Title

Public Perceptions of a White-Tailed Sea Eagle (*Haliaeetus albicilla* L.) Restoration Programme

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Author Contribution:

MM, IC, BS & RA conceived and designed the research; MM carried out the fieldwork and initial data analysis; IC, BS & RA contributed to subsequent data analysis and data presentation; MM, IC, RA & BS wrote and edited the manuscript.

Abstract

The historic persecution and decline of European raptor populations precipitated the use of reintroduction as a species restoration tool in the late twentieth century. One of the key requirements of the IUCN Reintroduction guidelines concerns the need for social feasibility studies to explore the attitudes of local human populations towards restoration and reintroduction proposals. Ahead of any formal proposals to reintroduce White Tailed Sea Eagles to Cumbria, UK, we conducted a baseline public attitudinal survey (n=300). We identified broad public support for this reintroduction, which transcended differences in the demographic, geographic and...
employment profiles of the study cohort. There was public recognition that White-Tailed Sea Eagles could deliver a broad range of socio-economic and environmental benefits with few detrimental impacts. Whilst the value of attitudinal surveys of this nature has been questioned, we would argue that they provide a useful baseline ‘snapshot’ ahead of a more structured and focused reintroduction consultation. These results reinforce the emergence of public interest in the restoration of European raptors in the late twentieth and early twenty first century.

Key words: Cumbria, England, public attitude, raptor, reintroduction, White-Tailed Sea Eagle.

Implications for Practice

• Whilst there is broad public support for a WTSE reintroduction in the study area, there were also public concerns regarding the proposed reintroduction. This understanding provides the platform to develop a more focused education and awareness campaign, including further consultation work to evaluate the attitudes of an ‘informed public’ prior to the development of a WTSE reintroduction project.

• Attitudinal surveys therefore provide a useful baseline ‘snapshot’ ahead of more structured and focused consultation programmes

Word Count: 5268
Introduction

Across Europe, the on-going persecution of raptors between the early seventeenth century and the middle of the twentieth century resulted in national extinctions and catastrophic declines of many species (Love 1983; Hatzofe 2003; Pohja-Mykra et al. 2011). From the 1960s onwards, the growing influence of conservation organisations and a renewed environmental awareness amongst the general public, provided the impetus for the modern conservation movement and altered the fortunes of many birds of prey (Love 1983; Pohja-Mykra et al. 2011). The traditional perception of raptors as pest species began to change, and this resulted in increasing public and political support for their protection (Pohja-Mykra et al. 2011). Nevertheless the restricted range and population size of many birds of prey prevented them from naturally recolonizing their former geographic range (Love 1983; Whitfield et al. 2009), and prompted conservation managers to use reintroduction as a tool to augment and restore populations (Griffith et al. 1989; Seddon et al. 2007).

Despite the growing popularity of reintroduction methods in the 1970s and 1980s, many early attempts to reintroduce raptors were ill-conceived, under resourced and destined to fail (Griffith et al. 1989; Seddon et al. 2007). The publication of the Reintroduction Guidelines by the International Union for Conservation of Nature (IUCN 1998; Seddon et al. 2007) improved project outcomes by advocating a rigorous scientific approach. These provided a comprehensive framework to assess the feasibility of a reintroduction proposal and to offer advice regarding project planning and implementation. In the last forty years reintroduction projects have assisted the recovery of several British raptor species including the Red Kite (*Milvus milvus* L.), Osprey (*Pandion haliaetus* L.) and White-Tailed Sea Eagle (WTSE) (Love 1983; Evans & Pienkowski 1991; Evans et al. 1997; Evans et al. 1999; Carter & Grice 2000).
Following the extinction of WTSEs in Great Britain in 1918, a reintroduction initiative was implemented in the north-west Highlands and the east coast of Scotland in three stages between 1975 and 2012 (Love 1983; RSPB 2012). Scotland now has a secure breeding population, but it remains fragmented and well below carrying capacity (Whitfield et al. 2009). In addition, the slow maturation rate and philopatric tendencies of juvenile birds, act to restrict the rate of range expansion in the breeding population (Whitfield et al. 2009). Consequently, it is widely acknowledged that further reintroductions are required to restore WTSEs to their historic range and density throughout the British Isles (Whitfield et al. 2009).

In recent years Cumbria, a relatively large (6,768 km²), sparsely populated county (population of 496,200, with a population density of 73 per km²) in Northern England, has been suggested as a potential reintroduction area on the basis that it was the last stronghold for WTSEs in England (Love 1983), and there is consensus amongst many stakeholder groups that the extensive freshwater and coastal habitats could still support the ecological requirements of the species (Mayhew 2013). To date the Suffolk Coast and Heaths Area of Outstanding Beauty is the only location in England that has been evaluated for a WTSE reintroduction (RSPB 2009). A feasibility study was launched in 2007 as a partnership between Natural England and the RSPB, but subsequently abandoned in 2010 (Natural England 2010).

As Arts et al. (2012) indicate, the reintroductions of charismatic animals present ambitious conservation interventions, with the potential for inducing vehement controversy. Historically the reintroduction of predator species was managed by environmental scientists who prioritised comprehensive biological feasibility studies but failed to establish and address public concerns regarding translocations (Marshall et al. 2007; O’Rourke 2014). Wilson (2004) identified that attitudes to reintroductions (and particularly carnivores) tended to be favourable amongst the
general public, but negative amongst those likely to be adversely affected. The decision to reintroduce WTSEs to Killarney National Park (2007-2012) in Ireland without adequately consulting the farming community resulted in intractable conflict and the poisoning and destruction of almost a quarter of the birds by the spring of 2013 (O’Rourke 2014). The illegal persecution of Lynx in Switzerland is the legacy of a reintroduction programme in the 1970s that excluded and disenfranchised sheep farmers and hunters (Breitenmoser et al. 2004).

As a result of such experiences, it is now accepted that in addition to ecological research, reintroduction outcomes are determined by the attitudes and behaviour of the public and regional stakeholder groups (Marshall et al. 2007; Thirgood & Redpath 2008). Therefore a broad based public consultation is an essential tool to reveal contentious issues and identify those parties who will oppose the reintroduction due to perceived threats to their interests. These findings will enable conflict mediators to acknowledge concerns and seek solutions through an inclusive and transparent approach to public engagement. This paper aims to evaluate public opinion regarding the socio-economic and environmental impacts of a WTSE reintroduction in Cumbria and will compare the findings with a similar public consultation conducted in 2009 as part of the Suffolk feasibility study (Manly 2009).

Methodology

A questionnaire survey was employed to collect quantitative and qualitative data regarding public opinion and the possible reintroduction of WTSEs in Cumbria.

The Cumbrian questionnaire was based on the Suffolk feasibility study (Manly 2009) and consisted of a photograph of a WTSE, a short information sheet, and a series of attitudinal and classification
questions. The information sheet was designed to provide background information on the reintroduction and introduce the key themes that would be explored via the attitudinal questions. To maintain objectivity, the content of the information sheet was sourced from published peer-reviewed literature (Love 1983; Marquiss et al. 2002; Helander & Stjernberg 2003; Whitfield et al. 2009; Simms et al. 2010; Birdlife International 2012) and subjective narrative styles such as the use of superlatives were avoided.

Using a broadly similar approach to other species reintroduction – public attitude studies (for example, Nilsen et al. 2007; Scott Porter Research & Marketing, 1998), an initial knowledge/awareness question was followed by 10 attitudinal questions, constructed to explore the perceived social, environmental and economic impacts of the reintroduction. The attitude questionnaire consisted of a combination of closed and open questions, enabling rapid collection of large amounts of quantitative data without compromising the freedom and spontaneity of respondents to express their views. All responses have been anonymised and an interview coding system is used for this paper (prefix R, suffix interview number, e.g. R051). The full list of responses can be viewed in the online version of this paper.

Classification questions were constructed to establish the extent to which the demographic profile of the study cohort was representative of the wider population within the study area. In addition to age, gender and ethnicity, participants were asked to describe whether they lived in an urban or rural location. The first part of the post code (outward code) was collected to verify the location, whilst retaining the anonymity of the respondents. The postcode directory resources from the Edina UK Borders website (UK Borders 2012) and the National Statistics Postcode Directory (Office for National Statistics 2010) were used to categorize outward codes as rural or urban.
Six sites were chosen to represent a mixture of rural, urban, coastal and inland locations within north Cumbria; Maryport marina, Carlisle city centre and high street locations in Silloth, Kirkbride, Burgh by Sands and Wigton. The National Statistics Postcode Directory from the Office for National Statistics (2010) was used to define urban locations in England as settlements with a population \( \geq 10000 \). Maryport and Carlisle were categorized as urban and Silloth, Kirkbride, Burgh by Sands and Wigton were classified as rural.

The lead author conducted 300 face-to-face questionnaires over the period of July to August 2012, using non-random quota sampling techniques. There are a number of advantages and disadvantages associated with this approach. The main advantage is speed; non-random quota sampling is much quicker and easier to carry out than alternative approaches, for example probability-sampling techniques, as it does not require a sampling frame and the use of random sampling techniques. It should also improve the representation of particular groups within the sample (whilst also ensuring that some groups are not over-represented).

The main drawback is that the sample has not been chosen using random selection, which makes it impossible to determine the possible sampling error. There is also the risk that the selection of participants is based on ease of access and cost considerations, resulting in sampling bias. Interviewers may also be tempted to interview those people in the street who look most helpful, again adding bias. In order to minimise such issues, all interviews were completed by 1 person, in accordance with a clear interview protocol based on three distinct stages of sample design; determining the stratification and dividing the population; determining a proportion for each stratum; recruiting the maximum number of participants to each stratum within the allotted time period (recruitment times were similar at each of the five locations).
Participants were selected to be representative of the wider population of north Cumbria on the basis of their age, gender and ethnicity and with reference to demographic census data acquired from Cumbria County Council (Cumbria Intelligence Observatory 2012). Whilst North Cumbria is not officially designated, it is usually taken to mean the districts of Allerdale (population of 96,300) and Carlisle (105,200). During periods of recruitment the demographic profile of each successive participant was recorded to enable the author to recruit subsequent participants to each strata in approximately the correct proportions. Informed consent of the respondents was obtained and ethical approval was granted in accordance with university policy.

Quantitative data was displayed using descriptive statistics (SPSS Version 19) and analysed using Pearson’s chi-squared goodness of fit tests to establish the extent to which observed values within the Cumbrian study cohort and between the Cumbrian and Suffolk cohorts, differed from the expected values (Norman & Steiner 1993). Yates’ correction for continuity was applied to determine chi-squared values from two by two contingency tables (Norman & Steiner 1993). Responses to closed attitudinal questions were categorized using the five point Likert scale to enable quantitative comparisons with the results of the Suffolk study (Manly 2009). Qualitative data from open questions were analysed using the grounded theory—constant comparison method, which identifies and compares themes within and across respondent responses (Pope et al. 2000).

Results

Overall 88.7% of respondents were in favour of the proposed reintroduction (Figure 1), 2.0% were against and 8.3% were undecided. When asked if they had heard of WTSEs prior to reading the information sheet, 50.7% of respondents answered “yes”, 42.0% answered “no” and 7.3% left the
question unanswered. Of those who were in favour of a reintroduction, the majority were familiar with the WTSE (55.8%) whereas of those who were opposed to the project, the greatest proportion was not familiar (66.7%) with the species.

Of the 300 completed questionnaires there were marked differences between the number administered at each of six chosen survey sites, with the highest number completed in Maryport (n=98) and the lowest number in Kirkbride (n=16). Completion rates were influenced by a number of factors including the available population size, variation in weather patterns and higher response rates in rural locations (Wigton, Burgh by Sands, Silloth and Kirkbride) compared to urban locations (Carlisle and Maryport).

No significant differences were established between the gender of the respondents (51.3% males, 48.7% females) and that of the wider Cumbrian population ($\chi^2 = 0.86$, $df = 1$, N.S.). There was a significant difference between the age range of the respondents and the population data from the Cumbrian census ($\chi^2 = 18.62$, $df = 5$, $P < 0.05$). The largest proportion of the participants were 56 to 65 years old (24.7%) the smallest proportion aged between 26 and 35 (6.9%). Although the ethnic diversity was too limited to analyse with statistical methods, study findings were an accurate representation of the Cumbrian population as a whole (97.0% white British, 3.0% black and minority ethnic groups).

Geographic profiling revealed that 41.3% of respondents lived in urban areas and 58.3% lived in rural areas; 0.4% of participants declined to reveal their location. 69.7% were local to the area, 27.3% were on holiday and 3.0% specified other reasons for their presence in the study area such as working away from home. The employment rate of the respondents was 57.0% which contrasts with a figure of 63.9% for the wider Cumbrian population (Cumbria Intelligence Observatory...
2012). The majority of those not in works described themselves as either retired, as students, or as housewives looking after young children. Amongst the working population, the largest sector were categorized as “Skilled Trades” and “Office Based” whereas the least abundant work types included “Fishing” and “Tourism” (Table 1).

Analysis was performed to establish significant relationships between the profiles of the respondents and their response to the question: ‘Overall would you say you are in favour of the WTSE re-introduction project?’ Chi-squared analysis revealed no significant differences between the following categories: Farming/Other Work Type ($\chi^2 = 5.26, df = 2, \text{N.S.}$); Urban/rural ($\chi^2 = 4.45, df = 2, \text{N.S.}$); Local/Tourist and other ($\chi^2 = 3.06, df = 4, \text{N.S.}$); Male/Female ($\chi^2 = 3.29, df = 2, \text{N.S.}$); Ages less than 46/ages greater than or equal to 46 ($\chi^2 = 1.10, df = 2, \text{N.S.}$).

There was broad consensus of opinion (89.3%) that WTSEs would benefit the local tourist industry (Table 2); however respondents expressed more uncertainty regarding impacts on local farming interests and the cost of the project. Approximately the same number of respondents was undecided (40.7%) as disagreed (45.6%) with the statement that WTSEs could harm domestic livestock and therefore threaten livelihoods of Cumbrian farmers. 33.3% of participants were undecided and 47.0% disagreed that the cost of the project would outweigh any future benefits to the local economy.

A large majority of respondents (80.4%) agreed that WTSEs would be good for the environment, whereas the potential impacts of the raptor on endangered species of fauna were more equivocal. 40.3% were undecided and 44.3% disagreed with the question “WTSEs could pose a threat to rare species of wildlife in the local area”. This uncertainty could reflect the knowledge base of the
respondents (as discussed, 42% confirmed that they had never heard of WTSEs prior to their participation in the study).

Overall respondents expressed strong views of agreement or disagreement, towards the questions that explored the social impacts of a WTSE reintroduction. When asked if their experience of nature would be enriched by the return of WTSEs, nine out of 10 respondents agreed. A clear majority disagreed with the statements that WTSEs could be a threat to cats and dogs (68.7%), and young children (88.0%).

37 individuals or 12.3% of participants responded to the open question by providing further comments about the project. As indicated in Figure 2, these remarks were assigned to 11 distinct themes within three broad category areas; environmental, economic and social. The theme with the greatest number of comments (12 out of 37 comments) described a positive sentiment towards the reintroduction. One individual wrote ‘Good thing all round’ (R17), while another wrote ‘Let’s make it happen’ (R26).

Six comments described economic themes relating to the proposed reintroduction. Two comments described benefits to local business, while one referred to the opportunities created in the Cumbrian ecotourism industry; R02 stated that ‘Cumbria’s tourism industry is centred around nature and wildlife therefore this would only benefit’. Other remarks related to the detrimental economic impacts of the project; Two respondents highlighted concerns regarding the potential cost of the project, and one retired farmer alluded to the financial implications of a WTSE population on the livestock sector: ‘I am only in favour of the reintroduction if a compensation scheme is in place for farmers’(R11).
11 respondents commented on a range of ecological issues. Four described environmental benefits in a general sense, whereas three comments specifically described the advantages derived from the ability of an apex predator to control species perceived as pests at the local level. For example R25 stated that ‘white-tailed eagles are needed to keep down the population of nuisance sea gulls in Dumfries’. In contrast, respondents also expressed concerns regarding impacts on the wider ecosystem and the need for such a reintroduction to be contingent on an environmental impact assessment. One participant described the persecution of raptors through the use of illegal poisons, as an on-going threat to the reintroduction project: ‘Some lads I know lay poison baits for the buzzards’ (R19).

Participants also addressed social issues associated with the reintroduction proposal. Five comments related to the (positive) experience of seeing a WTSE in the wild; ‘I would like to see these birds free rather than in a zoo’ (R27). One comment related to the opportunities of the project to deliver WTSE based environmental education initiatives: ‘White-tailed eagles would be great to watch and would benefit everyone and education’ (R6).

A comparison of the attitudinal questions used for the North Cumbrian and Suffolk studies shows that there were three common questions, as indicated in Table 3 (Manly 2009). Both questionnaires included an open question inviting participants to provide further comments about the respective projects. The Suffolk study administered 523 questionnaires and collected 160 written comments (Manly 2009), whereas the Cumbrian study consisted of 300 questionnaires but only yielded 37 comments.
Despite the discrepancy in comment numbers collected, the majority of categories were shared by both studies. The potential benefits to local tourism and the wider economy were described, as were concerns regarding the cost of the project and the need to consult with the farming community to evaluate risks to livestock. The potential for persecution post release was documented and comments were made regarding the educational benefits of a WTSE reintroduction.

A number of unique categories were documented in the Suffolk study (Manly 2009). Multiple comments were made regarding the threat of an apex predator to local wildlife, pets and small children. Respondents also voiced concern regarding the impact on marine fish stocks and commercial freshwater fisheries. Several submissions described Suffolk as an inappropriate landscape for such a reintroduction initiative: ‘In Scotland they don’t have the free range farms that we do in this area (so against the project)’ and ‘Completely inappropriate for this area’.

A significant difference was established between the proportion of respondents in favour and against the reintroduction at the two study sites ($\chi^2 = 20.84$, $df = 2$, $P < 0.05$). The Cumbrian study documented more support and less opposition towards the reintroduction (88.7% in favour, 2.0% against), compared to the Suffolk study (78.0% in favour, 9.0% against). Significant differences were also established regarding the proportion of respondents who thought a reintroduction would benefit the local tourist economy ($\chi^2 = 108.80$, $df = 2$, $P < 0.05$) with a larger majority in Cumbria describing economic benefits (89.3% agreed, 0.7% disagreed, 10.0% undecided) than in Suffolk (58.0% agreed, 14.0% disagreed, 28.0% undecided).

**Discussion**
Overall the study demonstrates support for a WTSE reintroduction in Cumbria, and reinforces the findings of several authors regarding the emergence of public interest in the conservation of raptors in the late twentieth and early twenty first century (MacLennan & Evans 2003; Cairns & Hamblin 2007; Martinez-Abrain et al.). Martinez-Abrain et al. (2008) evaluated attitudes to birds of prey in Spain in the latter part of the twentieth century and concluded that increasing public sympathy was attributed to the influence of mass media and an urbanising population who were no longer in conflict with raptors. In Great Britain, MacLennan and Evans, (2003) and Cairns and Hamblin, (2007), recognised that contemporary attitudes to raptors were shaped by ecotourism initiatives such as public viewing facilities at raptor nest sites, exposure to wildlife documentaries and environmental education campaigns. However, this finding does come with a number of caveats, not least that 42% of respondents had never heard of WTSEs. This highlights the need for an education and awareness campaign, combined with a further consultation survey to evaluate the attitudes of an ‘informed public’ prior to the development of a WTSE reintroduction project in Cumbria. There was also a sample bias towards older participants (56 to 65 years old cohort, 24.7% of the sample) and there is evidence from elsewhere that this group is less supportive of reintroductions compared to younger cohorts (Smith & Convery, 2015).

Considering the economic case for a reintroduction, a majority of respondents (89.3%) were convinced of the benefits to the local tourist industry. This is likely to be related to a growing awareness of the economic importance of tourism in rural areas. More specifically, it also reflects the valuable (and highly publicised) contribution that high profile ecotourism initiatives such as the Bassenthwaite Osprey Project (Ospreywatch, 2013) make to local and regional economies.

Since the middle of the twentieth century a growing environmental awareness and increased leisure time have resulted in increasing numbers of people visiting spectacular landscapes for
recreation (Dickie et al. 2006). More recently the marketing of flagship species by wildlife film
makers and conservation groups has driven the development of species specific ecotourism
initiatives and brought measurable economic benefits to some local communities (Martinez-
Abrain et al. 2008; Dickie et al. 2006). In 2010, a study commissioned by the RSPB revealed that
WTSE tourism on the island of Mull, in Scotland, generated an annual spend of £5 million and
supported up to 110 full time equivalent jobs (Molloy 2011).

Despite the majority acknowledging benefits to local tourist economy, 40.7% of respondents were
unsure about detrimental impacts on farming interests. This ambiguity could reflect a lack of
detailed subject specific knowledge, but in view of the high proportion of respondents who live in
rural locations, it is likely to be an affirmation of genuine concern for the livelihoods of livestock
farmers. Since the recovery of WTSEs in the North West Highlands, various authors have
documented a perception amongst sheep farmers that declines in lambing percentages were
related to eagles targeting live lambs (Madders et al. 2002; Marquiss et al. 2003; Simms et al.
2010). To quantify the extent of the problem in the Highlands of Scotland, research was conducted
at two separate locations (Mull: 1999-2002, Gairloch: 2009) to document the numbers of lambs
predated, the proportion that were taken live, and the impact on total farm incomes (Madders et
al. 2002; Marquiss et al. 2003; Simms et al. 2010). The studies concluded that the proportion of
lambs killed was insignificant compared to overall annual mortality, and that the financial impacts
of WTSEs on sheep farming interests would be negligible at broad spatial scales (Madders et al.
2002; Marquiss et al. 2003; Simms et al. 2010).

Although a substantial proportion of respondents were unsure of the risks to rare species of
wildlife in the locality, a large majority (80.4%) believed that WTSEs would be good for the
environment. This response alludes to both the suitability of the Cumbrian landscape as a habitat,
but also to the beneficial regulatory role of apex predators in the wider ecosystems: ‘I think the countryside would benefit from the return of these birds’ (R13). As Wilson (2004) indicates, attitudes toward reintroduction projects tends to be favourable amongst the general public but negative among those most likely to be negatively affected. Whilst our study indicates broad support for the environmental benefits of a WTSE reintroduction, stakeholder groups likely to be adversely affected (e.g. farmers, fishermen and game estates) are underrepresented in our sample, and there is a need for more focused consultation. Research from Ireland, where WTSEs were reintroduced in 2007, indicates the importance of engaging with such groups. For instance, O’Rourke (2014) highlights the conflict between the ‘raptor and the lamb’, and emphasises the need for the early involvement of all key stakeholders. Similarly, Burke et al. (2015) state that given the sensitivity of the white-tailed eagle population, efforts to engage and inform farmers and other stakeholders is crucially important.

An exploration of the perceived social and cultural impacts of the reintroduction in Cumbria revealed that nine out of 10 participants felt that White-tailed Eagles would enrich their experience of nature and the majority agreed that the raptor posed no threat to children or domestic pets. This apparent groundswell of public support was tempered by comments of other respondents describing the historic and contemporary persecution of raptors in Cumbria. In April 2014, the largest mass poisoning of raptors in modern times occurred near Inverness in Scotland (Carrell 2014). The death of 12 Red Kites and four Common Buzzards (*Buteo buteo* L.) in a single incident demonstrates that persecution remains a serious threat to raptor populations throughout the UK (Carrell 2014). Cairns and Hamblin (2007) and, MacMillan et al. (2010) concede that entrenched negative attitudes towards birds of prey still exist amongst a minority of individuals in rural parts of the UK, who view raptors as pest species that require to be controlled.
Although the Suffolk study also documented majority support for the proposed reintroduction (Manly 2009), there was almost a five-fold increase in the number of respondents opposed to the project in Suffolk compared to the one in Cumbria. This apparent discrepancy may be explained by the concerns described by respondents when invited to add further comments regarding the project. A substantial proportion of the comments collected in the Suffolk study identified concerns relating to two distinct themes. Firstly the perceived threat of a WTSE population to pets, small children and wildlife, and secondly the unsuitable nature of East Anglia in the south east of England as a reintroduction site for a large raptor (Manly 2009). Although there is an absence of similar comments in the Cumbrian study, comparisons between the two studies must be interpreted with caution in light of the discrepancy in the number of comments collected at the study sites (Cumbria: n=37, Suffolk: n=160). It is likely that the higher percentage of respondents objecting to the initiative in Suffolk accurately reflects the perception that East Anglia is a heavily populated and highly developed landscape that is unsuitable for a large bird of prey.

The expression of public support documented in this study mirrors the findings of other authors evaluating human attitudes to contemporary predator reintroductions. Bright et al. (2000) administered a questionnaire to evaluate public opinion of a pine marten (Martes martes) reintroduction in England. They established that almost 90% of the general public and two thirds of farmers and gamekeepers supported the proposal. Nilsen et al. (2007) explored public perceptions of a wolf (Canis lupus) reintroduction in the Highlands of Scotland and revealed that the general public were broadly in favour of the proposal. However more positive attitude scores were recorded for the urban sample due to negative perceptions amongst some farmers in the rural sample.
The restoration of Golden Eagles to Donegal in Ireland was preceded by a widespread consultation that assured the public as well as tourism and sheep farming interests that the reintroduction would deliver a range of economic, cultural and ecological benefits (O’Toole et al. 2002). However, since the inception of the project in 2001 many Golden Eagles have been destroyed by ingesting poisoned Bates and the existing population remains vulnerable (The Golden Eagle Trust 2013). The persecution of large avian and mammalian predators does not diminish the importance of social feasibility studies in reintroduction projects but serves to emphasize the on-going conflict that exists between predators and humans competing over common resources (Marshall et al. 2007). Restoration projects also develop storylines as they progress, which inevitably reflect much of the above. Arts et al. (2012) provide an overview of the various ‘restoration narratives’ linked to the reintroduction of WTSEs to the Scottish island of Mull in 2007. In particular they highlight how scientists’ perceptions of the species as ‘a bird of wild coasts’ changed over time as a result of ecological research on the eagle’s high productivity in inland habitats and predation on lambs, and how the ‘restoration storyline’ was subsequently modified to reflect this change.

This study set out to explore public opinion in North Cumbria towards a proposed WTSE reintroduction and draw comparisons with a similar public consultation conducted in Suffolk in 2009 (Manly 2009). Study findings demonstrate that public support for a WTSE reintroduction in Cumbria was widespread and transcended differences in the demographic, geographic and employment profiles of the respondents. This expression of support towards a large raptor was attributed to the consensus that a reintroduction programme would deliver a broad range of economic, environmental and social benefits to local communities, with few detrimental impacts. Public sympathy was manifest in both the Cumbrian survey and the equivalent survey conducted in Suffolk in 2009, however participants in East Anglia were more ‘risk averse’ with regard to a
range of perceived threats posed by WTSEs and expressed concern regarding the suitability of Suffolk as a re-introduction location.

Whilst the usefulness of attitudinal surveys has been questioned, we would argue that they provide a useful baseline ‘snapshot’ ahead of a more structured and focused WTSE reintroduction consultation. Indeed, considering the paucity of public consultations relating to raptor reintroductions in the UK and the increasing importance of reintroductions as a conservation tool, this study provides a useful case study, both in terms of IUCN requirements for social feasibility studies (IUCN 2013), and the evaluation of public opinion regarding future raptor reintroduction initiatives.

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References


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**Figure 1:** Response percentages in each Likert category to the question; “Overall would you say you are in favour of the White-tailed sea eagle reintroduction project?”

**Figure 2:** Further comments to the proposed White-tailed sea eagle reintroduction in Cumbria, showing relationship between 11 themes within three broad categories (social, economic and environmental). Numbers denote total responses in each theme.

**Table 1:** The employment profile of the respondents, showing the frequency and percentage of eight distinct work types.

**Table 2:** Response percentages in each Likert category to the attitudinal questions in the Cumbrian questionnaire.

**Table 3:** Three attitudinal questions drawn from the studies in Cumbria and Suffolk that explore similar themes.
Figure 1.
Figure 2.

- Environmental:
  - Raptor persecution risks 2
  - General Environmental benefits 4
  - Uncertain impacts on wildlife 2

- Educational opportunities 1
  - Enriched experience of nature 5
  - Positive sentiments 12

- Social
  - Inadequate information about project 2

- Economic
  - Pest control 3
  - Cost concerns 2
  - Wider economic benefits 3
  - Risks to domestic livestock 1
Table 1.

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<td>Fishing</td>
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<td>1.8</td>
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<td>Tourism</td>
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<td>4.7</td>
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Table 2.

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<tr>
<td>1. A Cumbrian population of White-tailed sea eagles would benefit the local tourist industry.</td>
<td>31.3</td>
<td>58.0</td>
<td>10.0</td>
<td>0.7</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>2. White-tailed sea eagles could threaten the livelihoods of Cumbrian farmers by taking livestock.</td>
<td>1.7</td>
<td>11.7</td>
<td>40.7</td>
<td>38.3</td>
<td>7.3</td>
<td>0.3</td>
</tr>
<tr>
<td>3. The cost of the project would outweigh any future benefits to the local economy.</td>
<td>5.0</td>
<td>12.0</td>
<td>33.3</td>
<td>39.0</td>
<td>8.0</td>
<td>2.7</td>
</tr>
<tr>
<td>4. Reintroducing White-tailed sea eagles would be good for the environment.</td>
<td>23.7</td>
<td>56.7</td>
<td>17.0</td>
<td>2.3</td>
<td>0.0</td>
<td>0.3</td>
</tr>
<tr>
<td>5. White-tailed sea eagles could pose a threat to rare species of wildlife in the local area.</td>
<td>2.1</td>
<td>13.0</td>
<td>40.3</td>
<td>40.0</td>
<td>4.3</td>
<td>0.3</td>
</tr>
<tr>
<td>6. Restoring White-tailed sea eagles to the skies of Cumbria would enrich my experience of nature.</td>
<td>37.0</td>
<td>53.0</td>
<td>7.3</td>
<td>1.7</td>
<td>1.0</td>
<td>0.0</td>
</tr>
<tr>
<td>7. White-tailed sea eagles could harm dogs, cats and other small pets.</td>
<td>0.7</td>
<td>8.7</td>
<td>22.0</td>
<td>56.0</td>
<td>12.6</td>
<td>0.0</td>
</tr>
<tr>
<td>8. White-tailed sea eagles are a danger to humans and pose a particular threat to young children.</td>
<td>1.3</td>
<td>1.7</td>
<td>8.7</td>
<td>54.7</td>
<td>33.3</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>Cumbria study</td>
<td>Suffolk study</td>
<td></td>
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<tr>
<td>---</td>
<td>------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Overall would you say you are in favour of the White-tailed sea eagle</td>
<td>From what you have read and heard, would you say you are for or against the</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>reintroduction project?</td>
<td>White-tailed sea eagle project?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>A Cumbrian population of White-tailed sea eagles would benefit the local</td>
<td>I think the project would be a benefit to the local economy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>tourist industry.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Please use the space provided to add any further comments you wish to make</td>
<td>Do you have any further comments about the project?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>about this project.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>