

An Examination of Attitudes towards taking Birds of Prey from the wild for the purposes of Falconry in the UK



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Acronyms

RSPCA	Royal Society for the Prevention of Cruelty to Animals
RSPB	Royal Society for the Protection of Birds
BFC	British Falconers' Club
SHU	Scottish Homing Union
PCA	Principal Component Analysis
PC1	Principal Component Loading 1
ROC	Receiver Operating Characteristic
AUC	Area Under the ROC Curve

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Abstract

There has been increased discussion among UK falconers regarding resuming taking birds of prey from the wild under licence for falconry purposes. It has been claimed that this would help mitigate human-raptor conflicts, would increase the survival of first year hawks and would provide a purer form of sport than is currently provided by captive-bred hawks. However, there is opposition from various groups of people, some of whom advocate complete protection of wild birds of prey to maintain a healthy ecosystem and preserve nature for future generations. Other stakeholder groups recommend that some raptor species be controlled to protect business and sporting interests in the UK.

This study compared the attitudes of falconers, field sports participants, pigeon fanciers, bird watchers, wildlife enthusiasts and members of the public towards taking birds of prey from the wild for falconry and general attitudes towards birds of prey and the environment. Demographic variables which could contribute to attitudes (such as gender, age, occupation, awareness of falconry and area brought up in) were examined, as was the effect of increased information and mode of data collection. Data were gathered using questionnaires distributed on internet forums, in a door to door survey of the local area and in two discussion-based workshops. To find out if the amount of information a respondent was given could affect attitudes, two types of questionnaire were distributed: one with information on falconry and arguments for and against a wild take and another only providing a short definition of falconry.

The most significant factors affecting attitudes towards a wild take were stakeholder group, information provision and attitude towards wildlife and the environment. Attitudes differed significantly between stakeholder groups; respondent who were falconers or field sports enthusiasts were significantly more likely to be in favour of a wild take. The public, pigeon fanciers, bird watchers and wildlife enthusiasts exhibited negative attitudes towards resumption. Respondents who were provided with more information on the topic had more positive attitudes towards taking birds of prey from the wild than respondents not provided with information. Similarly, those with more positive attitudes regarding bird of prey control were likely to respond positively to the issue of a wild take.

The results suggest that it would be premature to grant licences to take birds of prey from the wild for falconry. Further research needs to be conducted using larger samples into the effect of stakeholder group, information, collection mode and gender on attitudes towards wild birds of prey. The study reiterated the need for cooperation between different stakeholder groups to resolve wildlife conflicts.

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1. Introduction

Falconry is thought to be over 4000 years old. The earliest evidence of falcons being used to catch food comes from the ancient Egyptians and Chinese in 2000 BC (Ratcliffe, 1980).

Presumably the ancient peoples saw the ease with which falcons and hawks catch their prey and strived to replicate this for their own use. The first record of falconry in Britain is from the ninth century and by the time of the Norman Conquest, hawking was one of the most popular sports in the country. New falconry techniques were brought back to Britain by the Crusaders contributing to the expansion of falconry as a sport in Britain during the Middle Ages (Ratcliffe, 1980).

Traditionally, falconers took their birds from the wild, a practice which continued under licence (Bird Protection Act, 1954 and Wildlife and Countryside Act, 1981) until relatively recently. After the pesticide crash in raptor populations in the 1960s, licensing was suspended. Although it resumed in the 70s and 80s, this did not persist for long and today no licences are granted for falconry despite the complete recovery of some species, such as the sparrowhawk (*Accipiter nisus*) (Wernham *et al.*, 2008). An increase in raptor populations has led to conflicts with human interests especially shooting and pigeon racing (Park *et al.*, 2008; Henderson *et al.*, 2004). Game shooting is an important part of the UK economy; a 2004 UK survey showed that nearly one third of a million people took part in driven shoots of lowland game such as pheasants (*Phasianus colchicus*) and almost 50,000 in upland driven shooting of species such as grouse (Public and Corporate Economic Consultants, 2006). Predators can have a detrimental effect on game numbers in some areas although this does depend upon intervening factors such as prey density and predator numbers. It has been shown that raptors can have a significant effect on grouse numbers; moors with hen harriers (*Circus cyaneus*) produce on average 17% fewer grouse than those without harriers (Redpath, 1991).

Pigeon fanciers, who have suffered greatly from depredations by peregrines (*Falcon peregrinus*), first began to lobby the Government to allow licences to be granted to legally control peregrines found to be preying on racing pigeons in 1925 (Osman, 1970). This was unsuccessful and the matter remained largely unchallenged until 1959, when a second deputation resulted in the peregrine survey which identified the catastrophic crash in raptor numbers due to widespread pesticide use (Ratcliffe, 1980). In recent years, pigeon fanciers have resumed lobbying for a reduction in bird of prey protection. With peregrine and sparrowhawk pairs numbering 1,402 and 41,000 respectively (Baker *et al.*, 2006), pigeon fanciers claim their sport is now impossible due to the number of birds lost to avian predation.

Recently, some falconers have postulated resumption in granting licenses for taking birds of prey from the wild for falconry purposes due to the large populations of some species and the conflicts they cause with human interests (Kimmel, 2006). UK falconry today subsists entirely upon captive-bred birds which are readily available from highly successful captive-breeding businesses. However, the wild-caught first year hawk (or sore-hawk) is perceived as being stronger, faster and more experienced than a captive-bred youngster, making it a better prospect for experienced falconers (Mavrogordato, 1960). Taking wild hawks could potentially resolve conflicts with gamekeepers and pigeon fanciers by removing raptors from sensitive areas and if the right to take birds from land was sold, could give raptors a monetary value. It has been argued that birds of prey kept in captivity survive better than in the wild and, through escape or release, may even benefit raptor conservation by augmenting depleted populations (Brown and Amadon, 1968; Cade, 1954). However, allowing falconers to take birds from the wild could encourage some individuals to take birds illegally and would require strict regulation of falconry to prevent over-harvesting.

The main problem with bird of prey protection and management in the UK is lack of communication and understanding between key stakeholder groups. Bird protectionist organisations hold drastically different opinions towards bird of prey management from pigeon fanciers and gamekeepers. Animal protection and conservation is a popular topic in today's society and many people feel negatively towards keeping wild animals and hunting for sport (Brymen, 2001; Czech and Krausman, 1999). Public opinion can have a big effect on Government policy (Page and Shapiro, 1983); negative perceptions towards taking birds of prey from the wild could prevent a change in licensing. It is not known what attitudes the UK public and members of various stakeholder groups have towards taking birds of prey from the wild for falconry. Many people may not have access to enough information on the subject to form an attitude and attitudes could vary depending upon demographic variables as well as method of data collection.

1.1 Aims and Objectives

The aim of this study is to examine the attitudes of a range of stakeholder groups regarding taking birds of prey from the wild for falconry in the UK. Factors affecting attitudes such as demographic variables, amount of information provided to participants and mode of collection will be compared to examine which of these has the greatest effect on attitudes. Having determined general attitudes held by different groups, recommendations will then be made regarding whether or not licensing for a wild take should be resumed.

The primary objectives of the study were:

- To compare the attitudes towards taking birds of prey from the wild for falconry purposes of falconers, pigeon fanciers, bird watchers, wildlife enthusiasts, field sports participants and members of the public. My *a priori* hypothesis is that attitudes do not vary significantly between groups.
- To examine the influence various demographic factors have on attitudes towards taking birds of prey from the wild. It is hypothesised that factors such as gender and where people were brought up will have no effect on attitudes towards taking birds of prey from the wild or responses to the attitudinal questions.
- To examine the effect provision of more or less information about falconry and the pros and cons of taking birds from the wild has on attitudes. I hypothesise that information provision will not influence attitudes towards birds of prey and taking birds from the wild.
- To determine the effect different modes of data collection have on the measurement of attitudes. I expect this to have no effect on attitudes regarding a wild take or responses to attitudinal questions.
- To examine the influence of discussions groups and presentations on changing the attitudes of participants. I hypothesise that participants' responses to questions will not change significantly after the completion of the discussion group.
- To make recommendations on the taking of wild birds of prey for falconry that would benefit all key stakeholders.

2. Background

First, I briefly discuss the effects of falconry on wild raptor populations. I then describe the conflicts between avian predators and human interests with regard to how falconry and taking birds from the wild could mitigate these conflicts and how conflicts shape attitudes towards birds of prey. Finally, there will be short sections on the effect of increased knowledge and public perceptions on attitudes towards hunting and keeping wild birds.

2.1 Falconry

2.1.1 Effects of Falconry on Raptor Populations

Falconry has the potential to both benefit and harm wild raptors. The hawks usually taken from the wild by falconers are non-territorial first year juveniles (Mavrogordato, 1960). These birds are 'floaters' and can buffer the effects of population declines (Millsap and Allen, 2006), compete with breeders for resources (Newton, 1988) and can therefore decrease the reproductive success of breeders (Tordoff and Redig, 1997). Traditionally, birds taken for falconry are first-year birds which are released back into the wild after one hunting season (Epstein, 1943). Therefore, taking birds from the wild for falconry could increase recruitment if juveniles are released the following year. A study by Kenward (1974) showed that most hawks used for falconry were either lost or released, which resulted in the reestablishment of the goshawk (*Accipiter gentilis*) in the UK in the 1950s (Petty *et al.*, 2003). Kenward (1974) distributed 113 questionnaires to falconers in the British Falconers' Club (BFC) to assess the mortality rates of birds taken from the wild for falconry. It was found that the mortality rate of first year peregrines in captivity was 22% (Kenward, 1974) which is lower than estimates of wild juvenile mortality of 40-60% (Shor, 1970; Luttich *et al.*, 1971). Hence, it is possible that taking wild birds of prey for falconry might have little effect on mortality and may actually benefit wild hawks, allowing them to survive their first year after which some may be released or escape. It has been suggested that harvesting one nestling from an eyrie could increase the survival chances of its siblings by reducing competition for food thus increasing recruitment (Cooper and Beauchesne, 2004). However, this remains to be proven.

In the US, taking birds of prey from the wild was formally legalised under the Migratory Bird Treaty Act (1976) allowing falconers to harvest certain species from the wild but requiring that the

scale of the harvest be reported to the US Fish and Wildlife Service (Millsap and Allen, 2006). An examination of harvest rates in 1988 showed that falconry had a negligible effect on wild raptor populations in the US (Millsap and Allen, 2006). The removal of the *anatum* peregrine from the federal list of endangered species in 1999 allowed a limited harvest for falconry which prompted a second examination of the effects falconry has on raptor populations. A study by Millsap and Allen (2006) suggested that while the effects of harvesting vary between species, a harvest of up to 5% of the total population of more common species appears to be sustainable. For species with limited demographic data, a harvest of 1% was recommended. In 2003 to 2004, harvest rates were below the recommended thresholds. Hence, it was concluded that a wild take for falconry had no significant effect on raptor populations in the US. However, US falconry is highly regulated and there are only 4250 falconers in the US compared with about 25,000 hawk keepers in the UK (BFC, 2007).

Despite a high level of legal protection, birds of prey still face many anthropogenic threats such as nest disturbance, illegal persecution, electrocution and egg collecting (Braun *et al.*, 1977; UK Raptor Working Group, 2000; Watson, 1997, Thompson *et al.*, 1997). By contrast, in the past falconry appeared to have little effect on mortality of birds of prey in the wild. Cade (1968) estimated that approximately 25% to 50% of Iceland's annual gyr (*Falco rusticolus*) falcon production was exported for falconry with no overall consequences for the breeding population. Similarly, Blood (1968) reported that the harvest of 12 eyas peregrines from the Queen Charlotte Islands did not affect the island's breeding population.

However, today, there is concern that harvesting wild birds for falconry in some parts of the world is responsible for a decline in populations. This is most prevalent in the case of saker falcons (*Falco cherrug*) in the Middle East and Central Asia. A number of factors have caused saker populations to decline in China and other parts of Central Asia in recent years including electrocution from power lines, habitat loss, decline in prey species and poaching for the falconry trade (Ming and Ying, 2007; Galushin, 2004). There is no market for sakers in China, but birds are trapped illegally for trade in Arabia. Middle Eastern falconers are prepared to pay high prices for wild caught sakers (Ming and Ying, 2007; Galushin, 2004). The total scale of the trade is not known, but between 1992 and 1998 947 sakers were confiscated and 2000 poachers arrested (Li *et al.*, 2000). Laws are poorly enforced and generally do not affect the foreigners funding the trappers.

2.2 Human-raptor Conflicts

In the past, birds of prey were regarded as vermin in the UK, due to their adverse effects on game rearing and were heavily controlled by gamekeepers and sportsmen (Jones, 1972). The numbers of some species were severely reduced and the goshawk became extinct in the UK until the species was re-introduced by falconers via escaped and released captive birds (Petty *et al.*, 2003). After centuries of persecution, raptor numbers are finally increasing in the UK. Peregrine numbers in 1991 were found to be 167% greater than when surveyed in 1981 and 147% greater than the population level in 1930-1939 (Crick and Ratcliffe, 1995) and sparrowhawks have returned to areas where they bred before the pesticide crash in the 1960s (Wyllie and Newton, 1991; Newton and Wyllie, 1992). An increase in raptor numbers and in legal protection has exacerbated existing conflicts between humans and birds of prey. Hen harriers, golden eagles (*Aquila chrysaetos*) and peregrines regularly take grouse which threatens the livelihood of gamekeepers and the sport of grouse shooters (Park *et al.*, 2008). Peregrines and sparrowhawks also prey on racing pigeons (Henderson *et al.*, 2004) and golden and white-tailed eagles (*Haliaeetus albicilla*) are often blamed for taking lambs (Thirgood *et al.*, 2005; Avery and Cummings, 2004). The debate involving how to mitigate human-raptor conflicts has received high public and media attention throughout its long history (Thompson *et al.*, 1995; Tharme *et al.*, 2001; Redpath and Thirgood, 1997). This has the potential to affect public perception depending on how raptors or stakeholder groups advocating legal control are portrayed by the media.

2.2.1 Raptors and Grouse Shooting

Shooting is an important part of the UK economy and provides employment, income and recreation to many rural areas (Park *et al.*, 2008). About 4500 people were employed in activities related to red grouse shooting in 2000, the equivalent of 940 full time jobs with a total income of £14.8 million (Fraser of Allander Institute, 2001). Any predation by birds of prey on grouse can have a detrimental impact on the shoot which can have a negative effect on the local economy (Park *et al.*, 2008).

Grouse form an integral part of the diets of various bird of prey species, namely peregrines golden eagles, hen harriers and buzzards (*Buteo buteo*) (Mearns, 1983; Redpath, 1991; Watson *et al.*, 1993; Graham *et al.*, 1995). Ratcliffe (1993) calculated that red grouse (*Lagopus lagopus scotica*) made up 40% of the weight of all prey taken by breeding peregrines and the species took 1.6-5.3% of the red grouse population every year. A study has shown that red grouse breeding success over time varied with hen harrier density (Redpath, 1991). Heather moorland is a globally threatened habitat and its preservation is largely guaranteed by the economic benefits it

provides from birds found in this environment (Thompson *et al.*, 1995). Half of UK heather moorlands are managed for the purposes of grouse shooting (Thirgood and Redpath, 2008). Management reduces the number of predators on the moor and also controls parasite numbers that may affect bird life (Thirgood and Redpath, 2008). This has overall ecological, social and economic benefits to the moor (Fraser of Allander Institute 2001; Robertson *et al.*, 2001; Tharme *et al.* 2001).

There are various conflicts between different stakeholder groups on grouse moors. Protectionist organisations have advocated the complete preservation of moorlands and no change in the law regarding the protected status of raptors. Gamekeepers and owners of grouse moors understandably need to maximise the economic benefits of the land and while some see no harm in raptors living on the moor, others call for raptor numbers to be controlled on grouse moors. In many instances, bird of prey populations have been maintained or enhanced by particular land management methods (e.g. Tharme *et al.*, 2001; Scotland's Moorland Forum, 2003). For example, land managed for grouse is also suitable for hen harriers and golden eagles (Galbraith *et al.*, 2003). On some moors, birds of prey are still persecuted and poisoned despite having been given the highest order of protection available to wildlife by European legislation (Tucker and Heath, 1994). Cases of raptor poisonings still occur but penalties have increased in recent years for wildlife crime (Galbraith *et al.*, 2003) and stakeholders have started discussing ways to reduce conflicts (Galbraith *et al.*, 2003; Redpath and Thirgood, in press).

2.2.1.1 Long-Term Solutions

The main problem affecting the resolution of human-raptor conflicts on grouse moors is the entrenched positions held by opposing stakeholder groups (Galbraith *et al.*, 2003; Redpath and Thirgood, in press). Gamekeeping and grouse shooting are traditional activities and participants are often unwilling to change their views and practices (Galbraith *et al.*, 2003). Conservationists are equally reluctant to concede their position and do not accept any form of lethal raptor control. Protectionist groups generally have a low opinion of hunters, possibly because of their historical impact on birds of prey, or because of the class difference prevalent in traditional field sports (Galbraith *et al.*, 2003). This makes any form of compromise very difficult. However, the opinions of shooters have changed in recent years and in some areas there is the will to compromise (Redpath *et al.*, 2004; Marshall *et al.*, 2007; Redpath and Thirgood, in press). Mitigation of this problem is expensive. Research into potential solutions is field based and labour intensive. For example, the Langholm Moor Demonstration Project will cost around £3 million over 10 years (Galbraith *et al.*, 2003).

If some raptor species such as hen harriers were allowed to reach natural densities, it is unlikely that grouse moors could be economically viable and the land may be converted to more profitable enterprises to the detriment of biodiversity (Galbraith *et al.*, 2003). Galbraith *et al.* (2003) suggested the implementation of a large-scale trial of removing by translocation any harriers over a 'ceiling' density. This 'ceiling' would be agreed by all stakeholders before implementation. It is hoped that this would act in the interests of all stakeholder groups by allowing a certain density of harriers to persist on moors while also allowing for an element of control. The scheme could also encourage the spread of harriers beyond traditional breeding sites by translocating pairs to new areas. However, Thompson *et al.* (in press) have questioned the practicality and legality of such a scheme. While there have been many attempts to resolve the problems caused by avian predators on grouse moors, no single scheme has been without objections. A wild take by falconers could specifically target problem birds in sensitive areas, although falconry clubs have advised against any activities which could result in falconry falling into disrepute (Gage, 2006).

2.2.2 Raptor predation on Racing Pigeons

The species which most frequently attack racing pigeons are the peregrine and the sparrowhawk, although goshawks also are a problem in some areas (UK Raptor Working Group, 2000). It is thought that the current UK peregrine population numbers 1,402 breeding pairs while the sparrowhawk population is estimated at around 41,000 pairs (Baker *et al.*, 2006). Examinations of pigeon rings found in peregrine eyries revealed that the majority of racing pigeons (72%) are predated during races rather than at the home loft (UK Raptor Working Group, 2000). A report by the Scottish Homing Union (1996-1997) has claimed that the increase in raptor attacks on racing pigeons has made the sport of pigeon racing unviable. This organisation then commissioned a project to examine the extent to which raptors cause pigeon losses and determine the effectiveness of raptor deterrents.

The 1996-1997 SHU project distributed questionnaires to pigeon club members and the results showed that nearly half of 32 lofts studied reported losses from sparrowhawk predation, with 16% of these reports being substantiated (Henderson *et al.*, 2004). Nationally, sparrowhawk attacks could be said to be responsible for the loss of 0.71% of the Scottish racing pigeon population per year (Henderson *et al.*, 2004). Examination of local peregrine eyries resulted in the estimation of 4,100 racing pigeons taken by peregrines each year, 1.2% of the total population (Henderson *et al.*, 2004). This figure was probably underestimated. However, it is thought that 58% of racing pigeons caught by peregrines were strays. It is possible that peregrines alter their prey preferences depending on what is available (Ratcliffe, 1993) or that some individuals prefer particular prey items (Thiollay, 1988; Rosenfield *et al.*, 1995). It has been shown that the number

of pigeons in the diet of peregrines increases during the pigeon racing season and decreases once the season has ended (Dixon *et al.*, 2003). However it is not clear whether this is due to selective feeding on racing pigeons or is just a passive reflection of pigeon numbers at this time of year.

In some areas, raptors are persecuted by pigeon fanciers due to perceived pigeon losses (Lopez-Lopez *et al.*, 2008). Some individuals demand legal controls to be permitted to deal with problem birds or advocate a nationwide cull of raptors. Ratcliffe (1993) noted that there is a long standing disagreement between pigeon fanciers and raptor conservationists which makes it very difficult to resolve conflicts between groups.

2.2.3 Raptors and Songbirds

Since the 1970s there has been a decline in many species of songbirds in the UK which has coincided both with changes in agricultural practices and increases in avian predator numbers (UK Raptor Working Group, 2000; Newton *et al.*, 1997; Marchant *et al.* 1990; Fuller *et al.* 1995; Gibbons *et al.* 1996). Due to the coincidence of timing, predators such as sparrowhawks and magpies (*Pica pica*) have been blamed for the decline in songbirds in the popular press (Newton *et al.*, 1997) and this preconception has resulted in the formation of bird protectionist groups that advocate the culling of certain avian predators. The charity organisation 'Songbird Survival' is dedicated to the recovery of declining songbirds which it claims is because of 'Initially the loss of habitat associated with changes in agriculture. Latterly the effect of rising levels of uncontrolled predation.' (Songbird Survival website). However, there is no scientific evidence that increased predation by avian predators has caused the decline in songbirds (Newton *et al.*, 1997; Newton, 1993; UK Raptor Working Group, 2000; Bastian, 1989; Thompson *et al.*, 1998), although most studies have been short-term and small-scale. A much more likely explanation for the decline in small birds is changes in agriculture practices leading to a reduction in food availability for small birds (UK Raptor Working Group, 2000). However, there have been no experimental manipulative studies in which predators are removed from areas to examine changes in small bird populations as has been done for gamebirds (Marcstrom *et al.*, 1998; Tapper *et al.*, 1996).

The popular public opinion that increased sparrowhawk populations are responsible for the decline in songbird species has been augmented by media reports and the popularity of feeding small birds on bird tables (Fuller *et al.*, 2008). As a result, attitudes towards sparrowhawks have become increasingly negative among the general public because people witness attacks in their own gardens (Cairns and Hamblin, 2007). More accurate information on raptors and their effects on the bird population need to reach the public in order to produce a more balanced debate. More

research into the reasons for declines in songbird populations and changes to agricultural practices is a potential solution to this problem (UK Raptor Working Group, 2000). As a result of declines, species action plans for species with declining populations have been developed by the Biodiversity Steering Group and the RSPB has distributed information explaining the sparrowhawk's essential position in the ecosystem (RSPB website).

2.2.4 The Role of Falconry

Human-raptor conflicts can negatively affect public attitudes towards birds of prey. Media reports, which supply information to the majority of people, have reported bird of prey conflicts, especially the conflict between sparrowhawks and small birds. Public attitudes can be significantly influenced by the media (Gomez-Granell and Cervera-March, 1993; Page and Shapiro, 1987) and perceptions of birds of prey causing problems could alter perceptions. This could contribute to the formation of attitudes on taking birds of prey from the wild.

The reintroduction of issuing licences for a wild take for falconry has been suggested as a method of resolving conflicts without resorting to lethal methods of control (Gage, 2006). At present, no formal qualification in falconry exists (although motions are being made to change this by LANTRA and the Hawk Board) and it would be difficult to determine which individuals have the experience to properly care for a wild hawk. This is especially difficult taking into account the surge in interest in falconry since the 1980s (Kenward and Gage, 2008). About 600 falconers took part in 1980 which put relatively little pressure on wild bird populations (Ratcliffe, 1980). Now the estimated number of people keeping hawks in the UK is 25,000 (BFC, 2007). It has also been postulated that allowing a wild take could encourage some individuals to take birds illegally. These issues would have to be dealt with before any licences can be granted.

2.3 The effect of information on attitudes

Individuals often form attitudes about a subject without having exposed themselves to relevant information regarding that subject. Studies have shown that attitudes can change significantly if more, and more relevant, information on the subject is provided and absorbed (Ragan and Bowen, 2001; Lauber and Knuth, 2004). However, how information is absorbed depends on both physical and psychological factors (Hymen and Sheatsley, 1947). Hanley and Munro (1994) illustrate that an individual's true feelings about the value of the environment and biodiversity were revealed only after they were supplied with a certain amount of positive information.

Negative information had the effect of decreasing positive attitudes, while uninformed respondents placed a consistently low value on the environment and biodiversity. For complex issues such as wildlife protection, individuals cannot be expected to assimilate adequate information in the course of everyday life; a more effective method is to use contingent valuation workshops (Splash and Hanley, 1995). This approach arose from concerns that self-administered questionnaires and interviews did not provide respondents with sufficient information to form attitudes about complex issues (MacMillan *et al.*, 2002). In contingent valuation exercises, information about the issue is provided after which participants discuss their attitudes in a group and are given time to consider their attitudes before coming to a decision concerning the monetary value that they place on an environmental good. Contingent valuation has proved a valuable method of gathering informed decisions about little known subjects and attitudes and decisions have been found to change after the workshops (MacMillan *et al.*, 2006).

2.4 Public perceptions towards hunting and taking birds from the wild

Public perception is thought to have an important effect on Government policy, as politicians can be significantly influenced by public opinion and by interest groups (Davis *et al.*, 1970; Page and Shapiro, 1983). Falconry and bird protection interest groups advocate different perspectives regarding a wild take and some of these groups have large numbers of the public as members. Many groups lobby the Government regarding policies on wildlife and the environment and can successfully change and create new laws (for example, the RSPCA and associated groups helped shape the Hunting Act 2005 and the Animal Welfare Act 2006).

Today in the UK, there is major public opposition to some field sports and the killing of animals for sport. A study undertaken by the International Fund for Animal Welfare and the League Against Cruel Sports found that 75% of the British public were against a resumption in fox hunting (from a sample of 2,032 adults) (League Against Cruel Sports website). Although falconry receives less public scrutiny than other field sports such as fox hunting and shooting, changes to falconry have been suggested. These include the restriction or banning of exotic raptors and hybrids (Fox, 1999) and the introduction of new legislation requiring falconers to prove their abilities to properly care for their hawks (LANTRA official, pers. comm).

The illegal taking of birds for falconry does still continue and casts the sport of falconry in a less than favourable light. This illicit activity may have decreased in recent years due to legislation and the success of captive-breeding (RSPB, nd), but it still occurs, especially in central Asia and the

Middle East (Ming and Ying, 2007). Keeping birds in captivity is also seen as cruel by some (Prokop *et al.*, 2008), especially the practice of tethering birds to perches (Jamieson, 1986). Keeping wild animals in captivity is a highly emotive issue with an increasing number of people becoming concerned about the morality of zoos and animal collections (Jamieson, 1986). The legal taking of wild peregrines from Queen Charlotte Island caused protests from residents and environmental groups in 1988 resulting in no wild take being allowed that year (Cooper and Beauchesne, 2004).

In the last 30 years there has been a much greater awareness of wildlife among the general public (Forbes *et al.*, 1997; Özgüner and Kendle, 2004). Surveys have shown that the public is becoming more opposed to the unnecessary killing of animals, especially trophy hunting and trapping (Fulton *et al.*, 1995). The current unpopularity of hunting and trapping could have negative connotations for falconry, as it is essentially a hunting sport and a wild take would require birds to be trapped. Recently, the RSPB has campaigned for increased bird of prey protection in an attempt to reduce crime against birds of prey (BBC News website, August 2009). Public opinion can be significantly influenced by the media. Campaigns like this which are in the public eye could influence attitudes towards falconry by portraying birds of prey as rare and in need of increased protection.

People rely upon TV news reports, newspapers and radio broadcasts to gather new information about changes in policies (Page *et al.*, 1987). Yet while the media sensitises the public towards a particular issue and makes people aware of it, it does not necessarily increase people's knowledge (Gomez-Granell and Cervera-March, 1993). Often falconry is portrayed positively by the media and other sources such as falconry centres and country shows. However, this is tempered by negative reports regarding the illegal trapping of wild birds of prey and hunting for sport. Interest groups such as the League Against Cruel Sports and the RSPCA oppose all forms of sport hunting and could heavily influence public opinion on falconry, although there is evidence from some studies showing that public opinion is negatively affected by the perceived extreme views of interest groups (Page *et al.*, 1987).

3. Methods

In this study I investigated the factors affecting respondents' attitudes towards birds of prey, falconry and the environment including demographic factors (such as gender, age, occupation etc) and stakeholder group. I gave careful consideration to the choice of medium used to gather data. The method I chose was self-administered questionnaires, for a number of reasons. Firstly, questionnaires are easy to distribute and are generally considered to be cheaper than other methods of collecting data such as personal interviews (Hochstim, 1967). Secondly, questionnaires allow for the standardisation of answers in closed questions making analysis simpler (McDaniel and Gates, 1995) and finally, self-administered questionnaires allow the respondent more time to consider each question and remove the problem of interviewer bias (Fink and Kosecoff, 1985; Oppenheim, 1992). However, there is a danger that the respondent is influenced by members of their household when filling out the questionnaire and that attitudes expressed are not their own.

To examine whether attitudes vary depending to which stakeholder group the respondent belongs (bird watcher, falconer, field sports participant, pigeon fancier, wildlife enthusiast, member of the public), I distributed questionnaires to each group and compared responses. To examine the effect of increased information on respondents' attitudes, I distributed two types of questionnaire to each stakeholder group: one providing more information and the other, less (Appendix 1). Three modes of collection were used to examine how this affected attitudes. Questionnaires were distributed on the internet, via a door to door survey and in two discussion-based workshops.

3.1 Pilot Studies

Pilot studies for the door to door survey and the workshops took place on 28th April and 13th May respectively. The questionnaire to be used in the door to door survey was distributed to 15 students in Silwood Park to test for clarity, conciseness and understanding. On the whole, the participants approved of the questionnaire although wording was changed in two questions and a new category for questions 7 and 8 was introduced for those living in a semi-rural area.

A pilot study for the workshop sessions was carried out on the 13th May with students from Silwood Park. 12 participants in total took part in a mock workshop to test if both the presentation

and the questionnaire were clear and unbiased. The same agenda was employed as was intended for data collection. The presentation was clearly understood and the participants all took part in the discussions. No changes to either the presentation or the questionnaire were recommended.

Owing to the difficulty of reaching falconers, pigeon fanciers, bird watchers, field sport and wildlife enthusiasts and the paucity of active internet forums, no pilot study could be carried out for these groups. However, questionnaires were similar to those distributed to members of the public for which a pilot study had been completed.

3.2 Questionnaire

A questionnaire is a tool used to collect data in social research (Oppenheim, 1992). The questionnaire was mostly composed of closed questions which were more appropriate for internet distributed questionnaires and allowed analysis to be carried out more easily. However, closed questions often limit respondents' self expression and pilot studies must be used comprehensively to ensure questions do not prompt respondents into producing acceptable but inaccurate responses (De Vaus, 2002). A 'Further Comments' section allowed respondents to freely express their opinions if closed questions limited their response. Questionnaires had two sections: one with questions on attitudes regarding falconry and wild birds of prey and the second with questions on a range of demographic information. The attitudinal questions were put first to kindle the respondent's interest and encourage them to complete the survey.

3.2.1 Questions

I designed the questions to be as simple and concise as possible to avoid confusing or boring the respondent. Introductory material was kept to a minimal; questionnaires with more information provided included a small explanation of what falconry is defined as, how it is used and some arguments for and against taking birds from the wild for falconry. Questionnaires with less information provided only included a definition and description of falconry. I also explained the purpose and aims of the project to reassure and encourage the respondent to complete the questionnaire (each questionnaire used in the study is available in Appendix 1). Although there are no definite rules for designing a questionnaire, guidelines are available. Questions were chosen that would cause as little offence or discomfort as possible to encourage response. The guide on designing and formulating questions found in De Vaus (2002) was used to design the

questionnaires and reference was made to a study by Nilson *et al* (2007) when creating the attitudinal questions.

The definition of falconry given by the questionnaire was taken from the British Falconers' Club (BFC) which defines falconry to be 'the sport of taking wild prey (or quarry) in its natural state and habitat by means of trained hawks'. This definition was chosen because it is simple and the BFC is widely accepted as the largest and most significant falconry club in the UK.

In order to assess the degree of awareness a respondent had about the sport of falconry before filling out the questionnaire, the first question asked how much knowledge they had of falconry and whether or not they had participated. This was chosen as the first question because it was thought that it would encourage participants to consider their own knowledge before completing the attitudinal questions and different levels of awareness could instantly be recognised. It was hypothesised that respondents' attitudes did not depend on awareness or participation in falconry.

3.2.2 Attitudinal Questions

The first part of the questionnaire was intended to assess the attitudes of respondents towards the main question ('It is acceptable to take birds of prey from the wild for falconry purposes') and their feeling towards birds of prey and the environment in general. A Likert scale was used as a way of measuring degree of agreement or disagreement with the statements. A Likert scale is a useful way of measuring attitudes as it gives both the direction and strength of attitude (De Vaus, 2002). Five options were offered for each statement: Strongly disagree, Disagree, Neutral, Agree and Strongly agree. The option 'Don't Know' was not included to avoid a large numbers of respondents choosing an option that has no significance in the study, but some respondents might preferentially choose because it does not require any consideration. However, the problem with omitting 'Don't Know' is that respondents will be forced into choosing a definitive answer to each question which does not reflect their true opinion. Poe *et al* (1988) found that questionnaires without the option were preferable: they exhibited a higher rate of useable responses, with fewer missing responses and thus less error in analysis, there was little difference in error and return rates between questionnaires with and without the 'Don't Know' option and those without had a less cluttered and more concise layout. Hence, I decided not to include the option in my study; this would maximise responses in an already small sample. The main question was followed by nine other statements aimed to assess the respondent's attitudes towards falconry and hunting, wild birds of prey and control of species detrimental to human activities. The attitudinal section included equal numbers of positive and negative statements towards the issues to prevent the respondent being influenced and to encourage equal consideration of each statement. However,

the main question was phrased positively; further work would be beneficial to examine whether rephrasing this question negatively changes responses.

In the second section, respondents' demographic information was requested. The questions in this section differed slightly for each group although most questions remained the same for each questionnaire. Questions were mostly closed but some open ended questions concerning occupation and names of organisations/clubs were included. While open ended questions produced more accurate answers, these were more difficult to interpret than closed questions. The open ended questions were included to address concerns that closed questions create false opinions by forcing respondents to select an answer that most resembles the options provided and that answers give no indication of why the respondent has chosen that option (De Vaus, 2002). The demographic questions common to each of the groups' questionnaires were gender, age, area brought up in, area of current residence, occupation and whether or not the respondent was a member of a falconry, field sports, pigeon racing or conservation club or organisation. At the end of each questionnaire, participants were given the opportunity to express any opinions or concerns they had about the topic in the 'Further Comments' section.

3.3 Distribution

3.3.1 Sampling Strategy

A sampling strategy similar to that used by Nilson *et al* (2000) was implemented, using three separate collection methods. I distributed questionnaires on the internet to each stakeholder group, collecting a large range of responses from all over the UK. I also carried out a door to door survey in the local area of Sunningdale and Cheapside, Berkshire and workshops in Silwood Park campus. Internet forums were used owing to the difficulty of locating large samples of falconers, pigeon fanciers and field sports enthusiasts and the results were not expected to represent the population as a whole. To provide a comparison with the views of a more representative sample of the UK public, a door to door survey of the local area was completed with a sample of 100 considered appropriate (De Vaus, 2002). A necessarily small sample was expected for discussion workshops owing to space and time constraints but this method enabled me to gain insights into the thinking behind people's attitudes, and to examine in more detail the effect of information provision on responses. If there is an intention to treat a study's results as broadly representative, then it is important to draw a random sample from the population to reduce sampling bias (Fowler *et al.*, 1998). However this was impossible in my study owing to the

use of the internet as a sampling method; there was no way of controlling response. Therefore, the results are not representative of the whole UK population but attitudes can be compared between stakeholder groups within the study.

Sample sizes were maximised by leaving the questionnaire on each forum for more than one month and encouraging people using the forum to complete it. Sample sizes of more than 20 for each forum were considered adequate, for the desired level of accuracy (De Vaus, 2002). I distributed questionnaires on the internet to each stakeholder group, collecting a large range of responses from all over the UK. I also carried out a door to door survey in the local area of Sunningdale and Cheapside and workshops in Silwood Park campus. By employing three different collecting methods, variation in responses to the attitudinal questions could be compared for each collection method.

3.3.2 Internet Forums

I decided to distribute the internet questionnaires on forums representative of each of the stakeholder groups. After I joined the forums, a post with a link to the questionnaire was made available to members, with a message assuring respondents of anonymity. A new post encouraging people to fill out the questionnaire was written every few days on each forum. The internet was chosen as a distribution instrument because it is easy to reach distant individuals, to identify and reach potential stakeholder groups and also because it is cheap and practical (Wright, 2005). Various studies have shown that distinct differences in response rates, completeness and speed of response occur between surveys distributed by mail and those distributed on the internet (Truell *et al.*, 2002; Kittleson, 1995; Mavis and Brocato, 1998; Parker, 1992; Schuldt and Totten, 1994; Tse, 1998; Weible and Wallace, 1998). A study by Truell *et al* (2002) found that internet and mail distributed surveys had similar return rates, although other studies have found that the return rates for mail distributed were greater than for e-mail distributed surveys (Kittleson, 1995; Mavis and Brocato, 1998; Parker, 1992; Schuldt and Totten, 1994; Tse, 1998). It was found that speed of response was considerably greater for internet distributed surveys than for mail and that surveys returned were more complete if distributed over the internet (Truell *et al.*, 2002). In the limited time available, it was decided that questionnaires distributed on the internet rather than by mail would produce the most usable responses with minimal expense.

For the internet surveys, data collection began on 14th May and continued until 29th June. I selected the most active and up to date forums for questionnaire distribution (Table 1). New forums were added if there was a lack of interest or if the questionnaire was removed. Data collection ceased on the bird watching forum 'Bird Forum' due to a policy disallowing falconry related discussion resulting in the thread being removed. Half way through data collection, 'The

Falconry and Hawking Forum' closed and the questionnaire had to be reposted on 'The Apprentice Falconry Forum'. This is an American forum which was only used because no other UK-based active falconry forum could be found. After two weeks of data collection on 'Pigeon Basics', the link to the survey was removed by the website administrators due to unfounded suspicions about the my study's links to the RSPB. Collecting responses from the general public was more difficult than for other groups due to a lack of interest in the topic. I decided to make the survey available on scientific and current affairs forums to target people most likely to complete it. The number of responses varied for each stakeholder group. Members of the public tended to be slow to fill out the survey and response rates were poor, hence many different forums had to be used, while groups with a high interest in the topic had high response rates.

	More Information	Number completed	Less Information	Number completed
Bird watchers	'Wild about Britain'	57	'Surf Birds'	23
	'Bigg Bird Forum'	16	'Birding.uk'	10
	'Bird Forum'	1		
Falconers	'Falconry and Hawking Forum'	25	'International Falconry Forum'	61
	'Apprentice Falconry Forum'	15		
Field sports enthusiasts	'The Hunting Life'	38	'Pigeon Watch'	79
Pigeon fanciers	'Pigeon Basics'	98	'Pigeon Talk'	20
			'Pigeon globe'	3
			'Pigeonland'	57
Public	'UK Discussion Forum'	8	'Ushi No Tane'	32
	'SFN'	3	'The Science Forum'	2
	'Silwood news'	23	'politicsandcurrentaffairs.co.uk'	9
	'Talk UK'	1		
Wildlife enthusiasts	'Tooth and Claw'	9	'CJ Wildlife Forum'	22
	'Wild about the World'	7	'Wildlife UK'	5
	'BBC Wildlife Forum'	14		

Table 1: Table showing forums used to distribute surveys with more and less information

3.3.3 Door to Door Survey

I distributed questionnaires in Sunningdale and Cheapside, Berkshire using a door to door drop and collect method. To include as wide a range as possible of different respondents, distribution occurred in areas of lower, intermediate and higher house value. Questionnaires were delivered personally between 10am and 5pm on Saturday 30th and Sunday 31st May. Distribution took place at the weekend when more people would be at home. Questionnaires were handed out in the morning and I asked each potential respondent to complete the questionnaire and leave it on the doorstep to be collected in the afternoon (White *et al.*, 2003; Walker, 1976). Personal delivery encouraged people to complete the questionnaire and response rate was good. I gave respondents who were at home a short introduction about the project, advised them on how to complete the questionnaire and asked them to leave it for collection. If no one was home, I tried the house again in the afternoon and the asked occupant to complete the questionnaire immediately. Some respondents were willing to fill out the questionnaire but were otherwise engaged. They were asked to complete it in their own time and post it within three weeks.

The questionnaire included the same questions as those distributed on public internet forums, except more information was always provided on what falconry is and the advantages and disadvantages of the resumption of a wild take.

3.3.4 Workshops

Falconry and taking birds of prey from the wild is a complex and controversial topic about which the general public is likely to know little. An alternative approach to questionnaires is the use of the market stall or valuation workshop. This addresses the problem of lack of information as well as other problems associated with stated preference analysis (Kenyon *et al.*, 2001, 2003; MacMillan *et al.*, 2002). The market stall approach uses group discussions, time for reflection and greater provision of information when making decisions about an unfamiliar topic (Alvarez-Farizo *et al.*, 2007). A similar approach was used in this study to determine the effect information provision and discussion had on participants' responses to the main question. I carried out three workshops at the Silwood Park campus of Imperial College London.

I selected Silwood Park to be used for the workshops, as adequate numbers of people and rooms for the meetings were available, and because there was likely to be general interest in the subject due to the majority of the residents being professionally involved in ecological research. The workshops were advertised on Silwood news, an email service for people working on campus and posters were put up around the grounds. Two workshops were held for students and researchers on 20th and 27th May for one hour. Participants were asked to complete the attitudinal and demographic sections of the questionnaire after which a short presentation was given explaining more about falconry and the pros and cons of a wild take (presentation is available in

Appendix 2). The participants were then split into small groups of 4 or 5 and were asked to discuss their thoughts on taking birds of prey from the wild for falconry for 10 minutes. Each group reported back on whether they agreed or disagreed with taking birds from the wild and the discussion was opened up to the whole group. I then asked the participants to fill out a second attitudinal section. The first workshop contained 10 participants and the second 16. A wide range of people on campus took part, including students, researchers and technicians. I organised a third workshop for employees working at the nearby Business Park to ensure a wide sample of participants. However, despite advertisement, only two individuals attended and the results had to be discarded.

3.4 Statistical Analysis

The objective of the analysis was to determine the effect the explanatory variables had on response to the main question ‘It is acceptable to take birds of prey from the wild for falconry purposes’. The explanatory variables considered are listed in Table 2. Initially, the effect of these variables on the dependent variable, and the relationships between the individual explanatory variables were explored using graphical plots and univariate statistical analyses. Once the significant variables were identified, these were used in a binomial logistic model to determine which of the explanatory variables accounted for differences in responses to the main question.

Explanatory Variable	Level/Unit
Gender	Male/Female
Age	16-24/25-30/31-40/41-50/51-60/60+
Club membership	Yes/No
Awareness of falconry	Aware and participate/Aware and do not participate/No aware and have participated/Not aware and do not participated (Heard of)
Information provision	More/Less
Mode of collection	Internet/Door to door/Workshop
Stakeholder Group	Birdwatcher/Falconer/Pigeon fancier/Field sports participant/Wildlife enthusiast/Member of the public/Door to door/Workshop
Occupation	Biologists and students/Professional/Non-professional/High interest/Retired
Attitude	Integer

Table 2: Explanatory variables and levels examined. High interest occupations included those who work in pigeon fancying, falconry, gamekeeping or wildlife management, Professional occupations included those working as lawyers, teachers, accountants etc and Non-professional occupations included those working as labourers, skilled workers and unskilled workers etc.

3.4.1 Data Exploration

A Tree model was constructed to provide an initial exploration into which variables were most significant in explaining attitudes towards a wild take. The Tree model is fitted using binary recursive partitioning; the data is split along the axes of the explanatory variables and the split which best distinguishes the response variable in the two branches is chosen (Crawley, 2007). This model provides guidance on which variables to include when conducting inferential statistical methods and is a useful method of data exploration. They are simple and provide a clear initial picture of the data structure as well as displaying any interactions between variables (Crawley, 2007).

Chi squared tests were also used to explore the differences between observed and expected frequencies for each of the explanatory variables, including mode of collection (internet or non internet) and information provision. A Wilcoxon Rank Sum test was used to determine whether attitudes toward a wild take changed significantly between the beginning and the end of the workshop. If any variable was not identified as important or significant by either the Tree model or the Chi squared test, it was not included in the logistic model. Appropriate univariate tests were also used to check for significant correlations between explanatory variables and if any were found, only one of the correlated variables was used in the logistic model.

3.4.2 Constructing an Attitude Score

The nine attitudinal questions at the beginning of the questionnaire were used to assess a respondent's general attitude towards falconry and wild birds in the natural environment. In order to create an individual attitude score for each respondent, a Principal Component Analysis (PCA) was used.

The purpose of a PCA is to reduce the number of dimensions in data containing correlated questions while retaining the maximum amount of variation (Jolliffe, 2002). The PCA sorts the data into combinations of questions called loadings explaining the same amount of variation as in the entire sample. The loadings are ranked in order of significance; the one explaining most variation is listed first (Crawley, 2007). As this explains the most variation in the data, the first loading (PC1) is the most significant (Jolliffe, 2002). The composition of PC1 and PC2 can be mapped in a biplot which shows both the direction and strength each question contributes to the components. Each variable is represented by an arrow showing the direction of each. The numbers on the plot represent each row in the data set. A value is given to each respondent illustrating to what degree their answers to the attitudinal statements is represented by PC1. This PC1 value was used as an attitude score, where a negative value equates to support for bird of prey protection and a positive value signifies support for bird of prey control. Box plots and one-way ANOVAs were used to examine the relationships between other explanatory variables and

the attitudinal questions (Appendix 3). Some of the attitudinal questions essentially measured the same set of attitudes. For example, the questions 'Wild birds of prey can be detrimental to business and leisure activities' (Q4) and 'Wild bird of prey populations need to be controlled to reduce their negative impacts' (Q5) are similar and therefore highly correlated; a respondent answering positively for the first question is likely to answer in the same way for the second. These questions were intended to validate the internal consistency of respondents' answers, which was assessed using a Spearman's test for correlation between the two questions.

3.4.3 Modelling the determinants of attitudes to wild take

A binomial logistic model was used to analyse the effect of the explanatory variables found to be significant in the data exploration phase on the response to the main question. Binomial models require the response variable to be 1 or 0. Therefore, 0 response was classified as disagree and strongly disagree while 1 was agree and strongly agree. As there was no 'Don't Know' option available, respondents may have been forced into selecting 'Neutral' to express a lack of knowledge or interest in the question. This could explain the proportionately large number of neutral responses (total n=125). Hence, neutral responses were disregarded in order to enable the factors distinguishing positive from negative responses to be explored. Some explanatory variable levels were merged due to small sample sizes.

Mode of collection and awareness of falconry could not be included in the logistic model because they were confounded with stakeholder group, which was one of the main variables of interest (i.e. data from specific stakeholder groups could only be collected from the internet, while data from the general public was collected predominately door to door and falconers had a greater awareness of falconry than other groups). A one-way ANOVA was used to test for significant relationships between attitudinal score and mode of collection and a Chi squared test was used to examine relationships between stakeholder group and awareness of falconry.

The full model (Appendix 3) included all 2-way interaction between the main effects as well as the individual main effects. Non-significant 2-way interactions and main effects were deleted from the full model in a stepwise procedure, with each new model tested for significant differences from the previous model using a Chi squared test. If the result was not significant, the new model with the interaction or main effect deleted was accepted. Non-significant main effects were retained if they were involved in a significant interaction. Model simplification continued until the minimum adequate model was obtained. The fit of the model was checked at each stage by examination of a plot of the binned residuals. Model goodness-of-fit was examined using a ROC curve which plots the true positive rate against the false positive rate for different possible thresholds. The closer the curve keeps to the left y-axis and the top x-axis, the more accurate the model. The Area Under the ROC curve gives a value between 0 and 1, where values closer to 1 represent a

model which correctly predicts the likelihood of a point being assigned as 0 or 1 (Hand and Till, 2001).

4. Results

4.1 Distribution and Response

Stakeholder groups such as falconers, pigeon fanciers, bird watchers and field sports participants produced the greatest number of responses and the most interest and concern on the forums. On the falconry forums 'International Falconry Forum' and 'Falconry and Hawking' there was much debate about the purpose and authenticity of the questionnaire; it was suspected that the data would be used to the detriment of falconry. This was also the case on the pigeon fanciers' forum 'Pigeonbasics' which deleted the link to the online questionnaire after only a couple of weeks of data collection. Members of the forum were suspicious that the questionnaire was being distributed by the RSPB in an effort to damage pigeon racing. The full discussions that occurred on some of the forums are available in Appendix 4.

The completion rate (percentage of questionnaires started which were successfully completed) of the internet questionnaires was high (between 91% and 98%) but differed for each stakeholder group. The lowest completion rates were for field sports participants and members of the public (each 91%) while the highest rates were for wildlife enthusiasts and bird watchers (98% and 95% respectively). Response rate could not be calculated for internet surveys. Of the 117 questionnaires distributed using the door to door drop and collect method 96 were returned on the day of distribution or later by post. This gave a high response rate of 82%. It was expected that asking people personally to complete the questionnaire would encourage them to do so. Most of the 21 missed responses occurred because the respondent did not leave the completed questionnaire on the doorstep; the majority of respondents agreed to complete the questionnaire initially (only 7 refused).

Table 3 shows that the majority of falconers, field sports and pigeon fanciers were older males with a high proportion being a member of a representative club or organisation. There were more equal ratios of males and females among members of the public and bird and wildlife enthusiasts. The larger numbers of male respondents for falconers, field sports participants and pigeon fanciers could be explained by the fact that hunting and pigeon keeping are traditionally male orientated sports (Johnes, 2007; Smalley, 2005). Equally this could be a result of males being more likely to fill out online surveys or participate in internet forums (Winter and Huff, 1996).

Respondents in the majority of groups stated that they had heard of falconry and mainly falconers answered that they had a good knowledge of falconry and regularly participated. Membership of

a club or representative organisation was commonest among pigeon fanciers, field sports participants and bird watchers and was much less common among members of the public and wildlife enthusiasts.

	Falconers	Field sports participants	Pigeon fanciers	Bird watchers	Wildlife enthusiasts	Public internet	Door to door	Workshop
Sex ratio	9:1(M-F)	23:1(M-F)	9:1(M-F)	2:1(M-F)	1:1	1:1	1:1	1:1
Age group median	31-40	41-50	51-60	41-50	51-60 and 60+	16-24	60+	16-24
Club membership ratio	1:1	2:1(Yes-No)	4:1(Yes-No)	2:1(Yes-No)	1:5(Yes-No)	1:1	1:4(Yes-No)	1:1
Awareness of falconry median	Aware and Participate	Heard of	Heard of	Heard of	Heard of	Heard of	Heard of	Heard of
Occupation median	Professional	Professional	Non-Professional	Professional	Professional	Biologists and students	Professional	Biologists and students
Attitude score mean	-0.274	0.568	2.113	-1.368	-1.117	-0.973	-0.995	-1.022
Total number of responses	90	111	165	104	57	71	95	26

Table 3: Table showing average answers for each of the stakeholder groups

4.1.1 Missing Values

The very nature of questionnaire-based studies presents problems caused by missing values. Some respondents may refuse to answer sensitive questions for personal reasons or some may have limited time or interest in the questionnaire. Due to their sensitive nature, some questions were more likely to have missing values than others, such as occupation, which can provide information about social status which respondents may be reluctant to reveal (Jussaume and Yamada, 1990). For categorical variables such as gender, age group, stakeholder group, awareness of falconry and club membership missing data cannot be given a mean value and hence, any response with a missing value in any category was disregarded. Hertel (1976) did not recommend that this method be used unless it accounts for less than 15% loss of data. As in this study only 13% of data was lost in this way, it was considered acceptable.

For the first question ('What do you know about the sport of falconry?') very few respondents (7) chose the last option, 'I have never heard of falconry'. This caused some difficulties during analysis resulting in the deletion of every response with this option selected.

4.2 Creating an Attitude Score

A PCA was used to create an attitude score based on the 9 attitudinal questions. A positive value for the first loading (PC1) corresponds to positive answers to questions concerning the need to control birds of prey and negative answers concerning protecting the environment and wild birds of prey (Fig 1). Questions 1,2, 3 and 9 are positively correlated; respondents answering positively for the first question are likely to answer positively for the others. All refer positively to protecting the environment and birds of prey. The biplot shows that most respondents answering positively for questions 4 and 5 answered negatively for questions 1, 2, 3 and 9. Questions 6, 7 and 8 are less relevant in PC1, but have greater significant in the second loading, PC2. However, Table 4 shows that most variance in the data is explained by PC1 (38.8%) hence this loading is the most significant and was used in further analysis.

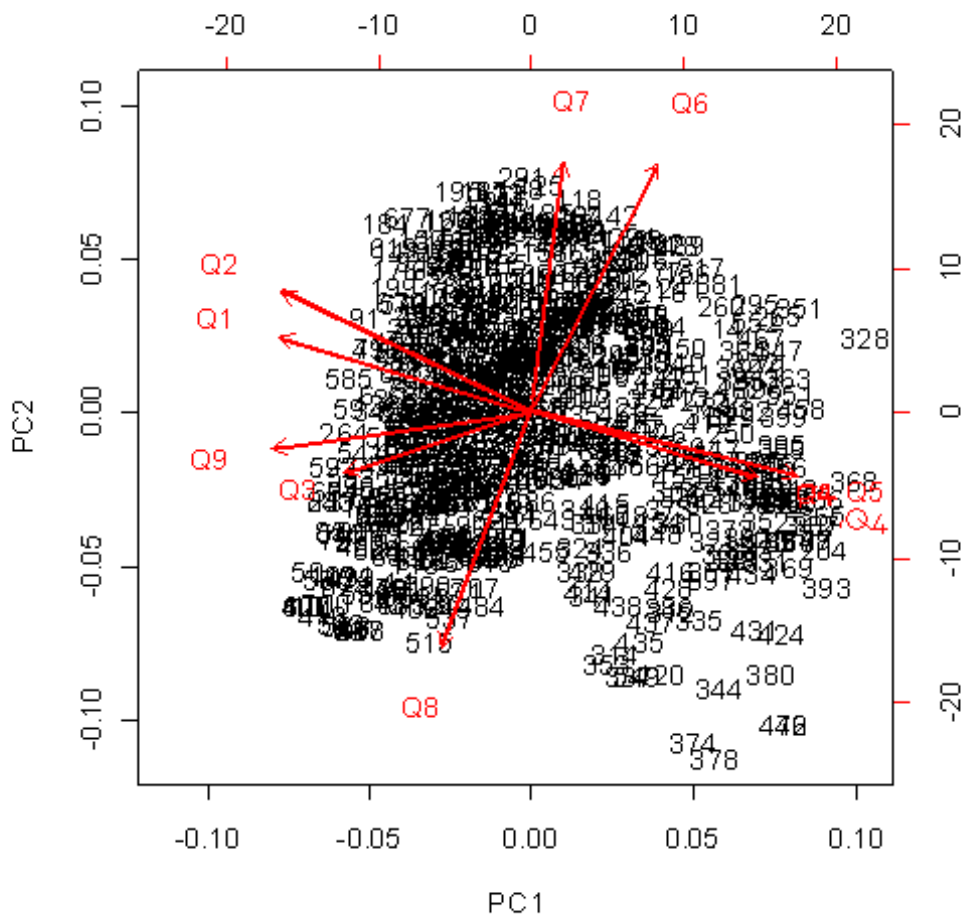


Fig 1: Biplot illustrating direction and strength each question contributes towards PC1 and PC2

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9
Standard deviation	1.869	1.488	0.89	0.791	0.735	0.65	0.585	0.553	0.515
Proportion of Variance	0.388	0.246	0.088	0.07	0.06	0.047	0.038	0.034	0.03
Cumulative Proportion	0.388	0.634	0.722	0.792	0.852	0.899	0.936	0.97	1

Table 4: Shows proportion of variance explained by each principal component

4.3 Factors explaining attitudes

Several explanatory variables could relate to respondents' answers to the 9 attitudinal statements. To test this, each variable was plotted against attitude score and the results for stakeholder group, which shows greatest variation, are displayed in Figure 2.

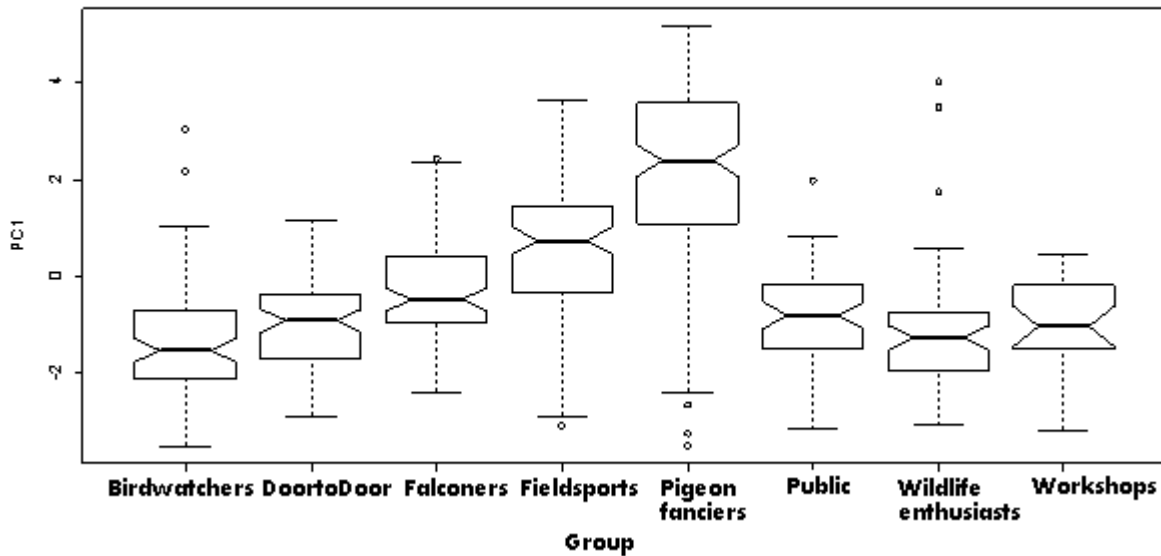


Fig 2: Box plot showing distribution of PC1 values (attitude score) depending on stakeholder group. A positive PC1 value equates to a positive attitude towards bird of prey control

A one-way ANOVA was used to test the significance for each of the explanatory variables in explaining response to the 9 attitudinal questions (Table 5). Most of the explanatory variables were significantly related to attitude scores. Females answered positively for questions 4 and 5 and females were more likely to answer positively for questions regarding whether the environment and wild birds of prey should be protected. There were clear differences in attitude score distribution between stakeholder groups (Fig 2; for further box plots plotting explanatory

variables against attitude score see Appendix 3). Scores were highest for pigeon fanciers and field sports participants and lowest for bird watchers and wildlife enthusiasts, while falconers and members of the public had intermediate scores (Table 5 and Fig 2). Club membership did seem to have an effect on answers to attitudinal questions, with members of a club having on average a higher attitude score than non-members.

Variable	Sample size	Level	Mean	Standard Deviation	F value	Df	p-value
Gender	705	Male	0.296	1.914	52.751	1	1.124e-12 ***
		Female	-0.872	1.403			
Group	713	Birdwatchers	-1.368	1.205	85.447	7	2.2e-16 ***
		Falconers	-0.274	1.009			
		Field sports participants	0.568	1.381			
		Pigeon fanciers	2.112	1.829			
		Public internet	-0.972	1.061			
		Wildlife enthusiasts	-1.117	1.374			
		Door to door	-0.994	0.905			
		Workshops	-1.02	0.854			
Age	708	16-24	-0.569	1.430	2.605	5	0.024*
		25-30	0.224	1.643			
		31-40	0.208	1.752			
		41-50	0.123	1.929			
		51-60	-0.041	2.01			
		60+	-0.003	2.168			
Brought up	707	Rural	0.097	1.918	2.017	3	0.11
		Semi rural	0.105	1.887			
		Urban	-0.23	1.783			
		Suburban	-0.347	1.729			
Live in	702	Rural	0.085	1.975	1.737	3	0.158
		Semi rural	0.028	1.81			
		Urban	0.041	2.105			
		Suburban	-0.421	1.448			
Club	700	Yes	0.579	2.022	80.81	1	2.2e-16 ***
		No	-0.679	1.403			
Aware	703	Participate and aware	-0.142	1.217	2.854	3	0.037 *
		Aware do not Participate	0.407	2.181			
		Participated	-0.131	1.412			

		not Aware					
		Heard of	-0.124	1.93			
Info	713	More	0.05	1.932	1.017	1	0.314
		Less	-0.101	1.777			
Modes	713	Internet	0.182	1.945	37.917	1	1.316e-9 ***
		Non internet	-1.001	0.889			
Occupation	654	Biologists and students	-0.716	1.265	14.663	4	1.861e-11 ***
		Professionals	-0.348	1.585			
		Non professionals	0.645	2.123			
		High Interest	0.602	1.692			
		Retired	-0.2	2.058			

Table 5: Table displaying mean, standard deviation and ANOVA p-value for each explanatory variable tested against attitude score. Asterisks symbolise degree of significance

It was expected that awareness of falconry would not affect how a respondent answered the attitudinal questions. Although the ANOVA gave a significant p-value, it was not highly significant and hence, awareness of falconry has only a weak effect on how respondents answer the attitudinal questions. Those with occupations related to falconry, wildlife management and pigeon racing (high interest) and those with non-professional jobs had relatively high attitude scores while biologists and students had low scores (Table 5). It was expected that different collection methods would return different distributions of attitudes towards the environment and birds of prey. Table 5 shows the differences in distribution of attitude scores for responses gathered on the internet and those gathered via other methods; this is likely to be the result of an interaction between mode of collection and the groups targeted by each mode.

Area brought up in, area currently living in and information provision returned non-significant p-values. Hence, the null hypotheses are not rejected; these variables do not affect respondents' answers to the attitudinal questions.

4.4 Responses to the Main Question

4.4.1 Overall response

The overall distribution of responses to the main question is illustrated in Figure 3. More than half of all respondents strongly disagreed or disagreed with taking birds of prey from the wild for falconry and less than a third of respondents agreed or strongly disagreed (n=654).

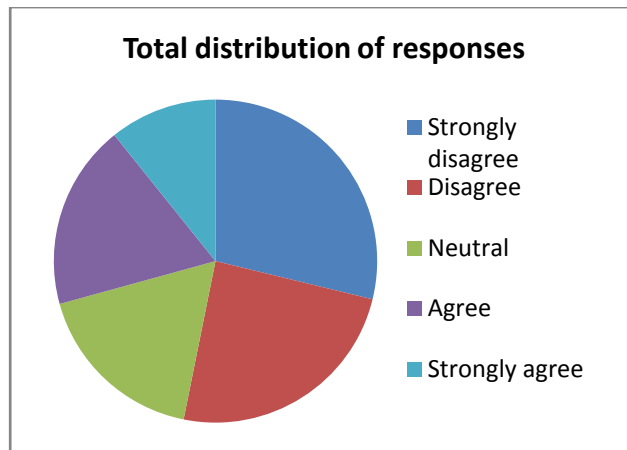


Fig 3: Pie chart showing total distribution of responses to the main question

4.4.2 Factors explaining attitudes towards the Main question

Most of the explanatory variables significantly affected attitudes, with the exceptions of area brought up in and area currently living in (Table 6). Pie charts were plotted to illustrate the effect of these variables on responses (Appendix 3). Respondents who participated in falconry agreed or strongly agreed with the main question, as did those who had participated but were not very knowledgeable about falconry, while non-participants disagreed or strongly disagreed (Fig 4). Responses in the 'Further Comments' section of questionnaires showed bird and wildlife enthusiasts to have neutral feelings towards falconry with captive birds, while the general public was mostly positive. Stakeholder group, gender, age, club membership, awareness of falconry, occupation, information provision and mode of collection do appear to have an effect on attitudes towards taking birds of prey from the wild, but further tests must be done before the null hypotheses can be firmly rejected.

Variable	χ^2	df	p-value	Sample size
Gender	33.8078	4	8.16e-07	705
Age	34.8787	20	0.02076	708
Club membership	28.2415	4	1.114e-05	700
Awareness of falconry	132.9266	12	<2.2e-16	703
Area brought up in	10.9547	12	0.5328	707
Area currently living in	9.9529	12	0.6201	702
Occupation	46.2717	16	8.838e-05	654
Information provision	11.3811	4	0.0226	713
Mode of collection	51.8514	4	1.482e-10	713
Stakeholder group	241.2505	24	<2.2e-16	713

Table 6: Table showing results of Chi squared tests of explanatory variables against responses to the main question. Area brought up in and area currently living in were not found to be significant

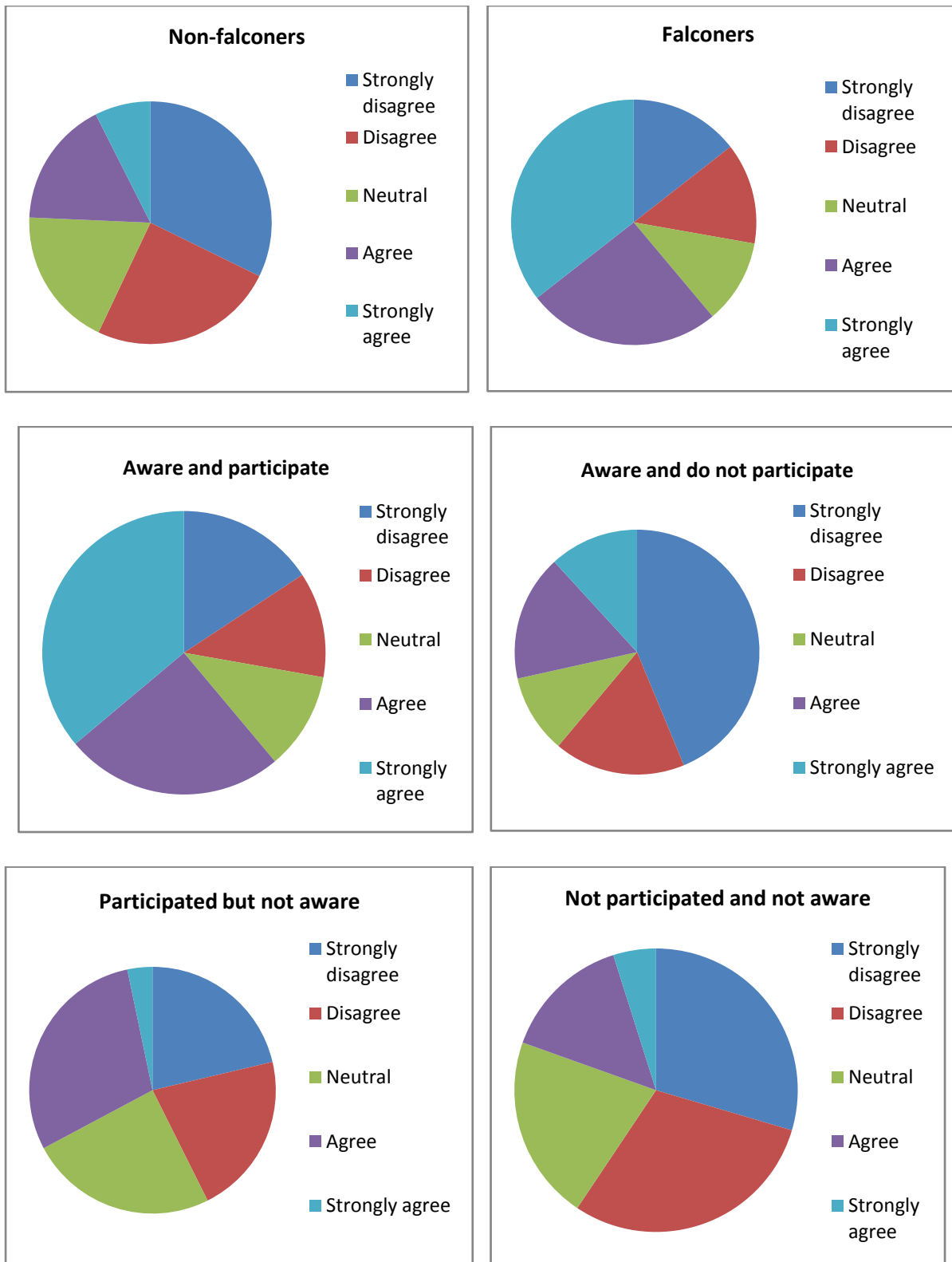


Fig 4: Pie charts illustrating distribution of responses to the main question for the variables a) Non falconers b) Falconers and c)-f) degree of awareness and participation

4.4.3 Changes in responses after the Workshop

It was expected that attitudes would remain the same before and after the workshop. The result of the Wilcoxon Rank Sum test was not significant ($W=316.5$, $p\text{-value}=0.1483$, $n=26$) hence, the null hypothesis can be accepted; attitudes were not significantly different before and after the workshop and information and discussion did not appear to have an effect on attitudes in this study.

4.5 Tree Model

The Tree model suggests that the most significant explanatory variables for the main question are attitude score, stakeholder group and awareness of falconry, which corroborates the results of the univariate analyses (Fig 5). These variables are important to include in the logistic model.

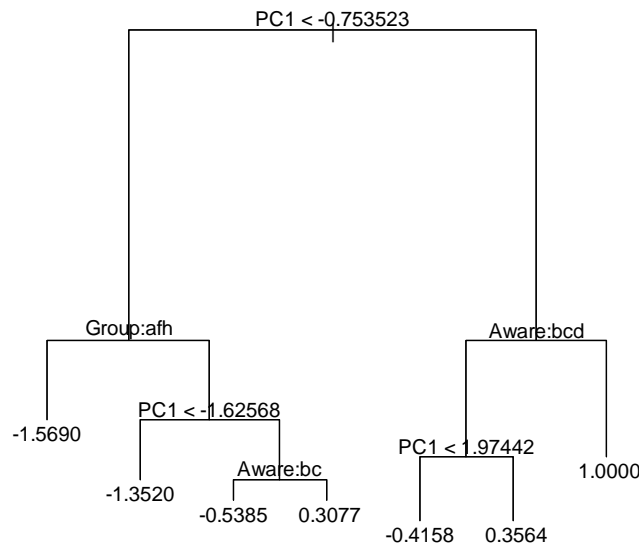


Fig 5: Tree model illustrating explanatory variables affecting attitudes towards taking birds from the wild ($n=632$). The integers at the nodes denote the mean of variables in the decision group. For example, the value -1.5690 is the mean value of responses with a $PC1 < -0.753523$ and in Group:afh. Group=stakeholder group, Aware=awareness of falconry and $PC1$ =attitude score. Group: a=birdwatchers, f=pigeon fanciers and h=wildlife enthusiasts; Aware: b=aware and do not participate, c=participate and not aware, d=not aware and do not participate.

4.6 Binomial Logistic Model

A one-way ANOVA was carried out to measure correlation between attitude score and mode of collection. The results showed that the two were highly correlated (Table 5). For this reason and because of it was confounded with stakeholder group, mode of collection was not included in the logistic binomial model. A Chi squared test showed there to be a significant correlation between awareness of falconry and stakeholder group ($\chi^2=261.178$, $df=12$, $p\text{-value}=2.2e-16$), so awareness of falconry was also not used in the model.

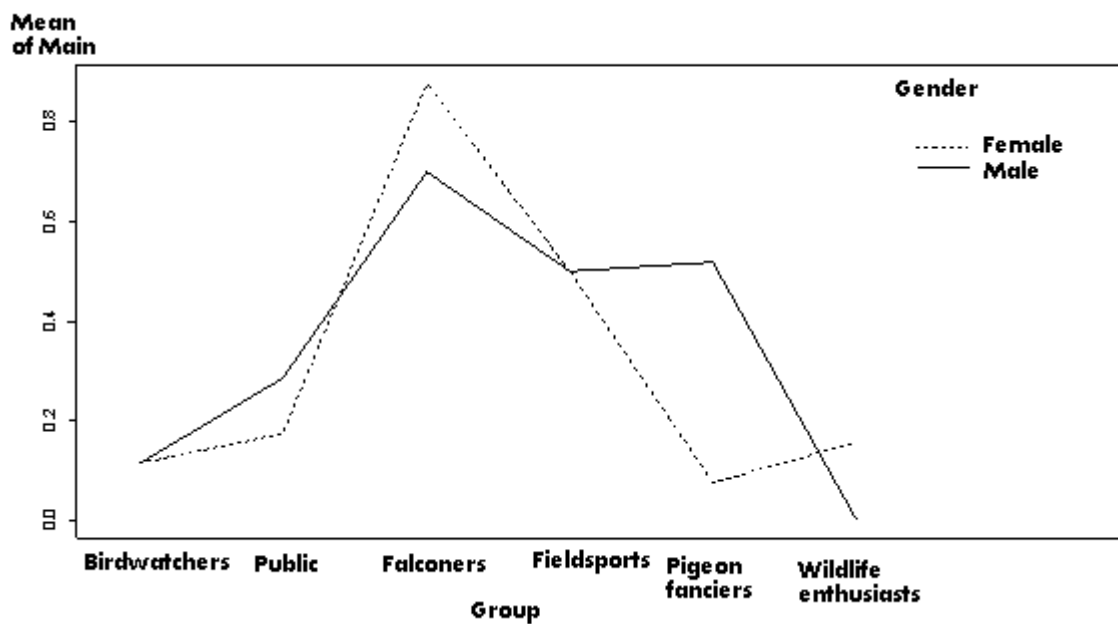
A binomial logistic model was run, where 1=strongly agree and agree and 0=disagree and strongly disagree ($n=521$). Neutral responses ($n=125$) were removed from the sample so that a multinomial model was not necessary; these can be very difficult to interpret. The results of the final simplified model are shown below (Table 7) (Appendix 3 for full model).

Of the main effects, attitude, group (falconers) and information provision were significant (Table 7). Males generally were more in favour of taking birds from the wild for falconry than females, although there was an interaction between gender and stakeholder group (Fig 6a). There were varied responses to the main question depending on stakeholder group; falconers appeared be most supportive towards a wild take and pigeon fanciers the least supportive and whether or not the respondent was a falconer had the most significant effect on attitude towards a wild take than any other stakeholder group. Figure 6a shows that male members of the public and pigeon fanciers were more positive towards a wild take than females, while female falconers and wildlife enthusiasts were more positive than males towards a wild take.

Unsurprisingly, respondents with a high attitude score are more likely to answer positively to the main question (Fig 6b). This suggests that respondents in favour of bird of prey control are more likely to agree with taking birds of prey from the wild for falconry. The null hypotheses which state that attitudes towards taking birds of prey from the wild do not depend on stakeholder group, information provision and attitude can be rejected, while the null hypotheses stating that age, occupation, club membership, area brought up in and area living in influence responses to the main question cannot be rejected. The null hypotheses concerning awareness of falconry and mode of collection could not be fully tested and therefore cannot be accepted or rejected.

Coefficients	Estimate	Standard deviation	Pr(> z)
(Intercept)	-1.681	0.511	0.001**
Gender Male	-0.671	0.647	0.3
Attitude	0.613	0.096	1.57e-10***
Info More	0.676	0.24	0.005**
Group Public	0.287	0.563	0.611
Group Falconers	3.577	1.177	0.002**
Group Fieldsports	0.68	1.55	0.661
Group Pigeonfancier	-2.249	1.323	0.09 .
Gender Male: Group Public	1.252	0.782	0.109
Gender Male: Group Falconers	-0.404	1.292	0.754
Gender Male:Group Fieldsports	1.117	1.635	0.494
Gender Male: Group Pigeonfancier	2.813	1.357	0.038*

Table 7: Table displaying results of the binomial logistic model where 1=strongly agree and agree and 0=strongly disagree and disagree. Asterisks and dots denote degree of significance



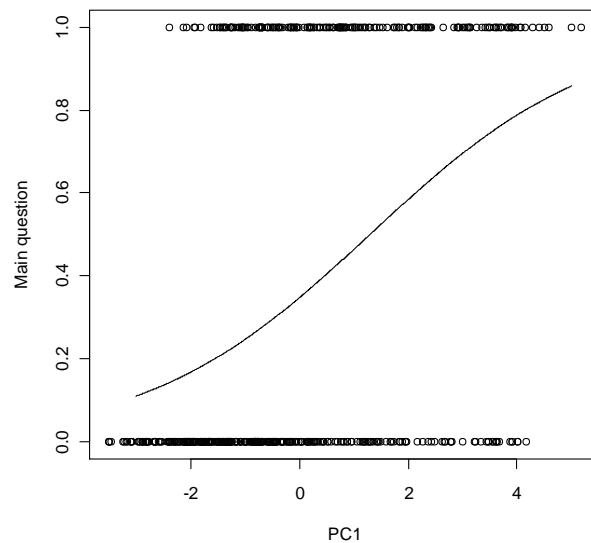


Fig 6: Relationships between **a)** gender and response to the main question ('It is acceptable to take birds of prey from the wild for falconry purposes') for each stakeholder group. Attitudes towards taking birds of prey from the wild become more positive as attitude scores increase **b)** response to the main question and attitude (PC1). Support for a wild take differs between stakeholder groups, but is influenced by gender. Response to the main question does not differ between male and female birdwatchers or field sports participants, but male members of the public and pigeon fanciers tend to answer more positively than females, while female falconers and wildlife enthusiasts tend to answer more positively than males.

The residual plots of binomial logistic models are difficult to interpret because the response variable has a binomial distribution (Albert and Chib, 1995). This fact accounts for unusual residual distributions; the Q-Q plot shows a straight line fragmented into two sections (Appendix 3). To convert the residuals into a form which is easier to interpret, a binned plot was constructed (Fig 7). The data (n=521) was divided into categories (bins) of different fitted values and then the mean fitted value was plotted against the mean residual for each bin (Gelman and Hill, 2007). The dotted lines on the binned plot represent the bounds of the standard errors; it is expected that 95% of the points should be found within these bounds. Figure 7 displays a slight pattern in the residuals; lower values appear to be consistently underestimated by the model, although not to a significant degree. Therefore, the model can be accepted as adequately explaining variation in the data.

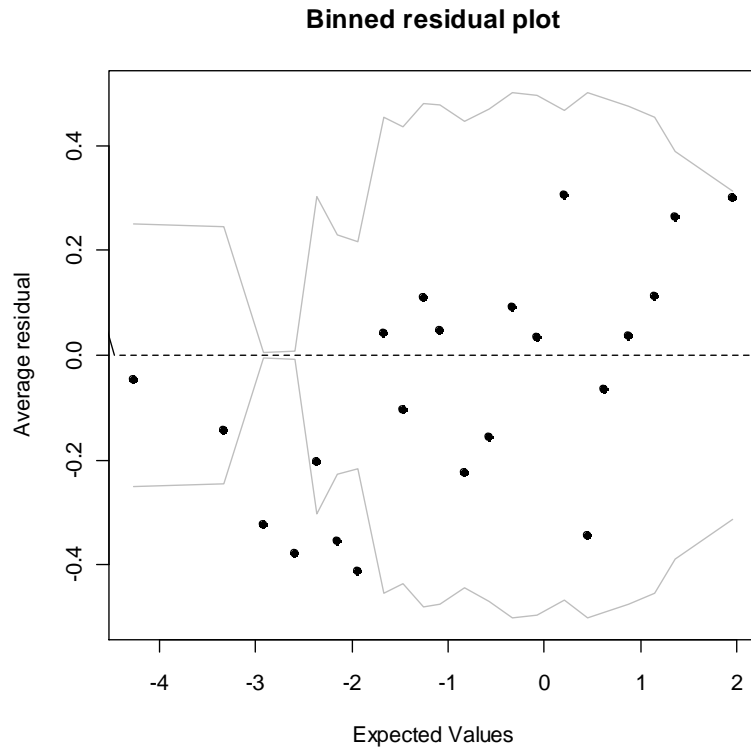


Fig 7: Binned plot with data divided into categories and plotting mean residuals vs average fitted values. There appears to be a slight pattern in the residuals; lower values are consistently underestimated by the model but not to a significant degree

How well the Model fitted the data was tested using a ROC (Receiver Operating Characteristic) curve and calculating the AUC. This returns a value between 0 and 1 illustrating the predictive power of the Model. The Model produced a suitably curved ROC curve (Fig 8) and gave a respectable AUC value of 0.84, representing a good degree of accuracy. Hence, the Model appears to fit the data reasonably well.

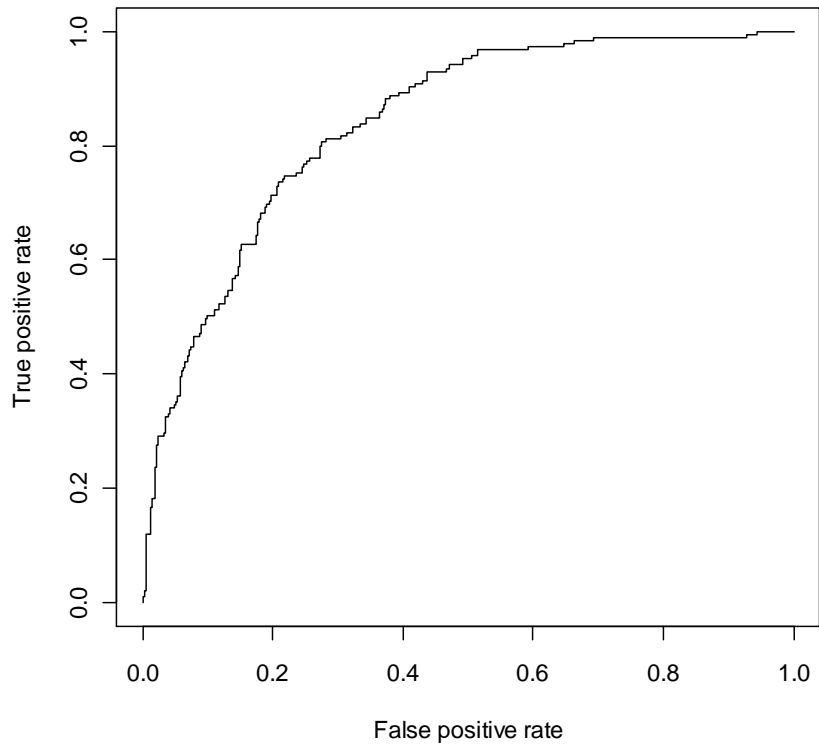


Fig 8: ROCR curve for the model. AUC=0.84

5. Discussion

5.1 Mode of Collection

The null hypothesis regarding mode of collection's influence on attitudes towards a wild take could not be confirmed or rejected owing to the tight correlation with stakeholder group. However, mode of collection was shown to be highly significant at explaining variation in responses to the attitudinal questions. No falconers or field sports participants could be surveyed door to door or from workshops and their attitudes towards bird of prey control (which were generally positive) could be responsible for the overall positive attitude scores of respondents surveyed via the internet.

Internet distributed surveys have not been as commonly used as other methods of data collection such as by mail or email (Zhang, 1999). There are obvious advantages of using the internet as a collecting mode: the cost of internet-based research and turn-around time are lower (Berge and Collins, 1996; Kiesler and Sproull, 1986; Parker, 1992; Sproull, 1986; Schmidt, 1997), they can be accessed by respondents in distant geographical locations (Kiesler and Sproull, 1986; Parker, 1992; Sproull, 1986; Roselle and Neufeld, 1998), they can be used to access a large number of potential respondents who would otherwise be difficult to reach (such as falconers and pigeon fanciers) (Schmidt, 1997) and when the subject of research is controversial, internet surveys can encourage responses from groups which are ordinarily difficult to identify and survey (Coomber, 1997; Goree and Marszalek, 1995). However, there are problems with using the internet as a collection method. Firstly, respondents will be limited to those who can access the internet and have some knowledge and skills at completing online surveys (Berge and Collins, 1996; Parker, 1992, Sproull, 1986) meaning findings are biased and cannot be generalized for the total population (Zhang, 1999). Secondly, some groups of people, such as women, do not use the internet to the same degree as others (Bimber, 2000). Surveys have consistently shown that fewer women than men use the internet with the gender gap increasing with more intensive use (Bimber, 2000; Weiser, 2000). This could explain the greater number of male respondents in this study (Table 4), although the sex ratio was more skewed for certain stakeholder groups. Finally, survey samples gathered on the internet are unlikely to represent the greater population; they are essentially self-selected to only include those with access, skills and inclinations to complete the survey and thus exclude a large sample of the population (Zhang, 1999). Researchers must keep these problems in mind when deciding what collection method to use. Sampling bias could

account for variation in responses to the attitudinal questions observed in this study; a larger unbiased sample may return different results.

5.2 Factors influencing responses and attitudes

5.2.1 Gender

Gender was a non-significant variable in regard to explaining attitudes towards taking birds of prey from the wild, although it did significantly influence responses to the attitudinal questions (Table 5). In general, males returned more positive attitudes towards bird of prey control than females. The logistic model returned a significant interaction between gender and pigeon fanciers, but this effect was not strong and is likely to have been affected by the small sample size.

In general, males were more supportive of bird of prey control than women. Studies have shown a greater degree of environmental concern among women who tend to be more environmentally orientated than males (Milbrath, 1984), perhaps because socialisation patterns tend to steer women into compassionate and protective roles (Weitzman, 1984; Maccoby and Jacklin, 1974). More males than females took part in pigeon fancying (Table 4), hence, variation in attitudes between men and women could have been confounded by an interest in pigeon fancying.

5.2.2 Age

The results have shown age to affect responses to the attitudinal questions, but not to influence attitudes towards a wild take (Tables 5 and 7). The youngest and oldest age groups exhibited more positive attitudes towards birds of prey and the environment (Table 5), while middle aged people had a much more negative view regarding bird of prey protection (Table 5). Younger people are often more idealistic regarding nature and environmental protection (Kruse, 1999), while old age groups may have more time than the middle aged to explore the outdoors. The 'Age Hypothesis' (Van Liere and Dunlap, 1980) claims that younger people have a greater interest in the environment than older age groups. Most public surveys have found that age correlates negatively with environmental concern. Van Liere and Dunlap (1980) suggest this is a result of increased exposure of the young to reports of environmental degradation and lack of integration of the young into the dominant social and economic order, which receives the most benefit from harvesting environmental resources (Malkis and Grasmick, 1977; Hornback, 1974). Bjerke and Ostdahl (2004) reported a negative association between age and attitude towards

birds of prey. Hence, it is unusual that the oldest age group also exhibited more positive attitudes to wild birds of prey. Perhaps this reflects knowledge and interest gleaned among older age groups from more time spent watching birds or nature documentaries. Studies have shown that television programmes now play an increasing role in educating the public about wildlife (Jamieson, 1985; Sommer, 1972) and about 60% of UK households with gardens provide food for wild birds (DEFRA, 2002).

5.2.3 Occupation

The null hypothesis can be partially rejected; occupation was shown to affect responses to the attitudinal questions, but not the main question. Highly relevant occupations and those with non-professional occupations (such as skilled and unskilled workers) and were most supportive of controlling bird of prey populations (Table 5). Those with highly relevant occupations might be in favour of bird of prey control to support their own interests, such as pigeon fancying, gamekeeping and wildlife management, while it is possible that respondents with non-professional occupations have less interest in preserving wildlife or are more likely to take part in pigeon fancying or field sports. It has been shown that scientists and wildlife protectionists have greater knowledge, appreciation and interest in animals compared with the general public (Kellert, 1993; Signal and Taylor, 2006). Roskaft *et al* (2003) reported that people with higher education levels and professional occupations had less fear of large carnivores than those with lower educations and non-professional occupations.

5.2.4 Awareness of falconry

Awareness of falconry was shown to be a significant variable in accounting for variation in responses to the attitudinal questions, but could not be definitively tested for the main question because of correlation with stakeholder group. Awareness and participation could have an effect on how respondents answer the attitudinal questions because those who have participated in falconry probably have more positive attitudes towards birds of prey and would be unlikely to support lethal control. Simply knowing birds of prey thrive in the wild could appeal to people who have no knowledge of falconry and do not participate. Often people enjoy the aesthetics of knowing wild creatures belong to stable populations, even though they never see or interact with them (Linnell *et al.*, 1995).

5.2.5 Club membership

The null hypothesis that club membership does not affect attitudes towards taking birds from the wild cannot be rejected fully, as while membership does not affect attitudes towards a wild take, it does affect responses to the attitudinal questions (Table 5). Members of clubs had a higher

attitudinal score than non-members, either because club membership gives respondents more access to information portraying birds of prey as too numerous and needing to be controlled or because those in high interest groups more likely to advocate the control of birds of prey also are likely to join clubs which represent their interests. Members of pigeon fancying and field sports clubs may be more supportive of controlling birds of prey to benefit their sport (Osmen, 1925); many pigeon fanciers and field sports participants were members of clubs (Table 4). Perhaps non-falconry clubs have no interest in resuming a wild take and this is not discussed among club members, thus attitudes are not affected by club membership.

5.2.6 Attitudinal responses

Attitude towards wild birds of prey and the environment accounted for a highly significant amount of variation in attitude towards a wild take (Table 7); so the null hypothesis can be firmly rejected. Unsurprisingly, respondents in favour of controlling birds of prey to protect livelihoods exhibited positive attitudes towards taking birds of prey from the wild (Fig 6a). However, a wild take for falconry, if permitted, would be small-scale and would be unlikely to significantly reduce wild populations.

5.3 Information Provision

5.3.1 Workshops

How information is absorbed and acted upon varies depending on psychological barriers. While large amounts of information can be distributed, how people absorb the information depends upon various psychological characteristics (Hyman and Sheatsly, 1947). Individuals who know little about a topic regardless of the amount of information made available are extremely difficult for an information campaign to reach. Some people may have more motivation to access information about a topic, while apathetic people are unlikely to read around a topic. Therefore, these two groups of people will gain varying amounts of information. Also, those with prior exposure of a topic tend to have different opinions from those with no prior exposure. Even when information is available and is absorbed, selective interpretation can still occur. The information may be distorted by wishes, motives, previous attitudes and demographic variables (Hyman and Sheatsly, 1947; Ni *et al.*, 1999).

The participants showed negative attitudes towards controlling birds of prey and a wild take before the workshop commenced probably because most participants were biologists and

students who would be likely to favour bird of prey protection. It was hypothesised that the information provided during the workshop would not affect attitudes towards a wild take and this was shown to be the case; attitudes were not significantly different before and after the workshop. This is contrary to what was found in internet and door to door surveys; information provided in questionnaires was shown to be a significant factor in explaining responses to the main question (Table 7). Workshops may have had no effect on responses because the participants were already aware of the issue and were therefore unlikely to change their attitudes (Hymen and Sheatley, 1947). Studies have consistently shown biologists and students to be supportive of conserving wildlife and the environment (Kaltenborn *et al.*, 1999; Caro *et al.*, 1994).

5.3.2 Questionnaires

Information provided with questionnaires significantly affected responses to the main question, but had no significant effect on attitudinal questions. Perhaps respondents had preconceived conceptions regarding the attitudinal questions which were not affected by the information provided, while little was known about falconry and taking birds from the wild, resulting in greater differences in attitude between respondents with more and less information. While efforts were made to ensure the information was unbiased, few precautions can be taken to control how a respondent absorbs this information, which can have a significant effect on attitudes and behaviour (Hyman and Sheatley, 1947; Ni *et al.*, 1999).

A study by Prokop *et al* (2008) on Slovakian school children showed that factual knowledge about birds was positively correlated to attitude towards birds. Studies have illustrated the importance of environmental knowledge in forming attitudes (Kellert and Westervelt, 1984; Kaiser *et al.*, 1999). A study by Bradley *et al* (1999) showed that after completing a 10 day environmental science course, students had more favourable attitudes towards the environment. Also, students who were more knowledgeable regarding the environment had more positive attitudes than students who were less knowledgeable. However, although information can be readily available, it does not necessarily change attitudes. The link between knowledge and attitudes is not always clear; perhaps knowledge does changes attitudes or perhaps attitudes contribute to increased knowledge through increased interest and research (Zimmerman, 1996). Further studies into knowledge and attitude interactions would be invaluable in examining the effect of information on people's attitudes.

5.4 Responses from stakeholder groups

Of the stakeholder groups studied, falconers exhibited the most support for the main question ('It is acceptable to take birds of prey from the wild for falconry purposes'), while their responses to the attitudinal questions were slightly negative. Whether or not a respondent was a falconer explained a highly significant amount of variation in response to the main question (Table 7) and suggests that most individual falconers would wish to see resumption of a wild take. This result may interest groups representing falconers, such as the BFC which has recommended that members do not apply for licences to take birds from the wild (Gage, 2006).

From the 'Further Comments' section, falconers appeared to be very supportive of a wild take and many claimed with confidence that this would have little impact on wild bird of prey populations. These comments are supported by the findings of Millsap and Allen (2006) and Mosher (1997), who reported no apparent impact on US bird of prey populations from a falconry harvest. However, no comprehensive study has been conducted on how a harvest would affect UK bird of prey populations.

The relatively negative attitude scores of falconers (Fig 2 and Table 5) compared with field sports participants and pigeon fanciers reflects a positive attitude toward wild birds of prey and reluctance for lethal population control. The comments recorded in the questionnaires suggest that falconers, unlike other stakeholder groups, believe a wild take would not harm bird of prey populations which they have no wish to control. This is contrary to what was found in a study by Prokop *et al* (2008). While bird owners generally had a higher interest in birds than non-bird owners, they also exhibited less concern for birds; namely, they did not consider it cruel to keep birds in cages.

The positive responses to taking birds from the wild and positive attitude score of field sports participants suggest that this group is supportive of a wild take, but for different reasons from falconers. There is support for controlling bird of prey populations, perhaps because of the negative effects raptors have on participants' businesses and sporting interests (Park *et al.*, 2008). Hence, positive attitudes towards a wild take may mirror a desire to reduce bird of prey depredation rather than to benefit the sport of falconry. On the other hand, bird and wildlife enthusiasts tended to have neutral feelings toward falconry using captive-bred birds but had a negative attitude mean and a very negative response to the question of taking birds from the wild (Tables 5 and 7). They did not support any form of control and regarded birds of prey as important constituents of a healthy ecosystem.

Pigeon fanciers exhibited no support for the main question, but had the highest attitude score (Tables 5 and 7). Comments in questionnaires reflected opinions that birds of prey were 'too numerous' and were negatively affecting pigeon racing and songbird populations. While there is evidence that some raptor species predate racing pigeons in the UK (UK Raptor Working Group, 2000), there is no evidence to support allegations that avian predation is causing a decline in songbird species (UK Raptor Working Group, 2000). A significant interaction was found between gender and pigeon fanciers' attitudes towards a wild take. Female pigeon fanciers felt much more negative towards a wild take than males; perhaps females are less supportive of pigeon fancying than men and are less comfortable with disturbing birds in the wild for the sake of sport. Various studies found females in general are more inclined to protect the environment and oppose hunting sports (Johnes, 2007; Milbrath, 1984). However, this sample did not include an equal ratio of male and female pigeon fanciers (Table 3). A larger sample would be needed to produce an unbiased representation of female pigeon fanciers' attitudes.

Members of the public tended to respond negatively to the attitudinal questions, although attitudes towards bird of prey control were not as negative as those of bird watchers and wildlife enthusiasts. Variation in public attitudes towards a wild take could be explained significantly by an interaction with gender. Males exhibited more positive attitudes than females, probably due to differences in socialisation patterns and attitudes towards the environment (Weitzman, 1984; Maccoby and Jacklin, 1974). However, this interaction relatively weak and could have resulted from the small sample size of this study.

5.5 Limitations and Future Research

Throughout the course of the study, several problems and possibilities of future research and study improvements became apparent. However, most of these were minor and did not severely impede data collection.

- A larger Pilot study for falconers, pigeon fanciers, field sport participants and bird and wildlife enthusiasts would have been beneficial. Some respondents reported questions as being too ambiguous or unspecific. Bird watchers complained that the last attitudinal question ('Wild birds of prey are rare and endangered animals in the UK') was confusing because some birds of prey are undoubtedly less common than others. Some variables (such as occupation) had a high number of missing values due to the sensitive nature of the question. If the study were to be repeated, improvements would be made to encourage response and avoid ambiguity.

Further research into the general attitudes held by each stakeholder group could be undertaken encompassing a larger sample of respondents from different geographical regions. A larger sample of females in the study would do more to explain interactions between pigeon fanciers and gender.

- If more time had been available, greater efforts would have been made to contact falconry, field sports and pigeon racing clubs and bird and wildlife organisations. This would have allowed a more accurate comparison to be made between responses collected on the internet and responses collected using other methods. Future studies into how mode of collection can affect attitudes are needed if factors influencing attitudes and behaviour are to be properly understood.
- A larger door to door survey encompassing a wider geographical area would have been useful for creating a more representative sample of the wider population. This study did not provide a large enough sample of responses from the door to door survey or workshops to produce a conclusive result.
- Workshops could have been improved by increasing participation from the general public. Several more could have been organised to create a larger sample size with which to compare before and after responses. It is not fully understood how information distribution can influence attitudes, although discussion and valuation workshops have been used in other studies to increase participants' knowledge of complex issues (MacMillan *et al.*, 2006). Further studies into attitudes regarding a wild take should utilise this mode of collection data, as it is most likely to provide participants with time to think and clear, unbiased information.
- Various demographic variables were found to affect respondents' attitudes. More research into how these factors affect attitudes could help researchers understand why variation in attitudes occurs.
- It is recommended that a Population Viability Model be created to examine the effect different harvest rates would have on UK bird of prey populations. This would provide scientists and government agencies with some idea of how a wild take would affect populations. Obviously, only relatively common species useful to falconry such as sparrowhawks and peregrines need be considered.

5.6 Recommendations

This study has highlighted the vastly different views towards taking birds of prey from the wild held by different stakeholder groups. This study has shown falconers to hold very positive

attitudes towards resumption of a wild take. The increase in some raptor species in the UK has resulted in conflict with humans: landowners, shooters and pigeon fanciers. Falconers have suggested that resumption of a wild take could help mitigate these conflicts by removing problem birds and giving wild raptors a monetary value. However, a serious conflict exists between stakeholder groups. Bird conservationist groups call for increased protection of birds of prey while pigeon fanciers and gamekeepers complain of unacceptable levels of predation. This study reiterates the need for cooperation between groups before any advancement in solving wildlife conflicts can be made.

In general, members of the public were supportive towards falconry with most respondents agreeing that keeping birds of prey in captivity was acceptable. However, the majority of respondents did not agree with taking birds of prey from the wild. Because public opinion can greatly influence government policy (Davis *et al.*, 1970; Page and Shapiro, 1983), it would be unwise to resume a wild take without public support.

The results showed that information provision is an important factor in influencing respondents' attitudes. Respondents supplied with a greater amount of information had more positive attitudes towards bird of prey control and a wild take than those supplied with less information. However, this does depend on the type of information supplied and the psychological characteristics of the respondents. Hence, if resumption of a wild take is to be accepted by the public and the government, accurate unbiased information must be disseminated in a way that can reach as many people as possible (possibly by using focus groups and workshops). In general, taking the whole sample into account, attitudes towards taking birds of prey from the wild for falconry were negative. If falconers wish to resume this activity, they will have to prove it has no effect on wild bird of prey populations and succeed in changing the attitudes of the majority of the public. A comprehensive population model of UK raptor populations would be useful in estimating the effect of harvesting for falconry.

Due to the overall negative views held by the majority of stakeholder groups as well as the general public, resumption of taking birds of prey from the wild for falconry in the UK is not recommended in the near future. It could be that more information could change attitudes, although this is unlikely to have an effect on members of bird protectionist groups. Yet if conflicts with landowners and pigeon fanciers continue and if a sustainable harvest is ensured, perhaps future falconers could continue their ancient sport using wild hawks.

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7. Appendices

Appendix 1

1.1 Questionnaires

1.1.1 Material provided with questionnaires with More Information

My name is Gail Robertson and I am an MSc student at Imperial College London studying Conservation Science. This questionnaire is an important part of my Master's project and I would be very grateful if you could take some time to complete it. Falconry is one of the world's oldest sports, thought to be over 4000 years old. It is a field sport which involves using a bird of prey to catch wild animals and birds in their natural habitat. In the UK, falconers fly captive-bred birds and under the Wildlife and Countryside Act (1981), no bird can be taken from the wild without a licence granted by the Government. Recently, falconers have called for a resumption of taking birds from the wild for falconry, but this has created controversy. The information below displays some arguments commonly used both in support of a wild take and against it.

Definition: I define falconry and hawking to be 'the sport of taking wild prey (or quarry) in its natural state and habitat by means of trained hawks'

Arguments for a wild take

-Taking birds from the wild is traditional part of falconry and can be of benefit to the bird taken. First year birds are usually taken and flown for a year, after which they are released again. This enables the bird to survive the most difficult year of its life and learn the necessary hunting skills to do well in the wild

-Although in the UK captive birds are flown by falconers, many claim these are inferior to wild birds, as wild birds have learnt better flying and hunting skills from their parents.

-Falconers in other countries such as the US are permitted to take birds from the wild under licence. This has been shown to have little effect on wild bird of prey populations.

-Some groups of people claim that birds of prey are detrimental to their livelihoods and leisure pursuits. For example, grouse shooters and gamekeepers claim that hen harriers and

eagles threaten shooting interests by taking too many grouse and pigeon racers claim that peregrines take so many of their pigeons that the sport is no longer possible. A wild take of problem birds could be of benefit in cases like these by removing problem birds and preventing illegal actions against birds of prey being taken. Calls from these groups to control wild birds of prey have been made.

-Falconry techniques are useful in conservation. Birds of prey such as red kites, peregrines and sea eagles have been reintroduced using captive birds bred by falconers. Taking birds from the wild can boost the genetic viability of captive populations which is useful should these birds be needed for reintroduction programs in the future.

-Some bird of prey populations in the UK are common and some scientists claim that harvesting them would not affect their populations.

Arguments against a wild take

-Some groups may strongly oppose a wild take. It may be seen as unnecessary and could put bird of prey populations at risk if unforeseen population declines were to occur in conjunction with a wild take.

-Some groups have concerns with the welfare and moral issues of keeping wild animals in captivity.

-Although a wild take may be feasible in other countries, the UK has about 7000 falconers and 25,000 hawk keepers. In the US there are only 4250 falconers and the number of birds they can take from the wild is highly regulated. This is not possible in the UK and limiting the scale of a wild take would be much more difficult.

-Falconry is a field sport and as such, some groups of people are opposed to it. Animal rights groups often oppose any form of hunting, including falconry, although as a minority field sport, this receives less attention from anti-hunting groups than shooting and fox hunting.

-Some species of bird of prey are still rare in the UK (such as hen harriers and sea eagles). Taking individuals of a rare species from the wild could cause a serious population decline.

-If licences were granted for taking birds from the wild it may be more difficult for the authorities to distinguish between a hawk taken legally and a hawk taken illegally. This could encourage the illegal taking of birds of prey from the wild.

I propose to gather the opinions of the general public as well as falconer and conservation groups regarding granting licences to qualified falconers to take birds from the wild.

1.1.2 Material provided with questionnaires with Less Information

My name is Gail Robertson and I am an MSc student at Imperial College London studying Conservation Science. This questionnaire is an important part of my Master's project and I would be very grateful if you could take some time to complete it.

Falconry is one of the world's oldest sports, thought to be over 4000 years old. It is a field sport which involves using a bird of prey to catch wild animals and birds in their natural habitat. In the UK, falconers fly captive-bred birds and under the Wildlife and Countryside Act (1981), no bird can be taken from the wild without a licence granted by the Government. Recently, falconers have called for a resumption of taking birds from the wild for falconry, but this has created controversy. The table below displays some arguments commonly used both in support of a wild take and against it.

Definition: I define falconry and hawking to be 'the sport of taking wild prey (or quarry) in its natural state and habitat by means of trained hawks'

I propose to gather the opinions of the general public as well as falconer and conservation groups regarding granting licences to qualified falconers to take birds from the wild.

1.1.3 Questionnaires Distributed to each stakeholder group

See six attachments for

- 1) Bird watchers' questionnaire (more information)
- 2) Falconers' questionnaire (more information)
- 3) Field sports participants' questionnaire (more information)
- 4) Pigeon fanciers' questionnaire (more information)
- 5) Wildlife enthusiasts' questionnaire (more information)
- 6) Members of the public questionnaire (used on the internet, in the door to door survey and in workshops)

Appendix 2

2.1 Workshop Presentation

Taking birds of prey from the Wild



Pros and Cons

Falconry as a sport

- Sport of using trained hawks to catch wild prey
- About 4000 years old
- Still practiced worldwide and has a large following in the UK
- Falconers took birds from the wild in the UK prior to 1981. Still permitted under licence, but licences are currently not being issued
- Some falconers are calling for a resumption of a wild take

Pros

- Traditional method in falconry
- Wild takes are permitted in other countries under licence (US, Ireland)
- Wild birds are better for falconry than captive bred birds



- Could resolve conflicts between human and birds of prey. Racing pigeons are caught by peregrines, lambs taken by eagles, grouse taken by hen harriers
- Could increase gene pool of captive bird populations – useful for reintroduction programs

Cons

- Not necessary to take birds from the wild. They are bred successfully in captivity
- Could endanger wild populations
- Falconry is not regulated in the UK – makes it hard to regulate harvests



- Many more falconers in the UK than the US – 7000 compared with 4250
- Some groups see welfare issues associated with keeping wild animals in captivity or with hunting



- Discuss in groups of 4-5 for 5-10 minutes and come to a decision on whether a wild take should be resumed
- Report back to whole group



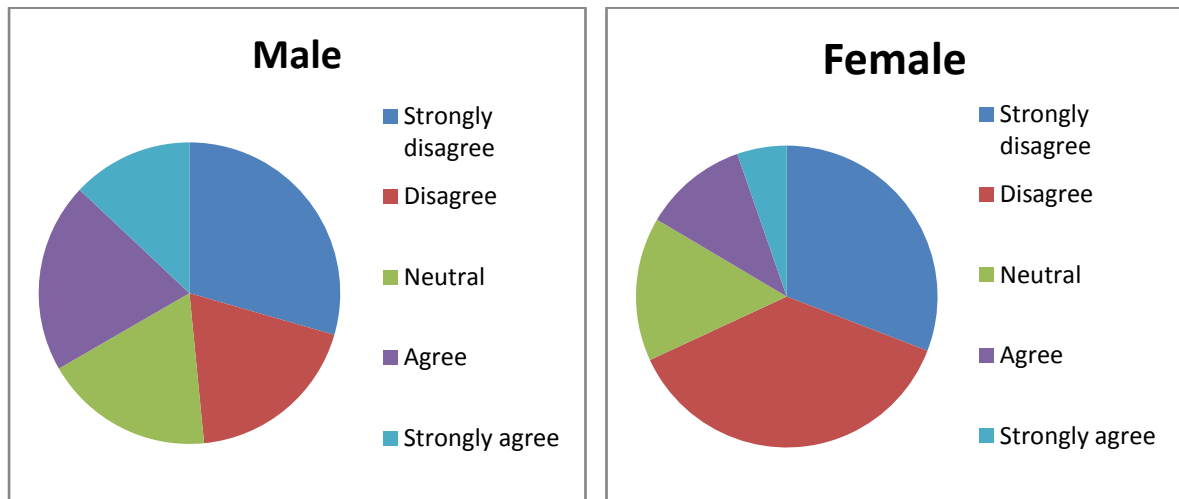
Thanks for participating



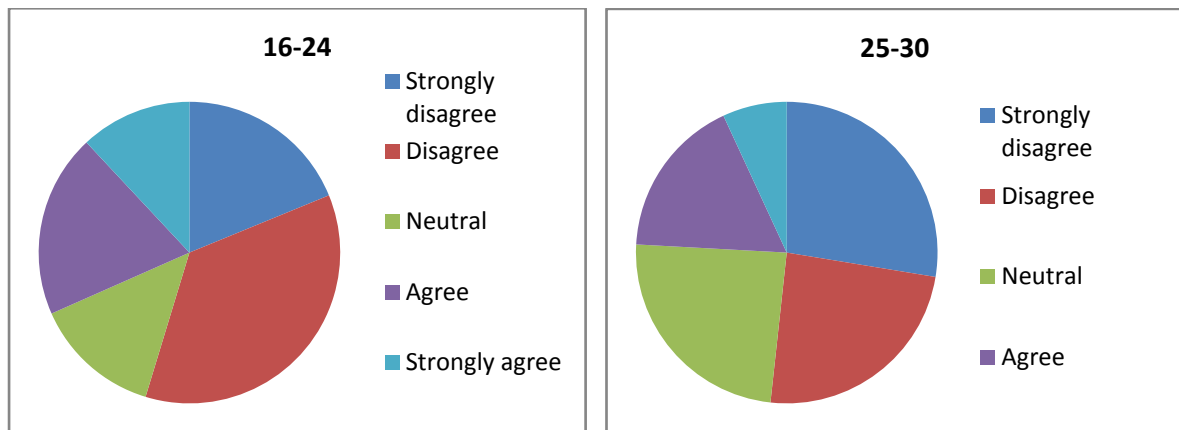
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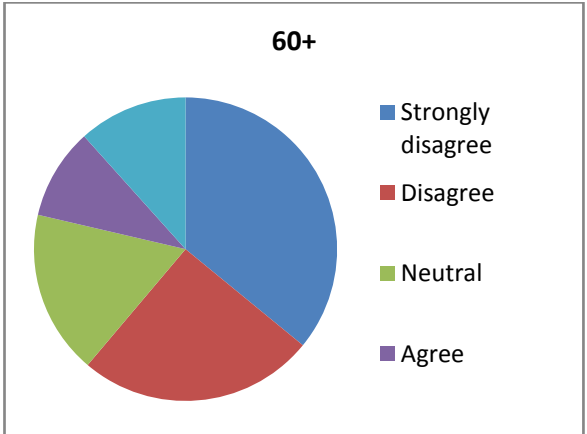
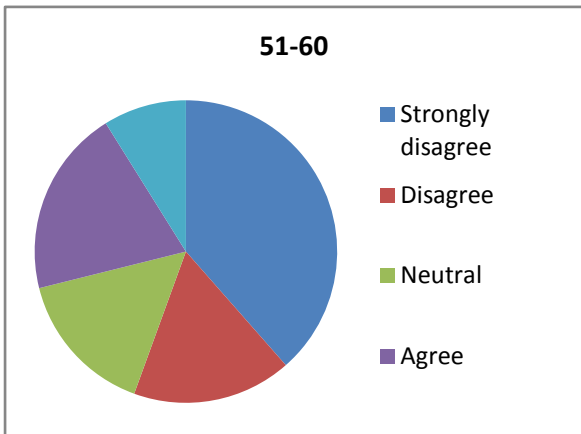
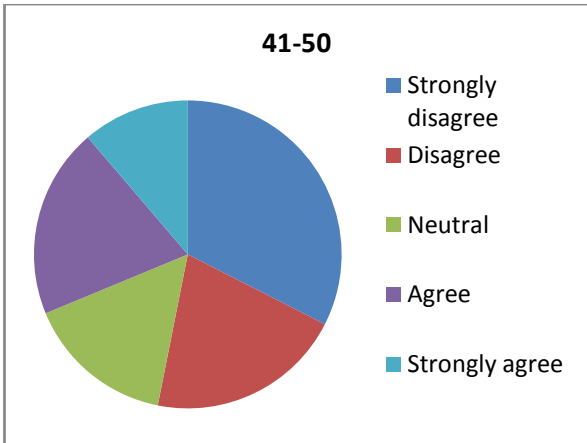
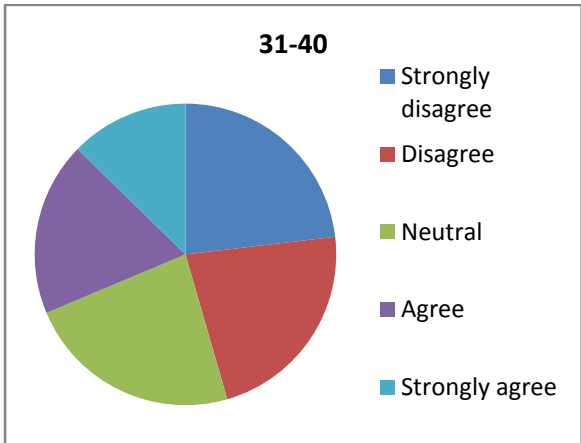
3.1 Pie Charts illustrating distribution of responses to a wild take

3.1.1 Gender

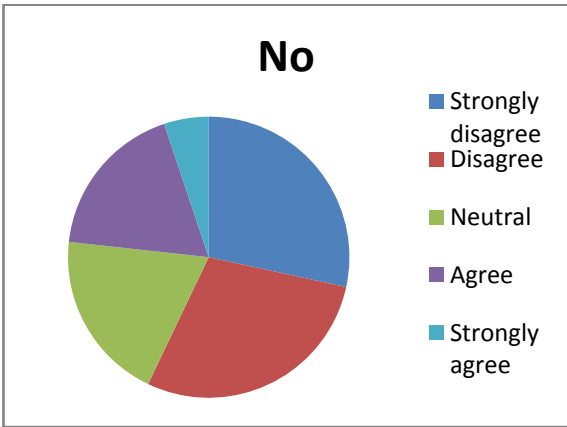
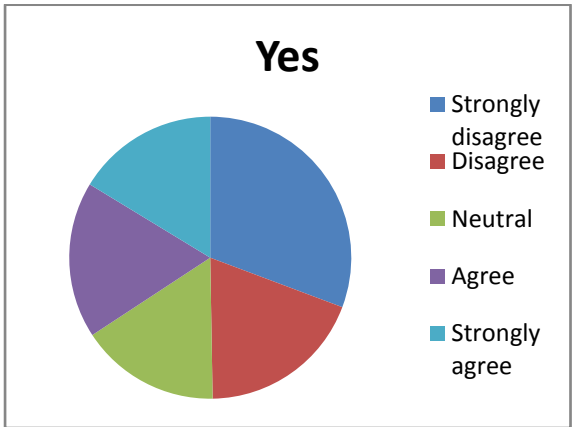


3.1.2 Age

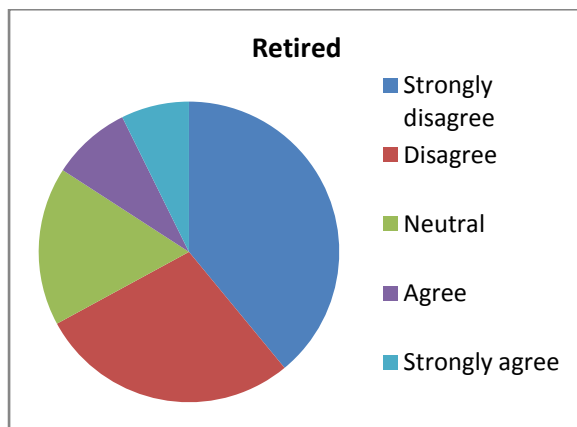
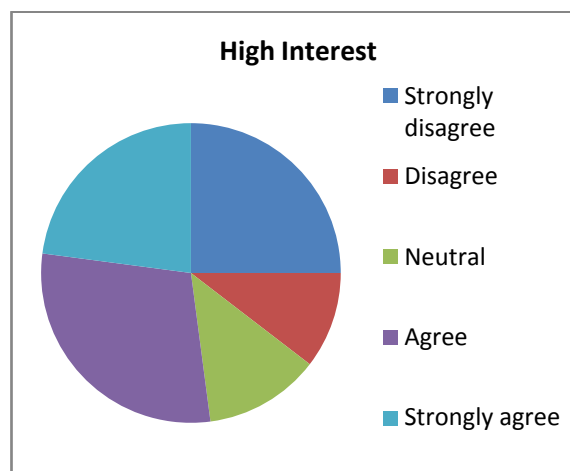
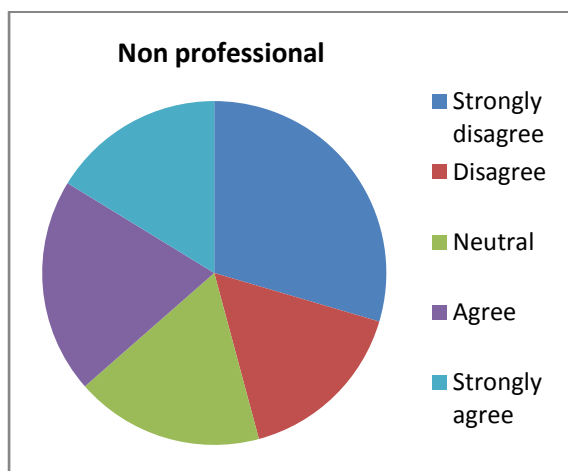
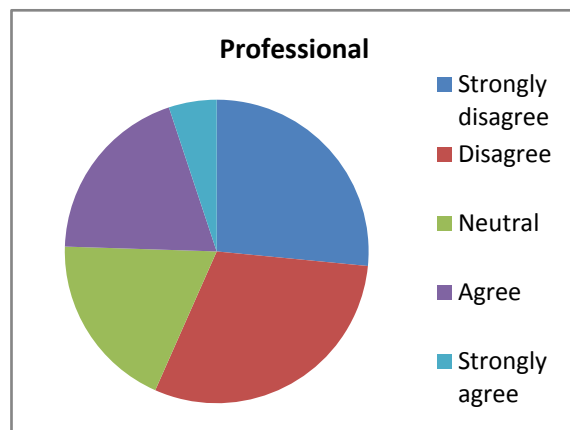
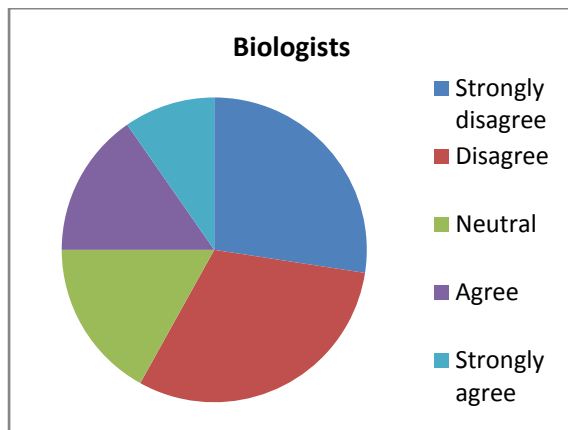




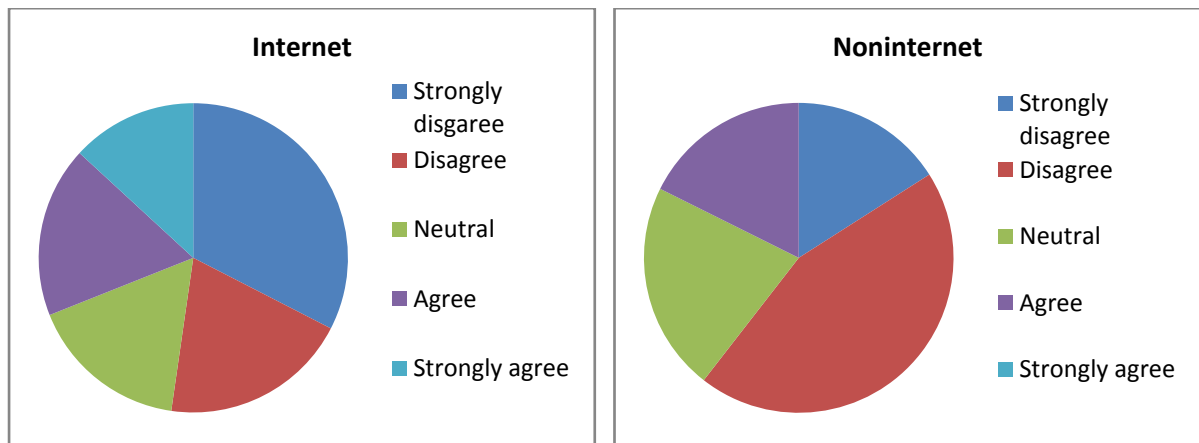
3.1.3 Club Membership



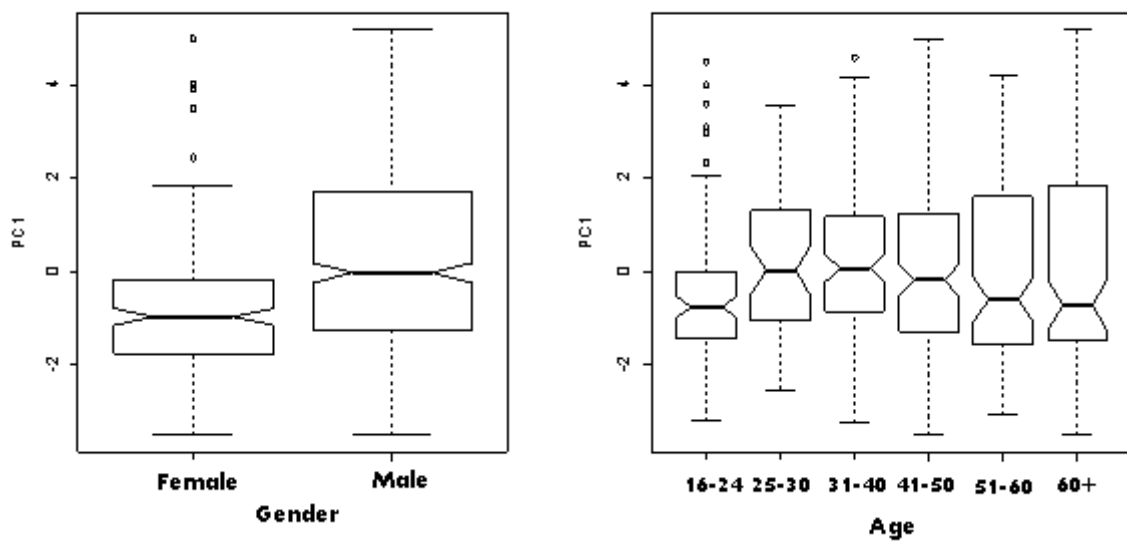
3.1.4 Occupation

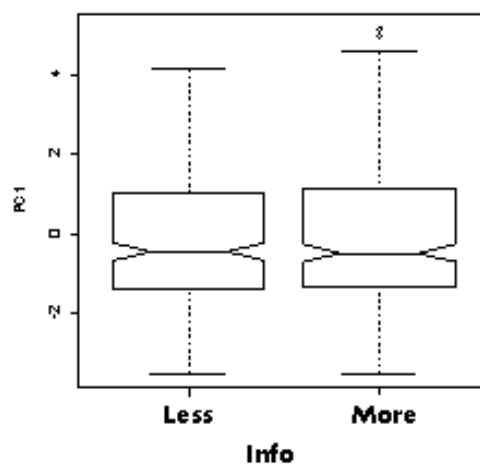
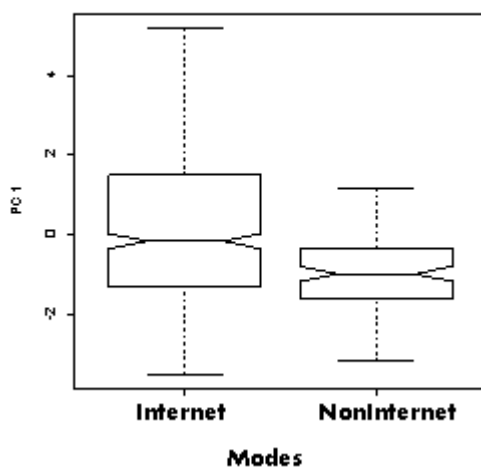
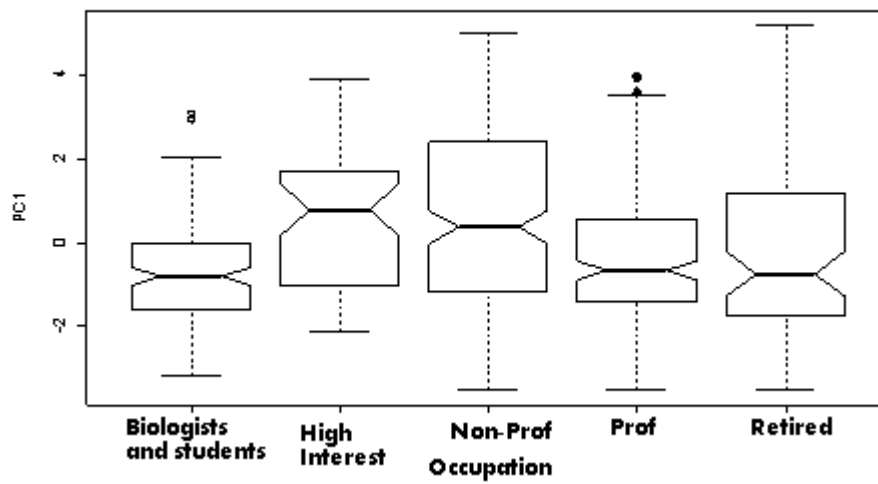
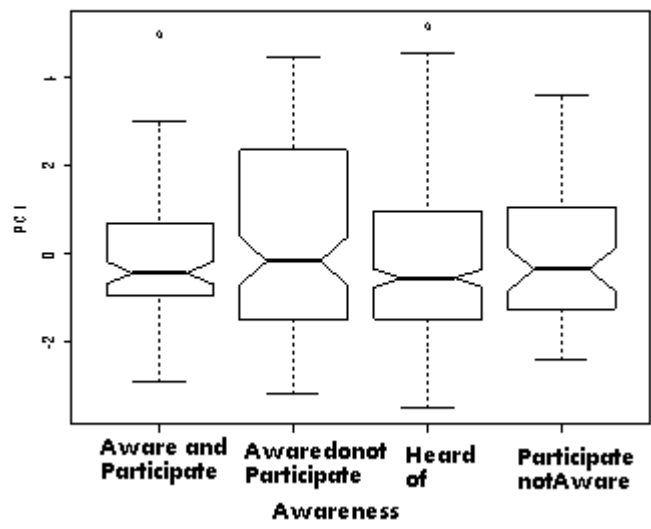
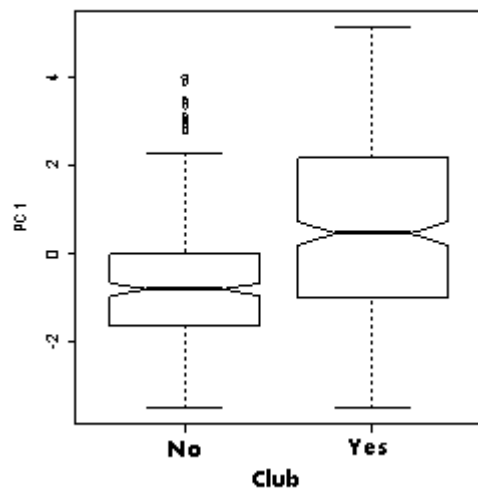


3.1.5 Mode of data collection

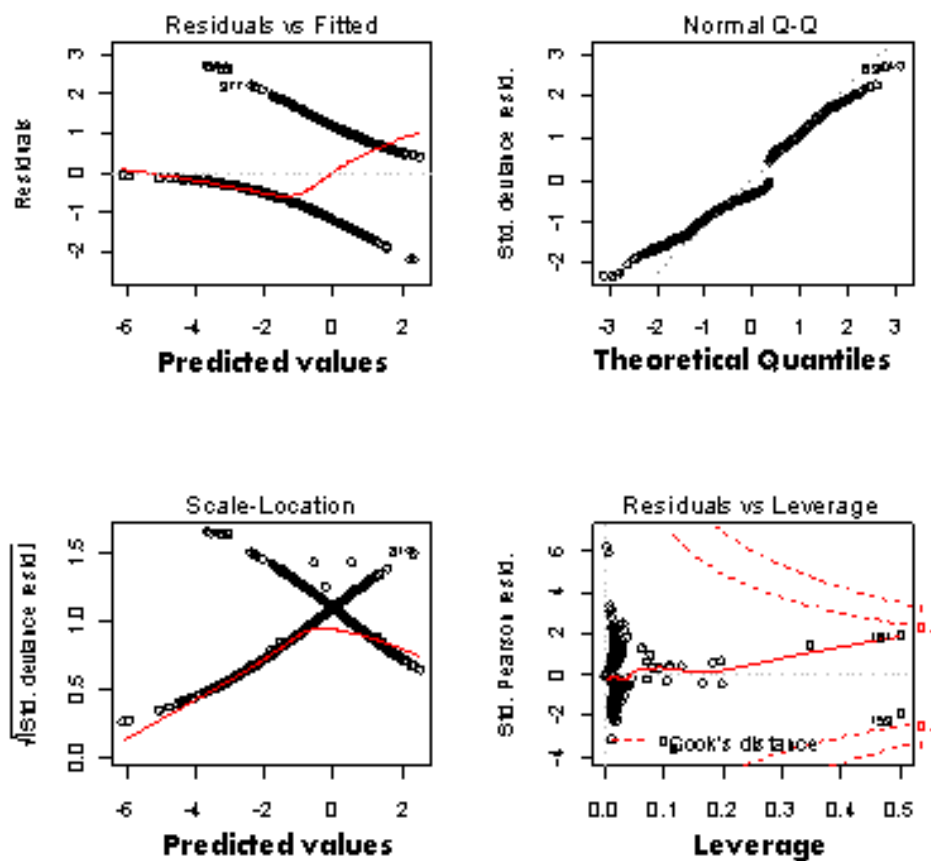


3.2 Box plots showing distribution of responses to the attitudinal questions





3.3 Residual plots from final simplified binomial model



3.4 Tables

3.4.1 Results from Full binomial logistic Model before Model simplification

Coefficients	Estimate	Standard error	p-value
Intercept	1.655	1.983	0.404
Gender Male	-3.277	1.499	0.029 *
Age 31-50	2.697	2.06	0.19
Age 51-60+	-13.659	746.719	0.985
Club Yes	0.23	1.402	0.869
Occupation Nonprofessional	-2.246	2.106	0.286
Occupation Professional	-2.838	2.23	0.203
PC1	1.975	0.713	0.006 **
Info More	-1.503	1.462	0.304

Group Public	-3.216	1.963	0.101
Group Falconers	1.011	2.292	0.659
Group Fieldsports	-1.217	3.221	0.706
Group Pigeonfancier	-2.183	2.714	0.421
Gender Male:Age 31-50	-1.088	1.384	0.432
Gender Male:Age 51-60+	-2.029	1.518	0.181
Gender Male:Club Yes	1.943	1.029	0.059 .
Gender Male:Occupation Nonprofessional	1.921	1.468	0.191
Gender Male:Occupation Professional	2.816	1.447	0.052 .
Gender Male:PC1	-0.212	0.397	0.593
Gender Male:Info More	-0.643	0.991	0.516
Gender Male:Group Public	3.195	1.289	0.013 *
Gender Male:Group Falconers	0.886	1.749	0.613
Gender Male:Group Fieldsports	2.611	2.223	0.24
Gender Male:Group Pigeonfancier	4.973	2.289	0.03 *
Age 31-50:Club Yes	-1.821	1.053	0.084 .
Age 51-60+:Club Yes	-2.621	1.271	0.039 *
Age 31-50:Occupation Nonprofessional	-1.885	1.475	0.201
Age 51-60+:Occupation Nonprofessional	14.874	746.716	0.984
Age 31-50:Occupation Professional	-2.744	1.509	0.069 .
Age 51-60+:Occupation Professional	14.157	746.716	0.985
Age 31-50:PC1	-0.094	0.327	0.774
Age 51-60+:PC1	-0.065	0.382	0.864
Age 31-50:Info More	0.66	0.89	0.458
Age 51-60+:Info More	1.467	1.073	0.172
Age 31-50:Group Public	-1.566	1.716	0.361
Age 51-60+:Group Public	-1.757	1.937	0.364
Age 31-50:Group Falconers	4.071	2.168	0.06 .
Age 51-60+:Group Falconers	3.926	2.265	0.083 .
Age 31-50:Group Fieldsports	2.326	1.952	0.233
Age 51-60+:Group Fieldsports	2.695	2.176	0.215
Age 31-50:Group Pigeonfancier	1.472	2.232	0.51
Age 51-60+:Group Pigeonfancier	2.305	2.405	0.338
Club Yes:Occupation Nonprofessional	0.908	1.211	0.454
Club Yes:Occupation Professional	1.048	1.367	0.443
Club Yes:PC1	-0.433	0.31	0.163
Club Yes:Info More	-0.641	0.727	0.378
Club Yes:Group Public	-1.618	1.335	0.226
Club Yes:Group Falconers	0.874	1.354	0.519
Club Yes:Group Fieldsports	-0.825	1.384	0.551
Club Yes:Group Pigeonfancier	0.218	1.489	0.889
Occupation Nonprofessional:PC1	0.094	0.423	0.824
Occupation Professional:PC1	0.238	0.449	0.595
Occupation Nonprofessional:Info More	1.962	1.139	0.085 .

Occupation Professional:Info More	2.07	1.211	0.088 .
Occupation Nonprofessional:Group Public	0.371	1.703	0.828
Occupation Professional:Group Public	0.895	1.839	0.627
Occupation Nonprofessional:Group Falconers	-3.573	2.226	0.108
Occupation Professional:Group Falconers	-2.939	2.262	0.194
Occupation Nonprofessional:Group Fieldsports	-1.662	2.075	0.423
Occupation Professional:Group Fieldsports	-1.933	2.241	0.389
Occupation Nonprofessional:Group Pigeonfancier	-3.889	2.669	0.145
Occupation Professional:Group Pigeonfancier	-4.422	2.902	0.128
PC1:Info More	0.423	0.257	0.099 .
PC1:Group Public	-1.616	0.655	0.014 *
PC1:Group Falconers	-1.31	0.725	0.071 .
PC1:Group Fieldsports	-1.093	0.621	0.078 .
PC1:Group Pigeonfancier	-1.086	0.604	0.072 .
Info More:Group Public	3.059	1.516	0.044 *
InfoMore:Group Falconers	1.13	1.317	0.391
Info More:Group Fieldsports	0.898	1.368	0.511
Info More:Group Pigeonfancier	-1.051	1.469	0.474

Appendix 4

4.1 Internet Forum Threads

The following threads were taken from falconry and pigeon fancying forums on which the questionnaire was posted.

4.1.1 International Falconry Forum

Original post:

Hello,

I am currently undertaking a MSc project at Imperial College and want to find out the opinions of falconers on taking birds of prey from the wild in the UK. It would really help me a lot if you could please take 10 minutes to fill out this simple questionnaire which asks for your opinions on various issues concerning birds of prey in the UK. Please do not discuss this matter in this thread, as this would bias my results (people might change their minds after reading other people's thoughts on the matter).

Also, as this survey is vital for my project and I really need a lot of responses, I hope you don't mind if I bump this thread once every few days to prevent it getting pushed onto an old page where people won't see it. I will only do this until I have enough responses.

I would really appreciate your responses!

After 2 posts discussing technical difficulties with filling out the survey more than once (this was not permitted to prevent replication).

Wilfred:

I would just not fill this survey in. Could be this guy is opposed to falconry and the results of the survey will be used in that contexts (sic).

I always want to know a lot more about the persons doing this kinds (sic) of surveys before filling in anything

Longwing Rick:

This just looks like a standard customer service poll with the questions changed, I see no reason why filling in this questionnaire (sic) might help someone to do a masters degree on taking birds from the wild.

Since taking birds from the wild is neither necessary nor legal, nor has it been in the UK for nearly 30 years! I think this student has missed his boat!!!!!!

JackGeorge:

I can't see why that survey would really help anyone, I looks I bit dodgy to me. Also why would she not want anybody to discuss it. That is what the forum is about.

I replied:

Hello,

Thanks to everyone for filling in my survey it really has been very helpful. The reason why I do not want you to discuss this is that it could influence the opinions of other people who have not yet filled in the survey and look at the thread first. Also, I am aware that it is illegal to take birds from the wild without a licence, this is a purely hypothetical study to find out people's opinions on the matter and will not make any difference politically. The survey is written as it is because this allows me to analyse the responses statistically much more easily than open questions!

Again, please take time to fill this out as it would really help me. I really value your opinions.

Alan G:

Clear your internet history, cookies etc and it will or should re load again, works for me.

Alan G:

Have a look at his thread that I started on behalf of my Sporting association, plenty of viewpoints that you may be able to use to a degree?

Adam R:

Hey guys

Found this on Google

<http://forum.pigeonbasics.com/m-1242...+project/#num3>

Robam:

HERE !! HERE !!

Saker Sucker:

This is on Pigeon sites and other falconry sites.....you can also complete it again on the other sites!!!

<http://forum.pigeonbasics.com/m-1242...+project/#num3>

Wilfred:

I would just remove this guy from the forum as he is not a falconer....

Kennelre:

Hmmmm!! Because I couldn't read it more than once I can't quote the reason for my concern. It seemed to me to be a survey more related to querying the existence of falconry...rather than the issue of 'wild take'. Having read the enthusiastic responses from the pigeon fanciers (on the forum link) I wonder, along with one of the pigeon men, why he has to state the club he's in. Is the form amended in accordance with who is being asked. What exactly are they being asked anyhow?

I'm a deeply suspicious person and I wouldn't fill it in, or even consider filling it in, at the minute.

Saker Sucker:

The plot twists yet again.....it has now been removed from the pigeon site.....

<http://forum.pigeonbasics.com/m-1242505728/s-new/#num14>

Brightred:

Don't fill out these surveys until the author/poster reveals more info on themselves. Remember that we are a minority group and any answers given in a 'loaded' survey may be used against us in the future.

Klausey:

try this on Google
artemis RSPB ,,,,

Saker Sucker:

Why would we want that; OK, maybe it has been a little underhand BUT if it is the case and this person is a Wildlife Crime Officer then we as honest falconers should be giving him all the backing he needs.

I posted this on another list after the same sort of reply.....

I for one am happy for 'penney' or 'artemis' if they are the wildlife crime squad. In that, I mean we as falconers have and do get bad publicity when certain groups and bodies accuse us for illegally taking wild birds etc. We know that a Peregrine isn't worth the thousands some like to make people think. With the amount of captive birds available to us we don't need to take wild ones. Yes, for breeding new bloodlines then legal wild takes would be viable.

If these people are seeking out illegal activities and trade in wild raptors and are going to bring these scum to book then I'm all for it. On the forums I'd expect that 99% of the members are totally legit and honest. Look at the amount of birds being stolen up and down the country. We all want to see these shisters brought to book, so why not any others?

I guess I'll take plenty of flak now but so what; I've got nothing to hide.

Leeshawks:

Makes sense to me as, we should be helping, with the crime wave that is hitting us all up and down the country, who will be next ??

Schwartzburgizzobello:

I filled this in and can't see how any answer I gave could be considered bad for falconry I was honest.

Kennelre:

I've no idea if the origin of the survey is as people suspect it to be. But, if so, then we have been dealt with dishonestly. If someone is making an approach to gain knowledge to combat dishonest and dishonourable actions, then surely that approach should be open and honest.

Schwartzburgizzobello:

In part I wholly (sic) agree but if it helps to save wild raptors from persecution I feel that the end will justify the means.

Saker Sucker:

Rene, from what I can make out it is this. Operation Artemis

<http://www.rspb.org.uk/ourwork/conse...henharrier.asp>

Longwing Rick:

To save wild raptors from persecution you don't need to ask legitimate falconers their opinion. People who are illegally taking stuff from the wild either wouldn't fill in the survey or would lie to make out there isn't a problem.

By the way the phrase "in part, I wholly agree" is a contradiction in terms? Sounds like the kind of thing ex president Bush would say!!!

Schwartzburgizzobello:

We found the same site they must think falconers are pretty thick if they didn't expect someone to work it out?

I replied:

Hi,

Thanks for filling out the survey. For my project I have to find out the opinions of different stakeholder groups in the issue of taking bop from the wild. If I only asked falconers the project would be very one sided, so I have asked pigeon fanciers, members of the public, birders and conservationists to fill out the survey too. I can then find out how opinions differ and whether the official position of the bodies representing these stakeholders (RSPB, RPRA etc) differs from the people in the clubs and organisations (hence the question about whether you belong to a club).

I'm not a member of the RSPB or any other organisation regarding this issue, I simply want to find out people's opinions for my thesis. I am sorry I did not make this clearer initially, but I have to be very careful what I write about myself and the project as this can influence how people respond.

PS. My choice of the name 'Artemis' after the Greek Goddess

Thanks again

Moritz:

god you guys are paranoid (sic). Not everyone out there wants to do falconers over. Ever thought that this research might actually (sic) be done to help falconers. All you are doing is state your opinion and if you belong to a club.

GDN:

Right

I have been reading through the posts on this thread.

I know who artemis is and she is a girl at uni doing a project on birds of prey. She approached me a while back asking for help. I suggested she put her questions on here as it was a good way of speaking to loads of falconers

There is nothing sinister or under hand about it. All she wants is your opinion. So all this talk about RSPB and wildlife crime or an anti is way off the mark. There are people on this forum who know who I am and can vouch for me that I am passionate as any of you about falconry. So please fill it out and stop worrying about it and who is asking as there is nothing to worry about.

Saker Sucker:

This being the case, I for one would like to apologise to her for anything that I might have posted to misrepresent her intentions. I was also taking 'posts' from other sites showing their comments etc.

I for one am slightly disheartened that the finding are false.

PLEASE ACCEPT MY APOLOGY.

As the Falcon her Bells:

Mo told me who she was earlier and I filled the form in, I could not see anything potentially harmful in there. There were no questions that I would not have answered openly on this forum or if asked to my face, so I can't see why I would not fill it in

Brightred:

I am posting an apology here. I must have had a 'sniper on the roof' paranoid moment in my last post. The girl who is asking us to fill out this survey is a genuine student. I know her!!

Good luck with your course Artemis.

I replied:

Thanks a lot everyone for your help. I know this is a controversial issue and it is a leap of faith to fill out a survey on the internet without knowing anything about the study. Although, compared with other methods, this does get the most respondents.

I really appreciate your responses!

4.1.2 Falconry and Hawking Forum

Original Post:

Hello,

I am currently undertaking a MSc project at Imperial College and want to find out the opinions of falconers on taking birds of prey from the wild in the UK. It would really help me a lot if you could please take 10 minutes to fill out this simple questionnaire which asks for your opinions on various issues concerning birds of prey in the UK. Please do not discuss this matter in this thread, as this would bias my results (people

might change their minds after reading other people's thoughts on the matter).

Also, as this survey is vital for my project and I really need a lot of responses, I hope you don't mind if I bump this thread once every few days to prevent it getting pushed onto an old page where people won't see it. I will only do this until I have enough responses.

I would really appreciate your responses!

Martin Whitely:

Could you let us know a bit more about yourself before asking people to fill in a survey, as this is a first post we have no idea as to who you are or what your motives may be, so people are (rightly so) going to be a bit wary about doing your questionnaire.

Tony Howell-Jones:

Penney, I don't consider some your questions are specific enough to come up with a true conclusion.

Martin Whitely:

Actually it is a bit more revealing when I look, but an introduction from yourself would be good

Penney:

Hello,

Thank you all very much for filling out the survey, it has been really helpful! I am an MSc student at Imperial, but I am afraid I cannot discuss the issue on this thread or let you know my own views on the matter as this might influence (however slightly) how people answer the survey. In order for it to be completely objective and scientific I have to be very careful about what I tell people prior to filling out the survey! Also, although the survey may seem basic, this makes it easier for me to analyse statistically. Again, I really appreciate your help and I will be happy to let you know more about myself once I have finished collecting for the survey.

Thanks again!

Shaun:

You are missing the point.....

You have come onto this falconry community forum and the first thing you have done is post a survey with the hope of the members filling it in.....

What Martin is saying it would have been polite to first of all start a thread introducing yourself and giving us a bit of info about yourself not your personal views of the survey.....

Mitchell Brad:

The Heisenberg Uncertainty Principle. Awwww Hell, I read Martin2's post, the one following this one, and have to agree with him. After being beat on for so many years us falconers are suspicious of those who could possibly not be presenting themselves properly or trying to pass themselves off as a researcher when in fact they are trying to gather information against us. Of course I'm wrong about 50% of the time.

Martin 2:

Penny this is quite astonishing. Do you honestly believe people will give you their views when we know nothing of you? As this survey is so vital to your work I find it incredible you have not thought it through as to how people would react. You also ask for the topic not to be discussed amongst (sic) those on the forum!!!! This is what a forum is about.....discussion!!!! People may change their minds? So what if they do thats how things happen, ive had my mind changed on lots of subjects, discussion helps that!

I replied:

I'm sorry if I didn't introduce myself before.

I am doing a Master's on Conservation at Silwood Park (part of Imperial College London) and am interested in birds of prey and falconry. When I graduate I would like to either continue my studies by doing a PHd or getting a job in Zoology. I have no issues at all with falconry and really value the opinions of falconers. I have asked other falconry groups and people interested in birds of prey as well as members of the public. The BFC has agreed to distribute my survey and has given me a lot of help. I really don't want to start a debate about the rights/wrongs of a wildtake on this thread as it could easily change people's opinions on the survey and therefore give me biased results (people who have not completed the survey might look first at the thread and then complete the survey).

I am sorry if I have upset anyone about this.

Tony Howell-Jones:

I have some sympathy with these people. To get a job in their chosen subject they have to achieve a Masters if not a Doctorate, so they become perpetual students and lose touch with reality - well some do anyway. Years ago I was contacted by no end of people who wanted help with a phd. I don't have one but I daresay I passed it more than once by proxy. I'm in touch with Carl Jones and he says the same thing. I didn't consider Penney to be anything other than what she said and answered her questions as well as I could but, due to the non specific nature of the questions, I couldn't give an answer of any real relevance, so of what use the survey is I can't imagine.

I'm afraid you are being well and truly 'beaten up' for different reasons here Penney.

Tikka .222:

Take a look here as well!!!!!!

<http://forum.pigeonbasics.com/m-1242...+project/#num3>

Martin 2:

Well spotted mate thanks for bringing to our attention, she forgot to tell us about this little bit of info then?

Andy:

I have just checked the pigeon fanciers survey and she will be able to analyse the data from different sources.

I don't see it as being relevant where else she gathers data from.

Research like this will have to encompass interested parties as well as the general public.

Demerde-toi:

i would have to agree with Tony the questions are too non specific.

i would also add that there seems to be the merest hint of an "anti fieldsports" feeling in the way some of the questions are phrased.

parabuto or not i wouldnt have given the harris a separate species categorisation, similarly eagles are also broadwings.

a comprehensive list of different species, including ages and sexes would give a wider ranging and more comprehensive data yield.

i wouldnt have bothered discussing how rare hen harriers are before discussing wild take as hen harriers would be of no interest to a practicing falconer.

anyway best of luck with the research.

Paul Brown:

The recent change in Scottish law to trap and relocate raptors was driven by the pigeon fancying folk. We should encourage allies, no matter how unnatural they are.

Ayrshiretaxidermy:

I was involved in this. It was a trial running from Jan - March. Several Spars were trapped with some interesting results. The law hasn't been changed, not sure if it will as the findings are still being analysed.

Tikka .222:

Apparently it was the RSPB and the police that set it up!!!!

Charlie Ward:

Well done Tikka.222.

Would Penney like to comment on these findings?

175c5:

ever thought you were in the wrong job?

Mitchell Brad:

Will Penney comment? That is the question.

I replied:

Hello,

Thanks to everyone who has filled out the survey. As my project is concerned with finding out the opinions of all stakeholders in the issue of taking birds of prey from the wild for falconry purposes, I have to ask other groups interested in the issue or I will have very little data to analyse. Hence, I have asked bird conservationists, field sports enthusiasts, falconers, pigeon fanciers and members of the public what their views are. I will then look at how opinions differ depending on whether the respondent was a falconer, bird conservationist etc. The best way to gather data is on internet forums, so I put the survey on as many as I could. The BFC, Royal Pigeon Racing Association and Game Conservancy Trust also agreed to distribute surveys to members and staff to give me a maximum number of respondents.

I really hope you can help me with this and thanks to those who have done so already.

Tony Howell-Jones:

Well done Tikka. Wasn't I the gullible one. Thank God it was a badly formulated and therefore meaningless survey. Have degree's become easier following 'O' and 'A' Levels, or did they lead the way? Or is she even a student?

Martin 2:

Not gullible at all Tony, like most you like to think we can help others and trust they have honest intentions, does not matter how many times ive been caught out by less than honest people its just in my nature to give people a chance, i guess there are many yourself and myself included that like to think people will treat us with the respect and honesty we give them.

Tikka .222:

I for one am happy for 'penney' or 'artemis' if they are the wildlife crime squad. In that, I mean we as falconers have and do get bad publicity when certain groups and bodies accuse us for illegally taking wild birds etc. We know that a Peregrine isn't worth the thousands some like to make people think. With the amount of captive birds available to us we don't need to take wild ones. Yes, for breeding new bloodlines then legal wild takes would be viable.

If these people are seeking out illegal activities and trade in wild raptors and are going to bring these scum to book then I'm all for it. On the forums I'd expect that 99% of the members are totally legit and honest. Look at the amount of birds being stolen up and down the country. We all want to see these **** brought to book, so why not any others?

I guess I'll take plenty of flak now but so what; I've got nothing to hide.

Martin 2:

No flack from me, quite the opposite, every word here you have written has my 100% backing, thanks for putting into words something I was struggling to say. Wish sometimes I had listened more in english at school then I would be able to write great stuff like yours Tikka, thanks mate

Charlie Ward:

I feel like a politician here!!!

I'm going to have to do a u-turn and post an apology.

Penney (Gail Robertson) is a genuine student. I got a call today from a falconer today and it turns out that I know Gail.

So just to put minds at rest, I can personally vouch for Gail and her survey as 'Kosher' with no underhand intentions.

I understand that we all get a bit paranoid when asked to give information on our sport, especially with the growing number of anti hunting groups out there.

I for one was suspicious (sic) when her thread was posted, until today.

Good luck with your course Gail.

I replied:

Thanks a lot for your help everyone! I know it is difficult to gather data so I thought a forum would be easiest. I appreciate that it does require a lot of trust on your part though.

Thanks again and please keep filling it out.

4.1.3 Pigeon Basics

Original Post:

Hello,

I am currently undertaking a MSc project at Imperial College and want to find out the opinions of pigeon fanciers on taking birds of prey from the wild in the UK. It would really help me a lot if you could please take 10 minutes to fill out this simple questionnaire which asks for your opinions on various issues concerning birds of prey in the UK. Please do not discuss this matter in this thread, as this would bias my results (people might change their minds after reading other people's thoughts on the matter).

Also, as this survey is vital for my project and I really need a lot of responses, I hope you don't mind if I bump this thread once every few days to prevent it getting pushed onto an old page where people won't see it. I will only do this until I have enough responses.

I would really appreciate your responses!

Arguments ensued leading to thread being removed. New thread was started by forum members as follows:

Big pete:

What happened to the students Msc survey thread, was watching with interest !!!!!

Oldyellow:

<http://www.rspb.org.uk/ourwork/conservation/species/casestudies/henharrier.asp>

Bigda:

operation artemis the skunk was on here

White logan:

i asked for it to be removed pete , as one of the forum members pointed out "penny" or "artemis"on the falconry forum was asking the same questions and had the same survey , now if you do a google search on "artemis" you will find out that it is a research organisation , do a google search on "artemis RSPB" and you will find that it is RSPB/scotish police investigating into the persecution of birds of prey ,..... now all of you that filled in the survey ,.....give your selfs a big pat on the back

Numpty01:

so in fact it was the wildlife crime unit that was on here doing study if you read the thread

Numpty01:

yes john you did say

Big pete:

well done john you said you where on to them, once a falcon man always a falcon man, hey! DIDNT do it

Numpty01:

nor me i read the heading

Pecked hen:

Yeah, I was suspicious why 'she' wanted to know which club we belonged to.

Numpty01:

loads jackets available only to fanciers

White logan:

they will be back in another form

Oldyellow:

I think any surveys will be removed in future

Numpty01:

sound idea mark

White logan:

they are a bunch of sneaky **** and will probe again

Numpty01:

BIG BROTHER IS WATCHING INCLUDEING (sic) MINE

Just ask me:

i got coddled won't happen again but then again did they get the info under false pretences is that right

Numpty01:

they can do what they like gov

Vallance lofts:

Pleased I kept it clean, factual and polite then lol.

Superstar:

Personally I dont give a monkeys nuts who they are! The answers I gave to it are the answers I would give anyone asking. All the truth so let them digest on it, it has cost me nothing and passed away a bored 5 minutes

IB:

Well I for one will get a pat on the back. Not all pigeon fanciers are criminals, and certainly not this one. Investigate away.

Cheeseman:

i agree with superstar, the answers I gave were what I know to be the truth to the best of my knowledge, as well as being a pigeon fancier im a game keeper, and suffer badley (sic) with birds of prey on both sides but i would not jeperdise my shotgun or firearms licence for the sake of a falcon, there are uther (sic) deterrents (sic).

Lenwadebob:

Ditto

Owen:

Look lads, it is not if you gave answers or not. It is about the awareness of those desperate bas----s seeking to get their intelligence through the back door. They want to know what we are thinking and I have no doubt that they will find someone to tell them all sorts of things.

It is also not about a person's preparedness to break the law, or another person's comments about their ability to deal with the problem. It is about the sort of sick individuals that work in that way to try to catch some of us out. It's the lies and deceit that they are using as a matter of routine.

If you don't believe me, just observe how they will get rid of the Eagle Owl at Bristol by some quiet and cunning move. And they will not be seen to do anything. "It was'nt me Gov".

Numpty01:

they could remove the owl but it will be replaced????

Numpty01:

Haveing (sic) looked at the bhw this morning and seeing mr bills comments that she is studying for some university degree I phoned him and asked him did he authenticate the comments before putting she needed assitaance (sic) the answer was no so I filled him in on the comments plus when you actually click onto her alias on another it takes you to the rspb crime unit and crimestoppers I think he knows now he made bo bo I look forward to next week's book and the answers she and rspb give to this nonsense and indeed to his answers to comments he is bound to receive (sic)

Pigeonpete:

what a clown I feel, I filled it in!!

Attitude survey for Birding group members: survey 2

1.

My name is Gail Robertson and I am an MSc student at Imperial College London studying Conservation Science. This questionnaire is an important part of my Master's project and I would be very grateful if you could take some time to complete it

Falconry is one of the world's oldest sports, thought to be over 4000 years old. It is a field sport which involves using a bird of prey to catch wild animals and birds in their natural habitat. In the UK, falconers fly captive-bred birds and under the Wildlife and Countryside Act (1981), no bird can be taken from the wild without a licence granted by the Government. Recently, falconers have called for a resumption of taking birds from the wild for falconry, but this has created controversy. The table below displays some arguments commonly used both in support of a wild take and against it.

Definition: I define falconry and hawking to be 'the sport of taking wild prey (or quarry) in its natural state and habitat by means of trained hawks'

I propose to gather the opinions of the general public as well as falconer and conservation groups regarding granting licences to qualified falconers to take birds from the wild.

2.

1. What do you know about the sport of falconry?

I know a lot about and regularly participate in falconry

I know a lot about falconry but have never participated

I have participated but know little about falconry

I have heard of falconry

I have never heard of falconry

3.

1. What is your opinion on this issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to take birds of prey from the wild for falconry purposes in the UK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey symbolise freedom and the beauty of nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5.

Attitude survey for Birding group members: survey 2

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are an important part of a healthy ecosystem	jq	jq	jq	jq	jq

6.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The environment should be kept in a natural state and should be tampered with as little as possible	jq	jq	jq	jq	jq

7.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are detrimental to business and leisure activities	jq	jq	jq	jq	jq

8.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey populations need to be controlled to reduce their negative impacts	jq	jq	jq	jq	jq

9.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to keep birds of prey in captivity for falconry purposes	jq	jq	jq	jq	jq

10.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Falconry is an important bird of prey conservation tool	jq	jq	jq	jq	jq

Attitude survey for Birding group members: survey 2

11.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Hunting for sport in any form is an unacceptable practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are rare and endangered animals in the UK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13.

1. What is your gender?

Male

Female

14.

1. Are you based in the UK?

Yes

No

15.

1. To which age bracket do you belong?

16-24

25-30

31-40

41-50

51-60

60+

16.

Attitude survey for Birding group members: survey 2

1. Were you brought up in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

17.

1. Do you currently live in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

18.

1. What is your occupation?

19.

1. Have you visited a falconry centre

- More than 3 years ago
- In the past 3 years
- In the past 12 months
- In the past 6 months
- On a regular basis
- Never

20.

1. Are you a member of a conservation organisation?

- Yes
- No

Attitude survey for Birding group members: survey 2

2. If yes, please name the organisation(s) below

21.

1. For how long have you been interested in wildlife conservation and the environment?

Less than 12 months

More than 1 year but less than 5 years

Between 5 and 10 years

More than 10 years

More than 20 years

22.

1. Please name the group(s) of birds you are most interested in

23.

1. Do you have any further comments?

Attitude survey for falconers: survey 2

1.

My name is Gail Robertson and I am an MSc student at Imperial College London studying Conservation Science. This questionnaire is an important part of my Master's project and I would be very grateful if you could take some time to complete it.

Falconry is one of the world's oldest sports, thought to be over 4000 years old. It is a field sport which involves using a bird of prey to catch wild animals and birds in their natural habitat. In the UK, falconers fly captive-bred birds and under the Wildlife and Countryside Act (1981), no bird can be taken from the wild without a licence granted by the Government. Recently, falconers have called for a resumption of taking birds from the wild for falconry, but this has created controversy. The table below displays some arguments commonly used both in support of a wild take and against it.

I propose to gather the opinions of the general public as well as falconer and conservation groups regarding granting licences to qualified falconers to take birds from the wild.

Definition: I define falconry and hawking to be 'the sport of taking wild prey (or quarry) in its natural state and habitat by means of trained hawks'

2.

1. What do you know about the sport of falconry?

I know a lot about and regularly participate in falconry

I know a lot about falconry but have never participated

I have participated but know little about falconry

I have heard of falconry

I have never heard of falconry

3.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to take birds of prey from the wild for falconry purposes in the UK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey symbolise freedom and the beauty of nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5.

Attitude survey for falconers: survey 2

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are an important part of a healthy ecosystem	jq	jq	jq	jq	jq

6.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The environment should be kept in a natural state and should be tampered with as little as possible	jq	jq	jq	jq	jq

7.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are detrimental to business and leisure activities	jq	jq	jq	jq	jq

8.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey populations need to be controlled to reduce their negative impacts	jq	jq	jq	jq	jq

9.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to keep birds of prey in captivity for falconry purposes	jq	jq	jq	jq	jq

10.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Falconry is an important bird of prey conservation tool	jq	jq	jq	jq	jq

Attitude survey for falconers: survey 2

11.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Hunting for sport in any form is an unacceptable practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are rare and endangered animals in the UK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13.

1. What is your gender?

Male

Female

14.

1. To which age bracket do you belong?

16-24

25-30

31-40

41-50

51-60

60+

15.

1. Are you based in the UK?

Yes

No

16.

Attitude survey for falconers: survey 2

1. Were you brought up in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

17.

1. Do you currently live in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

18.

1. What is your occupation?

19.

1. Are you a member of a falconry club?

- Yes
- No

2. If yes, please name the club(s) below

20.

1. For how long have you participated in the sport of falconry?(Flown a trained bird of prey)

- Less than 12 months
- More than 1 year but less than 5 years
- Between 5 and 10 years
- More than 10 years
- More than 20 years

Attitude survey for falconers: survey 2

21.

1. What type of hawk are you most interested in flying?(Check more than one box if necessary)

- Eagles
- Longwings
- Shortwings
- Broadwings
- Harris' hawks
- Owls
- Other

2. If Other, please name type of hawk below

22.

1. Do you regularly hunt with your hawk?

- Yes
- No

2. If yes,how often do you hunt with your hawk?

- Every day
- More than 3 times a week
- 3 times a week
- Twice a week
- Once a week
- Less than once a week

23.

1. Do you have any further comments?

Attitude survey for field sports enthusiasts: survey 2

1.

My name is Gail Robertson and I am an MSc student at Imperial College London studying Conservation Science. This questionnaire is an important part of my Master's project and I would be very grateful if you could take some time to complete it.

Falconry is one of the world's oldest sports, thought to be over 4000 years old. It is a field sport which involves using a bird of prey to catch wild animals and birds in their natural habitat. In the UK, falconers fly captive-bred birds and under the Wildlife and Countryside Act (1981), no bird can be taken from the wild without a licence granted by the Government. Recently, falconers have called for a resumption of taking birds from the wild for falconry, but this has created controversy. The table below displays some arguments commonly used both in support of a wild take and against it.

I propose to gather the opinions of the general public as well as falconer and conservation groups regarding granting licences to qualified falconers to take birds from the wild.

Definition: I define falconry and hawking to be 'the sport of taking wild prey (or quarry) in its natural state and habitat by means of trained hawks'

2.

1. What do you know about the sport of falconry?

I know a lot about and regularly participate in falconry

I know a lot about falconry but have never participated

I have participated but know little about falconry

I have heard of falconry

I have never heard of falconry

3.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to take birds of prey from the wild for falconry purposes in the UK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey symbolise freedom and the beauty of nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5.

Attitude survey for field sports enthusiasts: survey 2

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are an important part of a healthy ecosystem	jq	jq	jq	jq	jq

6.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The environment should be kept in a natural state and should be tampered with as little as possible	jq	jq	jq	jq	jq

7.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey can be detrimental to business and leisure activities	jq	jq	jq	jq	jq

8.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey populations need to be controlled to reduce their negative impacts	jq	jq	jq	jq	jq

9.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to keep birds of prey in captivity for falconry purposes	jq	jq	jq	jq	jq

10.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Falconry is an important bird of prey conservation tool	jq	jq	jq	jq	jq

Attitude survey for field sports enthusiasts: survey 2

11.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Hunting for sport in any form is an unacceptable practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are rare and endangered animals in the UK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13.

1. What is your gender?

Male

Female

14.

1. To which age bracket do you belong?

16-24

25-30

31-40

41-50

51-60

60+

15.

1. Are you based in the UK?

Yes

No

16.

Attitude survey for field sports enthusiasts: survey 2

1. Were you brought up in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

17.

1. Do you currently live in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

18.

1. What is your occupation?

19.

1. Are you a member of a field sports organisation?

- Yes
- No

2. If yes, please name the organisation(s) below

20.

1. For how long have you participated in field sports?

- Less than 12 months
- More than 1 year but less than 5 years
- Between 5 and 10 years
- More than 10 years
- More than 20 years

Attitude survey for field sports enthusiasts: survey 2

21.

1. Have you visited a falconry centre

More than 3 years ago

In the past 3 years

In the past 12 months

In the past 6 months

On a regular basis

Never

22.

1. What type of field sport do you regularly participate in?(Check more than one box if necessary)

Hunting

Shooting

Fishing

Ferreting

Deer stalking

Falconry

None

Other

2. If Other, please name field sport below

23.

1. Do you have any further comments?

Attitude survey for pigeon racing enthusiasts: survey 2

1.

My name is Gail Robertson and I am an MSc student at Imperial College London studying Conservation Science. This questionnaire is an important part of my Master's project and I would be very grateful if you could take some time to complete it.

Falconry is one of the world's oldest sports, thought to be over 4000 years old. It is a field sport which involves using a bird of prey to catch wild animals and birds in their natural habitat. In the UK, falconers fly captive-bred birds and under the Wildlife and Countryside Act (1981), no bird can be taken from the wild without a licence granted by the Government. Recently, falconers have called for a resumption of taking birds from the wild for falconry, but this has created controversy. The table below displays some arguments commonly used both in support of a wild take and against it.

I propose to gather the opinions of the general public as well as falconer and conservation groups regarding granting licences to qualified falconers to take birds from the wild.

Definition: I define falconry and hawking to be 'the sport of taking wild prey (or quarry) in its natural state and habitat by means of trained hawks'

2.

1. What do you know about the sport of falconry?

I know a lot about and regularly participate in falconry

I know a lot about falconry but have never participated

I have participated but know little about falconry

I have heard of falconry

I have never heard of falconry

3.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to take birds of prey from the wild for falconry purposes in the UK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey symbolise freedom and the beauty of nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5.

Attitude survey for pigeon racing enthusiasts: survey 2

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are an important part of a healthy ecosystem	jq	jq	jq	jq	jq

6.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The environment should be kept in a natural state and should be tampered with as little as possible	jq	jq	jq	jq	jq

7.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey can be detrimental to business and leisure activities	jq	jq	jq	jq	jq

8.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey populations need to be controlled to reduce their negative impacts	jq	jq	jq	jq	jq

9.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to keep birds of prey in captivity for falconry purposes	jq	jq	jq	jq	jq

10.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Falconry is an important bird of prey conservation tool	jq	jq	jq	jq	jq

Attitude survey for pigeon racing enthusiasts: survey 2

11.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Hunting for sport in any form is an unacceptable practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
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13.

1. What is your gender?

Male

Female

14.

1. To which age bracket do you belong?

16-24

25-30

31-40

41-50

51-60

60+

15.

1. Are you based in the UK?

Yes

No

16.

Attitude survey for pigeon racing enthusiasts: survey 2

1. Were you brought up in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

17.

1. Do you currently live in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

18.

1. What is your occupation?

19.

1. Are you a member of a pigeon racing club?

- Yes
- No

2. If yes, please name the club(s) below

20.

1. For how long have you participated in the sport of pigeon racing?

- Less than 12 months
- More than 1 year but less than 5 years
- Between 5 and 10 years
- More than 10 years
- More than 20 years

Attitude survey for pigeon racing enthusiasts: survey 2

21.

1. Have you found evidence that your pigeons are regularly taken by wild birds of prey?

Yes

No

No, but I suspect this to be the case

22.

1. Have you visited a falconry centre

More than 3 years ago

In the past 3 years

In the past 12 months

In the past 6 months

On a regular basis

Never

23.

1. Have you been hunting, shooting or fishing in the past 12 months?

Yes

No

24.

1. Do you have any further comments?

Attitude survey 2

1.

My name is Gail Robertson and I am an MSc student at Imperial College London studying Conservation Science. This questionnaire is an important part of my Master's project and I would be very grateful if you could take some time to complete it.

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1. What do you know about the sport of falconry?

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3.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to take birds of prey from the wild for falconry purposes in the UK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey symbolise freedom and the beauty of nature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5.

Attitude survey 2

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are an important part of a healthy ecosystem	jq	jq	jq	jq	jq

6.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The environment should be kept in a natural state and should be tampered with as little as possible	jq	jq	jq	jq	jq

7.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey can be detrimental to business and leisure activities	jq	jq	jq	jq	jq

8.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey populations need to be controlled to reduce their negative impacts	jq	jq	jq	jq	jq

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	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
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1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Falconry is an important bird of prey conservation tool	jq	jq	jq	jq	jq

Attitude survey 2

11.

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31-40

41-50

51-60

60+

15.

1. Are you based in the UK?

Yes

No

16.

Attitude survey 2

1. Were you brought up in a

Rural area

Semi-rural area

Urban area

Suburban area

17.

1. Do you currently live in a

Rural area

Semi-rural area

Urban area

Suburban area

18.

1. What is your occupation/what do you study?

19.

1. Are you a member of a conservation organisation(s)?

Yes

No

2. If yes, please name the organisation(s) below

20.

Attitude survey 2

1. Have you visited a falconry centre

- More than 3 years ago
- In the past 3 years
- In the past 12 months
- In the past 6 months
- On a regular basis
- Never

21.

1. Have you been hunting, shooting or fishing in the past 12 months?

- Yes
- No

22.

1. What type of sports do you regularly participate in? (Check more than one box if necessary)

- Outdoor activities (Eg: Hiking, rock climbing, golf)
- Field sports (Eg: Shooting, fishing, ferreting)
- Team sports (Eg: Football, rugby, hockey)
- Indoor sports (Eg: Badminton, gym, bowling)
- Other

2. If Other, please name sport below

23.

Attitude survey 2

1. During leisure time, do you visit green areas such as parks or the countryside

- More than once a week
- Once a week
- More than once a month
- Once a month
- Once every 6 months
- Once every 12 months
- More than every 12 months
- Never

24.

1. Do you have any further comments?

Attitude survey for wildlife enthusiasts: survey 2

1.

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I know a lot about falconry but have never participated

I have participated but know little about falconry

I have heard of falconry

I have never heard of falconry

3.

1. What is your opinion on this issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to take birds of prey from the wild for falconry purposes in the UK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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5.

Attitude survey for wildlife enthusiasts: survey 2

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey are an important part of a healthy ecosystem	jq	jq	jq	jq	jq

6.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The environment should be kept in a natural state and should be tampered with as little as possible	jq	jq	jq	jq	jq

7.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Wild birds of prey can be detrimental to business and leisure activities	jq	jq	jq	jq	jq

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Wild birds of prey populations need to be controlled to reduce their negative impacts	jq	jq	jq	jq	jq

9.

1. What is your opinion on the following issue?

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is acceptable to keep birds of prey in captivity for falconry purposes	jq	jq	jq	jq	jq

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Attitude survey for wildlife enthusiasts: survey 2

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13.

1. What is your gender?

Male

Female

14.

1. Are you based in the UK?

Yes

No

15.

1. To which age bracket do you belong?

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25-30

31-40

41-50

51-60

60+

16.

Attitude survey for wildlife enthusiasts: survey 2

1. Were you brought up in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

17.

1. Do you currently live in a

- Rural area
- Semi-rural area
- Urban area
- Suburban area

18.

1. What is your occupation?

19.

1. Have you visited a falconry centre

- More than 3 years ago
- In the past 3 years
- In the past 12 months
- In the past 6 months
- On a regular basis
- Never

20.

1. Are you a member of a conservation organisation?

- Yes
- No

Attitude survey for wildlife enthusiasts: survey 2

2. If yes, please name the organisation(s) below

21.

1. For how long have you been interested in wildlife conservation and the environment?

- Less than 12 months
- More than 1 year but less than 5 years
- Between 5 and 10 years
- More than 10 years
- More than 20 years

22.

1. Which group of animals are you most interested in?

- Birds
- Mammals
- Reptiles
- Amphibians
- Fish
- Invertebrates

23.

1. Do you have any further comments?