licensed accordingly.
- ◆ A public awareness campaign should be mounted highlighting the unnecessary physical and possible mental stress caused by stroking raptors. Indeed, contact between raptors and members of the public should be minimised to avoid a number of actual and future potential welfare concerns, as discussed.
- ◆ RSPCA inspectors should receive specialist bird of prey training with reference to various management aspects including transport of raptors.

### Conservation

- ◆ Extensive, or even compulsory, use should be made of passive injectable transponders for identification of individual birds (to be paid for by the keeper). An accompanying DNA profile should be held by each keeper and passed on if the bird is sold. From a conservation perspective this would make laundering stolen wild birds more difficult.
- ◆ Hybrids between one or more allopatric species should not be bred for falconry and other hybrids flown free should be imprinted to avoid *any potential risk* of interbreeding with wild birds. The same applies to non-indigenous species at risk of establishing populations. The extent of this potential problem warrants further examination and review.
- ◆ To reduce the risk of non-endemic birds being introduced, further training should be given to keepers to make them appreciate the necessity for bells and/or telemetric devices on birds flying at liberty in any situation.

- ◆ Public collections of raptors should commit themselves to education by improving aviary design and interpretation. Those giving flying displays should be appropriately trained. If necessary, an education officer could provide the commentary whilst a handler flies the birds. Evaluation of efficacy of education is required. Following this, the production of an education pack for those involved with both collections and flying displays would be valuable.
- ◆ The Zoo Federation should consider strategies to enable staff and/or researchers (including post-graduate students) to formally carry out and document relevant non-invasive research projects involving captive raptors on various aspects of their biology. Particular reference should be made to diet, breeding and behaviour.

#### Areas for Further Research

- ◆ In the absence of a body such as the Hawk Board (or other) taking on the role of quality auditors, alternative mechanisms should be devised. Schemes for implementation, evaluation and enforcement are essential.
- ◆ A mechanism for information dissemination to *all* keepers needs to be developed if club membership is not compulsory and if such clubs are not all represented on the Hawk Board. Dissemination of information from specialist vets is of particular importance.
- ◆ Further research needs to be carried out into the physiological effects of tethering. Systems for reducing the problems of tethering need to be devised or introduced more widely with appropriate education. Management techniques require further development with emphasis on allowing flying birds to be kept loose.
- ◆ As it would seem that many keepers, for convenience, buy a sole food source, further dietary research is required to produce a commercial, quality, balanced sole food source.
- ◆ Future assessment of the impacts to both welfare and conservation of the changes to the Scheduling of birds on the WCA needs to be made.

**REFERENCES**

## REFERENCES

- Aliker, W. (1995). Tigers of the Air. *Animal Keeper Magazine* 1, No.1, 16-18.
- Alison, B. (1981). Ontario falconry: the issue. *Ontario out of Doors* 13, No. 3, 83-87.
- Ament, S. (1994). Zoos and Market Research. *Zoo Federation News Newsletter* No. 68, Spring 1994, 38-52.
- Ames, A. (1993). Environmental enrichment for captive polar bears. *The Biologist* 40, 130-131.
- Ames, A. (1995). Considering welfare.... *Ratel* 22, No. 2, 40-44.
- Anon. (1992). Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Summer 1992, 28.
- Anon. (1994) Falconry: Lands of Funderlie. *The Falconers and Raptor Conservation Magazine*, Winter 1994, 13.
- Ayers, G. (1993). On the Right Course. *The Falconers and Raptor Conservation Magazine*, Autumn 1993, 36-37.
- B., V. (1995). The Next Generation. Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Autumn 1995, 34.
- Balchin, G. (1994). Eagle on Fox. *The Falconers and Raptor Conservation Magazine*, Spring 1994, 12.
- Basri, T. (1995). Quality not Quantity. Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Summer 1995, 32.
- Bateson, P. (1992). Do animals feel pain? *New Scientist* 134, No. 1818, 30-33.
- Beebe, F. L. and H.M. Webster (1985). *North American Falconry and Hunting Hawks*. Published by North American Falconry and Hunting Hawks, Denver, Colorado.
- Beecroft, P. (1993). Microchipping. *The Falconers and Raptor Conservation Magazine*, Autumn 1993, 14-15.
- Beecroft, P. (1994). Microchipping Update. *The Falconers and Raptor Conservation Magazine*, Winter 1994, 6.
- Beecroft, P. (1995). 200% Increase. Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Summer 1995, 31.
- BFSS (1993). *Code of Welfare and Husbandry of Birds of Prey and Owls*. Compiled by a subcommittee of the BFSS Falconry Committee and the Hawk Board. Published by BFSS, Kennington, London.
- Bird, D.M. and D.T. Brown (1991). *Evaluation of the feasibility of falconry and hawking in Quebec*. Unpublished report to Ministere du Loisir, de la Chasse, et de la Peche, Quebec.

References

- Bird, D.M. and S.K. Ho (1976). Nutritive value of whole animal diets for captive birds of prey. *Raptor Research* 10, 45-49.
- Bostock, S. St.C. (1993). *Zoos and Animal Rights. The ethics of keeping animals*. Routledge, London.
- Bristow, M. (1994). *The State of the Ark: perspectives on the role of zoos*. BBC Publications, London.
- Bristow, M. (1995). The Crass Menagerie. *BBC Wildlife* 13, No.9, 70-72.
- British Wildlife Rehabilitation Council (1989). *Ethics and legal aspects of treatment of wild animal casualties*. BWRC publication.
- Broom, D.M. (1986). Indicators of poor welfare. *British Veterinary Journal* 142, 524-526.
- Broom, D.M. and K.G. Johnson (1993). *Stress and Animal Welfare*. Chapman and Hall, London.
- Bryant, J. (1995). Song-Birds Silenced. *The Wildlife Guardian* 31, 14. Summer 1995, The League Against Cruel Sports.
- Bunn, D.S., A.B. Warbuton and R.D.S. Wilson (1982). *The Barn Owl*. T. & A.D. Poyser, Calton.
- Butler, D. (1994). Ringing the changes-there's danger in easing raptor rules. *Weekend Telegraph*, June, 3.
- Cadbury, J. (1992). This Illegal Killing Must Stop: a review of bird of prey persecution and poison abuse. *RSPB Conservation Review* 6, 28-35.
- Cade, T.J. (1988). *Peregrine Falcon Populations: their Management and Recovery*. The Peregrine Fund Inc., Boise, Idaho.
- Cayford, J., and S. Percival (1992). Born Captive, Die Free. *New Scientist* 6th February.
- Clark, T. (1995). Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Spring 1995, 30.
- Consorte-McCrae, A.G. (1995). *Pre-release techniques and behaviour improvement in reintroduction projects for mammal species*. M.Sc. Thesis, Durrell Institute of Conservation and Ecology, University of Kent. In prep.
- Cooper, J.E. (1989). Protocols for screening birds and guideline procedures for investigating mortality in endangered birds. *Disease and Threatened Birds*. Ed. J.E. Cooper. ICBP Technical Publication No. 10. 185-186.
- Cooper, J.E. (1991). *Veterinary Aspects of Captive Birds of Prey*. The Standfast Press, Gloucestershire.
- Cooper, M.E. (1987). *An Introduction to Animal Law*. Academic Press, London.
- Cooper, M.E. (1978). The Dangerous Wild Animals Act 1976. *The Veterinary Record* 102, 475-477.

## References

- Cromie, R.L., M.J. Brown, D.J. Price and J.L. Stanford (1991). Susceptibility of captive wildfowl to avian tuberculosis: the importance of genetic and environmental factors. *Tubercle* 72, 105-109.
- Cunningham, M. (1995). Raptor Rescue Annual Survey 1993/94. *The Falconers and Raptor Conservation Magazine*, Autumn 1995, 29.
- Dawkins, M.S. (1980). *Animal Suffering: the science of animal welfare*. Chapman and Hall, London.
- Dawkins, R. (1976). *The Selfish Gene*. Oxford University Press, Oxford.
- Dewar, S. (1992). *The conservation value of Barn Owl reintroduction*. Thesis carried out as part requirement for the award of the Advanced Diploma in Raptor Biology at The Durrell Institute of Conservation and Ecology, The University of Kent at Canterbury.
- Duncan, I.J.H. and D.G.M. Wood-Gush (1971). Frustration and aggression in the domestic fowl. *Animal Behaviour* 19, 500-504.
- Duncan, I.J.H. and D.G.M. Wood-Gush (1972). Thwarting of feeding behaviour in the domestic fowl. *Animal Behaviour* 20, 444-451.
- Duncan, I.J.H., and J.A. Mench (1993). Behaviour as an indicator of welfare in various systems. *Proceedings of the Fourth European Symposium on Poultry Welfare*. Eds. C.J. Savory and B.O. Hughes. Universities Federation for Animal Welfare.
- Durman-Walters, D. (1994a). *The Modern Falconer. Training, Hawking and Breeding*. Swan-Hill Press, Shrewsbury, England.
- Durman-Walters, D. (1994b). Flying a Hybrid. *The Falconers and Raptor Conservation Magazine*, Spring 1994, 8-9.
- Ellis, J. (1994). Buzzard Problem. Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Winter 1994, 31.
- Evans, I.M., J.A. Love, C.A. Galbraith and M.W. Pienkowski (1994). Population and range restoration of threatened raptors in the UK. In: *Raptor Conservation Today*. Eds. B.-U. Meyburg and R.D. Chancellor. Proceedings of the World Conference on Birds of Prey and Owls. World Working Group on Birds of Prey and Owls and Pica Press.
- Forbes, N. (1992). In sickness and in health. In: *Falconry. Art and Practice*, E. Ford. Blandford, London.
- Forbes, N. and G. Simpson (1993). An adenovirus outbreak in Mauritius Kestrels *Falco punctatus*. Abstract from *Proceedings of The First European Meeting of The Raptor Research Foundation* in conjunction with The Hawk and Owl Trust, The University of Kent, September 1993.
- Forbes, N. (1994). Self Plucking-Parasites or Boredom? *The Falconers and Raptor Conservation Magazine*, Summer 1994, 36.

## References

- Forbes, N. (1995). Tethered Birds. *The Falconers and Raptor Conservation Magazine*, Spring 1995, 36.
- Ford, E. (1992). *Falconry. Art and Practice*. Blandford, London.
- Fox, N.C. (1980). Condition in Hawks. *The Falconer* 7, No. 4, 263-270.
- Fox, N.C. (1982). The loop leash. *The Falconer* 7, No. 6, 414-415.
- Fox, N.C. (1992). The production of registered aviary-bred diurnal raptors in UK 1980-1991. *The Falconers and Raptor Conservation Magazine*, Summer 1992, 18-19.
- Fox, N.C. (1993). Observations on Learning Falconry. *The Falconers and Raptor Conservation Magazine*, Autumn 1993, 18-19.
- Fox, N.C. (1995a). *Aspects of Killing Wild Animals in Britain*. Unpublished report on behalf of The Hawk Board.
- Fox, N.C. (1995b). Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Summer 1995, 37.
- Fox, B. (1995c). ID cards for a smart new world. *New Scientist* 6th May.
- Freeman, B.M. and I.H. Flack (1980). Effects of handling on plasma corticosterone concentrations in the immature domestic fowl. *Comparative Biochemistry and Physiology* 66a, 77-81.
- Gerard, R. (1994). Captive Breeding Registration. Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Winter 1994, 30.
- Gibbons, D., S. Gates, R.E. Green, R.J. Fuller and R.M. Fuller (1993). *The New Atlas of Breeding Birds in Britain and Ireland 1988-1991*. T.& D. Poyser, London.
- Glazier, P. (1978). *Falconry and Hawking*. B.T. Batsford Ltd., London.
- Goldsmith, A. (1995). Mystery of the Eagles. *BBC Wildlife* 13, No.5, 59.
- Gross, W.B., J.D. Falkingham and J.B. Payeur (1989). Effect of environmental-genetic interactions on *Mycobacterium avium* challenge infection. *Avian Diseases* 33, 411-415.
- Halsbury's Statutes* (1987). Fourth Edition. Volume 2, Butterworth.
- Halsbury's Statutes* (1992). Fourth Edition. Volume 2, Butterworth.
- Harcourt-Brown, N. (1995). *Diseases of the pelvic limb of birds of prey*. Unpublished thesis submitted to the Royal College of Veterinary Surgeons.
- Hardin, G. (1968). The Tragedy of the Commons. *Science* 13, 1243-1248.
- Hardman, R. (1994). Pest controller swoops to conquer. *The Daily Telegraph* Tuesday 6th July, 1994, 9.

- Hawk Board (1995). Position Statement. *The Falconers and Raptor Conservation Magazine*, Summer 1995, 18.
- Heming, A. (1994). Wrong Start. Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Winter 1994, 30.
- Hodson, T. (1995). A Paternal Eagle. *The Falconers and Raptor Conservation Magazine*, Autumn 1995, 16.
- Houston, D.C. (1980). A possible function of sunning behaviour by Griffon Vultures, *Gyps spp.*, and other large soaring birds. *Ibis* **122**, 366-369.
- Howard, W.E. (1989). *Nature's Role in Animal Welfare*. The Hume Memorial Lecture delivered at The Royal Society of Medicine, London. Universities Federation for Animal Welfare.
- Hughes, B. and M. Grussu (1995). The ruddy duck in Europe and the threat to the white-headed duck. In: *Britain's Birds in 1992/93: the conservation and monitoring review*. Ed. S.P. Carter. Thetford, BTO/JNCC, 17-19.
- Humphreys, P.N. (1981). The Problems of Rehabilitation. In: *Recent Advances in the Study of Raptor Diseases*. Eds. J.E. Cooper and A.G. Greenwood. Chiron Publications Ltd. Keighley, West Yorkshire.
- Hunt Saboteurs Association (1995). Falconry the forgotten bloodsport. *Howl* Spring 1995, **57**, 10-11.
- Ironmonger, J. (1992). *The Good Zoo Guide*. Harper Collins, London.
- Jamieson, G. (1985). Against Zoos. In: *In Defence of Animals*. Ed. P. Singer. Blackwell, Oxford.
- Jenkins, S. (1992). Mankind's Greed. In: *Animal Rights and Human Wrongs*. Lennard Publishing, Harpenden, Herts.
- Jones, C.G., W. Heck, R.E. Lewis, Y. Mungroo, G. Slade and T.J. Cade (1995). The restoration of the Mauritius Kestrel *Falco punctatus* population. *Ibis* **137**, Supplement 1, 173-180.
- Kalmer, A (1995). *Genetic assessments in animal translocation programmes: re-introductions, re-stocking and conservation introductions*. Submitted M.Sc. Thesis, Durrell Institute of Conservation and Ecology, University of Kent.
- Kenward, R., M. Marquis and I. Newton (1981). What happens to Goshawks. *Journal of Wildlife Management* **45**, 802-806.
- Kester, N. (1995a). Electrocution, is it an issue?. *The Falconers and Raptor Conservation Magazine*, Summer 1995, 37.
- Kester, N. (1995b). Falconers upset over allegations. *Cage and Aviary Birds* August 26th, 3.
- Kiley-Worthington, M. (1990). *Animals in Circuses and Zoos: Chiron's World?*. Little Eco-farms Publishing, Basildon.
- Kimsey, B.A. and J. Hodge (1992). *Falconry Equipment*. Kimsey/Hodge Publications, Houston, Texas.

## References

- Kirkwood, J.K. (1993). Interventions for wildlife health, conservation and welfare. *The Veterinary Record*, March 6th, 235-238.
- Koene, P (1993). Emotional Expressions and Frustration in Domestic Fowls. *Proceedings of the Fourth European Symposium on Poultry Welfare*. Eds. C.J. Savory and B.O. Hughes. Universities Federation for Animal Welfare.
- Lyster, S. (1985). *International Wildlife Law*. Grotius Publications Ltd. Dyfed.
- MacDonald, M. (1995). *Killing for Conservation: the positive and negative impacts of field sports in the UK*. Submitted M.Sc. Thesis, Durrell Institute of Conservation and Ecology, University of Kent.
- Mallinson, J.J.C. (1995). Conservation breeding programmes: an important ingredient for species survival. *Biodiversity and Conservation* 4, No. 6, 617-635.
- Mavrogordato, J.G. (1960). *A Hawk for the Bush*. Neville Spearman, London.
- Mavrogordato, J.G. (1973). *A Hawk for the Bush*. Second Edition, Neville Spearman, London.
- McElroy, H. (1977). *Desert Hawking II*. Published in N. America by the author.
- McKenna, V. (1987). *Beyond the Bars, the Zoo Dilemma*. Thorsons.
- Michell, E.B. (1900) *The Art and Practice of Hawking*. The Holland Press, London.
- Mooney, N. (1995). Raptor Rehabilitation. Does it need falconry? *The Falconers and Raptor Conservation Magazine*, Summer 1995, 19.
- Morris Animal Foundation (1995). Relieving pain in wild birds of prey. *Animal News*, 2, 1 and 5.
- Myers, N. (1993). Biodiversity and the Precautionary Principle. *Ambio* 22, No. 2-3, 74-79
- Newton, I. (1990) Human impacts on raptors. In: *Birds of Prey*. Ed: I. Newton. Merehurst Press, London.
- Newton, I. (1994). Current Population Levels of Diurnal Raptors in Britain. *The Raptor* 21, 17-21. The Hawk and Owl Trust.
- Norman, B. (1994). Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Autumn 1994, 31.
- Nurse, A. (1992). *Offenses against wild bird legislation 1991*. RSPB Publication, Sandy, Bedfordshire.
- Nurse, A. (1993). *Offenses against wild bird legislation 1992*. RSPB Publication, Sandy, Bedfordshire.
- Nurse, A. (1994). *Offenses against wild bird legislation 1993*. RSPB Publication, Sandy, Bedfordshire.

## References

- Owen, M and W.A. Cook (1977). Variations in body weight, wing length and condition of mallard *Anas platyrhynchos* and their relationship to environmental changes. *Journal of Zoology* **183**, 377-395.
- Parkin, D.T., I. Hutchinson and J.H. Wetton (1988). Genetic fingerprinting and its role in bird research and law enforcement. *RSPB Conservation Review*, **2**, 22-24.
- Parry-Jones, J. (1993). *Falconry. Care, Captive Breeding and Conservation*. David and Charles, Devon.
- Parry-Jones, J. (1994). *Training Birds of Prey*. David and Charles, Devon.
- Parry-Jones, J. (1995a). Firing Line. Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Autumn 1995, 34.
- Parry-Jones, J. (1995b). That Old World Commercialism. *The Falconers and Raptor Conservation Magazine*, Autumn, 1995, 28.
- Patton, K.T., M.J. Croonquist and W.C. Crawford Jr. (1985). Management-related stress in the Red-shouldered Hawk. *Zoo Biology* **4**, 235-243.
- Rampling, D. (1994). Hungarian Hunter. *The Falconers and Raptor Conservation Magazine*, Summer, 1994, 26-27.
- Raptor Research Foundation (1996). The impact of falconry on wild raptor populations. *Journal of Raptor Research*, in press.
- Remple, J.D. (1993). Raptor Bumblefoot: a new treatment technique. In: *Raptor Biomedicine*. Eds. J.E. Cooper, J.D. Remple and D.B. Hunter. Chiron Publications. 154-160.
- Robbins, M. (1995). Whether to Tether. Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Summer 1995, 31.
- Robbins, M. (1993). Footnote. *The Falconers and Raptor Conservation Magazine*, Winter 1993, 34.
- Robinson, P. (1995). Flights of Fancy. *BTO News* **199**, July-August 1995, 6-7.
- RSPB (1995). Bird of prey dealer imprisoned in DNA case. *Birds*, August-October 1995, 12.
- RSPCA (1994a). Zoos in Europe. In: *The State of the Ark: Perspectives on the role of zoos*. BBC Publications, London.
- RSPCA (1994b). *Standards for Wildlife Rehabilitation*. RSPCA publication, Horsham, West Sussex, June 1994.
- RSPCA (1988). *Visiting Animal Schemes. A guide to good practice for Schools, Local Authorities and VAS Operators*. RSPCA Publication.
- Ryder, O.A. and A.T.C. Feistner (1995). Research in zoos: a growth area in conservation. *Biodiversity and Conservation* **4**, No.6, 671-677.
- Seyle, H. (1973). The evolution of the stress concept. *American Scientist* **61**, 692-699.

## References

- Stapleton, N. (1995). The longest days in the life of Ginger Lu-Lu. *The Falconers and Raptor Conservation Magazine*, Autumn 1995, 40-41.
- Stevens, (1994). Enough Cowboys. Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Winter 1994, 30.
- The Hawk Trust, London Zoo and The Hawk Board (1990). *Proceedings of the Raptor Rehabilitation Workshop*. Held at London Zoo, February 1990.
- Sykes, G. (1982). Nutritional deficiency and perosis in peregrine falcons. *Hawk Chalk* 21, No. 3, 33-36.
- Tendler, S. (1995). Breeder is jailed for selling wild peregrine falcons. *The Times*, Saturday 30th September, 1 & 11.
- Tingay, R. (1995). Eagle Trade. Letter to the Editor. *BBC Wildlife* 13, No.7, 96.
- Tudge, C. (1992). *Last animals at the zoo. How can mass extinction be stopped*. Oxford University Press.
- Tudge, C. (1995). Conservation-not only for zoos. *Animal Keeper Magazine* 1, No.1, 12-15.
- Tuffrey, C. (1995). Letter to the Editors. *The Falconers and Raptor Conservation Magazine*, Spring 1995, 31.
- UFAW (1988). *Why Zoos?* UFAW Courier No. 24, Universities Federation for Animal Welfare, Potters Bar, Herts.
- Whitehead, M. (1995). Saying it with genes, species and habitats: biodiversity education and the role of zoos. *Biodiversity and Conservation* 4, No.6, 664-670.
- Wilson, E.O. (1992). The Fundamental Unit. In: *The Diversity of Life*. Penguin, London.
- Wilson, D. (1995). A Touch of Frost. *The Falconers and Raptor Conservation Magazine*, Spring 1995, 16-17.
- Woodford, M (1960). *A Manual of Falconry*. A. and C. Black Ltd., London.
- World Society for the Protection of Animals and The Born Free Foundation (1994). *The Zoo Inquiry*.