

**CHAPTER 5**

**THE WELFARE AND**

**CONSERVATION ASPECTS OF**

**FALCONRY**



**Plate 5.1:** The falconer and bird have an unique relationship

## 5 CHAPTER 5: THE WELFARE AND CONSERVATION ASPECTS OF FALCONRY

### 5.1 INTRODUCTION

In the previous chapter the welfare of birds used for commercial purposes was assessed. This chapter deals, in the main, with individual falconers who, by comparison, own relatively few birds and these are kept for the recreational purposes of falconry.

*Definition Falconry:* "The sport of taking wild quarry in its natural state and habitat by means of trained birds of prey".

The intricacies of the sport of falconry are great. For detailed accounts the reader is directed to one of the many recent books on the subject (e.g. Durman-Walters, 1994a; Ford, 1992; Glasier, 1978; Parry-Jones, 1993; and 1994). A brief outline of the principles is given here.

#### 5.1.1 ♦ Principles of Falconry

A bird is "tamed" by manning so that it accepts the company of humans and their associated animals. It is subsequently trained to fly free and return to the fist or to a lure for food. It is then entered at quarry. Should the bird catch the prey the falconer must carefully exchange the prey for another piece of meat. This must be done in such a way so as the bird does not feel that the falconer has stolen the food. Over time a relationship should develop where the bird, recognising that it will get food if it catches the prey, associates this with the assistance of the falconer. Traditionally the falconer benefits by having meat for the table. Today's falconry is reputed to take pleasure not in the fact that the bird has killed, but in the quality of the flight of the bird. In other words it is the satisfaction of seeing a trained bird flying with adeptness and manouverability that is the reward.

The type of bird used in falconry determines the landscape to be flown over and the type of prey caught i.e.

- ♦ *Longwings (longwinged hawks)*
- ♦ *Shortwings (shortwinged hawks)*
- ♦ *Broadwings (broadwinged hawks)*

#### 1. Longwings

*Species of longwing used commonly in the UK*

Peregrine Falcon		<i>Falco peregrinus</i>
Lanner	"	<i>F.biarmicus</i>
Lugger	"	<i>F.jugger</i>

Saker	"	<i>F. cherrug</i>
Gyr	"	<i>F. rusticolus</i>
Merlin		<i>F. columbarius</i>
Hybrids of the above six species		

The longwings hunt avian quarry, the larger species typically taking corvids or game species (grouse, partridge, pheasants and wildfowl) i.e. those listed on WCA Schedule 2, Parts 1 and 2, in the appropriate seasons (Appendix 2.1).

The larger falcons (Peregrines, Lanners, Luggers, Sakers, Gyrs and hybrids of these) hunt and kill their quarry by means of a stoop i.e. a near vertical drop at great speed. The bird's feet strike the prey, which usually kills it, the falcon then often pulling out of the stoop to fly back to grab the quarry and take it to the ground.

Falconers sometimes use dogs to work an area to be hunted over. Typically a pointing dog sweeps the area from side to side attempting to find prey. Once scented, the dog goes on point and holds its point until the falcon is in position overhead. The dog is then ordered to flush the quarry at which point the bird stoops.

Merlins are flown at smaller avian prey and traditionally flown at Skylarks for which a specific DoE issued quarry licence is available. Wild Merlins predominantly prey on moorland songbirds including Skylarks and hence such species are the most appropriate quarry for falconry trained Merlins.

Merlins rely less on the speed of the stoop and more on the chase. They are agile little birds which will chase small avian prey on the level. However, the most satisfying for the falconer is the ringing flight which is played out with Skylarks. This upward ringing flight is an escape behaviour of the lark and Merlins may follow them upward to great heights.

Again the falconer may use his or her dog to work the field flushing quarry at which the Merlin is slipped. Merlins, like the short and broadwings (see 2 below), chase the quarry directly from the fist.

All of the longwings require open i.e. sparsely vegetated, country to hunt over as they are not as adept as the true hawks at entering vegetation to bind to prey.

## 2. Shortwings

*Species of shortwing used commonly*

Sparrowhawk	<i>Accipiter nisus</i>
Goshawk	<i>A. gentilis</i>

Both species of accipiter are renowned for their nervousness and flighty temperament, and their wont for chasing anything which looks like prey. They hunt by chasing prey directly from the fist in open countryside or in woodland.

The Sparrowhawk typically hunts small birds (thrush size and below) i.e. some of those listed in WCA Schedule 2, Part 2 (Appendix 2.1). A DoE issued quarry licence is required for birds not listed on Schedule 2, Part 2. Sparrowhawks are often hunted by walking along hedgerows flushing small birds before the hawk. As a falconry bird it has become increasingly popular over the past 10-15 years to fly Sparrowhawks imprinted on humans. This results in a bird which in some respects is more tractable.

Goshawks hunt rabbits, squirrels and some larger avian game species. For hunting rabbits, a dog may be used to flush the quarry from vegetation. In the absence of a dog, a ferret may be used. The ferret is put down a rabbit hole with the intention of flushing a rabbit. The rabbit, being afraid of the ferret, will attempt to escape and may bolt from its burrow. The Goshawk anticipates this and chases the prey when it emerges. Many falconers chose white ferrets over typical polecat coloured ferrets to reduce the chance of the bird mistaking it for prey and attacking it.

### 3. Broadwings

#### *Species of Broadwing used commonly*

Common Buzzard	<i>Buteo buteo</i>
Red-tailed Buzzard	<i>B.jamaicensis</i>
Ferruginous Buzzard	<i>B.regalis</i>
Harris Hawk	<i>Parabuteo unicinctus</i>

*Eagles, including Hawk-Eagles are only occasionally hunted with*

The Buteos and Parabuteos (i.e. the Harris Hawk) typically take Rabbits *Oryctolagus cuniculus*, Hares *Lepus capensis*, Pheasants *Phasianus colchicus*, Moorhens *Gallinula chloropus* and Grey Squirrels *Sciurus carolinensis*. This said, Harris Hawks may take a large range of avian quarry. In common with the shortwings, they are flown at quarry which is often flushed from e.g. hedges by a dog or rabbit holes by a ferret. The broadwings can be hunted in much the same way as the shortwings over the same types of landscape. Harris Hawks and Red-tailed Buzzards are most commonly flown by 'following on' i.e. trained to follow a falconer as he or she moves over ground holding quarry.

The larger broadwings i.e. the eagles require open spaces over which to hunt, typically taking Rabbits and Hares. They may be flown at prey as large as foxes or even deer. In other countries Golden Eagles *Aquila chrysaetos* are flown at Roe Deer *Capreolus capreolus*, however The British Falconers' Club have a voluntary ban on such activities as they consider it inhumane to both deer and eagle.

### Hunting from Horseback

Falconry may be conducted from horseback where the falconer is mounted and the bird is slipped from the fist in the normal way. The extra complication is training the bird and horse to become accustomed to each's company, ensuring that the horse does not shy when the bird is slipped or lands back on the fist.

### Suitable Hunting Ground

Before considering purchase of a bird it is necessary to determine the type of hunting grounds available to a falconer i.e. the landscape and the permission from the landowner. This should determine the type of bird to purchase.

#### 5.1.2 ♦ Falconry in the 1990s

The increase in the number of people coming into the sport of falconry is a double edged sword for the existing falconers. On one hand more falconers provide more associates with which to share a pastime but more importantly, a louder voice should the sport be threatened by campaigns or potential legislation.

Conversely, an influx to falconry means that falconers are more obvious to an outside world and are drawn to the attentions of anti-field sports campaigners. As examples, this research was commissioned; articles now appear regularly in the journal of The League Against Cruel Sports (The Wildlife Guardian); an article appeared recently in the magazine of The Hunt Saboteurs Association (1995) calling for sabotage of falconry field meets; and Central Television's Cook Report (1993) focused on the theft of wild birds for falconry, a programme which caused great consternation to those in the falconry community. Additionally, new falconers may be either good or bad and the bad may "bring the sport into disrepute" as is often cited by other falconers.

#### AIM

This chapter aims to assess:

- ♦ the scale of falconry activities
- ♦ the welfare of birds used in falconry
- ♦ the welfare of prey
- ♦ the implications for conservation of the sport

## 5.2 METHODS

Data were collected by several methods:

1. Reviews of available literature
2. Informed individuals were approached and interviewed
3. The researchers accompanied falconers active in their sport

The following falconry activities were observed:

- ◆ Falcons hunting grouse
  - ◆ Goshawks hunting rabbits (and other incidental prey)
  - ◆ Broadwings (Buteos) hunting rabbits
  - ◆ Merlins hunting Skylarks
4. Falconers were surveyed using a questionnaire.

The questionnaire aimed to assess practice of the falconers and to provide a consensus on some issues for which there are not necessarily correct or incorrect ways but ways which balance welfare concerns or are dependent on the bird. The questionnaire had to be designed in a way which did not seem inflammatory and hence could not ask too many contentious questions to which the falconers may be sensitive. The questionnaire was designed with both open ended free response questions and specific multiple choice questions. All questionnaires were answered anonymously. A copy of the questionnaire is appended (Appendix 5.1). Questions relating to the following were asked:

- ◆ experience
- ◆ reasons for taking up the sport
- ◆ how the sport was learnt
- ◆ whether they had taken a course
- ◆ their first bird and what is considered an ideal first bird
- ◆ species kept for whatever purpose
- ◆ treating injured birds in the field
- ◆ whether they had taken a raptor first aid course
- ◆ tethering
- ◆ the practicalities of keeping flying birds loose in aviaries
- ◆ moulting birds whilst tethered
- ◆ tethering owls
- ◆ frequency of bathing of birds
- ◆ flying birds wearing mews jesses
- ◆ telemetry: is it necessary?
- ◆ telemetry: why is it important?
- ◆ despatching rabbits

- ◆ how often birds *should* be and *need* to be flown
- ◆ time available for falconry
- ◆ lamping
- ◆ concerns about new falconers
- ◆ club membership
- ◆ apprenticeship schemes
- ◆ effect of bird of prey flying displays on the sport
- ◆ whether or not an LRK.

### 5.2.1 ◆ Contacting Falconers for the Survey

Time was spent developing a trusting relationship with members of the falconry community assuring them that the research was being carried out independently and objectively. As the names and addresses of falconers held by the DoE are protected by The Data Protection Act (1984), canvassing directly by post was impossible. Moreover, falconers as a whole are very sensitive to the attentions of any individual or organisation which may threaten their sport and an unsolicited postal questionnaire would have been ineffective.

As an alternative it was decided to canvass falconers by attending falconry club meetings, presenting a short talk about the research, responding to concerns, discussing issues and distributing questionnaires which were collected at the end of the meeting.

As stressed previously it was necessary to develop a trusting relationship. It was considered that this could be best achieved by meeting members of the clubs' committees before asking to canvas their club members. This was done by approaching committee members of the different clubs attending The British Falconry and Raptor Fair, held at Althorp Hall, Northampton, May 1994. These initial meetings was followed up by a postal request and further correspondence.

Eventually, from these contacts only six separate club meetings were attended (one club was revisited after a hostile initial response). Other clubs declined a visit by stating that The Hawk Board reflected their views and these should be sought there.

In total four separate clubs were assessed: one club is very large and has two main regional groups, club meetings at both the branches were attended.

It has been decided to allow the clubs to remain anonymous as it seems unfair to identify those kind enough to collaborate.

The clubs have been coded thus:

- ◆ Club A
- ◆ Club B
- ◆ Club C
- ◆ Club D

Club C, one of Britain's largest clubs, agreed to participate in the research. Their secretary suggested incorporating the questionnaire into the club's magazine. Members were requested by the secretary to return these to him. He then forwarded these to one of the researchers. Clearly, it would have been preferable for the completed questionnaires to be returned directly to the researcher as the possibility exists that a selection process may have occurred. However, this compromise was reached. The researcher attended two regional club meetings to encourage completion of the questionnaire.

Although much time had been spent in contact and building up a relationship with The British Falconer's Club, they eventually declined participation in the research by questionnaire survey as they were critical of the methodology. Protracted correspondence did not assuage the situation. This was disappointing as participation of their numerous regional groups would have increased the sample size considerably.

#### **5.2.2 ◆ Impact on The Private Members' Bill: The Wild Mammals (Protection) Bill 1995 on the Survey**

Unfortunately the timing of the canvassing of falconers coincided with the second reading of the Private Members' Bill: The Wild Mammals (Protection) Bill 1995. This was unfortunate as it raised tension and concern in the falconry community. The high profile RSPCA campaign in support of the Bill hindered the research further as much time was spent at the club meetings fielding questions about the activities of the RSPCA.

It was decided, therefore, that further approaches to other clubs to increase the sample size would not be carried out.

### **5.3 RESULTS AND DISCUSSION**

#### **5.3.1 ◆ The Scale of Falconry Activities**

Where once were but a few falconry clubs, there are now approximately 35 clubs (including the regional groups of the British Falconers' Club) across the country. Appendix 5.2 is a database of those known of but there are undoubtedly more. In addition to clubs, there are now at least 52 falconry schools and other

establishments which run courses on falconry or other aspects of raptor management (detailed subsequently in Chapter 7, section 7.3.2); and many suppliers of falconry equipment, birds and foodstuffs. Indeed, an industry has built up around it. There are thought to be approximately 2000 *active* falconers practising their sport in Britain today (Fox, 1995a)(Appendix 5.3).

### 5.3.2 ♦ The Questionnaire Survey

Eventually some 121 questionnaires completed by falconers were assessed. Assuming respondents to be active falconers, this equates to a canvassing of approximately 6% of the total number of active falconers (121/2000). Return rates for the three clubs meetings attended where questionnaires were collected at the end were in the region of 50% or greater (with the exception of the first, and hostile, meeting with Club A where only one was collected, the subsequent meeting at this club produced a higher return rate). Total values cited in this section may not add up to 121 due to non responses to specific questions or multiple responses being given.

*The relatively small sample size should be appreciated and caution should be used extrapolating from any conclusions.*

#### 5.3.2a ♦ Experience Profile of Falconers

Figure 5.1 shows the experience profile of the falconer i.e. how long the respondents have been involved in the sport of falconry. With the exception of the >15 years category, most have taken up the sport within the last five years.

If the data are broken down further (Table 5.1 and Figure 5.2) and into individual clubs it can be seen that the majority of the experienced falconers (i.e. >15 years' worth of experience) are in Club C (Figure 5.3). Club C is the old established club so it is not surprising that some of its members have been falconers for many years. The membership of this club skews the results somewhat. Irrespective of this, it can be seen that over the last ten years there has been an increase in the number of falconers, with a great many coming into the sport during the early 1990s. This increase reflects the greater availability of birds bred in captivity since the introduction of WCA. This recent increase also mirrors the increase in raptor centres (Figure 4.1).

#### 5.3.2b ♦ Reasons Cited for Taking up Falconry

To determine why they took up the sport, the respondents were given three options and an "other" category from which to select. Results are summarised in Table 5.2. They were requested to select one or more category (multiple responses were given). The majority of respondents (77/121, 63.6%) claimed to have had a lifelong interest in birds of prey (Figure 5.4). Such great interest in one particular taxon may be due to the enigmatic nature of raptors.

Table 5.1: Experience profile of falconers

Years of experience	Number of falconers:				Total	%
	Club A	Club B	Club C	Club D		
<1 year	0	5	1	4	10	9.4
1-2 years	1	4	2	5	12	11.3
3-5 years	4	11	4	8	27	8.4
6-10 years	8	3	4	6	21	4.9
11-15 years	1	3	5	1	10	1.8
>15 years	4	1	18	3	26	(24.5)
<b>Total</b>	<b>18</b>	<b>27</b>	<b>34</b>	<b>27</b>	<b>106</b>	

Figure 5.1: Experience Profile of Falconers

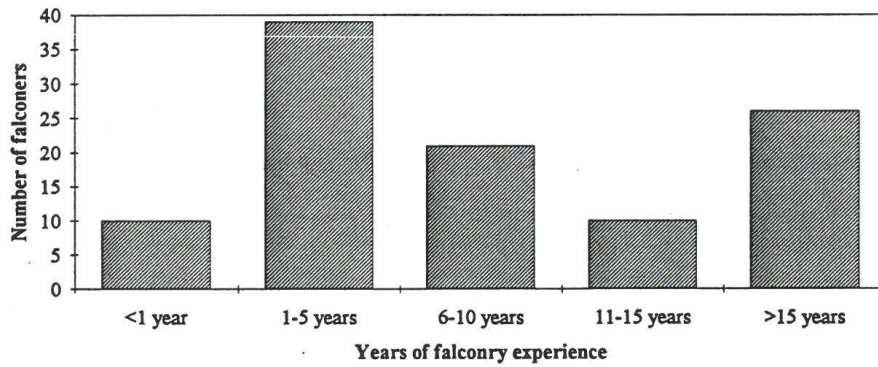


Figure 5.2: Experience Profile of Falconers: data broken down further

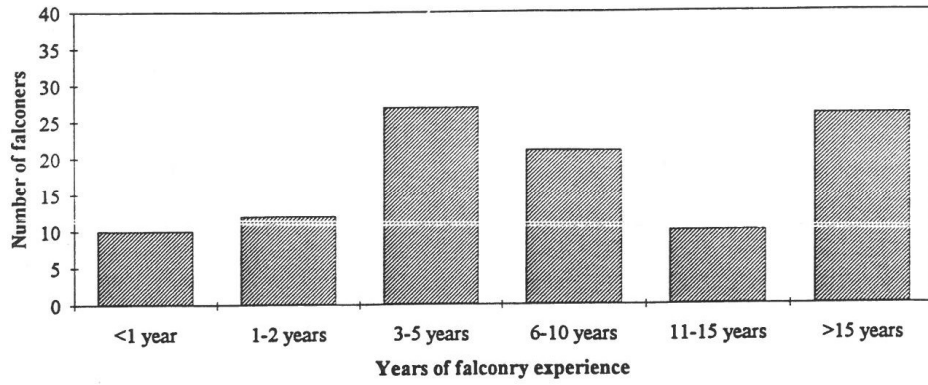


Figure 5.3: Experience Profile for Members of the Four Falconry Clubs Surveyed

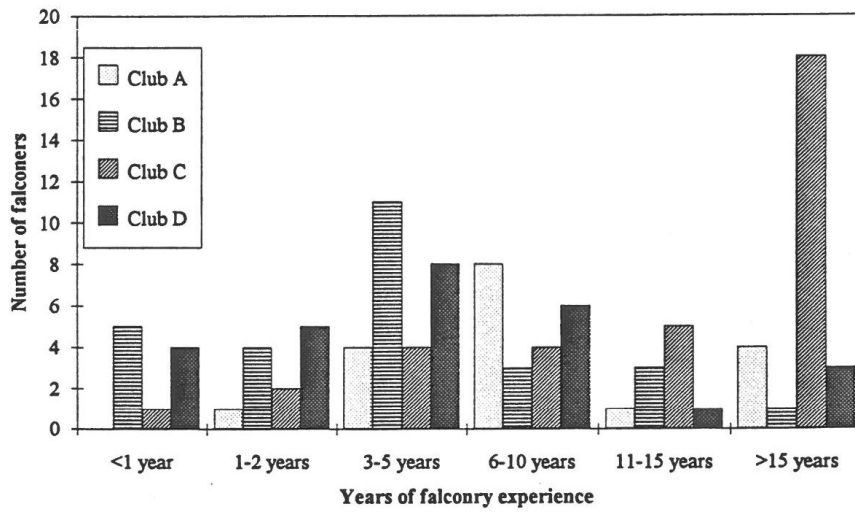
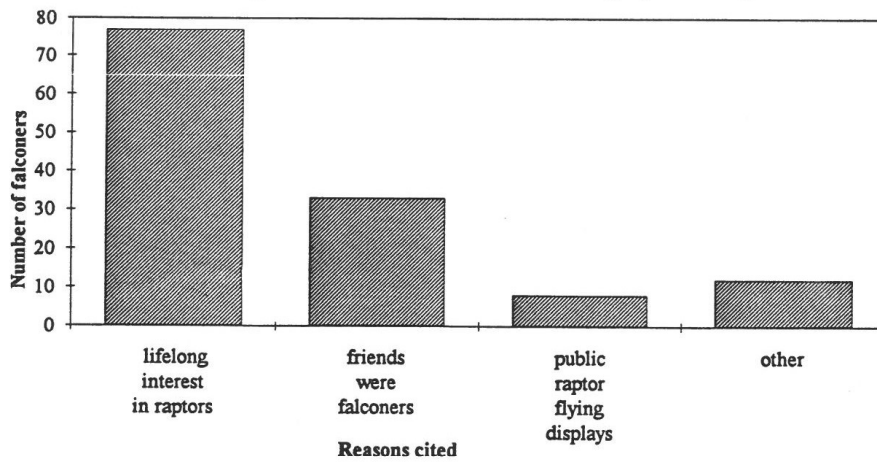


Table 5.2: Reasons cited for taking up falconry

Reason	No. responses	Percent of falconers
lifelong interest in raptors	77	63.6
friends were falconers	33	27.3
public raptor flying displays	8	6.6
other	12	9.9
<b>Total</b>	<b>130</b>	<b>107.4</b>

Figure 5.4: Reasons Cited for Taking Up Falconry



The second most cited reason was that friends/family/colleagues were falconers (33/121, 27.3%). It is easy to understand how an interest may be kindled if those close are falconers. As with many field sports there is a familial interest, with expertise being handed down through generations. The interest in falconry and induction of new falconers is sure to continue if friends take up their friend's hobby, who take up their friend's hobby and so on.

A small number of respondents cited raptor flying displays as one of the reasons for taking up the sport (8/121, 6.6%). Of six of these respondents who had given an indication of their experience, four had been falconers for under five years. This is a very small sample but implies that the viewing of flying displays does, in some cases, encourage people to take up falconry. Casual conversations with two people taking a course at a raptor centres found their decision to take the course followed seeing a flying display. They were going to buy birds on completion of the course. It should be noted, perhaps, that there appears to be a certain amount of 'snobbery' within the falconry community and it may seem faddist to have taken up the sport for to this reason, hence it may not be admitted.

Other reasons for taking up the sport include individuals who had been given wild injured raptors to rehabilitate in the past.

5.3.2c

#### ◆ Learning the Sport

When asked how they learnt the sport, the majority said they had learnt through friends/family/colleagues or from books, these accounted for 50.4% (61/121) and 56.2% (68/121) of respondents respectively (multiple responses were given to the question). A smaller percentage (33/121, 27.3%) of respondents had taken a course. The results are summarised in Table 5.3 and illustrated in Figure 5.5.

Falconry is such a complex sport and it would be thought that most would have attempted to learn the theory from books. Whilst a theoretical understanding is desirable the most vital aspect is practical experience. Whilst heartening to know that such experience was learnt from friends/family/colleagues it is uncertain where practical experience was gained for the others. A course usually provides no more than two weeks (usually less) of tuition.

5.3.2d

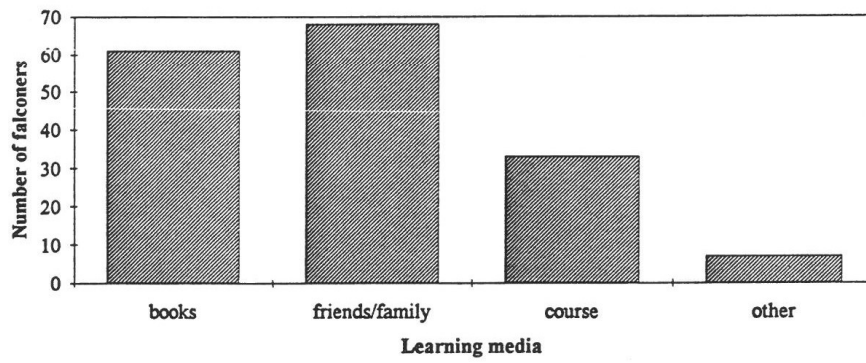
#### ◆ Falconry Courses

Of 114 respondents, 39 (34.2%) had taken a course in falconry (27.9% claimed to have taken a course in the last question). Whilst the quality of their courses may not have been excellent, this implies that 66.7% of the falconers have never received formal training in raptor management or falconry. However, of these 76 falconers who had not taken a course, 56 learned the sport from friends/family/colleagues. Of falconers that had answered both the question regarding how they learnt falconry and this question regarding courses (i.e. ignoring non-responders), 21 were identified as having learnt neither from

Table 5.3: How falconers learnt about falconry

<u>Learning medium</u>	<u>No. responses</u>	<u>Percent of falconers</u>
books	61	50.4
friends/family	68	56.2
course	33	27.3
other	7	5.8
<b>Total</b>	<b>169</b>	<b>139.7</b>

Figure 5.5: How Falconers Learnt About Falconry



friends/family/colleagues or a course i.e. they would seem to have received no form of practical experience other than that self taught.

Falconers were asked when they took their course (Table 5.4) and it can be seen from Figure 5.6 that this correlates with the experience profile (Figure 5.2) i.e. courses were taken at the beginning of their taking up falconry as a pastime. It is likely that those who have been falconers for over ten years probably had little access to courses as there were very few in existence.

When asked to rate how good their course was, the majority felt the course they took was good or excellent (30/39, 76.9% respondents)(Table 5.5). This is encouraging as it implies that their training was appropriate and that they felt adequately instructed following the course.

The whole question of course quality has been raised in Chapter 4 (section 4.3.3) and throughout the raptor keeping community. The authors would agree with Fox (1993) who feels that further research is needed to assess how thorough these course are (it was not considered cost effective for either of the researchers to attempt to take a large enough sample size of courses for assessment as they can be expensive: a one day course costs approximately £50-60, and a five day course costs approximately £250). Fox goes on to describe how many beginners (of urban background) graduating from his intensive three week courses became "muddlers" who never really get it together. It is likely that his courses (which no longer run) were of good quality as he is a well respected and experienced falconer. He is perceptive enough to realise that some of those getting good tuition for three weeks never become proficient. Hence, it is probable that many taking poorer quality courses, for a shorter period, are even less prepared.

Ideally those interested in the sport would undertake a good quality course to determine whether interest is real or superficial. Following this, the novice should be assigned to a quality approved falconer who would teach him or her in the practical aspects. Only following a proven understanding of both theoretical and practical aspects would the novice be allowed a bird. Apprenticeship schemes are discussed subsequently in this chapter (section 5.3.2y).

### 5.3.2e

#### ◆ The Beginner's Bird

As a first bird, i.e. when they were least experienced, most falconers had an Eurasian Kestrel (44/119 37.0%) and 26% (31/119) had a Common Buzzard (Table 5.6). When asked if they could have their time again, which would they have as a first bird, most of those which had a Common Buzzard would do so again. However, only 8/44 (18.2%) who had a Kestrel would do so again. This implies that 81.8% felt that this species was too difficult for a beginner and probably had some problems or found that the bird did not survive long. In addition to Common Buzzards, the other species which they hypothetically would have had were Harris Hawks or Red-tailed Buzzards (Figure 5.7).

Table 5.4: Years since course was taken by falconers

Years since course taken	No. falconers	Percent of falconers
<1 year	3	8.1
1-2 years	5	13.5
3-5 years	11	29.7
6-10 years	8	21.6
11-15 years	5	13.5
>15 years	5	13.5
<b>Total</b>	<b>37</b>	<b>100</b>

Figure 5.6: When Falconers took Falconry Courses

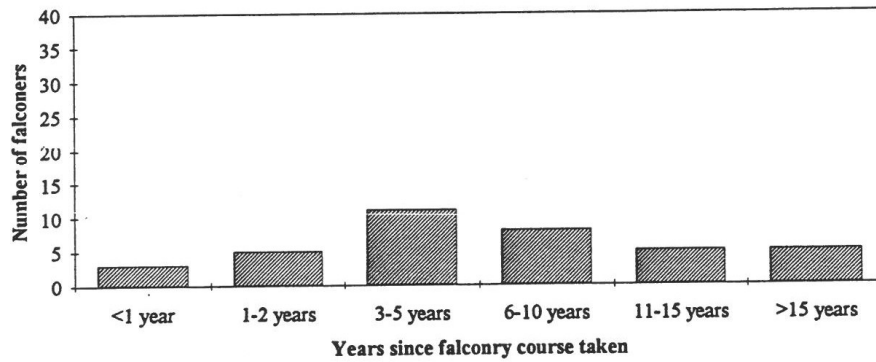


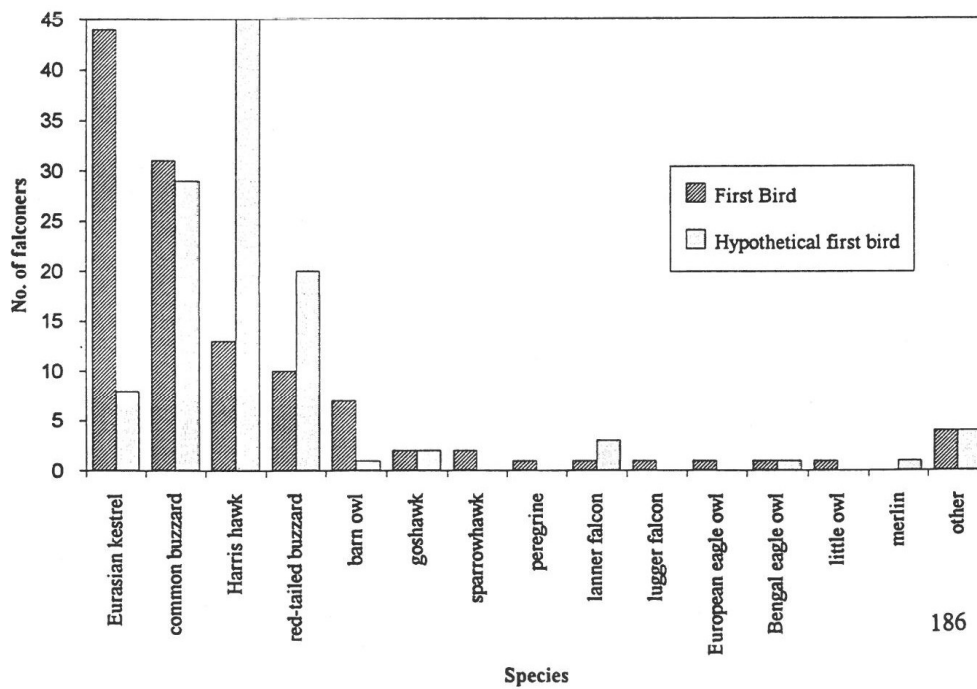
Table 5.5: Rating for courses taken by falconers

Rating	No. falconers	Percent of falconers
V. Poor	3	7.7
Poor	2	5.1
Fair	4	10.3
Good	17	43.6
Excellent	13	33.3
<b>Total</b>	<b>39</b>	<b>100</b>

Table 5.6: First bird owned by falconers and their hypothetical first bird

Species	First bird		Hypothetical first bird	
	No. falconers	Percent	No. falconers	Percent
Eurasian kestrel	44	37	8	7
common buzzard	31	26	29	25
Harris hawk	13	11	45	39
red-tailed buzzard	10	8	20	18
barn owl	7	6	1	1
goshawk	2	2	2	2
sparrowhawk	2	2	0	0
peregrine	1	1	0	0
lanner falcon	1	1	3	3
lugger falcon	1	1	0	0
European eagle owl	1	1	0	0
Bengal eagle owl	1	1	1	1
little owl	1	1	0	0
merlin	0	0	1	1
other	4	3	4	4
<b>Total</b>	<b>119</b>	<b>100</b>	<b>114</b>	<b>100</b>

Figure 5.7: First Bird Owned by Falconer and Hypothetical First Bird



To determine the significance of the difference in responses to the question about first bird and hypothetical first bird, a nonparametric sign test was carried out between the two data sets. This test uses differences, whether positive or negative, rather than quantitative data, to determine the relationship between the data. Table 5.7 shows that the difference was statistically significantly different ( $p < 0.000$ ).

Indeed, when asked which species is ideal for all beginners they responded in a similar way indicating that the three buzzard species (including Harris Hawks) were good beginners birds. This is a commonly accepted idea within falconers and keepers (Parry-Jones, 1993; 1994; Ford, 1992; Durman-Walters, 1994a).

The emergence of the Harris Hawk into the raptor keeping world in recent years has provided a bird which is considered by many as an ideal beginner's bird due to its generally mild temperament and "sociable" nature. This is a bird which would not have been widely available to those who took up falconry more than ten years ago.

Such choices for a beginner's bird show a level of responsibility within the falconers. However, there was the occasional response, from possible jokers or irresponsible falconers suggesting species such as Bonelli's Eagle *Haliaeetus fasciatus*. Although this bird has its merits in falconry it is certainly not a bird for the inexperienced.

The subject of the beginner's bird is discussed further in the subsequent General Discussion (section 5.4.1).

5.3.2f

#### ◆ Numbers of Birds Kept by Individual Falconers

Table 5.8 and Figure 5.8 show the total numbers of birds kept by individual falconers. The numbers vary between one bird and 31 birds, with the majority falling into the former category. Breaking this down into number of birds flown by individual falconers, again the majority fly only one bird, although there were 15/93 (16.2%) that fly three or more birds, with one falconer apparently flying 12 birds (Table 5.9; Figure 5.9). Perhaps this falconer is a professional who spends all day flying birds. Of those attempting to breed birds, most kept a pair of birds as shown in Figure 5.10 (Table 5.10).

5.3.2g

#### ◆ Species Kept

Table 5.11 and Figure 5.11 show the total numbers and species of bird kept by the falconers canvassed. Of the six most commonly kept species, five were species typically used for falconry. Barn Owls were the second most commonly kept species which emphasises how many individuals of this species are kept in captivity.

**Table 5.7: Results of sign test comparing data sets of First bird and Ideal First bird for falconers**

Sign Test	
Z value	2-tailed p value
5.4679	0.0000
N	
Falconers whose hypothetical first bird was different to their actual first bird	38
Falconers whose hypothetical first bird was the same as their actual first bird	50
<b>Total</b>	<b>88</b>

Table 5.8: Total number of birds kept by individual falconers

	No. birds kept	No. falconers	Percent of falconers
	1	37	37.8
	2	18	18.4
	3	9	9.2
	4	7	7.1
	5	4	4.1
	6	4	4.1
	7	4	4.1
	8	2	2.0
	9	1	1.0
	10	4	4.1
	11	1	1.0
	12	3	3.1
	21	2	2.0
	28	1	1.0
	31	1	1.0
<b>Total</b>	<b>418</b>	<b>98</b>	<b>100.0</b>

Figure 5.8: Total Number of Birds Kept by Individual Falconers

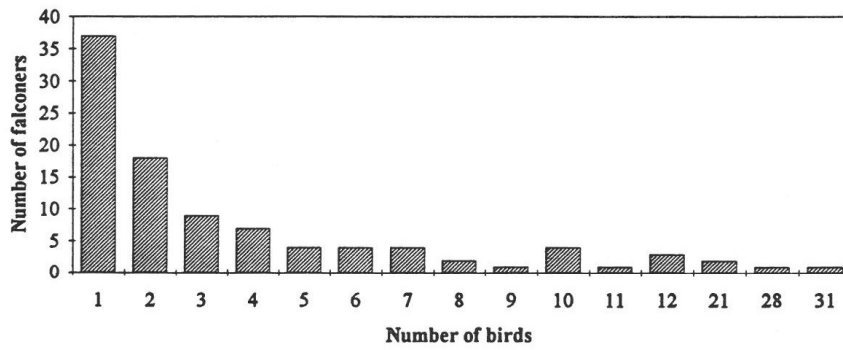


Table 5.9: Number of birds flown by individual falconers

	No. birds flown	No. falconers	Percent of falconers
	1	55	59.1
	2	23	24.7
	3	7	7.5
	4	1	1.1
	5	1	1.1
	6	2	2.2
	8	1	1.1
	9	1	1.1
	10	1	1.1
	12	1	1.1
<b>Total</b>	<b>182</b>	<b>93</b>	<b>100.0</b>

Figure 5.9: Number of Birds Flown by Individual Falconers

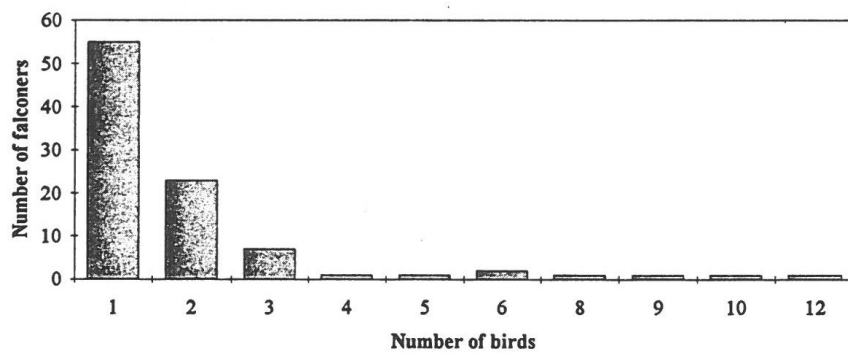


Table 5.10: Number of birds kept for breeding by individual falconers

	No. birds for breeding	No. falconers	Percent of falconers
	1	7	16.3
	2	19	44.2
	3	5	11.6
	4	4	9.3
	5	2	4.7
	6	2	4.7
	9	2	4.7
	10	1	2.3
	12	1	2.3
<b>Total</b>	<b>138</b>	<b>43</b>	<b>100.0</b>

Figure 5.10: Number of Birds Kept for Breeding by Individual Falconers

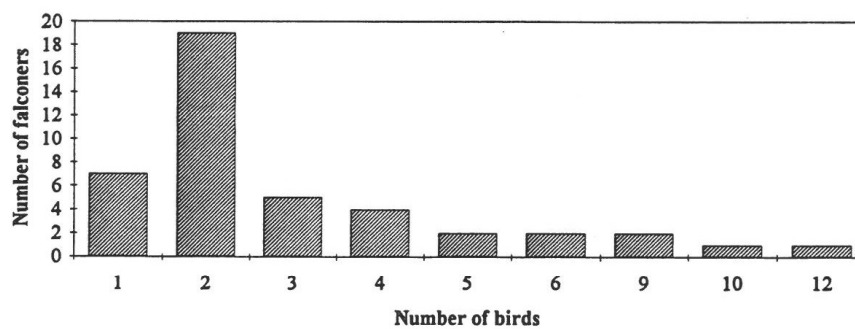


Table 5.11: Total number of birds kept by falconers according to species

<u>Species</u>	<u>No. of Birds</u>
Harris hawk	55
barn owl	53
common buzzard	39
Eurasian kestrel	35
peregrine	29
red-tailed buzzard	27
tawny owl	24
goshawk	18
lanner falcon	17
little owl	17
Bengal eagle owl	16
merlin	13
saker falcon	9
sparrowhawk	8
snowy owl	5
European eagle owl	3
gyr falcon	2
lugger falcon	1
other	36
<b>Total</b>	<b>407</b>

The falconers were asked which of their birds were kept for flying, and which for breeding. The results are presented in Table 5.12 and 5.13 respectively. Figure 5.11 illustrates the results. Perhaps not surprisingly, Harris Hawks are the most commonly flown raptor. Coupled with its appropriate temperament as a falconry bird, it is a rapacious and voracious killer and hence very popular. Similarly, this species was the most commonly kept for breeding as there is a market for these birds.

Figure 5.12 illustrates the number of species kept per species group. In an attempt to estimate how many birds are merely kept i.e. are not flown or are not in breeding programmes, figures for flying and breeding birds per species group were added and subtracted from the total number of birds kept (Table 5.14). The results are undoubtedly an underestimation as some individual birds are probably kept for both flying and breeding. It can be seen that owls are the most commonly group merely kept. Traditional falconers do not consider owls as falconry birds at all. Of the buzzards it can be seen that many Common Buzzards are merely kept (Figure 5.11). This may be a reflection of these birds being bought as a beginners bird, flown for some time but then replaced by another "more sophisticated" or successful bird (in terms of catching prey) such as a Harris Hawk. They may then spend the rest of their lifetime in an aviary, or worse, tied to a perch.

### 5.3.2h

#### ◆ Injuries in the Field

The nature of most raptors is to fly fast and catch moving targets which will endeavour to escape. To this end raptors are often at risk of injury either by flying into obstacles or by prey fighting back. These factors have taken their toll on wild raptors with resultant mortality or morbidity. The same is true of falconry birds although the comparative scale of these occurrences in falconry and wild birds is unknown.

When asked if they had ever treated an injured bird in the field, 37/117 (31.6%) respondents confirmed that they had. It is uncertain as to the nature of these injuries but from discussions with falconers it seems that one of the main problems is birds flying into wires. Indeed, in a countryside laced with wire, including barbed wire, it is not surprising that such injuries occur. Some injuries of falconry birds are probably caused by the bird being less fit and agile than a wild bird and being unable to pull out of a manoeuvre. It is likely that wild birds with a comparable level of unfitness would probably not survive anyway.

Unlike the wild situation the falconer has the option to hunt his or her bird away from possible hazards, including roads. There are occasional reports of road casualties involving falconry birds (e.g. Stapleton, 1995). Indeed, the motor car is probably directly and indirectly responsible for more death and debilitation of wildlife than any other factor. It is an irresponsible falconer who hunts his or her bird near a road.

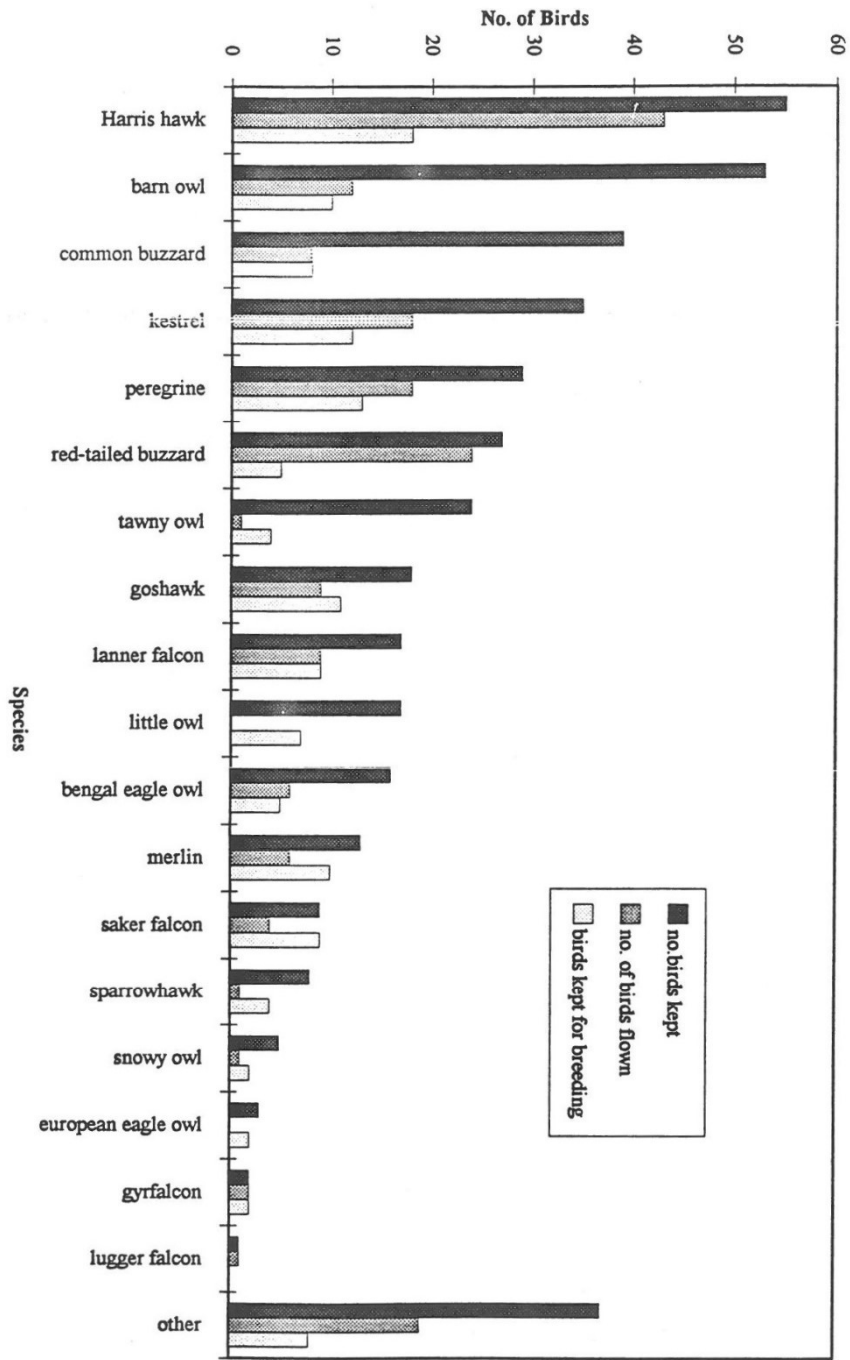


Figure S.11: Total number of birds kept by falconers, number flown and number kept for breeding

Table 5.12: Number of birds flown by falconers according to species

<u>Species</u>	<u>No. of Birds</u>
Harris hawk	43
red-tailed buzzard	24
Eurasian kestrel	18
peregrine	18
barn owl	12
goshawk	9
lanner falcon	9
common buzzard	8
merlin	6
Bengal eagle owl	6
saker falcon	4
gyr falcon	2
lugger falcon	1
sparrowhawk	1
tawny owl	1
snowy owl	1
other	19
<b>Total</b>	<b>182</b>

Table 5.13: Number of birds kept for breeding by falconers according to species

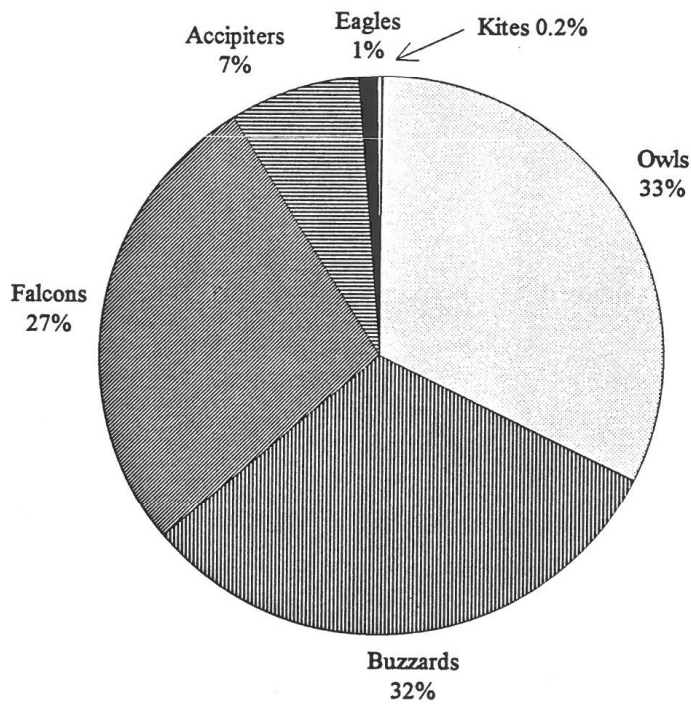
<u>Species</u>	<u>No. of Birds</u>
Harris hawk	18
peregrine	13
Eurasian kestrel	12
goshawk	11
merlin	10
barn owl	10
saker falcon	9
lanner falcon	9
common buzzard	8
little owl	7
red-tailed buzzard	5
Bengal eagle owl	5
sparrowhawk	4
tawny owl	4
gyr falcon	2
European eagle owl	2
snowy owl	2
other	8
<b>Total</b>	<b>139</b>

Table 5.14: Numbers of birds per species group kept by falconers

Species Group	A Total birds kept	B Birds flown	C Birds for Breeding	Total flown & bred B+C	No. merely kept A-(B+C)
Owls	135	23	32	55	80
Buzzards	133	80	33	113	20
Falcons	114	63	57	120*	0*
Accipiters	31	12	15	27	4
Eagles	4	3	0	3	1
Kites	1	1	1	2*	0*
<b>TOTAL</b>	<b>418</b>	<b>182</b>	<b>138</b>	<b>320</b>	<b>105</b>

\* same birds used for flying and breeding

Figure 5.12: Numbers of Birds per Species Group Kept by Falconers



Other hazards such as electricity cables have accounted for a number of deaths (Kester, 1995a; Fox, 1995b). As Kester suggests, it is likely that electrocution accounts for deaths of wild raptors but casualties go unnoticed as they are usually scavenged or if proximal to a road an alternative cause of death is usually diagnosed.

With respect to injuries from prey, such rates may be higher in falconry birds than their wild counterparts due to a number of reasons. Birds may be flown at prey which the bird would not naturally tackle due to its size (Harcourt-Brown, pers. comm.) or aggressive nature. Additionally, falconry birds may not be as adept as wild raptors at quickly killing or immobilising their prey i.e. before they have a chance to be bitten. In these situations the bird is put at risk from e.g. squirrel bites, a relatively common traumatic injury which may in some cases fracture bones and sever tendons. The practice of flying birds at inappropriate prey is discussed later in the chapter in section 5.6.

5.3.2i

#### ◆ Raptor First Aid Courses

When asked if they had taken a first aid course, 22/118 respondents (18.6%) responded that they had. This is a relatively high figure considering the availability of such courses is very low. A course (originally designed by the second author) is run by two renowned raptor vets, Neil Forbes and Greg Simpson of The Clockhouse Veterinary Hospital, Stroud, Gloucestershire. The first author attended one of these courses and found it to be of high quality. Theory and practical sessions took place over the course of a day and each of the participants was given a substantial booklet of notes and first aid kit. Falconry clubs are at liberty to book this course. It is thought that only one other such course operates and its quality is unsubstantiated.

All those that had taken the course (with the exception of one who did not respond) rated the quality to be good or excellent. All of these respondents felt more confident about treating their birds following the course.

Such courses differ from the raptor management or falconry courses in that those running them are professionals with appropriate qualifications.

5.3.2j

#### ◆ Tethering of Birds

Asking the falconers how long it is fair to leave a bird tethered provided a range of responses including a high level of non respondents (41/121, 33.9%), perhaps indicating the contentiousness of the issue. For brevity the question was phrased for a general response, however, a fifth of respondents replied that it depended on the bird (16/80, 20%). The greatest single response was that a bird could be tethered during daylight hours, as long as it was being flown regularly (23/80, 28.8%). Indeed the attitude that as short a time as possible was preferable was conveyed by other responses of "a few hours", "short a time as possible" and so

on (27/80, 33.8%).

However a number of respondents (8/80, 10%) felt that indefinite tethering was acceptable. If one in ten falconers feel that this is acceptable practice it possibly means a proportion of birds are tethered permanently or for months at a time.

5.3.2k

#### ◆ Perceived and Real Dangers of Tethering Birds

Again, a high non-response rate to the question about dangers to tethered birds reduced the sample size (38 non responses, 31.4%). Of those who responded 14/83 (16.9%) felt that there were no dangers in tethering birds. Possibly none of these respondents have had any problems but it is hoped that they are at least aware of the possible dangers, of which there are many, and not merely naive.

Other respondents tended to give multiple answers all of which related to the welfare of the bird. Some cited theft as a danger (5/83, 6.0%) which is still a welfare concern for the individual bird, but is also a financial and upsetting loss for the falconer.

The welfare concerns cited were:

- ◆ birds injuring themselves through becoming tangled (37/83, 44.6%)
- ◆ predators: mainly cats, dogs, foxes, mobbing birds and humans (25/83, 30.1%)
- ◆ exposure to adverse climatic conditions (16/83, 19.3%)
- ◆ increased likelihood of diseases such as bumblefoot (8/83, 9.6%)
- ◆ mental stress i.e. boredom (8/83, 9.6%)
- ◆ excessive bathing leading to injury (7/83, 8.4%).

Although not specifically asked, some respondents had had birds killed or injured by predators or knew of others who had. Humans can and do maliciously kill or injure tethered birds occasionally (e.g. Parry-Jones, 1993). In addition, others who believe it is in the bird's best interest may untie birds. It should be stressed that such an act is not in its best interest and is probably consigning it to die.

5.3.2l

#### ◆ The Practicality of Keeping Flying Birds Loose in an Aviary

Following from the question relating to the dangers of tethering birds, falconers were asked whether it was practical to keep a flying bird (i.e. one being flown regularly) in an aviary.

The majority of respondents (78/120, 65%) felt this was a practical idea. Conversely, 16/120 (13.3%) felt it was not practical. A further 26/120 (21.6%) felt it depended on the bird or species. Figure 5.13 illustrates these results.

Figure 5.13: "Is it practical to keep a flying bird loose in an aviary?"

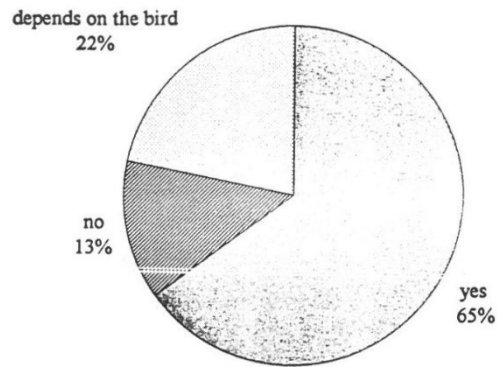


Figure 5.14: "Would a flying bird benefit from being kept loose in an aviary?"

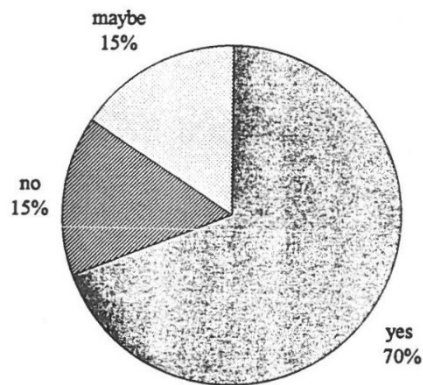
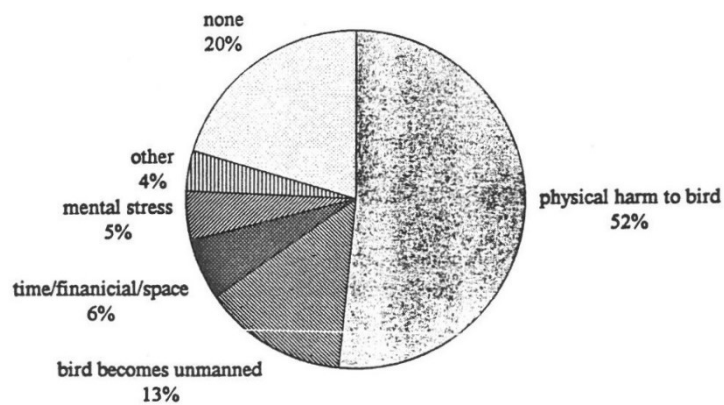


Figure 5.15: The perceived disadvantages of keeping a flying bird loose in an aviary



When asked if the bird would benefit from this, the majority felt they would (68/98, 69.4%). The same number of respondents felt there could be benefits or there were no benefits (both 15/98, 15.3%)(Figure 5.14).

So then, if the majority of falconers feel it is practical and advantageous to keep their flying bird loose in an aviary, what do they see as the disadvantages? Figure 5.15 illustrates the results.

Almost a fifth of falconers felt there were no disadvantages to this system of management (21/110, 19.1%). This may imply that they would be willing to do this.

Almost half the respondents felt that the bird could come to physical harm if kept loose in an aviary (54/110, 49.1%). Although not always specified in the responses it is assumed that the physical damage referred to is traumatic injury through crashing about in the aviary and causing injuries such as damage to cere and plumage. Plumage perfection is a goal of falconers to improve the quality of flights. This response may reflect both concern for the bird and quality of the falconer's pastime.

Following from this 14/110 (12.7%) felt the bird would become unmanned and hence "flighty" increasing its chances of injury in an aviary and on the fist.

Interestingly, a small number of falconers felt birds would suffer the mental stress of boredom (5/110, 4.5%) if kept in an aviary and not tethered. This is either a reflection of how poor their aviaries are in terms of environmental enrichment, or a reflection of how stimulating their weathering lawn is. It is likely that their aviaries are skylight seclusion aviaries i.e. with no view other than upwards, which may be boring for non-breeding birds. In such a situation it is likely that there is more visual stimulation for a tethered bird.

A similar number of falconers (6/110, 5.4%) felt the disadvantage was a combination of finance and space. It is surprising that falconers would admit to this in such a survey about animal welfare. This implies that if they do not have the resources to provide an adequate aviary, they probably keep the bird tethered all the time whether it is being flown daily or not. It reflects a similar attitude to those identified in Chapter 4 (section 4.4.3i), who purchase birds which are kept tethered as aviary facilities are not available. Birds in such situations are at risk of foot and leg problems and the psychological stresses of boredom and frustration.

Phillip Glasier is one of the most famous British falconers. He is author of a number of books including the seminal text "Falconry and Hawking" (1978) and founder of The Falconry Centre (now The National Birds of Prey Centre run by his daughter Jemima Parry-Jones). In a personal communication he writes that he has proved to his satisfaction that following an initial short period of manning a

new bird rarely needs to be tethered provided an aviary is properly built. He has kept a Harris Hawk and Gyr Falcon loose in an aviary with no problems. He has encouraged others to try this method and they have had no problems with a Red-tailed Buzzard, Goshawk and Sparrowhawk. He feels that the advantages to both the falconer and bird are "enormous", the bird has nothing to get tangled in and may sit in the sun or shade, in the rain or under cover, whichever it prefers. As an expert and respected falconer his views are valuable.

## 5.3.2m

◆ *Moulting Birds on the Perch*

It is known that some falconers keep their bird tethered throughout the bird's moult which normally lasts for approximately three months from May/June until August/September depending on both the individual and the species. Tethering during this period may decrease the chances of new feathers being broken and so improve the quality of flights for the falconer. To assess the scale of this activity which is considered unnecessary by many respected falconers and vets (e.g. Forbes, 1995) falconers were asked about its advantages, disadvantages and whether they would do it.

◆ *Advantages*

Of those who replied, the greatest proportion felt there were no advantages to moulting a bird on a perch (36/100, 36%)(Figure 5.16).

A further 32% felt that the bird remained well manned (beneficial both for the bird and the falconer). Concern for the bird was reflected by a further 16% who felt the health of the bird could be better monitored if the bird was tethered throughout its moult.

However, concern for the falconer's sport or pocket was reflected by 11% who felt it was advantageous because there was less feather damage and 5% who felt it saved space.

◆ *Disadvantages*

A high proportion of the falconers did not respond to the questions relating to the disadvantages of moulting a bird whilst tethered (50/121, 41.3%). The other falconers gave multiple responses which are illustrated in Figure 5.17.

The greatest response was that it causes the bird physical harm by either losing fitness or by damaging plumage both of which affect the bird and the falconer's sport (39/84, 46.4%). It is interesting that some feel plumage is damaged whilst moulting on a perch, as a lack of damage is cited as an advantage by other falconers. This is probably a reflection of the differences found between falconers, their styles of management and their individual birds.

Figure 5.16: Perceived advantages to moulting a bird on its perch

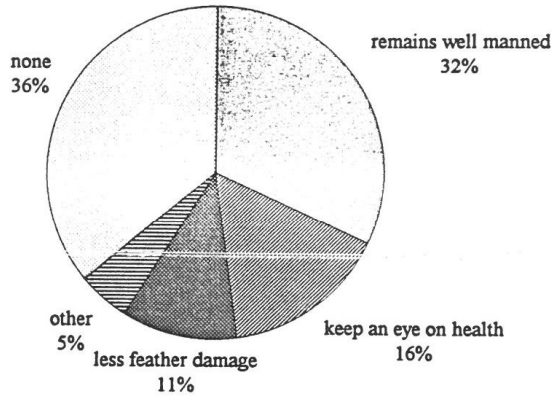


Figure 5.17: Perceived disadvantages to moulting a bird on its perch

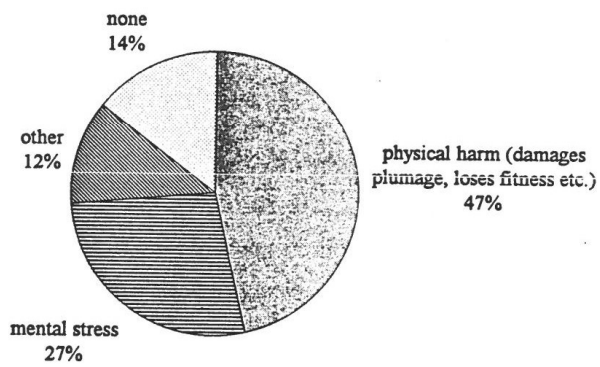
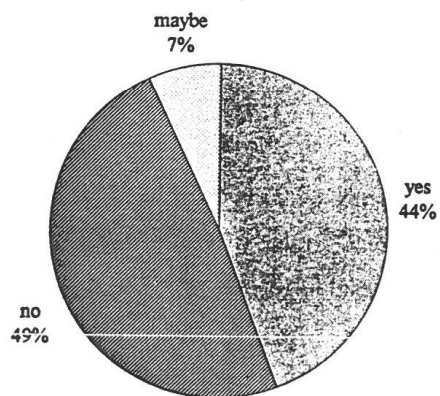


Figure 5.18: "Would you moult a bird on its perch?"



A relatively high proportion of falconers felt that birds suffer mental stress in the form of boredom by being moulted on their perch (23/84, 27.4%).

When asked specifically if they perceive this to cause the bird harm, the majority felt it did not (51/72, 70.1%). A similar number felt it did cause harm or could in some situations (11/72, 15.3%; 10/72, 13.9%) respectively. If so many falconers feel that it does not cause harm it is possible that they perceive it as an acceptable practice and hence would do it.

When asked specifically if they would do it, a similar number said they would or would not use the practice (39/88, 44.3%; 43/88, 48.9%) respectively. Again, there was a relatively high proportion who did not answer the question (33/121, 27.3%) with an additional 6/88 (6.8%) who might moult their bird on a perch in some situations (Figure 5.18).

## 5.3.2n

◆ **Regularity of Flying Birds**

In an attempt to determine the difference between theory and practice, the questions were asked as to how often a bird *should* be flown and how often they perceived it *needs* to be flown in their own experience. Falconry lore dictates that birds are flown daily and this was reflected in the results of how often a bird *should* be flown with 65.7% indicating that the bird should be flown daily (71/108). When asked how often they believed a bird *needs* to be flown the results were statistically significantly different ( $p < 0.006$ ) with the majority indicating a frequency of less than daily (using the nonparametric sign test which compared the related replies from each falconer to both questions)(Table 5.15 and Figure 5.19).

The results show that there is a perception that birds need to be flown less often than daily, with more responses suggesting every second or third day, or once a week. It cannot be proven that this is practice but it seems that if pressed for time, a falconer is unlikely to fly a bird more than he or she perceives is needed. Practice may not equate with theory.

## 5.3.2o

◆ **Time Available to Falconers for Falconry**

Falconry is a time consuming sport and as the sporting season for many species is in the autumn and winter according to the WCA, there may be few daylight hours available, if any, to those with normal work hours.

The question was posed to determine available daylight hours during week days in the winter for flying or hunting a bird. Surprisingly, the greatest response indicated that 29.4% (35/119) had all daylight hours in which to fly their bird. This implies that these falconers are rich enough to not have to work, unemployed, retired or work night shifts and do not sleep. The age structure of the club meetings attended would not suggest so many were retired. Whilst the

time availed from unemployment would be beneficial, the financial constraints would make it an unsuitable pastime.

Relatively high proportions had 4-5 or 2-3 hours per day (20/119, 16.8% and 24/119, 20.1% respectively).

A further 22/119 (18.4%) had one hour or less per day in which to fly their bird. Unless these falconers live very close to their hunting ground it seems unlikely that this is sufficient time in which to fly a bird. It is *speculated*, therefore, that these birds are more likely to be flown at weekends.

## 5.3.2p

## ◆ Lamping

Lamping most commonly involves hunting rabbits with broadwings at night. Two people are involved, the falconer and one other to find rabbits in a beam of light from a lamp. It has been suggested that this is an alternative to daylight hunting (Ford, 1992). It is potentially more hazardous than daylight hawking as the bird may find itself flying in the dark with the falconer unable to locate it readily. The bird is then at great risk of flying into obstacles. The bird cannot wear audible bells as this will warn prey of the presence of the raptor. It is essential, therefore, that the bird wears telemetry. It is uncertain how lamping affects a diurnal bird of prey psychologically.

When asked if lamping was a suitable alternative to daylight hawking, most felt it was not (35/71, 49.3%). Their reasoning is uncertain but it is assumed that they feel it is a practice with more welfare concerns than daylight hawking. However, some 13/71 (18.3%) felt it was a suitable alternative.

It is probably not a commonly participated sport as 19/71 (26.8%) stated that they had not tried it and hence felt unable to answer.

In an attempt to find out what falconers know about lamping, the question of how to keep track a bird at night was asked. Of the small number that replied 8/22 (36.4%) would use telemetry. A further 6/22 (27.3%) either did not know or would use bells, which are not apparently suitable.

It can be seen that lamping is potentially hazardous and generally not considered as a good alternative for exercising birds. Additionally, a number of falconers are unfamiliar and hence inexperienced at it.

## 5.3.2q

## ◆ Tethering Owls

The practice of tethering owls causes some debate generally within the raptor keeping community with those who advocate that owls should not be tethered and those that feel it is no different to tethering diurnal raptors. Others feel that "small" owls should not be tethered (the word "small" is not defined but is taken

to mean those smaller than the eagle and horned owls)(BFSS, 1993 [Appendix 1.1]; Forbes, 1995; Parry-Jones 1995a). A consensus from the falconers was sought.

Of those who expressed an opinion, 53.4% (46/86) felt tethering owls was acceptable. Conversely, 33.7% (29/86) felt it was unacceptable. The remaining 11 respondents felt it depended on the individual bird or species (12.8%)(Figure 5.20).

When asked to explain their answer, those finding it acceptable felt generally there was no reason not to (13/32, 40.6%) and others felt there was no reason not to if the bird was being flown regularly (19/32, 59.4%).

Those against tethering felt that the owls would suffer mental stress (mainly from boredom)(11/26, 42.3%), or physical damage, most commonly to the legs (7/26, 26.9%). Others felt that as owls tend not to be used for falconry there was no need to tether them at all (8/26, 30.8%). It is uncertain why falconers should consider owls more prone to mental stress than diurnal birds of prey.

The BFSS Code of Welfare states that the smaller owls should not be tethered after their initial training period. Forbes (1995) states that all owls other than eagle owls should not be tethered.

### 5.3.2r

#### ◆ Regularity of Bathing

Forbes (1995) states that all captive raptors must have water available to them on a daily basis, whether for bathing or drinking. In an attempt to determine a generalised frequency of bathing for birds and therefore make, some sort of standard for all raptor keepers, falconers were asked how often their birds bathed. Something of a consensus was reached with the greatest response of multiple responses being "daily" (40/132, 30.3%). Most of the others replied that it depended on the individual bird (37/132, 28%). Other responses varied from more than once a day to never at all. This probably reflects the variation in individuality of the birds and their desire to bathe. The number that reportedly never bathe was low (9/132, 6.8%) and it is hoped that even these birds are offered a bath, or different design of bath if the bird is fussy. One falconer reported his bird to never bathe in the baths provided yet immediately bathe in a muddy puddle whenever let loose. All of these responses indicate the necessity to provide access to water for all birds at an appropriate time of day, during suitable weather i.e. not in very cold conditions as the bird can chill subsequently.

### 5.3.2s

#### ◆ Flying Birds with Mews Jesses

The raptor keeping press and even books on raptor keeping often show photographs of falconry birds being flown whilst wearing mews jesses (Plate 5.2).

Figure 5.20: "Is it acceptable to tether owls?"

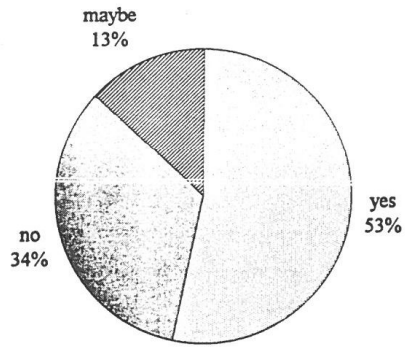
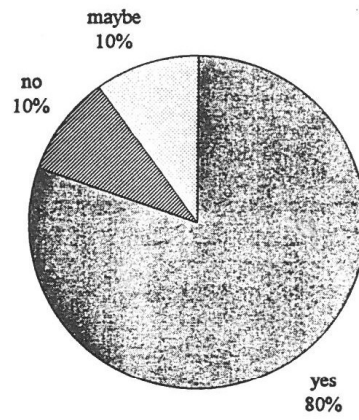
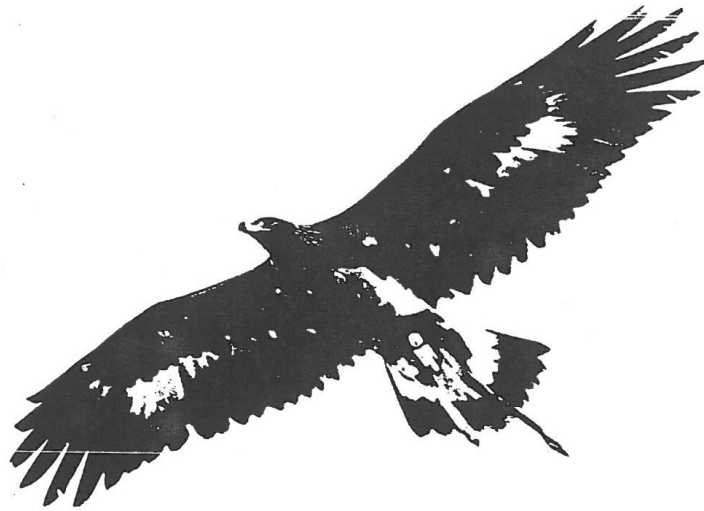


Figure 5.21: "Is flying a bird with mews jesses really a welfare problem?"





**Plate 5.2:** Golden Eagle *Aquila chrysaetos* being flown for falconry clearly wearing mews jesses (source: article from *Falconers and Raptor Conservation Magazine*, Spring 1995)

Following from this and the excessive use of mews jesses found in birds flying in public displays (Chapter 4, section 4.4.3p), falconers were asked if flying birds with such jesses was a *real* welfare problem or merely a *perceived* problem. Additionally, they were asked if they had ever had a bird tangled up whilst being flown wearing mews jesses.

The majority felt that it was a welfare problem (91/113, 80.5%) whilst 9.7% (11/113) felt it may be a problem in some situations. The remaining 9.7% (11/113) felt it was not a problem and hence acceptable practice (Figure 5.21).

When asked about their personal experience many reportedly never flew birds with mews jesses (48/110, 43.6%). However, of the remaining 62/110 (56.4%) i.e. those who had, 17/62 (27.4%) had had a bird tangled by its mews jesses.

It can be seen that this practice *is* a real not just perceived welfare problem. In addition, it is a relatively widespread practice (over half the falconers surveyed) for one specifically identified as being unacceptable by the BFSS Code of Welfare and Husbandry of Birds of Prey and Owls (see Chapter 8, section 8.4). Whilst the reason behind the stipulation in the BFSS Code of Conduct regarding slitless jesses may be appreciated, it would seem that many do not follow this advice. Seeing photographs of birds flown thus, in the literature may imply to falconers that this is acceptable practice.

## 5.3.2t

◆ **Use of Telemetry and/or Bells on Flying Birds**

As for the question about mews jesses, the great majority felt that telemetry and/or bells were essential for birds flying free (106/119, 89.1%) i.e. those flying birds without such devices at public flying displays (Chapter 4, sections 4.4.3m-o) are irresponsible by falconers' standards. A small percentage (7/119, 5.9%) felt such devices were not necessary, which may be an arrogance on their part or inexperience of losing a bird....yet.

When asked why tracking devices were important for prevention of loss of a bird, the responses fell into three categories:

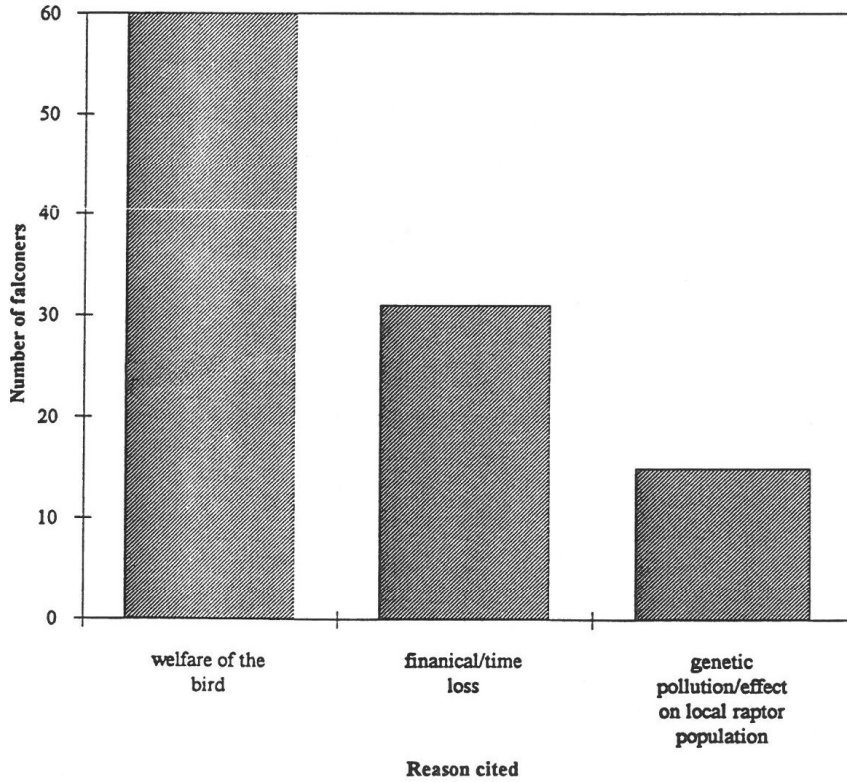
- ◆ welfare of the bird (60/106, 56.6%)
- ◆ welfare of the falconer i.e. a loss of time and money (31/106, 29.2%)
- ◆ welfare of the local wild species i.e. potential genetic pollution (15/106, 14.2%)

These results are summarised in Table 5.16 and illustrated in Figure 5.22. This sort of question provides some sort of insight into the forces motivating individuals to adhere to practices which least compromise welfare. Whilst over half may be motivated by concern for the bird, almost a third are motivated by concern for their personal welfare.

Table 5.16: Reasons cited for not wanting to lose a bird whilst it is flying loose

Reason cited	No. falconers	Percent of falconers
welfare of the bird	60	56.6
financial/time loss	31	29.2
genetic pollution/ effect on local raptor population	15	14.2
<b>Total</b>	<b>106</b>	<b>100</b>

Figure 5.22: Reason Cited for Not Wanting to Lose a Bird



5.3.2u

◆ **Killing Prey**

It is the responsibility of the falconer to kill quarry caught by a bird as quickly and humanely as possible. Falconry birds are generally not as fit as wild birds and hence may take longer to kill prey. In addition, if they are flown at prey which is larger than they would hunt naturally, the raptor may be incapable of killing it quickly. Many raptors, wild or captive, do not kill prey before plucking; hence it is essential that falconers kill prey humanely.

A question was asked regarding the best way to kill a rabbit. The question caused too much consternation for one club so had to be omitted.

A variety of methods were cited, the greatest response being breaking its neck by pulling and twisting (31/68, 45.6%). Other methods included hitting on the head (4/68, 5.9%) or stabbing (9/68, 13.2%), both of which would be considered less exact than the former method if performed properly.

Welfare of prey is discussed further later in the chapter in section 5.6.

5.3.2v

◆ **Concern about New Falconers**

It would seem that opinion within falconers is divided evenly between those who are concerned about the growth in number of falconers and those who are not concerned (both 51/107, 47.7%). This reflects the dilemma for falconry in the 1990s as discussed in the introduction. The concern about new members was greatest in the Club C i.e. the older club, whereas the newer clubs were slightly more keen for new falconers. Whilst some may argue that this reflects a level of snobbery on behalf of the older club, it seems that as a strong club with many members they have no extra need for the "loud voice" argument but can instead appreciate the potential welfare problems associated with inexperienced falconers. Conversely, the newer clubs may wish to build up their membership to increase their activities and funds.

The reasons stated for these concerns varied with 8/61 (13.1%) having general or unspecified concerns; 10/61 (16.4%) felt new falconers have taken up falconry with the wrong motivation or reasons; and 2/61 (3.3%) were concerned that the sport was taken up merely for the image. Other were specifically concerned about welfare (15/61, 24.6%) or felt that new falconers have too little training or experience which no doubt affects bird welfare (26/61, 42.6%)(Figure 5.23).

On the whole it can be seen that the concerned established falconers are aware of welfare problems associated with the inexperience of new falconers. This attitude may be based upon pure speculation on their part but is more likely to be based on their personal experience of new falconers or anecdotes from others.

Figure 5.23: Concerns about new falconers

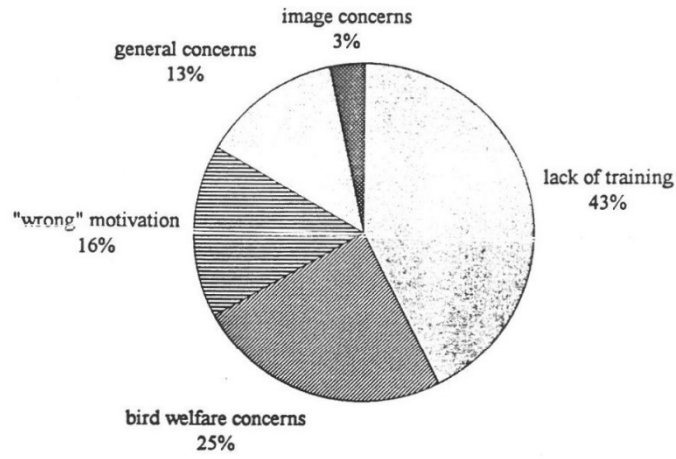
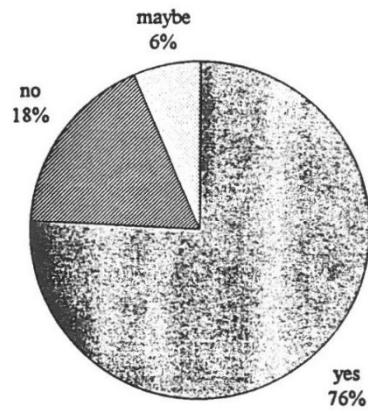


Figure 5.24: "Do you think new falconers should undergo an apprenticeship scheme?"



5.3.2w

**◆ The Effect of Raptor Flying Displays**

In an attempt to determine whether or not falconers felt that raptor flying displays had an effect on the image of falconry, the falconers were canvassed on the issue. The responses were mixed with many feeling displays reflected positively on falconry, most commenting that they were glad falconry skills were being taken to a wider audience (35/98, 35.7%). Conversely, 17/98 (17.3%) felt they reflected poorly. The greatest response was from those who felt the impact was dependent on the quality or style of display (46/98, 46.9%). These respondents felt that good displays were of benefit to falconry and showed it in a good light whilst the poor (as described by the falconers) displays, had only a negative impact by either encouraging the "wrong sort" or exhibiting poor welfare standards which then reflect on raptor keeping, including falconry, as a whole.

This reflects the dilemma of the desire for more falconers, whilst not desiring any associated welfare problems.

5.3.2x

**◆ Membership of Clubs**

The great majority of respondents felt that new falconers should join a club like their own (103/114, 90.4%). This response implies that those surveyed are happy with their club and feel that it offers something positive from which other falconers would benefit. There were no significant differences in the responses from all four clubs i.e. no clubs were less popular with their members than others.

There would appear to be two mentalities of falconer, those who wish to join a club so that they can meet other falconers and exchange ideas; and those who see their sport as a private affair i.e. those who often wish to remain anonymous. A survey of non-club members would possibly produce alternative results but was impossible to carry out for reasons discussed in the Methods section (5.2.1).

Whilst most of those surveyed felt falconers should join a club, when asked if this should be compulsory, fewer felt it should (62/115, 53.9%). Some 42.6% (49/115) felt it should not be compulsory. This may reflect the falconers apprehension of anything compulsory having felt subjected to much legislative regulation since the introduction of the WCA (e.g. Kester, 1995b). This said, those who felt that membership of a club should be compulsory are still in the majority. They probably feel that some control of bird welfare can be achieved or at least standards and issues can be discussed at meetings.

5.3.2y

**◆ Apprenticeship Schemes for New Falconers**

The majority of falconers surveyed felt that new falconers should undergo an apprenticeship scheme (86/113, 76.1%) whereas 17.7% (20/113) felt they should not (Figure 5.24). These results show a majority to be concerned about standards

and practices which is encouraging. Hopefully those against apprenticeship schemes are swayed by their dread of new legislation rather than being naive to the potential welfare problems encountered with the inexperienced. An apprenticeship scheme makes good sense i.e. a person must undergo a degree of training or instruction to achieve a level of proficiency before being allowed a bird. The British Falconers' Club have recently begun such a scheme which is discussed more fully in Chapter 8 (section 8.6.1).

The ideas of club membership and apprenticeship schemes seem popular amongst established falconers, particularly if these are not mandatory.

5.3.2z

#### ◆ Licensed Rehabilitation Keepers (LRKs)

A small proportion of those canvassed were LRKs (4/112, 3.6%). Rehabilitators may use falconry techniques but are not necessarily falconers. Rehabilitation is dealt with in more detail in Chapter 6, section 6.7.

5.4

### GENERAL DISCUSSION AND SUMMARY

Discussions with a number of falconers revealed their passion for their pastime, an all-consuming hobby which in many cases seems to have led to break up of marriages! It is against this backdrop of deep rooted love for the birds and the sport in many, that the welfare implications for both raptor and prey are set.

The results of the questionnaire show a wide spectrum of experience, attitudes and practices. With respect to practices, the fundamentals may be similar for all falconers but the intricacies are multitudinous. It would seem that there are not hard and fast rules to govern individual aspects of falconry and getting falconers to agree on methods is notably difficult (e.g. Aliker, 1995). It would be impossible to provide within this report a precise and unequivocal set of instructions of how falconry should be done. It is an incredibly complex sport with so much management depending on the species or individual bird, taking into account its past experience. It was not surprising, therefore, that so many responses to the questions in the questionnaire reflected this.

A number of issues arising from the questionnaire survey warrant further attention and are reviewed in the following sections.

5.4.1

#### ◆ The Beginner's Bird

Traditionally many falconers began their sport with a Kestrel. This is no longer the norm. It is not a suitable bird for a beginner as it is probably not robust enough to survive the inexperience of a new falconer and as put by Parry-Jones (1993) "it is very easy to kill a bird with inexperience". Today, a new falconer is likely to buy a Harris Hawk, Common Buzzard or Red-tailed Buzzard. The

former two species are more robust and tend to be mentally stable enough to survive the inexperience of the beginner. However, concern has been voiced over those birds rejected in favour of another more advanced bird once the novice has attained a level of proficiency. In the case of Buzzards it would seem that many of them remain in the hands of the falconer being kept and not flown. It is known that others are sold, the most likely recipient being another beginner, and so on. It would seem that a number of birds are destined to be passed from novice to novice. The psychological and probably physiological stress of this is unquantified but cannot result in a stable bird. Similarly, concern has been raised for those birds used for courses i.e. those subjected to the fumbings of an endless stream of beginners.

#### 5.4.2 ♦ The Balancing of Welfare Criteria: the Aviary vs Tethering

Issues such as tethering birds results in a spectrum of attitudes and probably practices as discussed previously in Chapter 3 (section 3.8.3). It is interesting to note that so many falconers feel flying a bird loose from an aviary is a practical possibility, and ideally this could be done for all birds. However, there is a balancing and weighting of welfare criteria to be carried out. Compared to tethering daily, a bird loose in a well designed aviary will: suffer less boredom and frustration; be at less risk of predation, foot and leg damage; and be afforded more protection from the elements. However, depending on the mentality of the bird and its relationship with the falconer, it may be at risk of causing itself physical damage by crashing about in its aviary when the falconer attempts to pick it up to go hunting. Additionally, if the bird is not being flown regularly a falconer is less able to check its health daily. In a tethered situation, the bird is restrained and less able to crash about (although it may suffer from foot and leg problems) and a falconer can check the health status of the bird.

The same is true during the moulting period. Ideally, the bird should be put loose into a well designed aviary. However, if this aviary is poor or a breeding aviary which may be the type built by many falconers, they may have no view other than a skylight, such aviaries are known as "skylight and seclusion aviaries" (Hurrell, in Mavrogordato, 1973). This may be more boring than being tethered for three months. Additionally, the falconer cannot so easily check on the bird's health.

Nevertheless, on balance a bird put into a "good" i.e. well designed, aviary managed appropriately is in a less compromised situation than the bird tethered for long periods of time. It seems clear from the results that some falconers believe lengthy tethering is acceptable and many carry out this practice. An article by Forbes (1995) states that birds should not be tethered unless flown daily i.e. the old polemic of falconers and those flying birds in displays. Mr. Neil Forbes is arguably the most highly respected raptor vet in the country, indeed his veterinary practice probably treats more captive raptors annually than any other practice in the world (Forbes, pers. comm.). He can be considered to provide expert opinion. As a vet he, and his partners, see the animal health consequences

of tethering. He suggests that birds can be trained to fly loose from an aviary. The BFSS Code of Welfare states that birds should be put in aviaries when not being flown i.e. not tethered during this time. The theory may suggest so but the practice would seem different (44.3% of falconers said they would moult birds whilst tethered to a perch). Again the BFSS guidelines state that birds should not be tethered unless being flown daily. The attitudes of falconers appear to show that many consider daily flying unnecessary. Additionally, some of the surveyed falconers seemed to have limited time available to them hence may be unable to fly their bird daily even if they wished to.

#### 5.4.3 ♦ The BFSS Code of Welfare and Husbandry of Birds of Prey and Owls

The production of the Code of Welfare must be congratulated. It provides a brief yet succinct set of guidelines which if adhered to would prevent animal suffering. It is very encouraging that such was their concern they went to great lengths to produce it. However, the falconers cannot present this as a set of practices carried out by all, and hence use it to defend their sport. As an example, in the critique of the questionnaire used for the survey, the British Falconers' Club felt there was no point in asking the question regarding flying birds with mews jesses. As this was against that stated in the Code they felt it was irrelevant. The survey showed it to be a relevant question. It is the *implementation* and *evaluation of compliance* processes which are the next important phases for the falconers.

### 5.5 OTHER ISSUES BEYOND THE QUESTIONNAIRE

#### 5.5.1 ♦ The Expense of Falconry as a Pastime

To highlight falconry as an expensive pastime is not in itself a welfare concern. However, the expense may impinge on raptor welfare for various reasons. One of the researchers heard a number of falconers telling others that it was not an expensive pastime as a bird cost only £x. The provision of a weathering, aviary (of solid design), furniture, quality diet, veterinary expenses and so on, may make it prohibitively expensive. In addition, if the falconer does not live adjacent to hawking grounds or prey is not locally abundant (which results in falconers driving extensively to locate prey) then travelling costs can be great. The result may be cost cutting via e.g. dispensing with the need of an aviary and keeping the bird tethered permanently; settling for a poorer quality diet; dispensing with some veterinary care (or carrying out "do it yourself" health care); travelling less often to hawking grounds which may result in the bird being tethered for protracted periods. The problems are clear and it is necessary to ensure that the would-be falconer is aware of the financial commitment prior to purchase of a bird.

**5.5.2      ♦ Hooding**

The subject of hooding has been described previously in Chapter 3 (section 3.8.4) and the danger of a bird flying off whilst still hooded was mentioned. One of the researchers was told of this happening by a small number of falconers. In this situation a bird may crash land nearby hence allowing its rescue. However, in more serious situations falcons were reported to have flown off, and were seen to fly higher and higher until out of sight. Their fate is unknown.

Nevertheless, it would seem that providing the hood is a good design and fit, and it is used sensibly, the welfare benefits seem to outweigh the drawbacks. In a hooded state the bird appears calm, as do many vertebrates when in the dark. It would seem that as long as the falconer is experienced enough to know and appreciate the dangers, there should be few problems.

**5.5.3      ♦ Transporting Raptors**

The practicalities of methods to transport raptors have been described briefly in Chapter 3, section 3.9.1.

It was found from discussions with falconers that some (probably few) transport their birds loose in a car. This is irresponsible as the bird may be fearful and may also distract the driver and result in an accident.

Birds transported on view, particularly in the back of cars tend to lead to other drivers approaching dangerously close in order to view the novelty staring back at them (Forbes, pers. comm.).

**5.5.4      ♦ Killing of Birds by Other Raptors in the Field***Wild Raptors*

Wild raptors in this country may attack (e.g. Ellis, 1994) and sometimes kill falconry birds in exceptional circumstances. Falconry birds are particularly at risk when they are on the ground with quarry. In this situation a larger wild raptor may make a meal of both. It makes for interesting conundrums as falconers view themselves as the conservationists of the countryside including wild raptors, yet their attitude to wild raptors can be affected when in competition for prey, land etc.

*Falconry Birds*

When a number of falconers hunt together strict field discipline is required to prevent two falconry birds being slipped at the same quarry. In this situation birds can attack one another. This said, some birds are suitable to being flown together although a change of temperament may occur. The greatest danger is from a loose

bird attacking another tethered bird or a bird on a fist. Whilst this was not witnessed, discussions were held with falconers who had had birds killed or injured in this way. It would appear that this is not an infrequent event although, exact quantification of the overall annual mortality or morbidity could not be made.

#### 5.5.5 ♦ Killing: a measure of success?

Whilst falconers may maintain that the sport is about deriving pleasure from the flight of the bird it cannot be denied that for some it is the killing which is important. This may not be to satisfy any blood lust, but instead to build up the confidence of the bird. However, the measure of success in falconry seems often to be how many wild animals have been killed. The purists may complain but articles or advertisements in the falconry press and literature frequently state the success of their sport in this aspect (e.g. Clark, 1995). As an example the advertisement for a company specialising in falconry courses and hunting parties boasts "*If your (sic) tired of going home with an empty bag..... We put down over 1,500 head of game purely for falconry*" (Anon, 1994). That particular advertisement prompted criticism that respect for the quarry should be remembered (Tuffrey, 1995) yet it would appear that in some instances this is not the case.

### 5.6 WELFARE OF PREY

All species of prey taken in the UK have evolved evasive responses to attempt to avoid predation from raptors. Following from this prey have, therefore, a chance of outmanoeuvring wild pursuing raptors. The same is true in falconry. However, although the situation is similar to the wild, it is not analogous. Native prey may be pitted against non-endemic or allopatric species, or hybrid birds with associated hybrid vigour. In addition, a situation is constructed so as to increase the chances of a kill as in shooting i.e. dogs or ferrets are used to find and subsequently flush prey before the bird. Some would see falconry as merely orchestrated bird watching.

Fox (1995a) has made an analysis of welfare criteria for prey of falconry birds as compared with other forms of killing wild animals (Appendix 5.3). His results presented in the next few paragraphs form the basis for this discussion.

#### ♦ *Natural Selectivity*

Raptors have been classed as naturally selective, which is true to some extent. A falconry bird is more likely to catch slower, sick or less skilful quarry. However, in constructed situations the odds may be stacked so that even the fittest of prey is left with little chance. The first author witnessed such an incident.

#### ◆ *Legal Selectivity*

Fox estimates 95% legal selectivity. The researchers have no additional data to query this. The 5% is probably made up of killing non-target species following unintentional slips of the bird at something the bird has seen if not the falconer i.e. the falconer trusting in his or her bird may slip the bird if it bates. Moreover, a hunting falconry bird once loose is beyond the falconer's control and will attempt to catch whatever appears to it to be the easiest prey. This may result in accidental injuries or killings e.g. attacking other falconry birds, dogs, ferrets or domestic livestock. Other wild animals may inadvertently become prey as was witnessed by one of the researchers. However, as Fox (1995a)(Appendix 5.3) is keen to point out, domestic cats are responsible for more deaths of non-quarry species than any other form of 'human mediated' killing.

#### ◆ *Pre-Capture Pursuit Interval*

The "pre-capture pursuit interval" for prey is estimated at over two minutes (Fox, 1995a). This seems like a reasonable estimate. The prey may be subjected to minutes of fear as a result of a proximal dog or ferret. It may then be aware of its choices if it can see, or has seen, the humans and raptors. In the situation of falcons hunting avian quarry a dog may point at game species for several minutes whilst the falcon gets into position ready for the stoop at which point the quarry is flushed. The chase by the raptor tends to be relatively short in most cases. The classic ringing flight of Merlins flown at Skylarks may take some minutes. It is considered that prey undergo acute fear during this period.

#### ◆ *Catch to Kill Time*

Fox (1995a) estimates the catch to kill time to be in the region of 0-5 minutes, a figure the researchers would agree with having witnessed the dilemma of the falconer attempting to get the raptor to release the prey, to be killed by the falconer, whilst ensuring the bird does not feel it is being robbed. The falconer is in danger of injury should the bird feel cheated and it would be fair to say that many falconers are afraid of the damage which can be inflicted by the larger raptors at this intense time. This may result in delay of despatching prey humanely. In terms of prey welfare, it is probable that rabbits are the quarry species likely to suffer most. This is due to their pre-capture pursuit interval being possibly longer if using a ferret to cause the rabbit to bolt. In these situations the rabbit is probably fearful for some minutes. The rabbit then makes a decision to bolt upon which it may be chased by a falconry bird for probably under a minute. It should be noted that the catch to kill time for many wild raptors (and indeed many other predators) may be some minutes as many raptors begin consuming prey before it has died, its death being a consequence of being eaten.

### ◆ *Maiming Rate*

Fox estimates that the maiming rate in falconry is nought. This is disputed by the researchers as prey being maimed and escaping have been witnessed. The loss of a few feathers from avian quarry may be inconsequential to the fate of the prey, but injuries can be greater. During accompaniment of a falconer as part of this research a Red-tailed Buzzard was seen to bind to a rabbit that was heard squealing and had undoubtedly been injured, yet it managed to escape. Indeed, the falconry press frequently runs articles containing reference to prey that has escaped (e.g. Balchin, 1994; Durman-Walters, 1994b; Hodson, 1995; Rampling, 1994). One of these reports (Hodson, 1995) outlines the occasion when a Golden Eagle caught a Hare which managed to escape. Luckily it escaped as it was found to have two dependent young.

The situation of prey being caught but managing to escape is more likely to occur where the prey is too large for the raptor yet it is flown at due to the excitement of the chase and catch. The following excerpt regarding hawking with a Ferruginous Buzzard is taken as an example from an article by Wilson (1995) (the same article from which Plate 5.2 is taken): "...on reaching the hare she (the bird) throws up only to come down and strike it from above. Unfortunately with her small feet and lacking body weight (half that of most hares), nine times out of ten the hare, after a rodeo style bucking bronco, trots off, a little shaken but not stirred.....Her (the falconer) athletic skills were tested on the third hare with Buzz (the bird) thrown some 3 to 4 ft in the air but managing to hold fast. After this exciting bout the hawk and hare were motionless, just as 'X' (the falconer) approached the hare gave one last kick for freedom, which with one very tired and bruised bird was too much and the long legged critter trotted off to fight another day."

To balance this, falconry birds are probably less fit or skilled at actually catching prey than those that do so for their survival i.e. wild birds. Hence, their success rate may be lower than that of wild raptors.

## 5.7 **THE IMPACT OF FALCONRY ON CONSERVATION**

### 5.7.1 ◆ **The Field Sports Polemic**

Falconers, as with others involved in field sports, class themselves as conservationists. The arguments for and against field sports aiding conservation are complex (Macdonald, 1995) and beyond the scope of this research. It is suffice to say that species used in falconry are revered to some extent by falconers yet a gamekeeper managing a grouse moor for falconry assigns little value to the lives of Hen Harriers *Circus cyaneus* or even Golden Eagles *Aquila chrysaetos*. Indeed, the systematic persecution of raptors in the interests of game management is well documented (Cadbury, 1992).

## 5.7.2

## ◆ Reintroductions

The accidental and deliberate release of Goshawks by falconers into the wild has restocked the British countryside with a species all but extinct at the turn of the century due to persecution (ironically by those involved with small game management)(Kenward *et al.*, 1981). Moreover, falconry techniques are used to good effect for raptor reintroduction programmes. Such techniques were, and are currently being, employed by Scottish Natural Heritage in the reintroduction of White-tailed Sea Eagle (Evans *et al.*, 1994). Reintroductions are notoriously complex and pre-release training is a vital part of this process (Consorte-McCrae, 1995). Being able to train raptors to fly and hunt effectively using falconry techniques is a most valuable tool. The role of some falconers in the breeding and hacking of species such as Red Kites *Milvus milvus* prior to reintroduction in this country has not been recognised widely.

In North America the role of falconers in reintroductions has been far greater with falconers playing a vital role in the re-establishment of Peregrines by developing successful techniques for both breeding and releasing birds (Cade, 1988). Furthermore, a number of those working on raptor conservation worldwide are, or have been, falconers (Bird and Brown, 1991).

## 5.7.3

## ◆ Hybrids and Lost Birds

The production of hybrids for falconry, usually by artificial insemination, is carried out in order to produce a bird with the perceived "good" qualities of two different species. For falconry this means a bird which can fly faster, is more manoeuvrable, agile, stronger and so on. Alternatively, hybrids may be produced when two suitable birds of the same species are not available to a potential breeder, instead birds available i.e. probably those owned by the breeder, are hybridised.

Lost birds are a possible conservation problem if they hybridise with a native species, hence causing genetic pollution. It is likely that hybrids of sympatric species would have evolved reproductive isolation mechanisms and create a minimal risk to wild populations. However, hybrids of allopatric species, evolved with no such isolation mechanisms, present more of a threat. Should such traits enter a native population they would, in essence, result in local extinction of the native species. In a position statement, the North American organisation - Raptor Research Foundation (1996) recommend not breeding hybrids of allopatric species for falconry. Moreover, they recommend that other hybrids of which one parent is allopatric should be imprinted on humans if to be flown for falconry.

Moreover, lost non-indigenous species may become established. Kenward *et al.* (1981) found that 40% of deliberately released Finnish Goshawks survived to become a self sustaining population. Goshawks were native to Britain hence, the ecology was suitable. Whilst many lost birds may not survive in the British

countryside, the ecology and niche availability may be such that some species have the potential to exploit a new environment. Red-tailed Buzzards are a relatively adaptable North American species of the same genus as the native Common Buzzard. Hybridisation of such species would create both conservation and resultant ethical problems. A good and high profile example is the introduced North American Ruddy Duck *Oxyura jamaicensis* which occupies an essentially unfilled niche in this country. However, it is now threatening the survival of the Europe's only native stiff-tailed duck, the White-headed Duck *O. leucocephalus* by hybridisation and successful competition for mates (Hughes and Grussu, 1995). It is probable that the founding population of the Ruddy Duck in Britain was only two pairs of birds. At present, attempts are being made to shoot out this alien species in an attempt to control the emigration to mainland Europe. Kenward (pers. comm.) carried out a survey for the DoE attempting to establish the risk of establishment of non-indigenous species following losses from falconry. On the grounds of ecology he postulated that the only species which could become established was the Red-tailed Buzzard. Aware of the possibility, Robert Kenward suggested to the British Falconers' Club that Harris Hawks should be flown in preference to Red-tailed Buzzards. This advice was subsequently promoted through their club journal.

From his work on the restocking of Goshawks, he found that many birds at selected sites were required to achieve a breeding nucleus. It should be noted that the scale of falconry activities today exceeds that of the previous decade and the loss of birds is undoubtedly more common now than at any other time this century. The Raptor Research Foundation recommend in their position statement (1996) that those species from the other super-continent at risk of accidental introduction be imprinted on humans.

## 5.7.4

## ◆ Rehabilitation

Although the role of rehabilitation in conservation is debateable, both falconers and falconry techniques are involved in rehabilitation of injured raptors. The interest and skills of a falconer may be vital for an individual injured bird. However, in a contentious article by Mooney (1995), doubt is cast upon the need for falconry techniques in rehabilitation. The relevance of rehabilitation to conservation is dealt with more thoroughly in the section on Rehabilitation in Chapter 6 (section 6.7.2f).

## 5.7.5

## ◆ Disturbance of Wild Raptors by Falconry Activities

There have been unsubstantiated reports of local wild raptor nests failing where there is intensive falconry practised e.g. at falconry training schools. This said, it is known that there are healthy populations of a number of raptor species in the vicinity of The National Birds of Prey Centre, Gloucestershire, where approximately 20 birds of prey are flown in demonstrations daily.

## 5.7.6

## ◆ Thefts from the Wild

Prior to the WCA many birds used in falconry were taken under licence from the wild. Since that time far fewer have been legally taken with no licences being issued since 1988 (Fox, 1995a)(Appendix 5.3). Unfortunately, thefts of a number of species used in falconry from the wild continue. Whilst it cannot be certain that stolen eggs are destined to be used by raptor keepers (as they may be stolen by egg collectors) it would seem probable that chicks are stolen for falconry. The successful prosecution of various falconers or breeders confirms this e.g. the quarterly journal "The Falconers and Raptor Conservation Magazine" carries a section of convictions of crimes against birds of prey in each issue and there are invariably prosecutions of persons involved in theft from the wild, attempted theft from the wild or handling stolen birds. Penalties include forfeiture of equipment or birds, fines and custodial sentences. Investigations and prosecutions are most frequently carried out by the RSPB.

The reports produced annually by the RSPB on Offenses Against Wild Bird Legislation suggest an increase in nest robberies which would correlate with the increased interest in falconry. The numbers reported by the RSPB are accepted to be an underestimation of the problem hence it is difficult to assess the real impact of robberies on wild populations. Table 5.17 shows estimated status of some resident British diurnal raptors (Newton, 1994) and Table 5.18 shows RSPB figures for the numbers of reported eggs and chicks stolen over a three year period (Nurse, 1992; 1993; 1994).

Juvenile raptor mortality tends to be very high and in an age of economics driving conservation many would argue that the value of raptors as falconry birds secures their future if sustainable "harvesting" of this resource could be achieved. However, the RSPB have found that where thefts occur an average of three chicks are taken from each raptor nest (Nurse, 1992) i.e. possibly not a sustainable yield. This current unregulated situation may well have significant impact at a local, if not national, level.

It is, as yet, too early to ascertain the impact of deregistration on wild bird thefts as figures for thefts for 1994 do not appear to be significantly different from those of previous years. As deregistration occurred midway through the breeding season of 1994 it is anticipated that if there is an increase in thefts it will not become apparent until after the 1995 breeding season (Nurse, RSPB, pers. comm.).

**Table 5.17: Status of some resident birds of prey in Britain (excluding Ireland). Species are listed in order of decreasing numbers.**

Species	Approximate number of pairs (and trend)	Main limiting factor past or present	Approximate % potential range occupied
Kestrel	60,000 (stable)	At capacity level	100
Sparrowhawk	30,000 (stable)	At capacity level	100
Buzzard	20,000 (increasing)	Persecution	70
Merlin	1,300 (increasing)	Pesticides	90
Peregrine	1,200 (increasing)	Pesticides	95
Hen Harrier	650 (fluctuating)	Persecution	60
Golden Eagle	450 (increasing)	Persecution	60
Goshawk *	300 (increasing)	Persecution	15
Marsh Harrier *	110 (increasing)	Persecution	10
Red Kite	110 (increasing)	Persecution	5
Osprey *	110 (increasing)	Persecution	20
White-tailed Sea Eagle *	10 (increasing)	Persecution	<5

Source: Newton (1994) \* Eliminated completely for a time

**Table 5.18: Nest and egg thefts reported to the RSPB, 1991-1993**

Species	Egg thefts	Chick thefts
Buzzard	1	4
Golden Eagle	11	2
Goshawk	6	3
Hen Harrier	7	-
Merlin	8	6
Osprey	15	-
Peregrine	42	42
Red Kite	10	-
Sparrowhawk	-	4
Kestrel	1	3

Source: RSPB Offences Against Wild Bird Legislation 1991-1993

## 5.7.7

## ◆ Impact on Prey Populations

The effect of falconry on prey species may be variable and dependent on species and locale. Fox (1995a)(Appendix 5.3) estimates falconers kill some 60,000 animals a year, approximately 30 animals per falconer annually. It is assumed that the majority of these are rabbits or game birds. Rabbits have evolved very successful breeding strategies to cope with population limiting factors. Swathes of the countryside are managed relatively extensively for game birds (Macdonald, 1995). Therefore, it is speculated that impact of falconry, at present levels, on these prey species populations is probably negligible. In USA the US Fish and Wildlife Service considers the total impact of legalised falconry to have an insignificant effect on quarry species (Bird and Brown, 1991).

However, other species *may* be more vulnerable e.g. Skylarks and Song Thrushes. The number of quarry licences issued annually by the DoE is decided following consultation with their scientific advisors. Total numbers of Blackbirds, Skylarks, Meadow Pipits and Song Thrushes *known* to be killed annually is usually approximately 550. Table 5.19 shows the numbers of these species killed over a three year period. Whilst numbers killed would appear to be insignificant when considering their total populations, it should be noted that these quarry populations are not stable. The numbers of both Skylarks and Song Thrushes have dropped alarmingly in the last two decades (Gibbons *et al*, 1993). Their decline is most likely due to further intensification of farming practices rather than falconry. However, there is a feeling from some falconers interviewed that lark hawking with Merlins may undergo a voluntary ban as public pressure mounts (e.g. Bryant, 1995).

It is probable that a single falconer hawking alone has little effect on a local population but where a number of falconers hawk together over a few fields a large number of birds may be killed. This may have a significant local impact, the impact being greatest if this population acts as a source from which emigration occurs into sink metapopulations.

Whilst the present impact on these quarry populations is probably slight the system of quarry licensing requires further investigation. The system is dependent upon the integrity of the falconer to obtain an appropriate licence and make correct returns to the DoE regarding numbers of birds killed. At present there is no mechanism for ascertaining the reliability of the annual DoE returns.

**Table 5.19: Number of protected species killed in the course of falconry, 1990-1993**

Species	Birds killed over 3 year period	Mean birds killed annually	Population estimates
Skylark	856	285	2 million
Blackbird	500	167	4.5-5 million
Song thrush	74	25	1.5 million
Meadow pipit	213	71	1-1.5 million
<b>Total</b>	<b>1643</b>	<b>548</b>	

Source: Report by the United Kingdom for 1990-1993 on Derogations of the European Community Directive on the Conservation of Wild birds (79/409/EEC) under Article 9, Department of the Environment.

**5.8****LIMITATIONS OF THE SURVEY**

It is appreciated that the survey carried out is limited both in number of respondents and type of respondents i.e. only club members were surveyed. It is presumed that those preferring to carry out their sport privately i.e. outside club membership have similar attitudes and practices to club members. However, they will lack the opportunity for consultation with others, access to courses, talks and current ideas discussed in club magazines, to which club members are privilege. This may result in those operating alone becoming insular and learning only from their own mistakes. Membership of a club may provide the facility to learn from other's mistakes, resulting in fewer moribund or dead birds.

Additionally, this questionnaire was carried out with falconers' knowledge of who had commissioned the research. It is hoped that the questionnaire was answered with integrity. Direct contentious questions could not be asked hence only a small range of welfare issues could be discussed. Other aspects remain unresearched due to the practical difficulties.

**5.9****CONCLUSION**

To summarise, falconry may seem a romantic pleasure when in fact it is a highly complex, expensive, and time consuming sport. The commitment needed to ensure high standards is great. In the fast-food consumer orientated 1990s this commitment may not be found in all.

As a field sport it divides humans into those finding it acceptable and those finding it ethically unsound. Whilst animal welfare is involved in the ethical

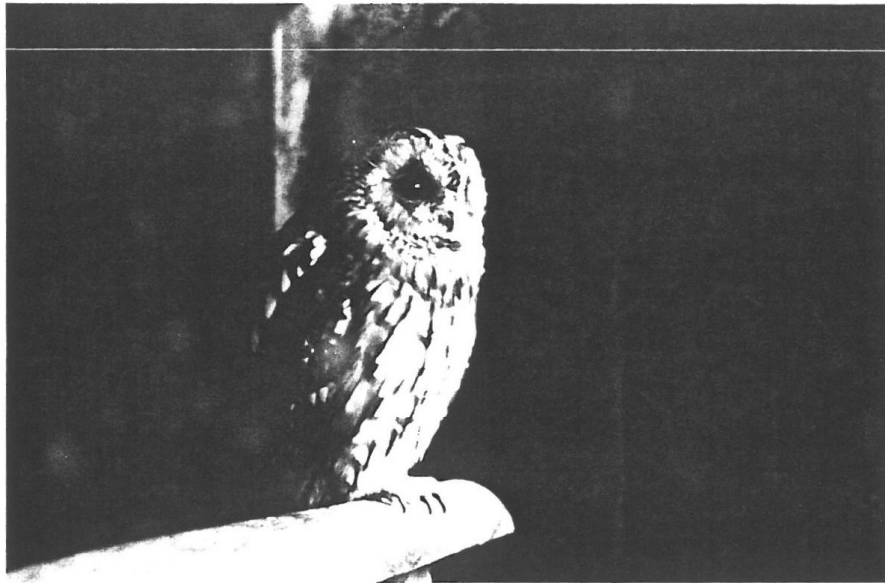
decisions made by both parties, there is no definitive right or wrong but merely different opinion. Heads are involved in understanding the issues yet it is the heart that ultimately decides. Alison (1981) puts it thus: "Falconry is a matter of taste, of opinion. Anti-falconers feel that hawking should not occur because it violates their personal concept of the place wild creatures should have. Falconers, on the other hand, have another concept of the place of wild animals. That is the root of the dilemma. Neither side can no more prove it is right than it can prove that red is pretty, that football is exciting, that swimming is fun or that a sunset is beautiful. All these things are a matter of perception. They do not have any inherent quality of goodness or badness, beauty or ugliness, excitement or boredom. They are what people make them to be. The same is true of falconry".

**CHAPTER 6**

**THE WELFARE AND**

**CONSERVATION ASPECTS OF**

**PRIVATE RAPTOR KEEPING**



**Plate 6.1:** Privately owned Tawny Owl *Strix aluco*

## 6 CHAPTER 6: THE WELFARE AND CONSERVATION ASPECTS OF PRIVATE RAPTOR KEEPING

### 6.1 INTRODUCTION

This chapter aims to assess the welfare and conservation implications of keeping raptors in captivity in private hands, beyond those of falconers as discussed in the previous chapter. Also, it discusses some of the general and cross disciplinary issues which affect all aspects of raptor keeping in the UK today i.e.

- ◆ diet
- ◆ the reasons for breeding birds
- ◆ unwanted birds
- ◆ offenses: microchipping and DNA technology
- ◆ birds for social status

In addition to these general topics a number of further specific activities and topics are discussed, these activities may be carried out by commercial or recreational keepers i.e.

- ◆ educational visiting animal schemes to schools
- ◆ bird clearance using raptors
- ◆ rehabilitation

The special case of the Barn Owl in captivity is considered also.

#### Private Raptor Keeping

It is beyond the remit of this research to analyze the ethics or reasons why humans keep exotic i.e. non-domesticated, species. The majority of raptor owners would not see their birds as "pets". There was a level of outrage in the raptor keeping world following the publication of a book entitled "The Barn Owl as a Pet". If their animals are not considered as working animals (although falconry birds may fall into this definition) there seems to be no useful definition for the relationship between humans and their kept charges. The relationship is one of the human deriving pleasure from looking at the birds and caring for them and the animals seem to view their keepers as merely providers of food. Unlike some smaller passerines or psitticines maintained in cages indoors, raptors are usually kept outdoors where they are more exposed to the elements and at greater risk of being out of the keepers' mind. The psychological benefits to humans of keeping companion animals has been assessed in previous research although it would seem that raptors in captivity rarely take the form of companion animals, as such.

Raptors kept privately may be kept for several activities, namely breeding (which may or may not be for conservation purposes), falconry or just for the sake of

keeping. For these reasons the owners of the birds can be divided into breeders, falconers and keepers in an attempt to differentiate these activities as many management practices are individual to each category. Although each category is discrete, individuals may fall into more than one category at any one time or over time.

Chapter 4 provided some insight into the welfare of raptors kept in public collections. As certain minimum standards are required for issuance of a zoo licence it is postulated that welfare standards for birds in private hands may not be so strict due to the lack of such legislative motivation.

The quantification and qualification of the welfare of raptors maintained by private keepers, other than falconers, proved the most problematic of the entire research project.

## 6.2 METHODS

Unlike public collections of raptors, access to privately kept raptors is difficult, and quantitative data could not be gathered as effectively, if at all. Indeed, much of the specific information gathered from site visits had to be done on an *ad hoc* basis.

The names and addresses of private owners held by the DoE are protected under The Data Protection Act (1984), hence a questionnaire survey could not be carried out. Indeed, there are no organisations specifically for private owners through which contacts could be made for questionnaire surveys or specific visits. Moreover, private owners are, on the whole, reluctant to have their addresses identified due to the problems of bird thefts or interference by animal rights activists.

### 6.2.1 The Raptor Breeders Association

A constructive meeting with a Committee member of the Raptor Breeders Association (RBA), led to one of the researchers attending a Committee meeting of the Association. During this meeting a number of issues were discussed and it was agreed that a questionnaire could be distributed to its members. To maintain the confidentiality of the members the questionnaires were sent out with their regular mailing of a newsletter. The Secretary of the Association included a letter encouraging members to participate.

The questionnaire is appended (Appendix 6.1) and contains questions relating to:

- ◆ why they took up the pastime
- ◆ how they learnt about it
- ◆ whether they have taken a course in raptor management

- ◆ the species they keep at present for breeding, flying or other purposes
- ◆ treating sick birds
- ◆ whether they have taken a raptor first aid course
- ◆ tethering owls
- ◆ frequency of bathing
- ◆ design of breeding aviaries
- ◆ concerns about new people taking up raptor keeping
- ◆ involvement in conservation captive breeding programmes
- ◆ educational activities
- ◆ rehabilitation activities
- ◆ selling birds and commercial aspects
- ◆ awareness of welfare problems in the raptor keeping world
- ◆ RBA inspection scheme
- ◆ DoE inspection scheme
- ◆ deregistration of Schedule 4 listed birds
- ◆ apprenticeship schemes
- ◆ compulsory membership of raptor clubs
- ◆ licences for raptor keepers

Many of the questions were similar to those asked to the falconers in the previous chapter in an attempt to identify differences or similarities of reasoning or motivation. Other questions related to the breeding and selling of birds.

### 6.2.2 Veterinary Surgeons

In addition to the owners themselves, it was considered that the other group of people aware of the welfare of captive raptors were veterinary surgeons. A database of veterinary surgeons with avian medicine expertise was compiled from the raptor keeping literature, bird keeping press, word of mouth from raptor keepers and other contacts.

The questionnaire is appended (Appendix 6.2) and contains questions relating to:

- ◆ the numbers of cases they see and how this has changed over time
- ◆ the most common diagnoses, the cause of the problem and suggested preventative action for the problem.

*These questions were repeated for adult and juvenile nocturnal raptors, and adult and juvenile diurnal raptors.*

Further specific questions were asked about:

- ◆ ideal perch covering
- ◆ tethering
- ◆ specific concerns for tethering nocturnal or diurnal raptors

- ◆ psychological health and how to alleviate any such problems
- ◆ matters relating to permanently disabled wild injured raptors
- ◆ experience of keeper and how this relates to diagnoses.

## 6.3 RESULTS AND DISCUSSION

### 6.3.1 1. Raptor Breeders Association Questionnaire

A total of 140 questionnaires were disseminated and 42 were returned, a response rate of 30%. This high response rate is encouraging and many of the questionnaires had lengthy comments and provided extra information and ideas. Additionally, many respondents included their names and addresses. It was found from this that a small number were professional raptor keepers i.e. the owners of public collections of raptors, falconry schools or other such centres. Although their responses should have been disregarded from the analyses for the aims of this particular chapter, it was decided to include their ideas as they clearly have an insight into private raptor keeping as they began their careers as private keepers.

Where total values do not equal 42, some members did not respond to that particular question. Where totals are greater than 42 or where indicated, multiple responses were given.

*Although the results may be representative of the perceptions and actions of the RBA, the sample size is small with respect to all raptor keepers. Caution should be used in extrapolating the results and when considering the conclusions.*

#### 6.3.1a ◆ Welfare Problems in the Raptor Keeping World

As an introduction to this section outlining the results of the RBA questionnaire, members were asked if they thought there were welfare problems within the raptor keeping world as a whole. Of 39 respondents, 74.4% (29/39) felt that there were (Table 6.1 and Figure 6.1). As people with an insight into the activities of raptor keepers the message is clear.

#### 6.3.1b ◆ Profile of RBA Members

Asking members to identify themselves as keepers, breeders or falconers found most belonging to more than one category and many belonging to all three. Approximately 75% of members were breeders (32/42, 76.2%) and/or falconers (31/42, 73.8%) with some 61.9% classing themselves as keepers (26/42)(Table 6.2 and Figure 6.2).

**Table 6.1: Responses to the question:  
"Do you think there are welfare problems in the raptor keeping world as a whole?"**

<u>Response</u>	<u>No. of members</u>	<u>Percent of members</u>
yes	29	74.4
no	8	20.5
maybe	2	5.1
<b>Total</b>	<b>39</b>	<b>100.0</b>

**Figure 6.1: "Do you think there are welfare problems in the raptor keeping world as a whole?"**

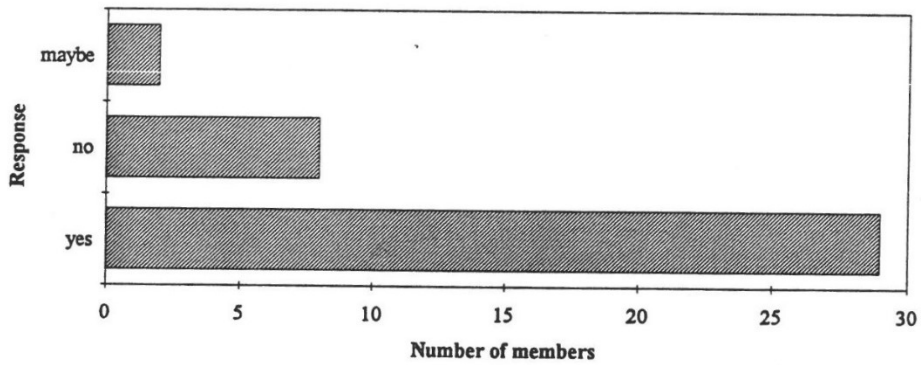


Table 6.2: Types of RBA member

Type of member	No. of responses	Percent of members
keeper	26	61.9
breeder	32	76.2
falconer	31	73.8
other	6	14.3
<b>Total</b>	<b>95</b>	

Figure 6.2: Types of RBA Member

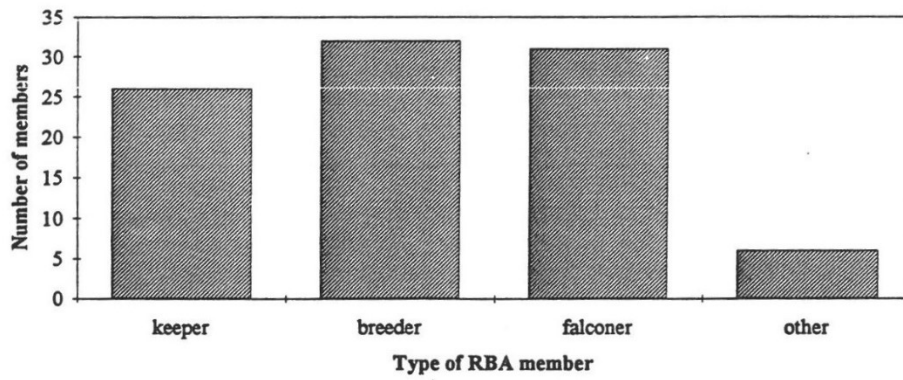
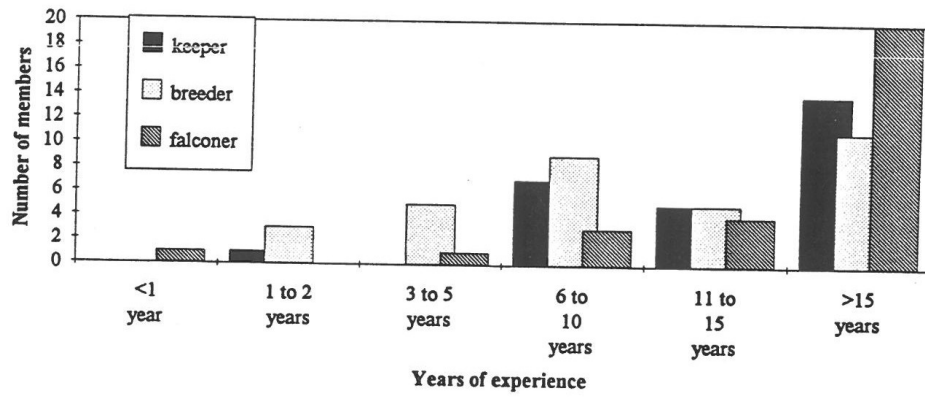


Table 6.3: Experience profile of RBA members

Years of experience	No. of members who class themselves as:		
	keeper	breeder	falconer
<1 year	0	0	1
1 to 2 years	1	3	0
3 to 5 years	0	5	1
6 to 10 years	7	9	3
11 to 15 years	5	5	4
>15 years	14	11	20
<b>Total</b>	<b>27</b>	<b>33</b>	<b>29</b>

Figure 6.3: Experience Profile of RBA Members



6.3.1c

#### ◆ Experience Profile

The experience profile of the members as keepers, falconers or breeders shows the club to be made up of a particularly experienced cross section of people with the greatest proportion having kept raptors, for whatever reason, for over 15 years (Table 6.3 and Figure 6.3). It would seem that falconers of over 15 years experience have begun breeding birds subsequently. This is probably a natural progression for many falconers, who may begin with a single bird and then decide to attempt to breed birds once they have gained both experience and confidence.

The recent increase in the interest of raptor keeping seen in Chapter 5 (section 5.3.2a) is not apparent within RBA members.

6.3.1d

#### ◆ Reasons Cited for Taking up Keeping

As for the falconers surveyed in the last chapter (section 5.3.2b), the most cited reason (from multiple responses) for taking up the activity was an interest in birds of prey (37/40, 92.5%), with fewer becoming involved following the influence of friends/family/colleagues (22.5%)(Table 6.4 and Figure 6.4). This disparity from the falconers surveyed is probably due to the era in which they took up the pastime i.e. most of the RBA members began raptor keeping at a time when there were relatively few others involved.

Only one member admitted to being influenced following seeing raptor flying displays (1/40, 2.5%).

6.3.1e

#### ◆ Learning the Skills

The great majority of members learnt the theory of raptor keeping from books (35/42, 83.3%), whilst just over half learnt from family/friends/colleagues (23/42, 54.8%). A similar proportion to the falconers (27.9%) learnt the skill from a course (10/42, 23.8%).

A relatively small percentage described their learning through "trial and error" (7/42, 16.7%). These results are summarised in Table 6.5 and illustrated in Figure 6.5.

When asked specifically if they had taken a course 12/40 (30.0%) respondents had, which all bar one rated as good or excellent (11/12, 91.7%). The other course was rated as "fair".

6.3.1f

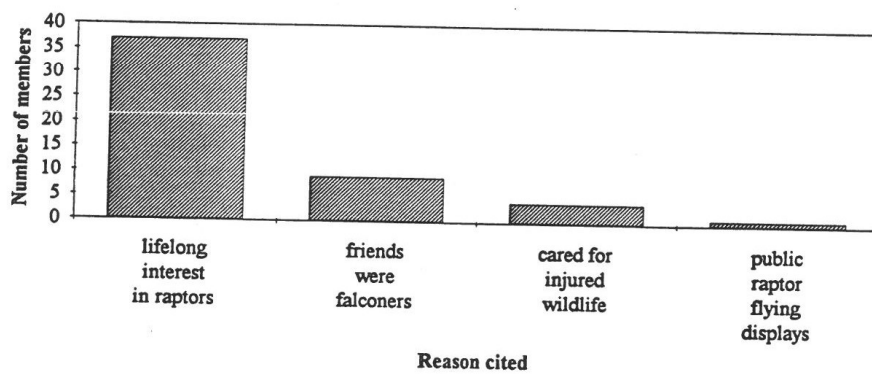
#### ◆ The Beginner's Bird

When asked which was their first bird, half had begun their raptor keeping with a Kestrel (21/42, 50%). From the experience profile it would appear that most began raptor keeping as falconers and as such it is assumed that these Kestrels

Table 6.4: Reason cited for taking up raptor keeping

Reason	No. of responses	Percent of members
lifelong interest in raptors	37	92.5
friends were falconers	9	22.5
cared for injured wildlife	4	10.0
public raptor flying displays	1	2.5
other	3	7.5
<b>Total</b>	<b>54</b>	

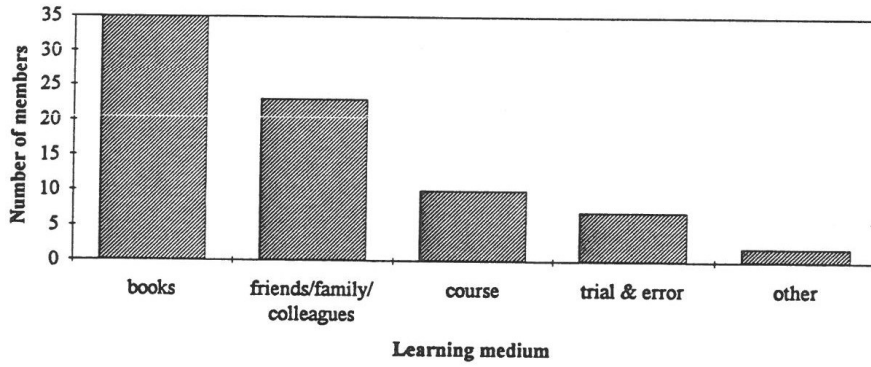
Figure 6.4: Reasons Cited for Taking up Raptor Keeping



**Table 6.5: How RBA members learnt about raptor keeping**

<u>Learning medium</u>	<u>No. of responses</u>	<u>Percent of members</u>
books	35	83.3
friends/family/ colleagues	23	54.8
course	10	23.8
trial & error	7	16.7
other	2	4.8
<b>Total</b>	<b>77</b>	

**Figure 6.5: How RBA Members Learnt about Raptor Keeping**



were managed for falconry. The inappropriateness of a Kestrel as a beginner's bird has been discussed in the previous chapter (section 5.3.2e). As so many of the RBA members have been involved in the pastime for so long, it is probable that Kestrels were the most readily available species at the time both in terms of captive bred and wild disabled birds.

When asked what would be an ideal first bird, if they could have their time again, the response was statistically different (using a non-parametric sign test:  $p < 0.000$ ). Responses instead indicated how they would have selected a Common Buzzard (12/38, 31.6%) or a Harris Hawk (16/38, 42.1%) as a first bird. As with the falconers, this indicates that, as a beginner, they did not find a Kestrel as easy to keep (Table 6.6 and Figure 6.6).

The availability of species such as Harris Hawks and Common Buzzards for beginners today, probably ensures that new raptor keepers do not have to learn by trial and error that Kestrels are difficult to keep and easy to accidentally kill.

## 6.3.1g

## ◆ Numbers of Birds Kept by Individual RBA Members

Unlike the falconers surveyed in Chapter 5 (section 5.3.2f), most of the RBA members keep more than one bird ranging between nought and 100 individual birds as illustrated in Figure 6.7 (Table 6.7). The three extreme cases where members owned 58, 91 and 100 birds respectively were those for whom raptor keeping is a profession i.e. one owns a raptor rescue and rehabilitation centre; another a falconry school; and another is an individual who is planning to open a raptor centre in the near future. As raptor breeding is a main aim of the club, it is not surprising that some individuals own large numbers of birds.

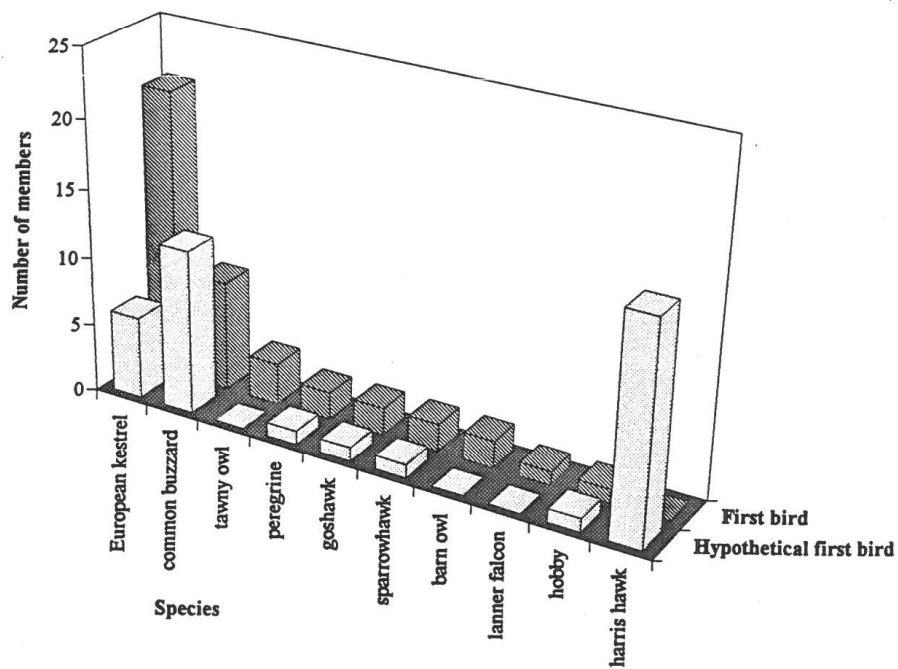
Almost half of the members fly no birds that they own, with just over a quarter flying only one bird (28.6%, 12/42)(Table 6.8 and Figure 6.8). With the exception of the individual who claims to fly 25 birds, the others fly two, three or four birds, i.e. a number which is practically more manageable for a keeper/falconer. The individual who claims to fly 25 birds was visited by one of the researchers. Most of these birds are not flown on a daily basis and most are moulted on their perches. This was justified to the researcher by the adage of when one has as many birds as this individual one cannot possibly have enough aviaries. Tethering is used as a space and money saving device by this keeper.

With respect to breeding, almost a quarter of the members do not breed birds (either because they do not want to or they have not yet been successful)(10/42, 23.8%). However, the majority keep one or more birds for breeding (Table 6.9 and Figure 6.9). Unlike the situation with the falconers surveyed, most of the birds kept by members are kept for attempted breeding as illustrated by Figure 6.10.

Table 6.6: First bird of RBA members and their hypothetical first bird

Species	First Species		Hypothetical First Species	
	No. members	Percent	No. members	Percent
Eurasian kestrel	21	50.0	6	15.8
common buzzard	8	19.0	12	31.6
tawny owl	3	7.1	0	0.0
peregrine	2	4.8	1	2.6
goshawk	2	4.8	1	2.6
sparrowhawk	2	4.8	1	2.6
barn owl	2	4.8	0	0.0
lanner falcon	1	2.4	0	0.0
hobby	1	2.4	1	2.6
Harris hawk	0	0.0	16	42.1
<b>Total</b>	<b>42</b>	<b>100.0</b>	<b>38</b>	<b>100.0</b>

Figure 6.6: First Bird Owned by RBA Members and Hypothetical First Bird



**Table 6.7: Total number of birds kept by individual RBA members**

No. birds kept	No. keepers	Percent of keepers
0	7	16.7
1	4	9.5
2	3	7.1
3	2	4.8
4	3	7.1
5	3	7.1
6	2	4.8
7	1	2.4
8	1	2.4
9	2	4.8
10	1	2.4
11	1	2.4
12	3	7.1
14	1	2.4
16	1	2.4
21	1	2.4
27	1	2.4
31	1	2.4
36	1	2.4
58	1	2.4
91	1	2.4
100	1	2.4
<b>Total</b>	<b>42</b>	<b>100.0</b>

**Figure 6.7: Number of Birds Kept by Individual RBA Members**

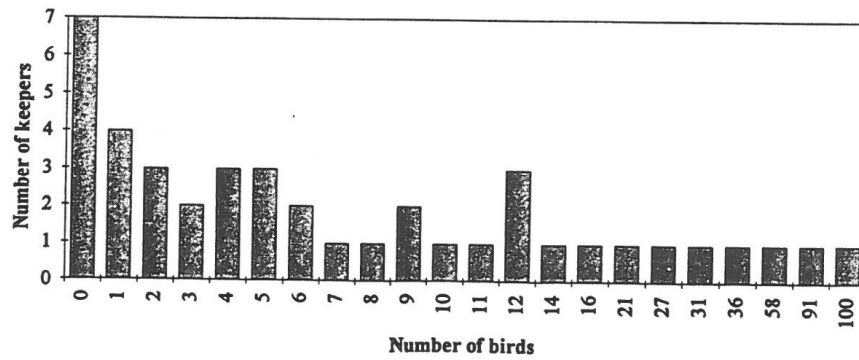
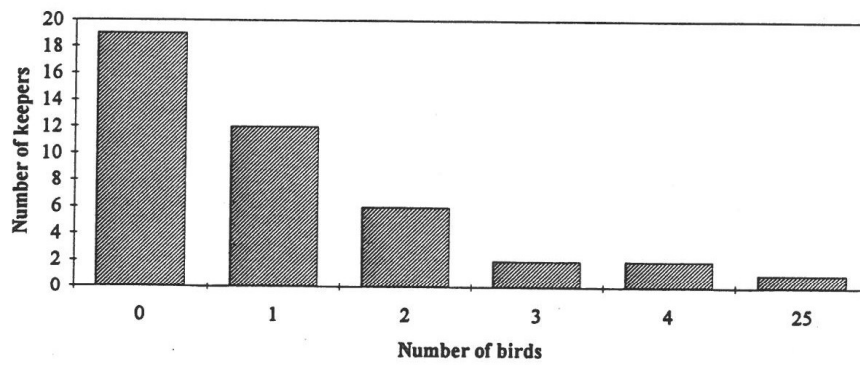


Table 6.8: Number of birds flown by individual RBA members

	No. birds flown	No. keepers	Percent of keepers
	0	19	45.2
	1	12	28.6
	2	6	14.3
	3	2	4.8
	4	2	4.8
	25	1	2.4
<b>Total</b>	<b>63</b>	<b>42</b>	<b>100.0</b>

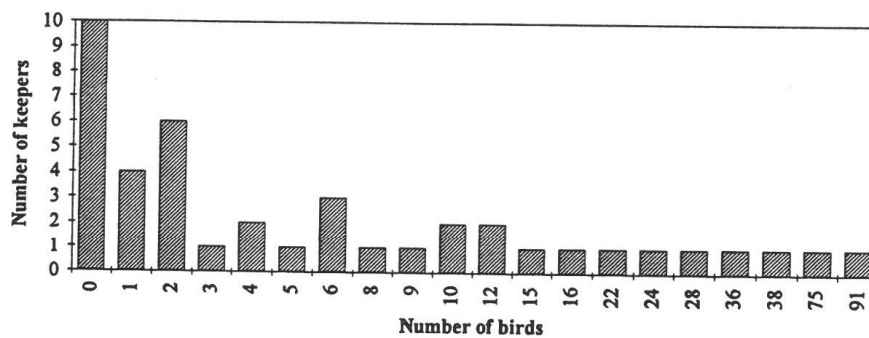
Figure 6.8: Number of Birds Flown by Individual RBA Members



**Table 6.9: Number of birds kept for breeding by individual RBA members**

No. birds for breeding	No. keepers	Percent of keepers
0	10	23.8
1	4	9.5
2	6	14.3
3	1	2.4
4	2	4.8
5	1	2.4
6	3	7.1
8	1	2.4
9	1	2.4
10	2	4.8
12	2	4.8
15	1	2.4
16	1	2.4
22	1	2.4
24	1	2.4
28	1	2.4
36	1	2.4
38	1	2.4
75	1	2.4
91	1	2.4
<b>Total</b>	<b>42</b>	<b>100.0</b>

**Figure 6.9: Number of Birds Kept for Breeding by Individual RBA Members**



## 6.3.1h

## ◆ Species Kept

Comparing the species groups kept by RBA members to those kept by falconers show a far greater percentage of falcons being kept by the former (RBA members: 41%; falconers: 27%) with a lower percentage of buzzards (RBA members 18%; falconers 32%) (Table 6.10 and Figure 6.11). This may reflect the experience of the RBA members i.e. those with greater experience are more likely to keep or breed falcons whereas the relatively inexperienced group of falconers surveyed are more likely to keep buzzards.

Similar percentages of owls were kept by both those surveyed in the previous chapter (section 5.3.2g) and those surveyed here (33% and 29% respectively).

When these data are broken down further into individual species it can be seen that Peregrines are the species represented more than others followed by Harris Hawks (Table 6.11). Other than the owls, the species being bred are those most commonly used in falconry i.e. breeders such as the RBA members are supplying the falconers with birds for their sport as illustrated in Figure 6.10.

The preponderance of Barn Owls in captivity is emphasised by the relatively high numbers of birds kept, most of these birds being kept for breeding. As there are so many Barn Owls in captivity it is surprising that there are still so many kept in breeding schemes when the market is probably saturated. An account of the Barn Owl in captivity is given later in this chapter (section 6.8).

## 6.3.1i

## ◆ Treatment of Sick Birds

Almost all members had had to treat sick birds at one time (40/42, 95.2%). This is as would be expected for a group of individuals who have kept birds for some years.

Following concerns about keepers treating their own birds (see later Rehabilitation section 6.7), members were asked which conditions they felt comfortable about treating. Whereas 16/42 (38.1%) felt they could treat minor injuries, 6/42 (14.3%) felt confident enough to treat all injuries. A further 9.5% felt they could treat all injuries with the advice of a vet (4/42)(Table 6.12).

When asked specifically which injuries require the attention of a vet the greatest response was that all conditions should receive veterinary attention (17/42 multiple responses, 40.4%). Relatively high proportions cite bone injuries (11/42, 26.2%) or "serious injuries" (8/42, 19.0%) as requiring veterinary attention (Table 6.13).

As there are relatively few veterinary surgeons with specialist knowledge of raptor medicine, some bird owners may feel that they know more about their bird's health than their local vet. This may be the case in some situations. This is one of the reasons why it is essential to identify a relatively conveniently located

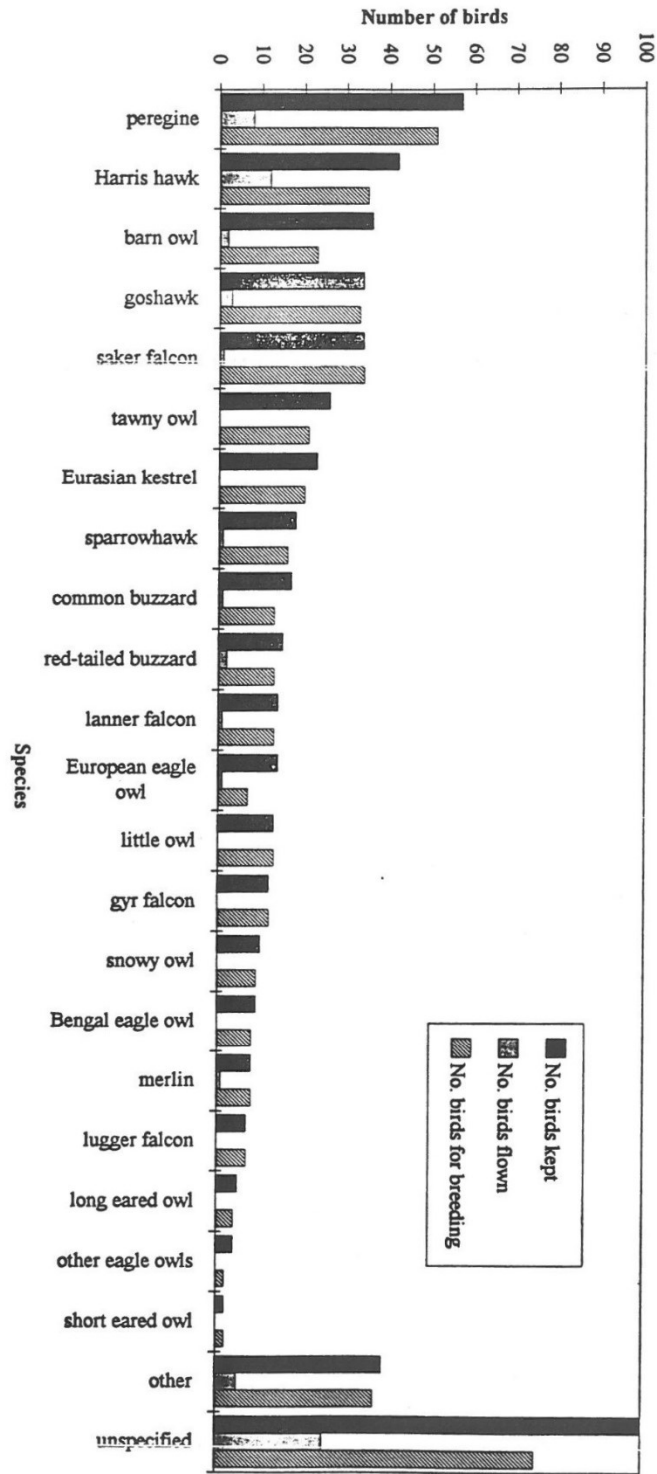


Figure 6.10: Species Kept, Flown or Kept for Breeding by RBA Members

**Table 6.10: Numbers of birds per species group kept by RBA members**

<u>Species Group</u>	<u>Total birds kept</u>	<u>Birds flown</u>	<u>Birds for breeding</u>
Falcons	178	15	168
Owls	129	3	98
Buzzards	77	15	64
Accipiters	52	4	49
Eagles	2	1	1
Kites	1	0	1
<i>Unspecified*</i>	100	25	75
<b>Total</b>	<b>539</b>	<b>63</b>	<b>456</b>

*\* not included in Figure 6.11*

**Figure 6.11: Numbers of Birds per Species Group Kept by RBA Members**

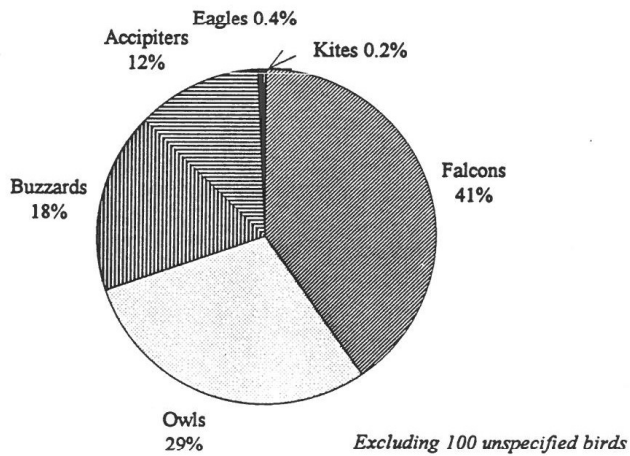


Table 6.11: Species kept, flown or kept for breeding by RBA members

Species	No. birds kept	No. birds flown	No. birds for breeding
peregrine	57	8	51
Harris hawk	42	12	35
barn owl	36	2	23
goshawk	34	3	33
saker falcon	34	1	34
tawny owl	26	0	21
Eurasian kestrel	23	0	20
sparrowhawk	18	1	16
common buzzard	17	1	13
red-tailed buzzard	15	2	13
lanner falcon	14	1	13
European eagle owl	14	1	7
little owl	13	0	13
gyr falcon	12	0	12
snowy owl	10	0	9
Bengal eagle owl	9	0	8
merlin	8	1	8
lugger falcon	7	0	7
long eared owl	5	0	4
other eagle owls	4	0	2
short eared owl	2	0	2
other	39	5	37
<i>Unspecified</i>	<i>100</i>	<i>25</i>	<i>75</i>
<b>Total</b>	<b>539</b>	<b>63</b>	<b>456</b>

**Table 6.12: Health conditions RBA members feel confident enough to treat themselves**

<u>Conditions</u>	<u>No. of responses</u>	<u>Percent of members</u>
none	5	11.9
minor injuries	16	38.1
all injuries	6	14.3
bumblefoot	5	11.9
all with the advice of a vet	4	9.5
malnutrition	3	7.1
other	5	11.9
<b>Total</b>	<b>44</b>	

**Table 6.13: Health conditions RBA members considered to require veterinary attention**

<u>Conditions</u>	<u>No. of responses</u>	<u>Percent of members</u>
all	17	40.4
bone injuries	11	26.2
serious injuries	8	19.0
surgical procedures	3	7.1
other	9	21.4
<b>Total</b>	<b>48</b>	

specialist vet prior to purchase of a bird. In the absence of such a vet, a local vet who will consult a specialist vet must be identified.

A similar proportion of RBA members to falconers had taken a raptor first aid course (9/42, 21.4%) which similarly was rated as good or excellent (8/8, 100%). Those having taken the course indicated that they felt more confident about treating their bird following the course.

6.3.1j

#### ◆ Tethering Smaller Owls

As with the falconers, opinion appears to be split regarding the tethering of smaller owls with similar proportions of respondents feeling it is either acceptable or unacceptable (13/33, 39.4%, 15/33, 45.5% respectively) as illustrated in Figure 6.12.

Of those finding the practice acceptable, they suggested no reasons not to, or found it acceptable if the bird was being flown regularly. Those against the practice cite physical or mental damage as important factors (Table 6.14). To reiterate, Forbes (1995) and the BFSS Code of Welfare stipulate the practice is unacceptable yet it would appear that many would disagree.

6.3.1k

#### ◆ Regularity of Bathing

RBA members were asked (as were the falconers), how often their birds bathed. Similar predominant answers of "daily" (17/42 multiple responses, 40.4%) or "depends on the individual or species" (22/42, 52.4%) were given. These responses reflect those of the falconers and merely enforce a view that while a bird may not bathe daily it should be given the option (Table 6.15).

6.3.1l

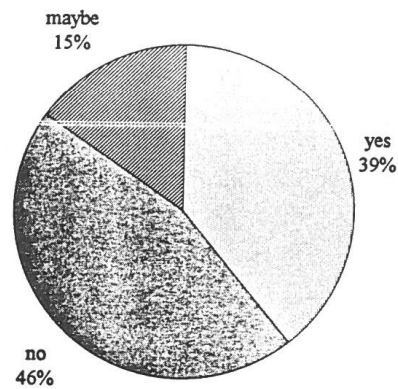
#### ◆ Seclusion Aviaries

Seclusion aviaries (Hurrell, in Mavrogordato, 1973) are a design of aviary used widely for breeding birds. The usual design comprises four solid walls with mesh covering the top, shelter being provided at one end. In essence, the bird can see only what is within the aviary and directly upwards. This design has been shown to be successful with respect to breeding birds. It is probable that birds breed due to the lack of visible environmental stressors i.e. they feel safe and secluded.

It could be postulated that such a design is potentially boring for the bird as it has essentially no environmental enrichment in the form of a view.

RBA members were asked if they bred, or attempted to breed, birds in seclusion aviaries. The majority did (28/39, 71.8%). To determine the level of basic environmental enrichment members were asked if they provided a view from their aviary and whether they felt such a feature was detrimental to breeding success. Practices and opinions were split with similar numbers of members providing

**Figure 6.12: Responses to the question:  
"Is it acceptable to tether the smaller owls?"**



**Table 6.14: Reasons cited for and against tethering smaller owls**

<u>Reason cited</u>	<u>No. of members</u>	<u>Percent of members</u>
depends on species/individual	7	20.6
for-if flying regularly	6	17.6
for-no reason not to	4	11.8
against-not falconry birds-not flown regularly	8	23.5
against-physical damage	2	5.9
against-mental stress	2	5.9
none	1	2.9
other	4	11.8
<b>Total</b>	<b>34</b>	<b>100.0</b>

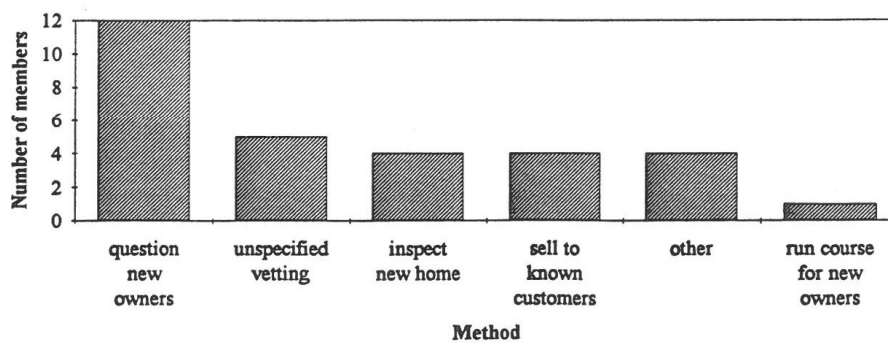
**Table 6.15: Frequency of bird bathing as cited by RBA members**

<u>Frequency of bathing</u>	<u>No. of responses</u>	<u>Percent of members</u>
daily	17	40.4
every 2nd day	1	2.4
weekly	5	11.9
twice monthly	1	2.4
intermittently but regularly	2	4.8
depends on the individual or species	22	52.4
depends on the weather/environment	11	26.2
<b>Total</b>	<b>59</b>	

**Table 6.16: How RBA members ensure a bird is being sold to a good home**

<u>Method</u>	<u>No. of members</u>	<u>Percent of members</u>
question new owners	12	40.0
unspecified vetting	5	16.7
inspect new home	4	13.3
sell to known customers	4	13.3
other	4	13.3
run course for new owners	1	3.3
<b>Total</b>	<b>30</b>	<b>100.0</b>

**Figure 6.13: How RBA Members Ensure a Bird is Being Sold to a Good Home**



views to those who did not (15/30 and 13/30) respectively. Those who did provide views felt it was not detrimental to breeding success (10/27, 37.0%) whereas those who did not provide a view felt it would be detrimental (10/27, 37.0%). No consensus was reached which may be a reflection of the types of birds they keep and breed from.

The effect of the practice of seclusion is difficult to determine. One must balance the psychological benefits of breeding to a bird as opposed to providing a view for stimulation. Ideally, the bird can be furnished with both, a view held by half the RBA members, although this may be wholly dependent on both species and individual.

## 6.3.1m

## ◆ Selling Birds

It would be expected that an organisation dedicated to breeding raptors would contain members who sell birds to help fund their activities. Just over half the club members claimed to sell birds (23/42, 54.8%). As Parry-Jones (1995b) writes, the idea of commercialism involving animals may seem distasteful to many. However, there may be few or no welfare concerns if the sale of animals is done with welfare as a primary concern and financial return secondary.

Those who sold birds were asked how they ensured birds went to a good home. The majority said they questioned the prospective owner (12/30 multiple responses, 40.0%). A few claimed they inspected the prospective new home of the bird (4/30, 13.3%), with the same number saying they only sold birds to known customers (Table 6.16 and Figure 6.13). The extent to which questioning a prospective owner can determine the future welfare of the bird is debateable. An inspection of proposed quarters for the bird would provide a more effective measure of its future welfare prospects.

Ultimately, the motivation of the seller will determine whether a bird is sold or not. This is not a problem restricted to the trade in captive bred raptors, it is a problem wherever animals are kept in captivity and traded accordingly, many puppy farms providing a particularly depressing example (Jenkins, 1992).

## 6.3.1n

## ◆ The Quality of Birds Produced by Breeders

There has been concern within the raptor keeping community that too many breeders are motivated by financial gain at the expense of animal welfare. The Committee members of the RBA felt that there were a number of problem breeders and in particular unscrupulous dealers who emerge when prices are high.

It has been claimed that some breeders, in an attempt to maximise production, compromise both the welfare of the parent birds (in particularly the female) and the offspring by repeatedly removing clutches of eggs which stimulates the female to re-lay (e.g. Basri, 1995). Whilst it is uncertain whether offspring from later

clutches in a season are of any different quality to those of first clutches (in terms of genotype or health), it would be fair to say that encouraging such unnatural overproduction from female birds is physiologically demanding and there is psychological stress associated with the loss of eggs or young.

The welfare of the young is compromised if husbandry, particularly diet, is poor. Clutches reared by humans may become imprinted and may suffer associated psychological stress. The problems of such birds are discussed later in this chapter (section 6.4.4).

Some RBA members have criticised the degree of inbreeding which now exists in some species. Forbes (1992) suggests that such inbreeding is not due to limited blood lines in captivity but due instead to what he terms as "greed" in those who pair closely related birds e.g brother and sister. Forbes goes on to detail some of the conditions which he feels have arisen due to inbreeding e.g. congenital cataract, curvature of the spine, spina bifida and thiamine-responsive fits. The problems of inbreeding may be exacerbated following deregistration if individuals are no longer identifiable (Gerard, 1994). In this situation it may be impossible to keep any form of pedigree register or studbook and manage birds accordingly.

The RBA members were asked the following question: "In your view are there irresponsible/financially motivated breeders who produce too many birds of possibly poor quality?". It was an emotive question but the great majority of respondents felt that there were (33/41, 80.5%). As people involved in the industry, with associated insight it would seem that this is the case i.e. that financial concern is a greater motivating factor than animal welfare in some cases.

#### 6.3.1o

#### ◆ Efficacy of the RBA Inspection Scheme

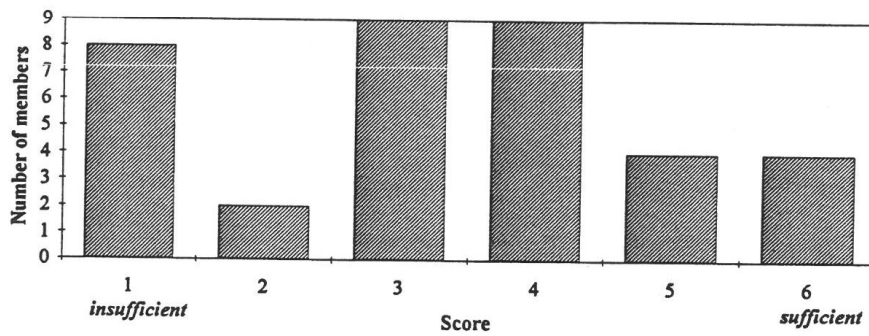
The RBA attempts to control welfare within its members by a random inspection of approximately a fifth of its membership annually. It should be appreciated that in essence this involves friends vetting friends. Whilst the RBA Committee could see the disadvantage in this system, they felt it provided a friendly and constructive forum where recommendations could be imparted without being authoritarian. When asked what happened when an "inspector" found a problem they said that although they had not really had any problems they appreciated the problems of self regulation, and admitted that this was a difficult dilemma.

The members were surveyed about the inspection scheme. They were asked firstly if they felt the scheme was sufficient to ensure welfare of birds. On a scale of 1-6 where 1=insufficient and 6=sufficient it can be seen from Figure 6.14 that members felt, generally, that it was either insufficient or borderline satisfactory (Table 6.17). Members were asked when they had last received an inspection, whilst many (17/33, 51.5%) had been inspected within the last four years, a high proportion had never received an inspection (Table 6.18 and Figure 6.15). It would seem that self regulation is efficient in theory but possibly less so in

**Table 6.17: Responses from the question:  
"Do you feel the RBA inspection scheme is sufficient to ensure welfare of birds?"**

Score	No. of members	Percent of members
insufficient	1	8
	2	2
	3	9
	4	9
	5	4
sufficient	6	4
<b>Total</b>	<b>36</b>	<b>100.0</b>

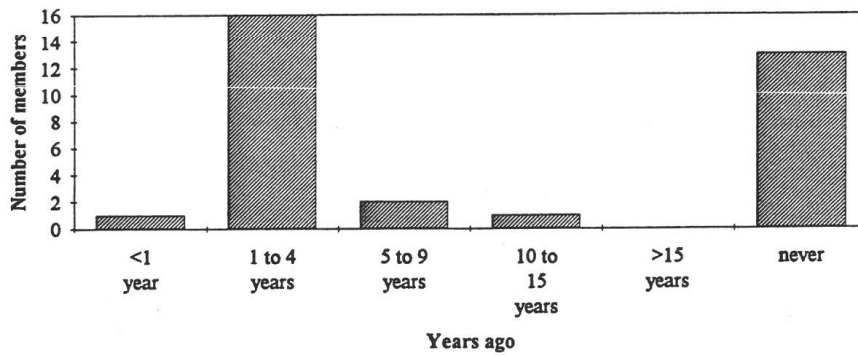
**Figure 6.14: Members' Rating of RBA Inspection Scheme with Respect to Animal Welfare**



**Table 6.18: Years since last RBA inspection**

<u>Years since last RBA inspection</u>	<u>No. of members</u>	<u>Percent of members</u>
<1 year	1	3.0
1 to 4 years	16	48.5
5 to 9 years	2	6.1
10 to 15 years	1	3.0
>15 years	0	0.0
never	13	39.4
<b>Total</b>	<b>33</b>	<b>100.0</b>

**Figure 6.15: Years Since Last RBA Inspection**



practice.

6.3.1p

#### ◆ DoE Inspections and Deregistration

As documented in Chapter 2 (2.10.1g), the DoE inspection scheme was never intended to inspect welfare standards of raptor keepers. However, the fact that a Government-endorsed inspector actually visited and examined the ring on a bird's leg would seem to have had the knock on effect of creating an air of accountability for the raptor keeper.

When members were asked if they felt that the DoE inspection scheme was sufficient to ensure welfare of birds, the distribution of responses was analogous to that of the question relating to the RBA inspection scheme, i.e. whilst some felt it was insufficient, others felt it went some way to maintaining standards (Table 6.19 and Figure 6.16).

Interestingly, when asked if they felt deregistration (i.e. the removal of non-indigenous and common British species from Schedule 4 of the WCA) would adversely affect welfare of birds, the great majority felt that it would (30/39, 76.9%) (Figure 6.17).

The whole subject of deregistration seems to have divided raptor keepers into those who are concerned and those who are thankful for the end of the administration and bureaucracy associated with the legislation. A fifth of respondents (9/42, 21.4%) admitted to no concerns when asked specifically how they felt about deregistration. Others were concerned for a number of reasons including welfare and stealing from the wild (Table 6.20).

One of the RBA members felt strongly that birds should not have to be handled when rings are being checked. He felt, rightly, that this was firstly, stressful for the bird and secondly, this necessary handling provided an excuse for those with something to hide. The member felt that inspectors were too often told by a keeper that the bird could not be handled or disturbed as it was about to breed or the female was sitting on eggs i.e. the disturbance would cause breeding to fail. The member suggested more extensive use of remote identification techniques for captive animals, these issues are discussed further later in the chapter (section 6.4.6).

6.3.1q

#### ◆ Concern about New Keepers

The double edged sword of increased interest in raptor keeping was reiterated by asking the members if they were concerned about so many new people taking up the pastime. Half of the respondents (21/42, 50%) were concerned, the others not so (21/42).

**Table 6.19: Responses to the question:  
"Do you feel the DoE inspection scheme was sufficient to ensure welfare of birds?"**

Score	No. of members	Percent of members
insufficient	1	27.0
	2	18.9
	3	21.6
	4	21.6
	5	5.4
sufficient	6	5.4
<b>Total</b>	<b>37</b>	<b>100.0</b>

**Figure 6.16: Members' Rating of DoE Inspection Scheme with Respect to Animal Welfare**

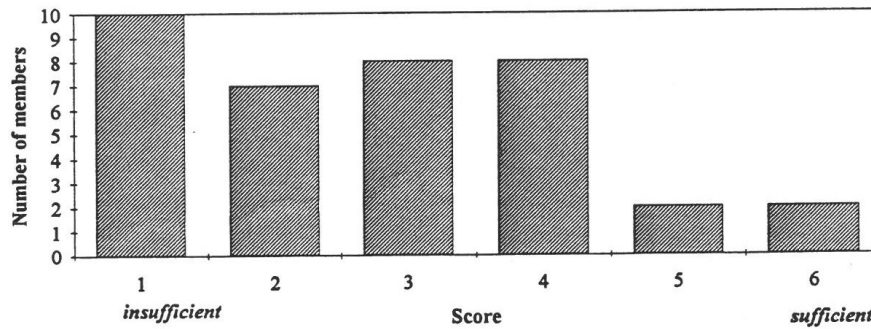
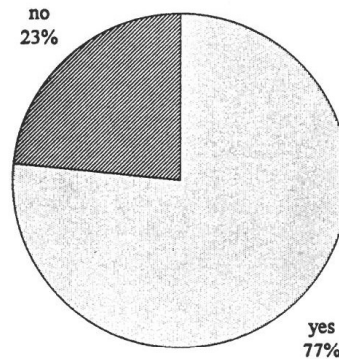


Table 6.20: RBA members concerns regarding deregistration

Concern	No. of responses	Percent of members
no concerns	9	21.4
unspecified concerns	14	33.3
stealing from wild	7	16.7
legal concerns	5	11.9
welfare concerns	4	9.5
financial concerns	4	9.5
image concerns	3	7.1
other	2	4.8
<b>Total</b>	<b>48</b>	

Figure 6.17: Responses to the Question:

"Do you feel deregistration will adversely affect welfare of birds?"



When asked to explain their answers, those unconcerned could see no problem in this or felt it was good for the pastime generally (16/47 multiple responses, 34.0%). Conversely, others were concerned about the lack of training (7/47, 14.9%), general welfare concerns (12/47, 25.5%) or people entering the pastime with the wrong motivation e.g. for image reasons (11/47, 23.4%).

6.3.1r

#### ◆ Club Membership

When asked if raptor clubs should provide training schemes for keepers, the great majority felt that they should (35/42, 83.3%) (Table 6.21).

It would seem that members perceive club membership as going some way toward protecting bird welfare, as when asked if club membership should be compulsory to this end, the majority of respondents felt it should (27/41, 65.9%)(Table 6.22). This perception is held even if members feel the RBA inspection scheme is not wholly sufficient.

6.3.1s

#### ◆ Demonstrable Competence in Potential New Keepers

Members were asked specifically if potential new keepers should demonstrate some level of competence prior to acquiring a bird. The great majority felt that they should (35/41, 85.4%)(Table 6.23). However, fewer felt that this should be compulsory (26/39, 66.7%), although this was still a majority response (Table 6.24).

When asked about their feelings regarding compulsory licences for raptor keepers i.e. the keeper requires a licence to keep a raptor, the majority were in favour of such a measure (30/38, 78.9%). The RBA Committee members were also in favour of mandatory licensing for keepers (such schemes are discussed further in Chapter 8, section 8.6).

It would seem that concern for welfare problems is so great that members of the RBA not only would be willing, but would welcome being subject to new legislation controlling raptor keeping.

6.3.1t

#### ◆ Licensed Rehabilitation Keepers (LRKs)

A proportion of those canvassed were LRKs (4/41, 9.8%). This percentage is greater than that of falconers (3.6%). This may reflect the greater experience of RBA members than that of the falconers surveyed.

6.3.1u

#### ◆ Involvement in Conservation and Education Programmes

Of all members, ten (23.8%) claimed to be involved in conservation schemes of some sort, four specifically mentioned their involvement in breed and release schemes. However, the majority were not.

**Table 6.21: Responses to the question:  
"Should clubs provide training schemes for new and old members?"**

<u>Response</u>	<u>No. of members</u>	<u>Percent of members</u>
yes	35	83.3
no	5	11.9
maybe	2	4.8
<b>Total</b>	<b>42</b>	<b>100.0</b>

**Table 6.22: Responses to the question:  
"Do you think membership of a club should be compulsory for raptor keepers?"**

<u>Response</u>	<u>No. of members</u>	<u>Percent of members</u>
yes	27	65.9
no	13	31.7
maybe	1	2.4
<b>Total</b>	<b>41</b>	<b>100.0</b>

**Table 6.23 Responses to the question:  
"Should potential new keepers demonstrate a level of competence  
prior to acquiring a bird?"**

<u>Response</u>	<u>No. of members</u>	<u>Percent of members</u>
yes	35	85.4
no	5	12.2
maybe	1	2.4
<b>Total</b>	<b>41</b>	<b>100.0</b>

**Table 6.24: Responses to the question:  
"Should a demonstration of competence be compulsory prior to  
acquiring a bird?"**

<u>Response</u>	<u>No. of members</u>	<u>Percent of members</u>
yes	26	66.7
no	13	33.3
<b>Total</b>	<b>39</b>	<b>100.0</b>

Membership of both diurnal and nocturnal Bird of Prey TAGs was very low with only one members in each (2.7%). Indeed, many of the members had not heard of the TAGs and sought further information regarding their activities. It would seem that very few private raptor keepers are involved in the coordinated approach necessary for effective conservation although it is known that a small number of extensive and important (in conservation terms) captive collections of birds are held by private keepers. It is hoped that such keepers are willing to partake in breeding schemes if requested to do so.

A relatively high proportion claimed to be involved in education programmes (13/37, 35.1%). Some of these programmes took the form of visits to schools (8/23, 34.8%) or youth groups (3/37, 8.1%). Adult education took the form of visits of RBA members to raptor clubs (2/37, 5.4%) or public flying displays (4/37, 10.8%).

From a survey such as this it is impossible to assess the content or quality of the education. The positive and negative implications of using live animals and in particular live birds of prey for education has been discussed in Chapter 4 (section 4.5.4) and is discussed further subsequently in this chapter in relation to school visiting animal schemes (section 6.5).

### 6.3.2

#### 2. Veterinary Surgeons Questionnaire

Questionnaires were sent to 67 veterinary surgeons within UK. Of these, ten (15%) were returned completed. This rather low return rate may be a reflection of the workload of vets and insufficient time to complete questionnaires. In addition it may be due to the small number of vets who specialise in raptor medicine, a number of questionnaires were returned by vets who felt they did not treat enough raptors annually to be of use in the survey. If there are so few specialist vets yet so many birds throughout the country it would seem that many birds are without local expert veterinary care. It is known that vets such as Neil Forbes and Greg Simpson of The Clockhouse Veterinary Hospital, Stroud, Gloucestershire, treat birds from across the country and consult with less experienced vets via the telephone.

The actual sample size is small, however, this may represent a significant proportion of the total population of vets specialising in raptor medicine. Caution must be exercised in extrapolating from these results due to the small sample size. Moreover, a catalogue of veterinary findings over emphasises the *dis*-ease rather than the ease i.e. the worst and negative aspects of animal health.

Common diagnoses, causes and preventative action were sought for adult and juvenile raptors to determine prevalence of age related conditions. "Juvenile" for the purposes of this research, indicates a bird which has not yet reached its first

January. Sections were broken down into sections on nocturnal and diurnal raptors.

6.3.2a                                   ♦ **Numbers of Cases Treated Annually**

Tables 6.25-6.28 show the numbers of cases treated annually by the ten respondents. The disparity between respondents with respect to annual case loads for all four categories of adult and juvenile nocturnal and diurnal raptors can be seen. Neil Forbes' practice treats many more birds than the other practices. The two respondents with high annual case loads i.e. over 30 adult diurnal or nocturnal raptors, act as vets for the two largest raptor centres in the UK.

6.3.2b                                   ♦ **Change in Number of Cases Treated**

*Adult and Juvenile Nocturnal Raptors*

Tables 6.29-6.30 show the change in annual case loads over time. The respondent noting a decrease in annual case load pointed out that previously he dealt with captive Barn Owls which he now feels are no longer kept or bred to the same extent in his area since their rescheduling on the WCA (see later discussion regarding Barn Owls in this chapter, section 6.8). Other responses note no change or an increase in cases. Where an increase has been noted the scale of this, in practices seeing more than 10 birds annually, is approximately a doubling or greater in the last five years e.g. *approximate figures* from 75 to 150 cases and from 10 to 30 cases for adult nocturnal raptors. Neil Forbes notes a three fold increase in juvenile nocturnal raptors treated over the last five years.

*Adult and Juvenile Diurnal Raptors*

Tables 6.31-6.32 show the change in annual case loads over time. Whilst 4/9 note no change in numbers of adult diurnal raptors treated over the last five years, the other 5/9 indicate an increase in cases. For juvenile raptors the picture is similar with 5/7 vets noting an increase, the respondent noting a decrease had an insignificant drop in annual case load from nine cases five years ago to seven more recently. Scale of increase for those practices treating over 10 birds annually again indicates a two fold increase over the last five years e.g. Neil Forbes' adult diurnal raptors annual case load doubled from approximately 500 to 1000 birds, similarly 150 juvenile diurnal raptors were treated five years ago, compared with 300 more recently.

The increase in cases seen notably by Neil Forbes' practice may be associated with the increase in birds kept but may also indicate the increasing awareness of his specialist practice i.e. the practice attracts many clients from outside his catchment area.

Table 6.25: Adult Nocturnal Raptors: cases treated annually

No. annual cases	No. of Vets	Percent of vets
0 cases	1	10
1-5 cases	2	20
6-10 cases	3	30
11-15 cases	1	10
16-20 cases	1	10
21-30 cases	1	10
>30 cases	1	10
<i>(Clockhouse Veterinary Hospital 150 cases)</i>		
<b>Total</b>	<b>10</b>	<b>100</b>

Table 6.26: Juvenile Nocturnal Raptors: cases treated annually

No. annual cases	No. of Vets	Percent of vets
0 cases	2	20
1-5 cases	6	60
6-10 cases	1	10
>30 cases	1	10
<i>(Clockhouse Veterinary Hospital 100 cases)</i>		
<b>Total</b>	<b>10</b>	<b>100</b>

Table 6.27: Adult Diurnal Raptors: cases treated annually

<u>No. annual cases</u>	<u>No. of Vets</u>	<u>Percent of vets</u>
1-5 cases	1	10
6-10 cases	2	20
16-20 cases	3	30
21-30 cases	1	10
>30 cases	3	30
<i>(Clockhouse Veterinary Hospital 1000 cases)</i>		
<b>Total</b>	<b>10</b>	<b>100</b>

Table 6.28: Juvenile Diurnal Raptors: cases treated annually

<u>No. annual cases</u>	<u>No. of Vets</u>	<u>Percent of vets</u>
0 cases	2	20
1-5 cases	5	50
6-10 cases	1	10
16-20 cases	1	10
>30 cases	1	10
<i>(Clockhouse Veterinary Hospital 300 cases)</i>		
<b>Total</b>	<b>10</b>	<b>100</b>

**Table 6.29: Adult Nocturnal Raptors: Change in annual case load**

<u>Change in annual case load</u>	<u>No. of vets</u>	<u>Percent of vets</u>
great decrease	1	12.5
decrease		
no change	2	25.0
increase	4	50.0
<u>great increase</u>	<u>1</u>	<u>12.5</u>
<b>Total</b>	<b>8</b>	<b>100.0</b>

**Table 6.30: Juvenile Nocturnal Raptors: Change in annual case load**

<u>Change in annual case load</u>	<u>No. of vets</u>	<u>Percent of vets</u>
great decrease	1	14.3
decrease		
no change	4	57.1
increase	2	28.6
<u>great increase</u>	<u></u>	<u></u>
<b>Total</b>	<b>7</b>	<b>100.0</b>

**Table 6.31: Adult Diurnal Raptors: Change in annual case load**

<u>Change in annual case load</u>	<u>No. of vets</u>	<u>Percent of vets</u>
great decrease		
decrease		
no change	4	44.4
increase	3	33.3
great increase	2	22.2
<b>Total</b>	<b>9</b>	<b>100.0</b>

**Table 6.32: Juvenile Diurnal Raptors: Change in annual case load**

<u>Change in annual case load</u>	<u>No. of vets</u>	<u>Percent of vets</u>
great decrease		
decrease	1	14.3
no change	1	14.3
increase	4	57.1
great increase	1	14.3
<b>Total</b>	<b>7</b>	<b>100.0</b>

6.3.2c

#### ◆ Diagnoses, Causes and Preventative Measures

Tables 6.33-6.36 summarises the findings of the five most common diagnoses as reported by respondents. These findings are presented with the cause (management practice rather than e.g. aetiological agent), and suggestions made by the respondents to prevent the disease. Due to the disparity in annual case loads, when attempting to rank diagnoses and comments made, the responses from Neil Forbes' questionnaire have been given greatest weighting, and ranked highest with a secondary amount of weighting to the respondent with the second highest case load, and so on. Many of the responses from other vets, thereafter, fell within these diagnoses.

The results for both adult diurnal and nocturnal raptors are similar with bacteraemia, aspergillosis and bumblefoot ranking highest. Whilst aspergillosis and bacteraemia are still a problem of juveniles, metabolic bone disorders are more prevalent at this age.

Rather than making an analysis of each condition the following general points arising from the data are made:

6.3.2d

#### ◆ Diet

The source of infection for many of the bacteraemic cases was food. It is suggested that birds should not be fed avian food as they are obviously more susceptible to avian pathogens than e.g. those of mammals.

The majority of raptor diets is made up of day old cockerels (i.e. the males not used in the poultry industry). Bacterial contamination of these chicks at slaughter may be minimal but freezing, storage and thawing processes may result in high bacterial counts. The problem may occur with either the suppliers or the keepers.

A number of pathogens may be inconsequential to poultry yet cause infections in other avian species such as raptors. As an example, the source of two outbreaks of an adenovirus infection in captive Mauritius Kestrels *Falco punctatus* was traced to the day old cockerels being provided as diet (Forbes and Simpson, 1993). This is a viral infection of no consequence to the poultry industry, and hence there is no commercial test with which food supply could be tested. Interestingly, although other raptors in this collection were fed the same diet, none died. This is probably a good example of how a loss of heterozygosity in an endangered island species may have resulted in reduced immune capability. The dietary requirements of these birds are now met by feeding mice and no avian derived feedstuffs. This highlights one of the problems associated with captive breeding as a conservation strategy.

A diet of solely day old cockerels was cited by the vets as responsible for cardiovascular problems (atherosclerosis) and alimentary impaction in adult birds.

Juvenile Birds: Nutritional deficiencies were cited as a problem for both diurnal and nocturnal juvenile raptors. Such deficiencies were cited as causing metabolic bone disorders and consequent fractures.

As preventative actions for such deficiencies, imbalances and pathogens, vets suggested a more varied and non-avian diet. Whilst there are a number of commercial suppliers of rats and mice as food sources, there seems to be a "culture" within the raptor keeping community for feeding day old cockerels. It may be just ignorance on the part of keepers that prevents feeding an alternative and varied diet. A number of vets pointed out that a better understanding of dietary requirements was needed i.e. education was the solution (a general discussion on the subject of diet is given in section 6.4.1).

6.3.2e

◆ **Hygiene**

Poor hygiene (including an accumulation of damp vegetation) was noted as being responsible for a number of varied conditions including bumblefoot. As the recommendations highlight, this is a simple matter of better management, maintaining clean perches or aviaries, or keeping aviaries free from rotting vegetation which may act as a source of *Aspergillus spp.* spores.

6.3.2f

◆ **Aviary Design**

Aviary design was blamed as the cause of a number of traumatic injuries or diseases such as aspergillosis. An improvement in housing conditions could alleviate such problems.

6.3.2g

◆ **Tethering and Handling**

Tethering and handling were cited as the cause of traumatic injuries including fractures. Such injuries were cited as more of a problem for newly jessed birds i.e. usually young birds. In this situation they may bate so vigorously as to fracture bones as discussed in Chapter 3, section 3.8.3 (Harcourt-Brown, 1995). Metabolic bone disorders resulting from poor diet will increase the risk of fractures. Improving the abilities and understanding of the keeper were cited as preventative actions. *Vets were asked specifically about tethering and this is discussed subsequently (section 6.3.2m).*

6.3.2h

◆ **Exercise**

Increased exercise was cited as a method for reducing risk of conditions such as bumblefoot and atherosclerosis. Flying free regularly is a method for increasing exercise even though this may involve tethering the bird.

Table 6.33: Adult Nocturnal Raptors: most common diagnoses, causes and preventative measures

No. of vets	Disease	Cause (management practice)	Suggested Preventative Action
2	Bacteremia	Poor food/hygiene	Do not feed avian food i.e. day old chicks/improve storage facilities/set up better commercial food sources
5	Aspergillosis	Stress/ mouldy environmental conditions	Minimise stress/avoid environmental contamination i.e. rotting nesting material/education
5	Bumblefoot	Management/poor perching conditions/poor hygiene	Increase exercise/increase observation of birds in aviaries/improve hygiene
4	Parasitic infections	Build up in environment and no treatment	Prevent contact intermediate host/regular worming (particularly before breeding season)/routine examination of droppings
1	Egg binding/peritonitis	Breeding activity	Avoid breeding!
1	Dehydration	Poor diet	
1	Atherosclerosis	Poor diet of day old chicks and lack of exercise	Improve diet and exercise
6	Fractures and injuries	Hunting/handling damage/entanglement/makeshift aviaries/birds attacking one another/flying in small spaces	Improve handler education/do not leave trailing leashes on jesses/improve education/improve housing/beware mixed aviaries/do not keep owls as pets
4	Eye infection/blindness	Infection/fighting/old injury	Adequate aviary space (avoid fighting)
1	Visceral gout	Nutritional problem	More varied diet than day old chicks
1	Alimentary impaction	Feeding day old chicks only	Vary diet/improve keeper education
1	Tuberculosis	Management	Reduce contact wild birds/reduce stress/improve conditions
1	Herpes virus	Contact with carrier	Quarantine new birds/ prevent contamination from wild birds

Table 6.14: Juvenile Nocturnal Raptors: most common diagnoses, causes and preventative measures

No. of vets	Disease	Cause (management practice)	Suggested Preventative Action
2	Aspergillosis	Stress/poor hygiene/mouldy environmental conditions	Minimise stress/avoid environmental contamination/ avoid rotting nesting material/ improve airflow through breeding area/ensure dry breeding area
5	Metabolic bone disorder (and associated fractures)	Poor nutrition/ inappropriate diet	Feed better & varied diet/use of supplements/education
4	Bacteremia	Stress/ poor hygiene/ infected food	Do not feed avian food i.e. day old chicks/ improve hygiene/ improve feeding regime
2	Parasitic infections	Build up in environment	Prevent contact with intermediate host/check faecal samples/treat more regularly
4	Traumatic injury	Trauma/handling	Improve aviary design/beware sharp wires etc./beware relationships between birds
1	Thiamine deficiency	Feeding day old chicks only	Improve diet and use of supplements
1	Conjunctivitis	Infection	
1	Splayed legs	Incorrect nest shape	Use bowl shaped nest when hand rearing
1	Anorexia		

4/9

Table 6.35: Adult Diurnal Raptors: most common diagnoses, causes and preventative measures

No. of vets	Disease	Cause (management practice)	Suggested Preventative Action
8	Bumblefoot	Management/poor perching conditions/poor hygiene	Increase exercise/increase observation of birds in aviaries/improve perch design and hygiene/regular foot inspection/education/remove tip of talon to prevent puncture
6	Bacteremia	Infected food/poor hygiene/stress	Do not feed avian food/watch for sudden weight loss/better understanding of dietary needs/set up commercial food sources/education re: feeding wild quarry/reduce stress
5	Aspergillosis	Mouldy environmental conditions/stress	Reduce stress/mould free environment
3	Fractures	Biting injuries/newly jessed birds/entanglement/inexperienced handling/prey bites/flying accidents (wires)	Care when tethering young birds/keep newly jessed birds on short leash in quiet environment/better understanding unsuitable jesse-fly birds away from wires
5	Parasitic infections	Contact with intermediate host e.g. quarry/hygiene/management/non-rigorous monitoring and erratic or non-existent treatment	Prevent contact/solid aviary floor/education re: feeding wild quarry/routine treatment
1	Cellulitis	Infection	
3	Dietary problems	Birds becoming lower than flying weight/poor understanding dietary requirements	Better understanding of dietary requirements/not allowing inexperienced to own raptors!
5	Traumatic injuries	Falconry hazards/prey bites/electrocution	Not preventable/flying accidents related to disease (e.g. hypoglycaemia/infection) improve handling skills/alter housing
2	Beak and talon deformities	Developmental nutritional problems/management	Education
1	Tuberculosis	Hygiene	
1	Foreign bodies in intestine		
1	"Wing blisters"	Environmental(?): low temperature	

Table 6.36: Juvenile Diurnal Raptors: most common diagnoses, causes and preventative measures

No. of vets	Disease	Cause (management practice)	Suggested Preventative Action
6	Bacteraemia	Infected food/stress/hygiene	Do not feed avian food/good hygiene/good feeding regime/ close monitoring/set up commercial food source
4	Metabolic bone disorder (including fractures)	Poor & inappropriate diet	Improve diet/use supplements/better understanding dietary requirement for different raptors/ education
1	Nutritional deficiency	Vitamin deficiency	Improve diet
1	Fractured legs	Husbandry	Care during tethering
3	Trauma	Parental wounding from disturbance/first flights/bullying	Avoid disturbance during rearing/improve management
1	Hypothermia	Young "branchers" not using shelter at night	Close observation
1	Splayed leg	Incorrect nest shape	Use bowl shaped nest when hand rearing
1	Parasitic infections	Non-rigorous monitoring or erratic treatment	Regular screening and treatment
1	Aspergillosis	Poor air flow in breeding area/environmental contamination	Ensure air flow/ no dead vegetation/keep area dry
1	Feather problems	Unknown	

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### 6.3.2i                   ♦ Traumatic Injuries during Flight

As discussed in the previous chapter (5.3.2h), traumatic injuries can occur during free flight. Whilst it is cited by one vet that such injuries are unavoidable (and wild raptors suffer similarly) another vet suggested that birds should be flown in a safer environment e.g. one without wires. However, another vet points out that flying accidents may be related to a concurrent disease or hypoglycaemia during flight.

### 6.3.2j                   ♦ Stress

Stress is cited as a precipitating factor in a number of infectious conditions e.g. bacteraemia and aspergillosis. This is a problem which can be alleviated or reduced with appropriate management.

### 6.3.2k                   ♦ Education and Training

Almost all of the conditions cited involve aspects of captive management which could be improved with education and training. The vets cite improved handling skills and dietary understanding as two areas in need of attention.

Other than the questions relating to common diagnoses the vets were asked questions relating to the following specific subjects:

### 6.3.2l                   ♦ Perch Covering

Over half the responses indicated astroturf as a good general covering for perches (8/14 multiple responses, 57.1%). This was indicated as the best covering particularly for falcons using blocks. However, soft leather was suggested for bow perches (2/14, 14.3%). Other responses indicated nylon carpet, hemp rope, cocoa matting or conveyor belt rubber. In general, the coverings suggested, with the exception of the leather, are of uneven surface hence spreading pressure over different parts of the planar aspect of the foot.

### 6.3.2m                   ♦ Tethering

Vets were asked what they felt was the maximum amount of time a healthy bird could be tethered (i.e. not flown) without causing harm. Half those surveyed felt unable to answer. However, 3/5 respondents felt this time depended on the individual bird or species. Neil Forbes, who can be considered to provide expert opinion, felt that no bird should be tethered for more than 24 hours if not being flown. Beyond this, he felt that no bird should be tethered for more than a month even if being flown daily. These answers indicate the contentiousness of the issue and the lack of definitive answers. The whole issue of tethering and effect on

physical and mental health of birds requires further research.

When asked for specific concerns regarding tethering diurnal raptors 3/8 cited entanglement and injury, 2/8 cited bumblefoot, others cited mental stress (1/8) or exposure to adverse climatic conditions possibly resulting in a condition known as wing tip oedema (1/8). One respondent had no specific concerns.

When asked for specific concerns regarding tethering nocturnal raptors, concerns were varied and included: bumblefoot, mental stress, inadequate exercise, potentially being mobbed by wild birds and insufficient ventilation (presumably within a weathering). Again, one respondent had no specific concerns.

## 6.3.2n

◆ **Boredom**

Vets were asked if they felt that birds suffer from boredom. The majority (6/9, 66.7%) felt that all or some "intelligent" species, such as Harris Hawks or caracaras, could suffer. When asked in which situations this boredom could occur, the majority (4/6) felt the problem could be caused by tethering, with a further one respondent feeling it was caused if a bird was not flown for long periods of time. The other respondent felt birds suffered from boredom if solitary or isolated even from human company.

Solutions to the problem were proffered by: flying more regularly (2/5); not tethering in isolation; improving aviary and flight facilities; making food more difficult to find; spending more time with the keeper; and offering toys. One respondent commented on Barn Owls being kept in barn-like aviaries where wild mice and rats have access. In this situation the birds are kept very active and exhibit natural hunting behavioural patterns which is probably beneficial to the birds. This perhaps illustrates one of the problems of environmental enrichment for carnivorous and predatory animals. Ideally, they would be fed live prey. Obviously a balance of welfare of prey and predator is required although it should be noted that live invertebrate prey is legally acceptable and this may be beneficial to some insectivorous raptors, if not the insects.

## 6.3.2o

◆ **Wild Injured Birds**

Vets were asked if they had specific concerns regarding wild injured raptors unsuitable for release. A number felt that if the bird cannot be used for a useful captive breeding project or educational programme it should be euthanased (4/8). One respondent felt that any bird with a leg injury should be euthanased as even if that leg recovers the bird invariably gets bumblefoot in the other foot, i.e. the foot on which most of the bird's weight has been carried. One respondent had no concerns.

The views expressed mirror those of the researchers who feel concerned about the welfare of some wild disabled birds. The subject of rehabilitation will be covered

more thoroughly later in this chapter (section 6.7).

6.3.2p

#### ◆ Experience of Keeper

Vets were asked if they thought the experience of the keeper influenced the sorts of cases they treated. All agreed that it did (10/10, 100%).

When asked to elaborate, respondents commented that whilst experienced keepers often present birds with infections or traumatic injuries (presumably from flying accidents) inexperienced keepers tend to present birds with nutritional problems caused by incorrect weight manipulation. Others reiterated the nutritional problems caused by inexperienced raptor keepers.

A respondent indicated that there were problems when a keeper had taken on a bird prior to receiving any training. The positive correlation between ignorance of a bird's needs and a reluctance to spend money on professional veterinary advice was pointed out by one vet.

Vets were asked to evaluate what they perceived to be the experience of both diurnal and nocturnal raptor keepers. The results showed poorer experience in owl keepers with 40% (4/10) ranking as "unsatisfactory". However, the majority felt that diurnal raptor keepers ranked as either good or satisfactory (8/10).

Assuming that diurnal raptors are kept more for falconry purposes and owls are kept for the sake of keeping, then perhaps this slight difference in experience indicates the difference between the falconer and the owl keeper. As falconry is a more intensive practical pastime than owl keeping, then perhaps experience is built up by falconers more readily. As one vet points out, a falconer is likely to join a club, read journals and exchange ideas with other falconers whereas many owl keepers become involved because of the birds' intrinsic appeal and may not, therefore, research the topic adequately prior to obtaining a bird. It was commented by one respondent that experienced keepers become aware of a health problem at a much earlier stage in an illness. It is likely that falconers handling a bird daily will be more aware of health problems at an early stage rather than an owl keeper who may not notice until the bird is noticeably moribund.

As commented by one vet, raptors are much more dependent on keepers than some other carnivorous animals in human care hence keepers require good theoretical understanding of a bird's needs as well as good practical skills. Neil Forbes comments that experienced concerned owners present birds with fewer serious or management related problems.

## 6.4 GENERAL DISCUSSION

This discussion section is used to expand some of the points raised by the surveys. In addition, other issues affecting raptor keeping not covered in the surveys are discussed.

### 6.4.1 ♦ Diet

Currently day old cockerels i.e. those incapable of egg laying, are killed by the poultry industry. Many of these are then sold to the pet food trade. In turn many are bought by raptor keepers as a staple diet for their birds. One of the RBA members expressed concern that this dependence may be dangerous as a pre-hatch sexing system may be developed and the supply would then cease. The potential for such a problem is undetermined. It is probable that there is now a sufficient market for dead day old cockerels that production of them would still be economical. One of the vets surveyed suggested development of a specialist food source which would, in effect, reduce the dependence of keepers on day old cockerels.

The dependence of raptor keepers on this food source and its implication for animal health have been highlighted by the survey of vets. The implications of this dependence for animal health have been discussed (section 6.3.2d). An understanding of dietary needs is fundamental if animals are to be maintained in captivity. It would appear that there exists a degree of ignorance within raptor keepers. The standard modern texts all discuss dietary needs (Durman-Walters, 1994a; Ford, 1992; Parry-Jones, 1993) yet in many cases this advice goes unheeded. It is possible that the effects of poor diet may be less tangible to an inexperienced keeper than e.g. perch design.

From the surveys that have been carried out via site visits and questionnaires it has been impossible to evaluate the daily diets of birds. Indeed, discussions on the subject with keepers invariably results in their claim that they feed a varied diet of high quality foodstuffs. The only evaluation which could be carried out was at The National Birds of Prey Centre where one of the researchers spend an extended period. During this time birds were fed a variety of day old cockerels, quail, beef and mice. The storage and preparation facilities for the food were found to be extensive and of high standard. It is unlikely that private keepers would have such extensive facilities.

The failure to determine dietary standards within raptor keepers is recognised as one of the shortcomings of the research.

### 6.4.2 ♦ Why Breed?

The progression from falconer to raptor breeder seems to occur frequently i.e. experience in one field leads to experimenting in another. As Parry-Jones (1993)

points out individuals may not question why they are attempting to breed birds, there is merely a tacit assumption that it is a good thing to do. Having achieved success with a pair raising young, the breeder may want to experiment further and attempt to get the birds to re-lay having removed and hand reared the first clutch, and so on. Unless the breeder has extensive facilities and finances he or she will probably want to sell or give away the offspring. Good homes may be found for many birds but there may not be a market for all. Indeed, for species such as Kestrels, Common Buzzards, Tawny Owls *Strix aluco* and Barn Owls the market is probably limited and as Figure 6.10 showed, many individuals of these species are merely kept and not flown.

As pointed out by an RBA member, if a raptor keeper or falconer purchases the correct bird to start with, he or she should not require another one within the lifetime of that bird (e.g. 10-20 years). The member goes on to say that there is a current over-production and these birds are being either:

- ◆ built up by keepers into backyard collections of birds not being flown
- ◆ built up by keepers in public centres and not being flown
- ◆ lost or accidentally killed by falconers and keepers (indeed, if birds are so readily available there may be less incentive to find a bird that has become lost).

It is interesting to note that two decades ago captive breeding to produce raptors for keeping or falconry was in its infancy with many sceptics assuming it could not be done. The introduction of the WCA provided a strong incentive and now the country is in a situation where over production of some species may be the problem. Perhaps some form of coordinated breeding strategy is required to resolve the apparent dilemma.

From the results it would be fair to say that raptor breeders are breeding either for themselves or trade with few involved in conservation breeding.

#### 6.4.3

##### ◆ The Dangers to Males Birds During Breeding

For many essentially solitary species of animal, the breeding season is associated with great tension and conflicting desires. This is true for many raptor species. Tension may be shown behaviourally by outright aggression on the part of one or both birds of a pair. As with many species the female may be biologically more particular about her potential mate than the male. As most raptor species exhibit sexual dimorphism with female birds out-sizing males by up to 50%, male birds must proceed with caution. The female is most likely to show her rejection of a male in an aggressive manner. In the wild a rejected male would probably be able to escape injury by flying off. However, in captivity he may not be able to escape and may be injured or at worse killed. This is a well recognised problem for raptor breeders. The problem is exacerbated when the female has been imprinted to any degree, as an RBA member reported his male Common Buzzard was killed

by such a bird that had been sold to him as non-imprinted. It is suggested that breeding aviaries should be fitted with a means of introducing the male to the female whilst still keeping them separated by mesh and a means of escape (even if only from visual contact) for the male bird once he is with the female bird.

#### 6.4.4 ♦ The Bird that No-one Wants

The issue of "beginner's birds" has been discussed previously i.e. a bird destined to be passed from novice to novice (section 5.4.1). In addition to these birds, there are birds which no-one wants due to behavioural problems on the part of the bird. Frequently such problems occur due to imprinting the bird or poor practice leading to poor temperament. In the case of the former the bird may scream incessantly when in sight of humans. Such a bird is may be bought unwittingly (e.g. Basri, 1995), it will then become a nuisance to the keeper and a possible embarrassment to a falconer attempting to hawk in company.

In addition, the complexities of the rearing, manning and training processes are such that should some part be carried out incorrectly the bird may develop "bad habits" e.g. it may be aggressive or unpredictable. Such characteristics may be innate but it is thought that the majority of behavioural problems in raptors are due to mismanagement (Parry-Jones, 1993). Again, the problems may not be obvious to a new buyer of a bird. Once aware of the problems the new owner is likely to try to sell the bird on, probably at an attractively lower price.

In this way birds are passed from pillar to post merely exacerbating their mental and behavioural problems. As an example seen by one of the researchers, a Common Buzzard at a raptor centre was housed in a particularly small and bleak aviary. Enquiries from the researcher found that the bird had attacked a member of the audience and so could be no longer flown in displays. There is slim likelihood of a bird receiving optimal care when it is essentially not furnishing the keeper with a service. With the increase in raptor keeping by new individuals the problems of the psychologically deranged bird can only escalate.

#### 6.4.5 ♦ Theft of Captive Birds as a Welfare Issue

For probably as long as there have been captive raptors, there have been those who would steal them for their own possession or own financial gain by selling them subsequently (although Henry VIII decreed hanging for hawk thieves!; Michell, 1900). Unfortunately, as was feared, the incidence of this crime has risen significantly following deregistration with an increase in theft from captivity of 200% (Beecroft, 1995).

Theft is a distressing event for the owner but it is also a highly stressful event for a bird. Catching a bird in an aviary is a stressful event in any situation but when this occurs at night (as many thefts do) by unfamiliar humans it is a more significant event. Even if the bird is taken from a tethered situation the bird is

probably still subjected to a bout of acute fear. The most likely scenario following capture of the bird involves it being bundled into a bag and transported from familiar surrounds. It is probable that any rings would be cut from the bird's legs and then it would be kept out of sight for some time, most likely in a shed. Birds may then change hands a number of times. Subsequently, the bird must become accustomed to a new owner, a new owner whose attitude may not rank animal welfare *a priori*.

Members of the Committee of the RBA suggested that in a court case situation, a non-movement order should be placed on a bird(s) to prevent further stress to the bird(s) in question. They were critical of organisations such as the RSPCA and RSPB for attempting to move birds and occasionally causing injury or plumage damage.

**Thefts from the Wild:** Beyond the conservation implications for stealing birds of prey from the wild, such theft is also a welfare concern both for chicks taken and adults robbed of eggs or young.

#### 6.4.6 ♦ Microchipping - Passive Injectable Transponders

The identification of an individual animal by some means of marking it permanently with an unique code or number has been the aim of many animal owners and many of those who work with animals in the field and laboratory. The system used by the DoE as part of the registration scheme involved the use of a numbered leg ring. Whilst the system has been relatively successful in the identification of individuals it has a number of drawbacks:

- ♦ the number may become illegible with age of the ring
- ♦ rings have been responsible for a number of leg and foot injuries
- ♦ the ring may have to be removed for veterinary reasons
- ♦ the ring may be removed by those determined to make the bird unidentifiable
- ♦ the species may be unsuitable to ring
- ♦ the bird must be handled to read the ring.

Ideally a method for identification would be used which is permanent; creates no health risk; is suitable for all species; and ideally, allows reading without handling the bird. With the exception of the last category, technology may have produced such a system by the use of microchips i.e. passive injectable transponders (sometimes referred to as PIT tags). Their use is becoming increasingly common in captive raptors. Once injected, which in itself is a simple procedure, the transponder is harmless and does not migrate within the bird's body (Beecroft, 1993).

P.C. Paul Beecroft is a policeman, raptor keeper and falconer. He currently runs the National Theft Register for raptors. He is a highly respected man within the raptor keeping world and nationally he is probably the best informed individual

with respect to raptor thefts. He personally fought against deregistration as he felt it would result in a number of welfare and legal concerns including theft. The increase in thefts from captivity of 200% vindicates his concern (Beecroft, 1995). There is also anecdotal evidence and speculation that thefts from the wild have increased or will increase in the future (e.g. Butler, 1994)(see Chapter 5, section 5.7.6). Indeed, the process of deregistration seems to have precipitated a degree of lawlessness within certain individuals.

At present three companies make the transponders used for raptors: Animalcare Ltd., Pettrac and RS Biotech. The readers for the first two are capable of reading transponders from each others' company whereas RS Biotech promotes the Trovan system which is used by some zoos if not vets and the RSPCA (Beecroft, 1994). The price of buying transponders from the first two companies includes entry onto the National Register. This system of permanently identifying birds and associating this identification to an individual person on the National Register means that lost birds can be reunited with owners. In addition, stolen birds can be identified easily.

With the development of increasingly sophisticated ceramic memory materials it is hoped that the systems foreseen for remote identity cards for cars or people can be applied to animal tagging to allow remote identification (Fox, 1995c).

#### 6.4.7

##### ◆ DNA Testing for Law Enforcement

The technology of DNA fingerprinting has revolutionised sections of the forensic and biological research world. It allows determination of precise relationships between living organisms. With respect to birds, it is now being used extensively both for research and law enforcement (Parkin *et al*, 1988).

Its use as a law enforcement tool was cited by The Hawk Board when they considered the proposed changes to the review of UK wildlife sales controls (Appendix 2.7). Indeed, it has proven itself to be very effective in prosecution cases (e.g. RSPB, 1995; Tendler, 1995). Robinson (1995) reports that in 1993, of those birds subject to investigations by police and RSPB, a tenth of Goshawks and Peregrines were found to be unrelated to their claimed parents.

However, one of the drawbacks of DNA fingerprinting technology, as with all molecular biology techniques, is the cost. Where this burden of cost should lie for every investigation has yet to be finally established (Robinson, 1995).

In conclusion, the identification methods of both passive transponders and DNA fingerprinting have enormous advantages in identification of birds over close rings which can be removed and have all of the limitations mentioned previously.

#### 6.4.8 ♦ Birds of Prey used for Social Status(?)

During the course of this work the researchers became aware of the number of keepers who parade their birds of prey in public places, whether this be in public houses, on the streets, at train stations or wherever. The psychology or motivation for those doing this is uncertain. However, it is an activity consonant with a number of individuals within society who use their pets, and in particular exotic pets, or baby animals, as a tool for meeting or attracting people into conversation. These animals are perhaps used by the owner to achieve some level of social status. A bird of prey may be particularly effective at giving the keeper a perception of promoted social status in the view of the public due to both the aesthetic value of the bird and the element of danger involved on behalf of the keeper. A bird of prey tethered on a lawn may also provide, for those with such a mentality, an up-market garden gnome: a creature for ornament (Harcourt-Brown, pers. comm.).

The practice is a welfare issue as the bird is put in an environment filled with real and potential stressors i.e. trains, drunks, traffic, the public and so on. The propensity for allowing the public to stroke such birds must also be appreciated, a welfare concern in itself as described in Chapter 4 (section 4.4.3r).

#### 6.5 ♦ VISITING ANIMAL SCHEMES

A number of personnel from public raptor centres are involved in educational activities other than those within the centres. Similarly, it has been seen that 35.1% (13/35) of the private keepers surveyed also partake in such events.

The use of live animals for educational purposes has been discussed in Chapter 4 (sections 4.5.4 and 4.6.9) and organisations such as the RSPCA have expressed their concerns and issued guidelines for schools and local authorities (RSPCA, 1988).

The quality of current practices could not be assessed but it is hoped that more educational input is given than that contained within the usual flying displays. With respect to schools visiting schemes, ideally any visit would be integrated into a larger research project within the educational curriculum. As Mallinson (1995) points out, pre-visit preparation and post-visit development should be used to relate the visit to concurrently taught topics to enable students to imagine the animals out of the context of captivity. It is unknown to what extent this occurs but it is considered unlikely.

## 6.6      ♦ *BIRD CLEARANCE*

Collisions between birds and aircraft can cost lives and huge quantities of money. For this reason it would seem prudent to maintain areas of high air traffic, free from concentrations of birds. Trained raptors were first used to clear birds from airports in UK in 1947 (Blokpoel, 1976, in: Bird and Brown, 1991). In this case the daily presence of a flying Peregrine was enough to keep airfields free from birds. It is a technique used in a number of countries by both commercial airports and the military (Bird and Brown, 1991).

The deterrent or control of "pest" species such as gulls or pigeons in public or anthropocentric environments is now a widespread practice. The availability of the raptor keeper and bird trained to fly free has precipitated the now relatively common practice of commercial bird clearance using raptors. Most commonly these bird clearers are requested to deter birds from town centres, landfill sites, airports and food production factories i.e. the bird clearance enterprise may be employed by local authorities or private companies. Airports remain the mainstay for most of those working in bird control programmes.

The aim of raptor assisted bird clearance is not to kill many prey but merely to disperse birds whose natural response to a raptor is to escape on the wing. From a welfare of prey stance, deterrent by a raptor may be preferable to the alternatives of shooting, poisoning or trapping. However, occasionally birds are caught and killed (e.g. Hardman, 1994).

The methods involved in the training of the raptors are the same as those used for training birds for flying in displays or falconry prior to entering the birds at quarry. Raptors used for such clearance activities on a regular basis are probably exercised far more than those flying for two or three minutes daily in a raptor flying display.

The main welfare concerns relate to the area in which the birds are flown. Flying birds in open areas such as airfields or landfill sites may be without too many hazards but flying birds in city centres may be problematic due to surrounding buildings, the proximity of the public, vehicles and overhead wires. As long as care is taken in selection of flying site there are considered to be no welfare concerns specific to this activity other than those affecting other trained raptors flying free.

## 6.7      ♦ *REHABILITATION*

### Introduction

The subject of raptor rehabilitation merits further analysis and discussion to determine practices and scale of the activity.

The interest in treatment of sick and injured wildlife has become increasingly popular due to both the advancement in non-domestic animal care by veterinarians and the attitudes of the public (British Wildlife Rehabilitation Council, 1989; Kirkwood, 1993). With respect to the latter, there have been two factors motivating the public i.e. a concern for species welfare resulting from the growth in the conservation movement; and a realisation that concern for welfare of individual animals should extend beyond our domestic stock. The responsibility humans feel towards sick or injured wildlife tends to depend upon the extent to which humans feel responsible for the harm. As human activities increasingly impinge upon wildlife both directly and indirectly the responsibility felt becomes all the greater.

Wild raptors may find themselves in need of treatment and rehabilitation for a number of natural or human-mediated reasons, most commonly:

- ◆ as subjects of persecution i.e. shot, trapped or poisoned
- ◆ as subjects of traumatic injuries caused by collisions, either natural or caused by anthropogenic factors e.g. vehicles, wires and so on
- ◆ as birds suffering from malnutrition or dehydration.

Cases brought to the attention of the RSPB or RSPCA will most commonly be passed to the network of LRKs across the country. These LRKs, of which there are approximately 335 (DoE figures), constitute a group of falconers, keepers, people who run commercial raptor centres, or other concerned individuals. The charity Raptor Rescue is dedicated specifically to the care and rehabilitation of sick and injured raptors.

As all rehabilitating birds are essentially captive during their rehabilitation and those unsuitable for release remain captive for the rest of their lives, then their welfare falls within the remit of this research.

The majority of cases require basic medical attention, rest and time for recuperation. Such cases tend to be in captivity for no more than a couple of weeks. However, more serious conditions *may* require the use of falconry techniques to allow the bird to regain fitness and be able to hunt again. This involves going through the processes of manning and tethering the bird and subsequently training the bird to catch food and fly free to build up fitness and confidence. The necessity for falconry techniques for such cases is well recognised yet Mooney (1995) would suggest that enough aerobic exercise can be gained by forcing a bird to fly up and down a large aviary, the concurrent fear of humans being ultimately beneficial to the bird.

Organisations such as Raptor Rescue have a policy on euthanasia and permanent retention of physically disabled or socially disordered wild raptors (Appendix 1.7). Information Sheet 5 produced by the DoE on sick or injured wild

registerable birds is appended (Appendix 2.11).

For a more thorough background to the methodologies and assessments required in rehabilitation the reader is directed to Parry-Jones (1993) and the Proceedings of the Raptor Rehabilitation Workshop held jointly by The Hawk Trust, London Zoo and The Hawk Board (1990).

### 6.7.1 Methods

An assessment of numbers of birds rehabilitated and retained annually, together with an assessment of standards of care, was to be made by questionnaire survey of rehabilitators. However, this coincided with a research project subsequently being carried out at Canterbury Christ Church College which sought to determine the conservation value of raptor rehabilitation using similar methodology. It was decided to refrain from questionnaire survey in case of jeopardising both research projects, instead intending to cite relevant data from the final report of that research.

Unfortunately, due to practical difficulties only preliminary results of the Canterbury Christ Church College research are available. Instead, a review of Raptor Rescue statistics is made together with qualitative data gathered from rehabilitators visited.

### 6.7.2 Results and Discussion

Data collated from Raptor Rescue annual reports are summarised in Tables 6.37 - 6.38. The preliminary results from the Canterbury Christ Church College research represent a far larger sample size yet show similar proportions of birds released, retained and so on, with no statistical difference between the two data sets. From this it can be concluded that the Raptor Rescue results are representative of raptor rehabilitation as a whole in UK.

It can be seen that approximately half of all birds receiving treatment are released (Table 6.38). This high figure reflects the sorts of cases most commonly treated. Many of those released are birds originally submitted as malnourished or dehydrated i.e. birds with good prognoses. The prognosis for birds with traumatic injuries depends on the nature and severity of the injury.

The data also show the numbers of lost captive bred birds which are found each year by the organisation. This annual figure of around 20 birds probably represents a small proportion of the total numbers of captive bred birds lost annually when being flown free. It should be noted that since deregistration it is increasingly difficult to return birds to rightful owners if identification rings are no longer worn (Cunningham, 1995).

Table 6.37: Wild injured raptors treated by Raptor Rescue annually

Species	1991-92	1992-93	1993-94
Eurasian Kestrel	103	96	86
Tawny Owl	99	89	61
Sparrowhawk	86	53	54
Little Owl	62	42	38
Barn Owl	27	9	19
Common Buzzard	7	8	18
Peregrine	7	4	7
Long-eared Owl	4	2	2
Merlin	2		1
Hen Harrier	2		
Short-eared Owl	1	2	1
Goshawk		2	
Hobby		1	3
Red Kite		1	
Honey Buzzard		1	
<i>Captive escapees</i>	<i>15</i>	<i>25</i>	<i>21</i>
<b>Total wild casualties</b>	<b>400</b>	<b>310</b>	<b>290</b>

Table 6.38: Fate of wild birds treated by Raptor Rescue excluding captive escapees

Fate	No. birds			Total	Percent
	1991-92	1992-93	1993-94		
Released	214	158	145	517	51.7
Died	85	64	59	208	20.8
Euthanased	40	50	43	133	13.3
Retained	61	38	43	142	14.2
<b>Total wild casualties</b>	<b>400</b>	<b>310</b>	<b>290</b>	<b>1000</b>	<b>100</b>

## 6.7.2a

◆ *Welfare of Rehabilitating Birds*

The researchers became concerned about the welfare of rehabilitating birds during visits to public collections of raptors. It is unfortunate (yet fortunate for the charities/rehabilitators) that humans are more likely to financially support rehabilitation if they can see it in action i.e. witness live animals. This seems to have led to some rehabilitators showing off their charges to the public, an act which negates the one of the fundamentals of wildlife rehabilitation, that is to provide an environment as free from stressors as possible to aid swift recovery (e.g. RSPCA, 1994b). One of the most effective stressors is the presence of humans.

The most extreme example of poor practice witnessed was the case discussed in Chapter 4 (section 4.4.2c) where a rehabilitation hospital within a raptor centre was open to the public (this was one of the centres where equipment failure precluded the collection of quantitative data). The rehabilitation aviaries: provided access to the public; were overcrowded; mixed incompatible species; and had atrocious aviary design which had resulted in practically of all inhabitants severely damaging their cerea and plumage on the chicken wire construction. The subsequent condition of the birds would have prevented release of the birds.

The rehabilitation centre assessed quantitatively in Chapter 4 gave guided tours of the small number of rehabilitating inhabitants to any visiting public together with blatant recommendations to provide financial support for the activities. Plate 6.2 shows a rehabilitation aviary on display to the public.

It would seem that one of the main problems for rehabilitation facilities is not setting limits to admissions. In this situation, once at capacity, extra admissions serve merely to reduce the quality of the environment for all of the other resident birds: a situation exemplified by *The Tragedy of The Commons* (Hardin, 1968). This situation is more likely to be a problem for raptors than for gregarious species such as wildfowl which, within limits, seek refuge in numbers. Some of the rehabilitators visited boast to never turning an animal away. To turn away a sick animal is not in its best interests yet may be in the interests of many others currently undergoing rehabilitation. Balances must be calculated.

The issue of keepers (in the broadest sense) treating their own birds was brought to the attention of one of the researchers following a visit to a rehabilitator at a local animal rescue centre. The researcher was told how invasive surgery was carried out by this unqualified individual: birds were put into a trance via hypnosis, opened up (with a scalpel), fractured bones were "superglued" together, skin was rejoined with superglue and the animal brought out of its trance. It is impossible to determine if this sort of account is factual or testosterone-mediated bravado and fabrication. If factual, this must surely constitute an offence under the Veterinary Surgeons Act (1966)(Chapter 2, section 2.5).

Moreover, the researcher was surprised to see a rehabilitating wild Kestrel in a corner of a busy kitchen in which there were both humans and dogs. When questioned about the bird's stressful environment the researcher was assured that the bird was without stress as it had been put in a trance.

Other anecdotal accounts were collected from many raptor keepers or raptor centre workers. Their main concerns were the keeping of birds which they felt (and the Raptor Rescue euthanasia policy supports) should have been euthanased. Over crowding was cited as a specific problem.

The RSPCA were criticised for the containers sometimes used for transporting wild raptors to rehabilitators. Solid boxes rather than open wire "cat basket" type transporters should be used.

## 6.7.2b

◆ *Welfare of Released Birds*

The lack of research and quantitative data hinders an assessment of the success of rehabilitation. Therefore, it is difficult to determine whether or not birds are released to subsequently suffer and die, most probably of starvation. As organisations such as Raptor Rescue provide guidelines on euthanasia and retention of birds, it is hoped that birds released from their rehabilitators are fit enough to survive. The extent of adherence to these guidelines of Raptor Rescue members and other rehabilitators remains unknown.

From discussions with rehabilitators it would seem that a number, release their birds at the same sites. The introduction of individuals into the same territory must surely affect the releasees and the sympatric individuals.

## 6.7.2c

◆ *Welfare of Retained Birds*

From the results it can be seen that on average 14% of birds treated by Raptor Rescue are retained annually due to their unsuitability for release (Table 6.38), a figure corroborated by the Canterbury Christ Church College research. The actual number of birds that this equates to cannot be estimated in the absence of more substantive data.

It is beyond the scope of this research to discuss the ethics of how much life is better than no life (e.g. Dawkins, 1980). The acceptance of a level of good quality of life may be fundamental to this argument. Quality of life may be measured by ethical viewpoints. Moreover, it can be determined practically by assessing the physical and mental injury to an animal and assessing the physical quality of the environment in which it can be kept for the rest of its life. Assuming that a disabled bird may live for another decade or more, there must be a long term commitment on behalf of the keeper who must also possess extensive facilities if many birds are to be retained. Again, the acceptance of another bird for retention must be balanced against the welfare of those already



**Plate 6.2:** Rehabilitation aviary on display to the public; negating one of the fundamentals of rehabilitation i.e. reducing stress caused by the presence of humans.

present if their welfare is not to be compromised. This point is specifically made in the Raptor Rescue policy on euthanasia and permanent retention of physically disabled or socially disordered wild raptors (Appendix 1.7).

On site visits to rehabilitators, one of the researchers saw a small number of aviaries which contained large numbers of retained birds of mixed species. As healthy birds, species such as owls, falcons and harriers would not be compatible, yet as disabled birds they were kept together. It is speculated that it was the disabilities of the birds which prevented them attacking one another.

As mentioned in Chapter 4 (section 4.6.5), one public raptor centre was accused of "accidentally" imprinted young birds submitted for rehabilitation. In this socially disordered state the birds could not be released back to the wild but were retained to become part of the captive collection, a convenient way to circumvent the issuance of licences to take wild raptors.

6.7.2d

◆ *The use of Animals for Education*

The ethics and problems of using live animals for education have been discussed previously and in Chapter 4 (section 4.6.9). Is it then justifiable to use permanently disabled wild animals for education? Unlike this country, in the USA it is only wild injured raptors which are permitted to be used for educational purposes. The extent to which able-bodied birds are available in this country means that few disabled birds are probably used for such purposes.

6.7.2e

◆ *Raising Funds for Rehabilitation*

The use of exhibiting sick birds to raise funds has been discussed, and individuals involved in such activities are in the minority. However, Raptor Rescue commonly use a static display of healthy birds at public events to raise public awareness of the charity and to attract funds. This usually takes the form of a static display of tethered owls, notably the British species: Barn Owl, Tawny Owl and Little Owl. As has been discussed previously (section 6.3.1j), Forbes (1995) and the BFSS Code of Welfare state that smaller owls should not be tethered. It would seem from the preceding results (in this chapter and those of Chapters 4 and 5, sections 4.4.3a and 5.3.2p) that raptor keepers and also falconers are divided on the issue. In defence of the practice, the Chairman of the charity points out that birds used in shows are kept loose in aviaries when not tethered at shows (Robbins, 1995). However, as is pointed out by Parry-Jones (1995a) it is impossible to convey this to all of the public viewing the tethered owls. She is critical of past welfare standards and argues that if the public see owls tethered by a reputable organisation they will perceive that this to be an acceptable practice.

The charitable status of organisation such as Raptor Rescue allow members to raise funds, unfortunately this system allows abuse by certain individuals which may result in termination of membership (Robbins, 1993).

## 6.7.2f

◆ *Rehabilitation: useful for conservation?*

For rehabilitation of raptors to be of benefit to conservation the bird must be fit enough to survive in the wild, it must not be imprinted in any way so as to affect its relationship with other raptors, and lastly it must successfully rejoin a breeding population (Humphreys, 1981). There has been disappointingly little research carried out on the fate of rehabilitated wildlife to determine its success and value.

As many of the birds released from rehabilitators are those which have been in a poor nutritional state, the effect may be giving those less fit genotypes a second chance of survival. In addition, infectious agents contracted in captivity may be introduced to an immunologically naive wild population.

If the bird does not successfully rejoin a breeding population it may merely act as a competitor for the limited resources of its conspecifics and sympatric species.

The propensity of the rehabilitation centres visited to proclaim their role as conservationists diverts funds from the public they misguide which could otherwise be given for proven conservation activities.

However, in an environment under constant degradation by human activities the role of rehabilitating wildlife may become increasingly important as some wild populations decline so as to make each individual animal a significant proportion of the genepool. The activities of a network of rehabilitators ensure that these skills are kept in the community, which may be of conservation importance ultimately. Similarly, sick and injured wildlife acts as a training ground for vets in non-domestic animal medicine, the value of which has become increasingly important to conservation (Kirkwood, 1993). Other animal health data can be gathered also to allow some degree of population monitoring.

## 6.7.3

**Conclusion**

Whilst this account may sound critical it is written to highlight the problems rather than the excellent work which is undoubtedly carried out by many. However, the tacit assumption that rehabilitation is a worthy and good cause beyond need of investigation is unfortunately not the case. The welfare concerns are all the more great because of the vulnerability of wild animals to stress and the inevitable increase in numbers requiring treatment as humans negatively impact the environment.

## 6.8      ♦ *THE CASE OF THE CAPTIVE BARN OWL*

In this section the case of captive Barn Owls is discussed specifically as it has been found to be such a commonly kept bird and a particularly cheap bird to buy. Barn Owls seem to have a special attraction for some and their availability and low cost may not always be to their advantage.

### 6.8.1a      ♦ *Legislation Relating to Barn Owls*

Prior to November 1993, Barn Owls were listed on Part I of Schedule 3 of WCA. The implications of this have been discussed in Chapter 2, section 2.10.

Although a very cosmopolitan bird, occurring throughout the world, the Barn Owl is declining in Britain. The two main threats to the British population have been identified as loss of prey-rich foraging habitat and the loss of appropriate nest sites. Historically, the bird has been regarded with infamy yet today is much loved and valued by the British public. As a reaction to this decline numerous captive breeding and release schemes developed throughout the country (Dewar, 1992). This was facilitated by the ease with which Barn Owls breed in captivity and the lack of legal controls over the releases of birds. Indeed, there was no legal requirement or control over: registration of the captive or released birds; assessment of release site carrying capacity and suitability; the genetic evaluation of potential releasees; release methods; and so on.

To summarise, although a number of breeding and release schemes were organised, or advised, by the British Owl Breeding and Release Scheme (BOBARS) and the Barn Owl Trust, most were carried out by enthusiastic yet unadvised aviculturalists. The success of these schemes was generally not monitored.

The World Conservation Union/IUCN, lay down precise guidelines for reintroductions and restocking programmes. Organisations such as the Barn Owl Trust and BOBARS produce their own guidelines relating specifically to Barn Owls. However, it is unlikely that these guidelines were followed in the majority of schemes. In addition, the success of releases was hard to assess as follow up studies were rarely carried out and most of the releasees were unringed.

### 6.8.1b      ♦ *The Scale of the Release Programmes*

It was estimated that there were between 20,000 and 30,000 Barn Owls in captivity, many kept as breeding pairs. Research carried out by The Hawk and Owl Trust estimated that in England and Wales alone some 3000 birds were being released annually by over 600 non-professional release schemes to supplement a wild population of about 4500 pairs (Cayford and Percival, 1992).

## 6.8.1c

◆ *Releases of Barn Owls as a Conservation Problem*

For a release scheme to be of any conservation value at all, releasees must be able to survive, establish territory and successfully join a breeding population *without* causing detrimental consequences to the existing wild population. With respect to detrimental consequences to the wild population, releasees were not genetically screened (Kalmer, 1995), a particular problem as there have been a number of different races sold and kept, and undoubtedly hybridised, in UK. Beyond the problem of non-indigenous or even deleterious genotypes being released, releasees did not undergo vital animal health screening processes (Cooper, 1989). Such screening is essential to prevent possible release of pathogens into a naive wild population.

There is a possibility that released birds may have been able to out-compete wild birds for scarce resources. Displacing an established wild bird, or pair, is obviously not achieving the objectives of a captive breed and release scheme for conservation. Additionally, if the captive bred bird is in any way (mal)imprinted its chances of breeding are low. The releases of so many birds also confuses precise population level monitoring which is essential if effective conservation measures are to be identified (Cayford and Percival, 1992).

It would seem, therefore, that the objectives of reintroduction were probably not being achieved.

## 6.8.1d

◆ *Releases of Barn Owls as a Welfare Problem*

Birds released by inappropriate methods and into unsuitable habitat are unlikely to survive. Research carried out by the British Trust for Ornithology (BTO) (reviewed by Cayford and Percival, 1992) showed that only a small minority survived to breeding age, and the majority died soon after release. As to how the birds died, the BTO found that compared to wild bred birds, more first year birds were killed or injured by traffic and more adults starved to death. Many of the originally captive bred birds injured, returned to captivity to live out their lives permanently disabled.

## 6.8.1e

◆ *Changing the Legislation Relating to Barn Owls*

In an attempt to improve the conservation status of the Barn Owl and, in effect, reduce the associated welfare problems, the RSPB and the Joint Nature Conservation Committee opposed the use of release schemes as a conservation technique. A call was made to change the legislation to ensure that if release schemes were to take place they were necessary, appropriate and carefully managed.

At the end of 1992 the Barn Owl was moved from Schedule 3 of the WCA and was instead, listed on Schedule 9. In essence, a licence was then required to

release birds. This licensing scheme came into effect from the beginning of 1993.

This licence requires an assessment of the release site, release techniques, existing population, post-release measures and monitoring releases procedures. In addition, the DoE produced an extensive Code of Practice. Details of the procedures are appended in a DoE leaflet entitled "Thinking of Releasing a Barn Owl" (Appendix 6.3).

In an attempt to coordinate Barn Owl releases The Hawk and Owl Trust have appointed a full-time post for a Barn Owl Conservation Network National Coordinator.

DoE-commissioned research is being carried out to evaluate Barn Owl reintroductions in UK and the effectiveness of this Schedule 9 licensing. This is important research as concern has been raised that the new scheduling and associated licensing is too cumbersome.

Unfortunately, there are founded fears that just prior to enforcement of the legislation, large numbers of Barn Owls were released to avoid the lengthy procedure of obtaining the appropriate licence. The number of licences issued has been lower than expected adding weight to the theory of birds being released unlicensed. The fate of these birds is essentially unknown. The total number of Barn Owls still in captivity remains unknown.

## 6.9

### CONCLUSION

Both private keepers and vets are aware of welfare problems within the raptor keeping community. It would appear that many of the problems occur due to lack of training and/or education in management practices. Such problems may be caused inadvertently by well meaning individuals as highlighted in the cases of captive Barn Owls or rehabilitation. To ensure welfare standards, the majority of raptor keepers surveyed would accept new controls over their pastime.

**CHAPTER 7**

**THE SCALE OF RAPTOR KEEPING**

**AND ASSOCIATED ACTIVITIES IN UK:**

**A SUMMARY**



**Plate 7.1:** A relatively common sight in the 1990s: Falconer and falcon  
(Eurasian Kestrel *Falcon tinnunculus*)

## 7 CHAPTER 7: THE SCALE OF RAPTOR KEEPING AND ASSOCIATED ACTIVITIES IN UK: A SUMMARY

### 7.1 INTRODUCTION

This chapter aims to assess the scale and variety of raptor keeping activities to give some indication of:

- ◆ the number of birds kept in public collections
- ◆ the number of birds kept by private keepers
- ◆ the number of birds kept and hunted by falconers
- ◆ the scale of other activities involving captive raptors.

It provides no more than a summary of baseline statistics concerning aspects of raptor keeping.

The chapter makes use of previously determined statistics from other chapters, sources such as the DoE Bird Registration Scheme and available literature.

As yet a number of activities remain unquantified e.g. it is unknown how many owls are maintained in captivity.

### 7.2 METHODS

The DoE was approached and some information was gleaned from their bird registration records prior to the rescheduling of most of the Schedule 4 listed raptors.

Information was gathered from organisations such as The Hawk Board and a review of available literature was carried out.

Results from the previous studies were correlated and further calculations and extrapolations were made using these data as a baseline.

### 7.3 RESULTS AND DISCUSSION

#### 7.3.1 Numbers of Birds Kept

##### ◆ DoE Records

Table 7.1 shows the number of raptors maintained on the DoE register in November 1993 i.e. the last record prior to deregistration of the common British species and most non-endemic species. According to species group, it shows some

**Table 7.1: Raptors registered under Category I or II of Schedule 4 WCA  
(November 1993)**

Species	Latin name	Number registered
European Sparrowhawk	<i>Accipiter nisus</i>	1552
Northern Goshawk	<i>Accipiter gentilis</i>	997
Cooper's Hawk	<i>Accipiter cooperii</i>	47
Black Sparrowhawk	<i>Accipiter melanoleucus</i>	14
Shikra	<i>Accipiter badius</i>	2
Common Buzzard	<i>Buteo buteo</i>	2911
Harris Hawk	<i>Parabuteo unicinctus</i>	2348
Red-tailed Buzzard	<i>Buteo jamaicensis</i>	1259
Ferruginous Buzzard	<i>Buteo regalis</i>	343
Swainson's Hawk	<i>Buteo swainsoni</i>	13
Red-tail X Ferruginous Buzzard		7
Long-legged Buzzard	<i>Buteo rufinus</i>	4
Rough-legged Buzzard	<i>Buteo lagopus</i>	3
Red-backed Hawk	<i>Buteo polyosoma</i>	2
African Red-tailed Buzzard	<i>Buteo auguralis</i>	1
Jackal Buzzard	<i>Buteo rufofuscus</i>	1
Honey Buzzard	<i>Pernis apivorus</i>	1
Red-tail X Common Buzzard		1
Crested Caracara	<i>Polyborus plancus</i>	40
Striated Caracara	<i>Phalcoboenus australis</i>	38
Tawny Eagle	<i>Aquila rapax</i>	82
Golden Eagle	<i>Aquila chrysaetos</i>	61
Bald Eagle	<i>Haliaeetus leucocephalus</i>	36
Bateleur Eagle	<i>Terathopius ecaudatus</i>	36
Steppe Eagle	<i>Aquila rapax</i>	28
Verreaux's Eagle	<i>Aquila verreauxii</i>	14
White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	12
Bonelli's Eagle	<i>Hieraaetus fasciatus</i>	12
African Fish Eagle	<i>Haliaeetus vocifer</i>	10
Wedge-tailed Eagle	<i>Aquila audax</i>	7
African Hawk-eagle	<i>Hieraaetus spilogaster</i>	5
Imperial Eagle	<i>Aquila heliaca</i>	4
White-tailed Sea Eagle	<i>Haliaeetus albicilla</i>	3
Martial Eagle	<i>Hieraaetus bellicosus</i>	2
Booted Eagle	<i>Hieraaetus pennatus</i>	2
Crowned Eagle	<i>Spizaetus coronatus</i>	2
Grey Buzzard-eagle	<i>Geranoaetus melanoleucus</i>	1
Wahlberg's eagle	<i>Hieraaetus wahlbergi</i>	1
Changeable Hawk-eagle	<i>Spizaetus cirrhatus</i>	1
Hodgeson's Hawk-eagle		1
Spotted Eagle		1
Eurasian Kestrel	<i>Falco tinnunculus</i>	5141
Peregrine Falcon	<i>Falco peregrinus</i>	1610
Lanner Falcon	<i>Falco biarmicus</i>	844

Saker Falcon	<i>Falco cherrug</i>	560
Merlin	<i>Falco columbarius</i>	442
Lugger Falcon	<i>Falco jugger</i>	179
European Hobby	<i>Falco subbuteo</i>	104
American Kestrel	<i>Falco sparverius</i>	79
Prairie Falcon	<i>Falco mexicanus</i>	73
Gyr Falcon	<i>Falco rusticolus</i>	58
Peregrine X Saker falcon		49
Peregrine X Prairie Falcon		40
Lanner X Lugger Falcon		30
Peregrine X Lanner Falcon		28
Peregrine X Gyr Falcon		27
Gyr X Saker Falcon		25
New Zealand Falcon	<i>Falco novaeseelandiae</i>	24
Barbary Falcon	<i>Falco pelegrinoides</i>	21
Saker X Lanner/Lugger		19
Peregrine X Barbary Falcon		15
Peregrine Falcon X Merlin		13
Red-necked Falcon	<i>Falco chicquera</i>	12
Lanner X Saker Falcon		11
Gyr/Saker X Saker Falcon		9
Mauritius Kestrel	<i>Falco punctatus</i>	8
Peregrine X Lanner/Lugger		7
Sooty Falcon	<i>Falco concolor</i>	6
Aplomado Falcon	<i>Falco femoralis</i>	5
Gyr X Lanner Falcon		4
Peregrine/Barbary X Peregrine Falcon		4
Gyr/Saker X Barbary Falcon		3
Greater Kestrel	<i>Falco rupicoloides</i>	2
African Pygmy Falcon	<i>Polihierax semitorquatus</i>	2
Barbary X Gyr Falcon		2
Gyr/Peregrine X Gyr/Lanner		2
Lanner/Lugger X Lugger Falcon		2
Gyr X Barbary Falcon		1
Gyr X Prairie Falcon		1
Merlin X Hobby		1
New Zealand X Gyr/Peregrine		1
Saker X Lugger Falcon		1
Saker X Peregrine Falcon		1
Saker X Peregrine/Lanner Falcon		1
Marsh Harrier	<i>Circus aeruginosus</i>	13
Hen Harrier	<i>Circus cyaneus</i>	8
Black Kite	<i>Milvus migrans</i>	50
Red Kite	<i>Milvus milvus</i>	23
Brahminy Kite	<i>Haliastur indus</i>	12
Yellow-billed Kite	<i>Milvus migrans</i>	4
Gabar Goshawk	<i>Melierax gabar</i>	10
Gymnogene	<i>Polyboroides typus</i>	7
<b>Total</b>		<b>19399</b>

19399 birds in total, of which almost a half were falcons (9467/19399, 48.8%), a third were buzzards (6794/19399, 35.0%) the rest comprising of accipiters (2612/19399, 13.5%) and other species groups i.e. eagles, kites, caracaras, harriers and others (Table 7.2, Figure 7.1).

Of the 9467 falcons kept, some 3.1% (297 birds) were hybrids. A smaller number of buzzards kept were hybrids (8/6794, 0.1%).

Figure 7.2 shows the most commonly kept species i.e. those species of which there were over 50 individuals in captivity. The two most commonly kept species were the Eurasian Kestrel (5141 individuals) and the Common Buzzard (2911 individuals). The next two most commonly kept species were the Harris Hawk (2348 individuals) and Peregrine Falcon (1610 individuals).

Data obtained from the Hawk Board suggest that captive production of Kestrels and Sparrowhawks is declining (Figure 7.3) and production of Buzzards is limited. However, production of both Harris Hawks and Peregrines is increasing (Figure 7.4). Therefore, it is likely that Harris Hawks and Peregrines will become the most commonly kept raptors in captivity in the future.

#### ◆ Public Collections of Raptors

From Chapter 4 (section 4.3.1), some 95 public centres displaying raptors were identified (Appendix 4.1). Of these there were found to be 36 specialist raptor centres i.e. raptor centres, falconry schools (open to the public), owl centres and raptor rehabilitation centres (open to the public). There has been a significant increase in the numbers of these centres over the last five years (Figure 4.1). Of the 31 identified traditional zoos, 13 (41.9%) were found to offer raptor flying displays to the public.

#### ◆ How many Birds are kept in Public Collections?

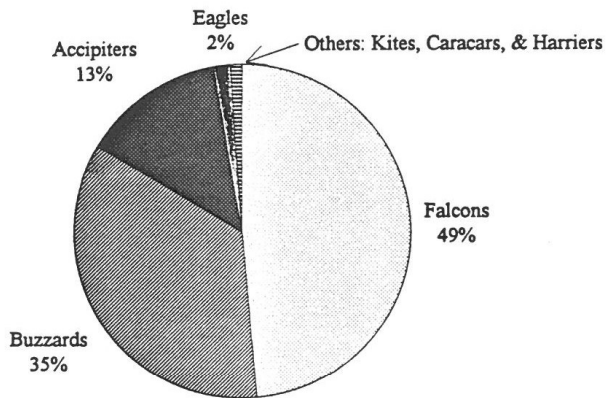
The welfare of birds kept at 38 centres was assessed in Chapter 4. The total numbers of birds per centre assessed have been calculated. These data have been grouped according to category of centre and a mean number of birds per category of centre has been calculated. From the assessment of total numbers of public collections of raptors an extrapolation has been made using this mean number of birds per category of centre. These calculations are detailed in Table 7.3 and illustrated in Figure 7.5.

The welfare of some 973 birds was assessed at public collections of raptors. It is estimated from the above calculation that there were an estimated total of 2160 birds on public display (a multiplication factor of 2.22) i.e. there were a further 1187 birds on public display which were not assessed.

**Table 7.2: Birds on DoE register (November 1993) according to species group**

<u>Species Group</u>	<u>No. registered</u>	<u>Percent</u>
Falcons	9467	48.8
Buzzards	6794	35.0
Accipiters	2612	13.5
Eagles	321	1.7
Kites	89	0.5
Caracaras	78	0.4
Harriers	21	0.1
Other	17	0.1
<b>Total</b>	<b>19399</b>	<b>100.0</b>

**Figure 7.1: Birds on DoE Register According to Species Group (November 1993)**



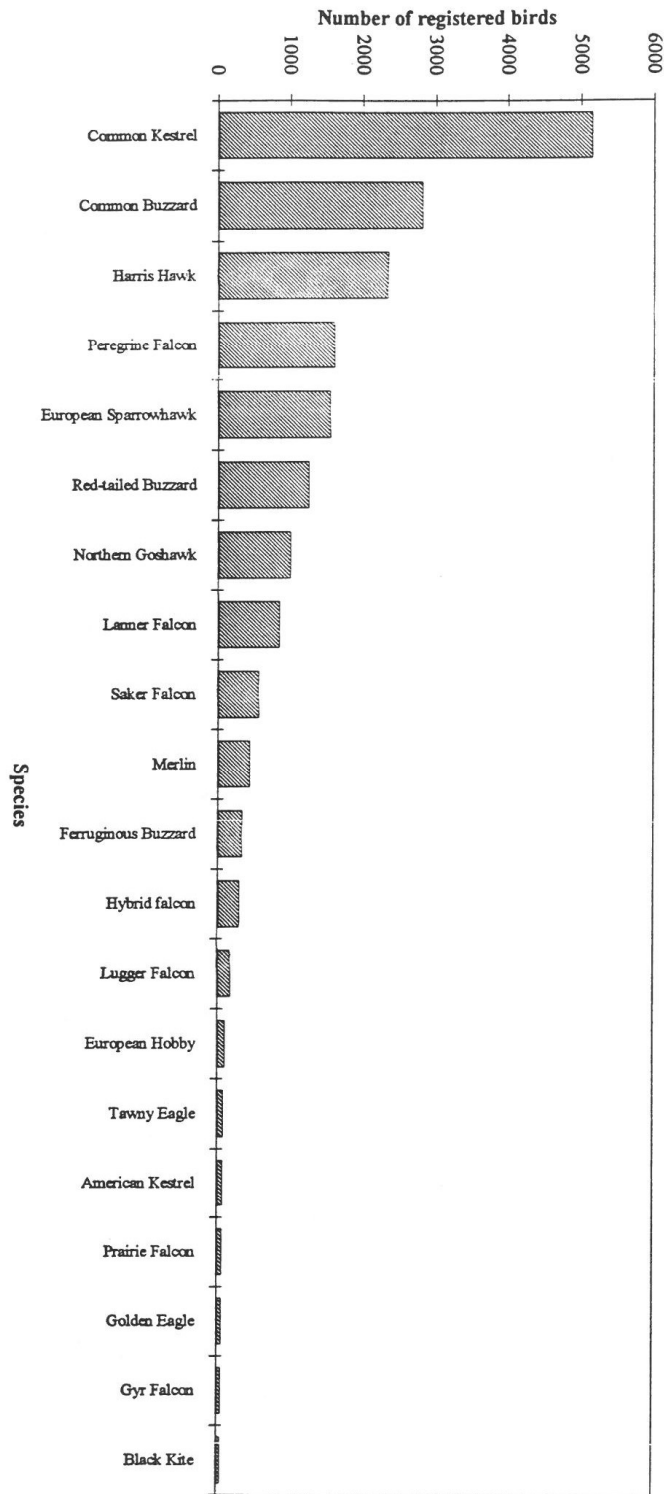


Figure 7.2: Graph to show the Most Commonly Kept (greater than 50) Registerable Birds in 1993

Table 7.3: Estimation of total number of raptors in public collections in UK

<i>A</i> Category of centre	<i>B</i> Total no. birds per centre	<i>C</i> No. centres assessed	<i>D</i> Mean no. birds per centre <i>B/C</i>	<i>E</i> Total no. centres	<i>F</i> No. not assessed <i>E-C</i>	<i>G</i> Number at non- assessed centres <i>FxD</i>	<i>H</i> Estimated Total No. Birds <i>ExD</i>
ag	45	3	15	22	19	285	330
cp	35	2	18	2	0	0	35
fs	6	1	6	2	1	6	12
oc	91	2	46	3	1	46	137
rc	573	16	36	36	14	504	1074
rh	27	1	27	1	0	0	27
tp	10	2	5	4	2	10	20
z	186	11	17	31	20	338	524
<b>Total</b>	<b>973</b>	<b>38</b>		<b>95</b>	<b>57</b>	<b>1187</b>	<b>2160</b>

Key:

- ag animal garden
- cp country park
- fs falconry school
- oc owl centre
- rc raptor centre
- rh rehabilitation
- tp theme park
- z zoo

Figure 7.5: Estimated Number of Raptors Exhibited in UK Public Collections

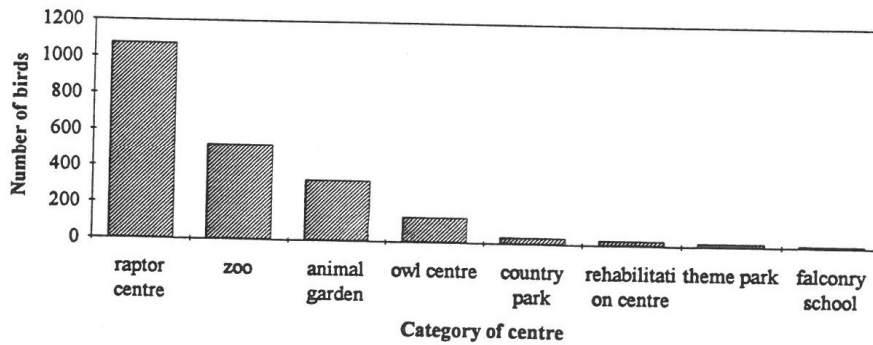


Figure 7.3: The Production of Registered Aviary-Bred Diurnal Raptors in UK 1980-1991

Published by the Hawk Board, UK, from DoE statistics

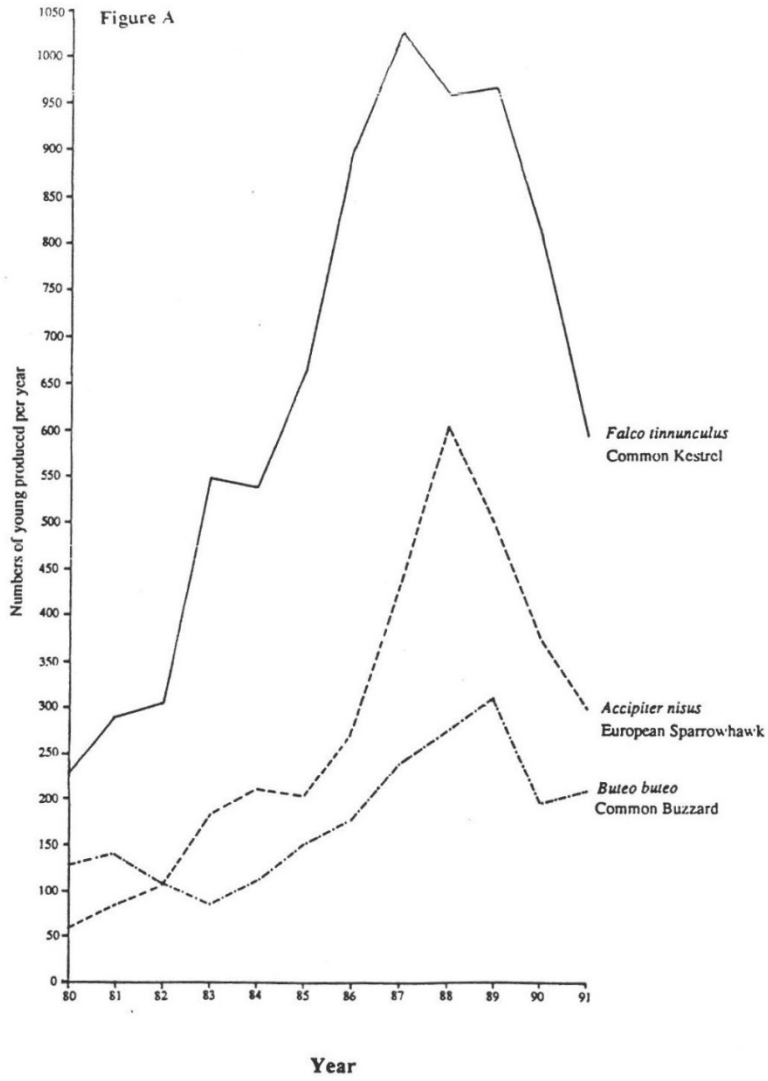
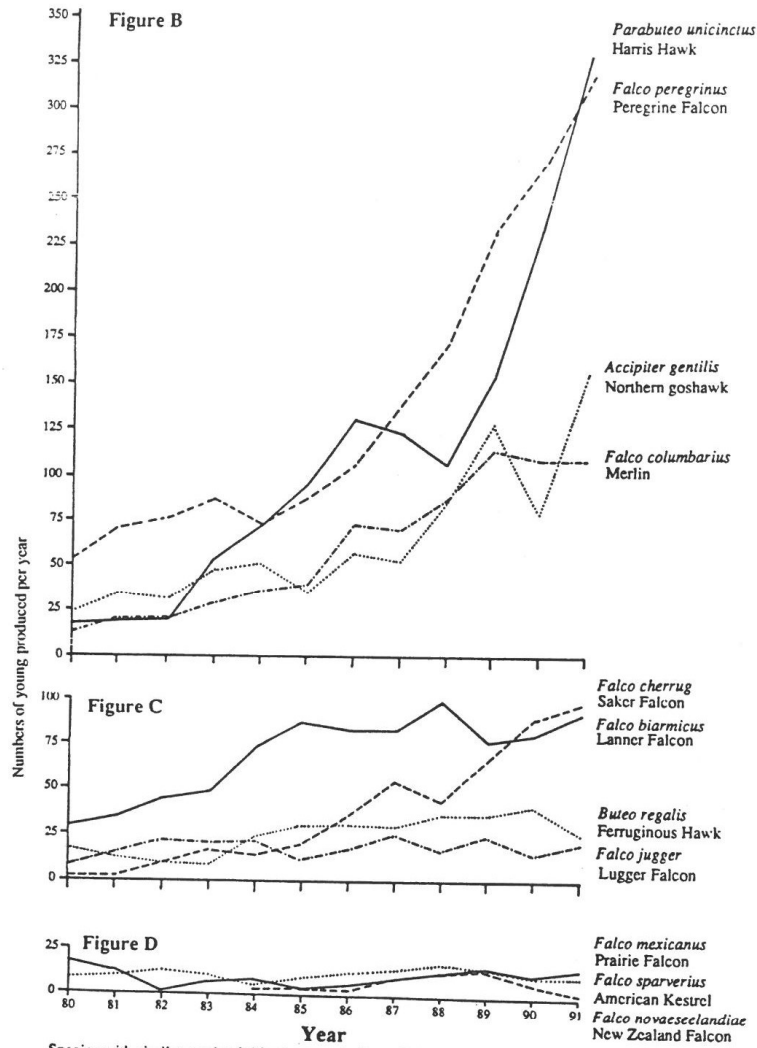


Figure 7.4: The Production of Registered Aviary Bred Diurnal Raptors in UK 1980-1991

Published by the Hawk Board, UK, from DoE statistics



Species with similar productivities to those in figure D include *Falco subbuteo* European Hobby, *F. rusticolus* Gyr Falcon, *Polihierax semitorquatus* African Pigmy Falcon, *Milvus migrans* Black Kite, *Aquila rapax* Tawny or Steppe Eagle, *Accipiter melanoleucus* Black Sparrowhawk.

Species with marginal productivities include *Aquila chrysaetos* Golden Eagle, *A. audax* Wedge-tailed Eagle, *Haliaeetus leucocephalus* Bald Eagle, *Hieraetus fasciatus* Bonellis Eagle, *Falco pelegrinoides* Barbary Falcon, *Phalcoboenus australis* Striated Caracara, *Polyborus plancus* Crested or Common Caracara.

The production of registered aviary-bred diurnal raptors in UK 1980-1991.  
Published by the Hawk Board, UK, from Department of the Environment statistics.

**◆ What proportion of captive previously "registerable" raptors are in public collections and hence what proportion are in private hands?**

To determine what percentage of these birds on public display were accounted for by the DoE statistics i.e. on the last complete register (November 1993), the 973 assessed birds were classified into species group (Table 7.4). Predicted numbers of birds per species group in public collections were estimated by using the multiplication factor of 2.22 (Table 7.4). Totalling the number of species groups which were previously registerable i.e. most of the diurnal raptors, according to the final DoE register (accipiters, buzzards, caracaras, eagles, falcons and kites) reveals an estimated total of 910 birds i.e. 4.7% of the 19399 total number previously registered (Table 7.5).

The remaining 95.3% of the previously registerable birds must be held in private hands. This equates to 18489 diurnal birds being held in private hands.

**◆ How many owls are kept in captivity both in public collections and in private hands?**

Table 7.5 shows the sums of species group data from public collections according to whether or not they were previously registerable. In total there were some 563 non-registerable birds assessed in public collections of which 529 were owls, 32 were vultures and two were Secretary Birds. Using the same extrapolation as for the registerable species it is estimated that there were a further 1174 non-registerable species exhibited in UK public collections (Table 7.5).

It is presumed unlikely that private keepers maintain any significant numbers of vultures or Secretary Birds. Indeed the survey of RBA members and falconers showed neither group to maintain these birds. However, owl keeping is known to be common and was shown to be common by the surveys of both RBA members and falconers.

To estimate the numbers of owls kept in private hands a multiplication factor must be determined i.e. a ratio of registerable: non-registerable. For ease the terms "registerable" and "non-registerable" are replaced by "diurnal raptors" and "owls".

Assuming public collections to reflect private ownership in the same ratio as diurnal raptors then it is postulated that a similar 4.7% of owls are exhibited in public collections. This equates to a further 95.3% being held in private hands i.e. 23804 birds. This totals an estimated 24978 i.e. ~25,000 owls in captivity. This equates to 1.29 times the number of diurnal raptors. This is a crude estimation as the number of Barn Owls still held in captivity remains obscure.

Table 7.4: Estimated numbers of raptors in public collections according to species group

Species Group	<i>A</i>		<i>C</i>		<i>D</i>
	No. birds in aviaries	No. birds tethered	Total no. assessed	Percent	Estimated total in UK public collections <i>Cx2.22</i>
owl	444	85	529	54.4	1174
buzzard	64	66	130	13.4	289
falcon	53	132	185	19.0	411
vulture	29	3	32	3.3	71
eagle	26	29	55	5.7	122
caracara	15	3	18	1.8	40
kite	8	5	13	1.3	29
accipiter	2	7	9	0.9	20
secretary bird	2	0	2	0.2	4
<b>Total</b>	<b>643</b>	<b>330</b>	<b>973</b>	<b>100.0</b>	<b>2160</b>

Table 7.5: Estimated total number of raptors (both registerable and non-registerable) in captivity

DoE category	No. birds assessed	Estimated no. birds in public	Percent in public collections	Estimated no. birds in private hands	Percent in private hands	(Estimated**) Total no. birds in captivity
"Registerable"	410	910	4.7	18489	95.3	19399
"Non-registerable"*	529	1174	4.7	23804	95.3	24978**
<b>Total</b>	<b>939</b>	<b>2160</b>		<b>42293</b>		<b>44377</b>

\* excluding vultures and Secretary Birds  
 "Registerable" =accipiters, buzzards, caracaras, eagles, falcons, kites  
 "Non-registerable" =owls  
 \*\*"estimated" refers to non-registerable species i.e. owls

Table 7.6: Organisations offering falconry or raptor management courses

<u>Public Centres offering Falconry or Raptor Management Courses</u>
Baytree Owl Centre, Weston, Lincolnshire
Birds of Prey at Hornsea Potteries, Hornsea, Humberside
Bossington Farm Park and Birds of Prey Centre, Allerford, Somerset
Clyde Valley Hawks: Bird of Prey Centre and Sporting Agency, Carlisle, Strathclyde
Cotswold Falconry Centre, Moreton-in-Marsh, Gloucestershire
Dartmoor Wildlife Park and West Country Falconry Centre, Sparkwell, Devon
East Anglia Falconry Centre, Kelling, Norfolk
East of England Birds of Prey and Conservation Centre, Laxford, Suffolk
Edinburgh Bird of Prey Centre, Lasswade, Edinburgh
Fritton Lake Falconry Centre, Great Yarmouth, Norfolk
Garden Village Bird of Prey and Falconry Centre, Bridgnorth, Shropshire
Heart of England Falconry, Statford-upon-Avon, Warwickshire
<i>Huxley's Experience, Horsham, West Sussex *unknown</i>
Lakeland Bird of Prey Centre, Lowther, Cumbria
Long Sutton Butterfly and Falconry Park, Spalding, Lincolnshire
Mill on the Soar Falconry Centre, Lutterworth, Leicestershire
National Birds of Prey Centre, Newent, Gloucestershire
National School of Falconry at Appleby Castle, Appleby-in-Westmoreland, Cumbria
National School of Falconry, Stapleford Park Country House Hotel, Leicestershire
North East Falconry Visitors Centre, Duffton, Grampian
Northumbria Bird of Prey Centre, Gosforth, Newcastle
Rutland Falconry Centre, Greetham, Rutland
Screech Owl Sanctuary, Rehabilitation and Educational Centre, Nr. Indian Queens, Cornwall
Sussex Falconry Centre, Chichester, West Sussex
The Bird of Prey and Conservation Centre, Kirby Wiske, North Yorkshire
The Falconry Centre, Hagley, West Midlands
The Hawk Conservancy, Weyhill, Hampshire
The National Shire Horse Centre, Yealmpton, Devon
The Raptor Centre, Chilham, Kent
The Scottish Centre for Falconry, Kinross, Fife
The Scottish Deer Centre, Cupar, Fife
Turbary House Garden Centre, Whitesnake, Lancashire
Welsh Hawking Centre, Barry, South Glamorgan
Wentworth Falconry Centre, Wentworth, South Yorkshire
Whipsnade Wild Animal Park, Whipsnade, Bedfordshire
World Owl Trust, Muncaster, Cumbria
Yorkshire Dales Falconry and Conservation Centre, Settle, North Yorkshire
<u>Organisations Offering Falconry Courses</u>
British School of Falconry (Scottish Office), Braco, Perthshire
D & R Falconry
English School of Falconry, Woburn Sands, Buckinghamshire
Falconry UKs Bird of Prey Centre, Thirsk, North Yorkshire
Falconry: Lands of Finnerlie, Scotland
G & J Falconry, Ripley, Derbyshire
Grampian Hawks and Falcons, Forres, Moray
Hawksport, Monmouth
London Falconry
Red Lion Hotel, Luton, Bedfordshire
Shire Falconry Displays, Northampton
South East School of Falconry, Knockholt, Kent
The College of Falconry, Wellesbourne, Warwick
The Falconry Experience, Allington, Wiltshire.
The Westweald Falconry School, Sevenoaks, Kent

### 7.3.2 Course Availability

It was possible to ascertain the availability of falconry or raptor management courses from 35/36 of the specialist raptor centres. With the exception of one centre, all others offered courses to the general public (34/35, 97.1%). Two other zoos with flying displays also offered courses on aspects of raptor management (Table 7.6). In addition, a further 15 organisations were found to offer courses in falconry, some of these classing themselves as specialist falconry schools (Table 7.6).

In total, at least 52 organisations offer courses ranging from a half day's tuition with a falconer/keeper to a two week falconry course.

### 7.3.3 Travelling Display Teams

There are known to be at least seven specialist display teams which display birds at public events. In addition, nine public raptor centres are known to travel to shows to give displays. These figures represent minima, as it would appear that personnel from a number of public collections or falconry schools give displays occasionally (Table 4.54).

### 7.3.4 Falconry

#### ◆ Number of Falconers

Fox (1995a)(Appendix 5.3) estimates that there are some 2000 *active* falconers in the UK today. The dynamic situation of falconry today should be appreciated, as this figure will certainly not remain static. Insufficient historical data exists to allow extrapolation and prediction of future developments.

#### ◆ Number of Clubs

As shown in Appendix 5.2, some 35 falconry clubs (including the regional groups of the British Falconers' Club and two regional groups of the Welsh Hawking Club) have been identified. Others that do not advertise in the raptor keeping press may exist.

#### ◆ How many Birds are kept by Falconers and used for Falconry?

Chapter 5 detailed the findings of what was assumed to be a survey of 6% of the total number of falconers. These falconers were found to keep 418 birds between them. Assuming this to be a representative sample of falconers, this estimates that falconers as a whole *keep* 6967 birds ( $100/6 \times 418$ ).

Using the same estimation for birds flown (but not necessarily for falconry) by falconers, some 3033 birds are probably kept for this purpose ( $100/6 \times 182$ ).

Chapter 5 found that 59.1% of falconers surveyed flew (presumably for falconry) one bird (section 5.3.2f). A further 24.7% flew two birds. If there are 2000 active falconers this amounts to 1182 falconers with one falconry bird and 494 with two falconry birds which equates to 2170 birds used specifically for falconry ( $1182+988$ ).

*It should be appreciated that these are crude estimations.*

#### ◆ How many Prey, and of what Species, are Killed Annually?

It is estimated by Fox (1995a)(Appendix 5.3) that the 2000 active falconers kill 30 animals each annually. This equates to 60,000 prey killed each year. As the most commonly flown birds of falconers were found to be Harris Hawks and Red-tailed Buzzards it is assumed that the majority of prey species are Rabbits with smaller numbers of Pheasants, Hares and Squirrels. Peregrines were found to be the third most commonly flown species and these raptors take game birds or corvids.

Table 5.19 detailed the numbers of protected bird species killed over a three year period. On average a total of approximately 550 birds of the following species were killed annually (numbers in parentheses indicate mean annual killed): Skylark (285), Blackbird (167), Song Thrush (25) and Meadow Pipit (71).

The numbers of quarry licences issued to allow killing of such protected birds varies from year to year yet tends to be in the range of 40-60.

#### ◆ Associated Falconry Activities

As mentioned previously there are now a number of specialist falconry schools and many centres offering courses in raptor handling and falconry.

An industry of associated activities has built up including organised hunting trips available to the public. Some of these take the form of courses. Whilst some of these are advertised, others appear to be run on an *ad hoc* basis. Some are advertised as "corporate entertainment".

Numerous suppliers of falconry products and services now exist ranging from food suppliers, furniture suppliers and those who run the raptor equivalent of boarding kennels i.e. look after raptors when the owner is on holiday.

**7.3.5 Numbers of Wild Injured Raptors Maintained in Captivity Annually**

Analysis of results discussed in Chapter 6 (section 6.7.2c) found that some 14% of those sick and injured wild birds submitted for rehabilitation were retained in captivity annually. In the absence of absolute numbers of birds submitted annually it is impossible to estimate the number of individual birds involved.

**7.3.6 Theft**

Beecroft (1995) estimates that thefts of captive raptors have increased by 200% since 1993 (from 23 birds stolen annually in 1992 and 1993, to 69 birds stolen in 1994). The deregistration of so many species is thought to be to blame for this rise. An increase in thefts from the wild has been feared although as yet no supportive evidence exists.

**7.3.7 Other Activities involving Captive Raptors**

Captive raptors are now used for commercial bird clearance. The extent of this activity is unknown.

Captive raptors are used in a number of educational contexts other than at public displays. These activities often involve personnel from public collections although 35.1% of RBA members were found also to be involved in educational activities. School visits are thought to be the most common form of such activities.

**7.4 CONCLUSION**

Raptor keeping is a widespread business and pastime involving large numbers of captive birds. The activities involving raptors are diverse. This is a dynamic situation hence data contained within this chapter and report as a whole provides a snapshot of the scale of raptor keeping and associated activities.