

## Reintroduction of white-tailed eagles to the Republic of Ireland: A case study of media coverage

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Media can be important in the success or failure of conservation projects. This study examined newspaper coverage of the white-tailed eagle reintroduction to the Republic of Ireland to examine public awareness and attitudes towards the project, and the resultant influence on changes to national legislation and the likely success of the project in the future. National, local newspaper and a special-interest farming newspaper articles, from 2007–2011, were categorised as 'positive', 'negative' or 'ambiguous' according to their portrayal of eagles. Media coverage in terms of the number and valence of articles published is discussed in the context of key events during the study period, namely poisoning incidents, increased stakeholder engagement and changes to national legislation. The eagles received considerable newspaper coverage: most articles were in 2007, the first year of white-tailed eagle reintroduction, and 2010, when the issue of poisoning was finally addressed in Irish legislation. Articles were mostly positive while project staff engaged with media throughout the study period providing updates, condemning poisonings and responding to misinformation published. The future prospects for the project seemed positive, with appropriate newspaper coverage and information relating to legislative changes to benefit white-tailed eagles and several other species.

**Keywords:** human-wildlife conflict; reintroduction; agriculture; conservation

### Introduction

Public participation and acceptance can be an important determinant of the success of a wildlife management and conservation project (Kellert *et al.* 1996, Kleiven *et al.* 2004). In many cases, conservation and reintroduction projects have failed not because of ecological reasons, but due to accidental or deliberate human-induced mortality. The importance of media in the success of reintroduction projects is obvious given its explicit positioning in the International Union for the Conservation of Nature (IUCN) reintroduction guidelines (IUCN/SSC 2013). The reasons for negative reactions from the public are diverse and may reflect issues such as previous experience of negative impacts from the species in question, wider social and political conflicts for which the species may become symbolic, or simply

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a lack of knowledge leading to perceived conflict (Redpath *et al.* 2013). Attempts to reintroduce wolves in North America in the 1970s were unsuccessful due to persistent poaching, with the wolves' tendency to scavenge possibly resulting in them being blamed for far more predation than they actually commit (Kellert *et al.* 1996). Studies in Norway similarly attribute at least some of the high level of fear associated with wolves (and other carnivores) to a lack of knowledge about their ecology and behaviour (Kleiven *et al.* 2004). Studies of people's perceptions of the highly threatened Eurasian lynx found an overall lack of both scientific and local knowledge of the species, which had led to myths and rumours, and ultimately a negative attitude towards the lynx. Such speculation and misinformation about the harmfulness of the lynx amongst the people who share the landscape with it is a significant obstacle to their conservation, meaning poaching in the area is likely to continue unless attitudes can be changed. Interestingly, those most appreciative of the lynx were also the ones most knowledgeable about the species – local hunters, who encountered the animal more frequently than the general public, but importantly who obtained most of their knowledge from hunting books and magazines (Lescureux *et al.* 2011). Scientists and conservationists are becoming increasingly aware of the impact that media attention can have on public perceptions of environmental and conservation topics. It has been shown that mass media is often the public's primary source of 'scientific' knowledge (Boykoff and Rajan 2007). Media professionals decide what topics to cover and how much coverage to devote to each topic, so the frequency and content of scientific, environmental and conservation information that reaches the public is largely determined by the media, directly influencing public knowledge, awareness and support and the success of individual conservation programmes as a result (Jacobson *et al.* 2011). In cases where human-wildlife conflict arises, the media can sometimes seek to highlight and sensationalise the conflict, which can present difficulties for those trying to minimise the conflict or work with opposing parties (Barua 2010, Redpath *et al.* 2013). Gamson and Modigliani (1989) point out that the relationship between the media and public opinion is not unidirectional with each system interacting with the other – media discourse helps individuals to construct meaning, but public opinion is also a part of the process by which journalists and media outlets 'develop and crystallise meaning in public discourse'. With that in mind, coverage by media that caters for different audiences (regional, national, special-interest groups) will both influence how targeted the dissemination of information is, and indicate how relevant the issues are at various scales (e.g. locally relevant, nationally relevant, of widespread relevance to specific groups). In addition, changing media discourse over time provides a context for interpreting key events, successes or setbacks, over the period examined. Consequently, there is a great need to accumulate case studies of how the various media portray wildlife conservation projects, particularly those that are controversial or that involve an element of human-wildlife conflict, and how this portrayal contributes to and reflects the public discourse and the policy context of conservation. In this case study, we examine how the media have portrayed the reintroduction of

a large raptor into Ireland, and how this has interacted with crucial policy areas, namely the legislation concerning the use of poison.

### **The study system – returning white-tailed eagles to Ireland**

The white-tailed eagle *Haliaeetus albicilla* is a large raptor, native to Northern Europe and Asia. They nest near large lakes or on the coast and have a varied diet, usually fish and birds, but also scavenging on carrion (Birdlife International 2002). They are protected under European Law, listed on Annex I of the EU's Birds Directive (2009/147/EC), under the Bern Convention (Appendix II), under Section 22 of the Wildlife Act (1976) and by the Wildlife (Amendment) Act 2000 in the Republic of Ireland. As a result of human persecution through egg and skin collecting, shooting and poisoning by gamekeepers, and wider environmental destruction and pollution, white-tailed eagle numbers declined throughout Europe in the nineteenth and twentieth centuries. They were formerly widespread and numerous along Ireland's west coast, and have left a rich cultural history there (Evans *et al.* 2012). Persecution ultimately led to their extinction in Ireland, with the last known nests recorded in Mayo and Kerry in 1898 (Ussher and Warren 1900).

A collaborative project to reintroduce white-tailed eagles to Ireland began in 2006 between the Golden Eagle Trust Ltd. (an Irish non-government organisation) and the state-run Irish National Parks and Wildlife Services (NPWS). Its aim was 'to re-establish a viable self-sustaining breeding population of sea eagles in south-west Ireland after an absence of 110 years' (Mee 2009). Similar projects in Scotland had earlier proven successful and an early evaluation of available habitat, a key IUCN criteria to be met in reintroduction projects, and the number of individuals needed for a self-sustaining population, gave optimistic indications that the project could succeed (Nygård *et al.* 2010). Killarney National Park in County Kerry, located in the south-west of Ireland, was chosen as the release site and endorsed as an ideal habitat by Norwegian sea eagle experts from whom birds were to be sourced (Halley *et al.* 2006). Furthermore, Killarney Town Council, Chamber of Commerce and Tourism and several local businesses backed the project. As well as the environmental, conservation and biodiversity-related benefits of re-establishing the eagles to part of their former range where other top ecosystem predators are lacking, the presence of the birds was also expected to benefit the local tourism sector. Killarney National Park is a designated Special Protection Area (EU Birds Directive 2009/147/EC), Special Area of Conservation (EU Habitats Directive 92/43/EEC) and UNESCO Biosphere Reserve. It is also in close proximity to the Dingle, Iveragh and Beara peninsulas on the Atlantic coast, which the eagles were expected to use in the breeding season. The main land-use in the area is upland sheep grazing. Local farmers expressed concern at the reintroduction project on the basis that they believed that eagles would kill lambs, and protested at Kerry airport in 2007 as the first batch of eagles arrived. In total, 100 newly-hatched birds have been released in Killarney from summer 2007 to summer 2011 (Mee 2012).

Given that white-tailed eagles reach maturity at around five years old, the first white-tailed eagle breeding attempts in Ireland did not occur until 2012, as expected (Nygård *et al.* 2010), with the first successful fledging of chicks in 2013, meaning it is still too early to deem the project a success. Although the initial results are promising, twenty-four of the 100 birds released had been recovered dead by November 2012 and this is a serious cause for concern. The majority of mortalities were human-induced (Nygård *et al.* 2010). A total of 11 birds were confirmed to have died from poisoning, two from wind-turbine collisions, and the rest for reasons unknown (Nygård *et al.* 2010, Mee 2012). Given white-tailed eagle life history strategies, this level of human-induced mortality could potentially have a serious negative effect on the viability of the future population in Ireland (Evans *et al.* 2009). Awareness and attitudes towards these issues in the media could influence the public's view of the acceptability of these human-induced mortalities. This includes whether farmers will continue to use illegal poisons at their own discretion or if their actions should be changed to incorporate eagle's interests. Given the role of media in spreading awareness and both influencing and reflecting the public attitudes towards such issues, this study set out to examine national and local newspaper coverage of the white-tailed eagle reintroduction project in the Republic of Ireland, from 2007 to 2011. We examine the evolving discourses around the reintroduction of the eagles and related issues in the newspaper media during that time.

## Methods

### *Data collation*

Broadsheet and tabloid newspapers with national, regional and special-interest readerships were searched based primarily on circulation figures for the period of study (1<sup>st</sup> January 2007 to 31<sup>st</sup> December 2011). Broadsheets tend to have traditional content whereas tabloids tend to have a more extravagant style of reporting. National and regional newspapers were examined to determine how the white-tailed eagles were portrayed and viewed both in the project area and across Ireland, the latter being significant due to the highly mobile nature of the species and the expectation that they would travel through and eventually establish in a number of counties outside Kerry and south-west Ireland. The *Irish Farmers Journal* (IFJ), as a special-interest newspaper, should indicate how the species is portrayed to, and viewed by Irish farmers, with whom potential conflict is most likely and to whom poisonings have already been attributed.

The *Irish Independent* (daily Monday to Saturday) and *Sunday Independent* (both broadsheet) had average circulation figures per issue of 148,655 and 268,959 respectively – higher than any other national broadsheet newspaper (NNI 2012). The *Irish Examiner* was the second national daily broadsheet newspaper chosen for study, with circulation figures of 49,608 per issue from 2007 to 2011 (NNI 2012). Although the *Irish Examiner* is a national newspaper, it has traditionally been most read in the region into which the eagles were reintroduced. Articles for the *Irish Independent*, *Sunday Independent* and *Irish Examiner* were found

by searching the newspapers' official websites, [www.independent.ie](http://www.independent.ie) and [www.irishexaminer.com](http://www.irishexaminer.com), for the terms 'sea eagle' and 'white-tailed eagle', with results further refined for relevance.

The *Irish Daily Star* (Monday to Saturday) is the highest circulating tabloid in the Republic of Ireland, with average daily figures for 2007 to 2010 of 102,190 (NNI 2012). Circulation for its Sunday equivalent, *The Irish Daily Star Sunday*, was not the highest for Sunday tabloid publications (60,563 average from 2007 to 2009), but this paper was included to give continuity to the analyses (NNI 2012). Because the *Irish Star* has no online database, articles were identified by manually checking through microfilms at the National Library of Ireland (Dublin). No microfilms were available for the *Daily Star* for 2011 or for the *Sunday Star* for 2010 or 2011, and articles from these periods were excluded from analysis. *The Kerryman*, a weekly newspaper based in Co. Kerry where the white-tailed eagles were released, is one of Ireland's best-selling regional newspapers with 19,886 papers sold weekly in the first half of 2011 (*Press Gazette* 2011). Three different versions are published, for north and south Kerry (both broadsheet) and the town of Tralee (tabloid). Considering the significant overlap between them and the fact that two of the three versions are broadsheet, *The Kerryman* is treated as a single broadsheet newspaper in this study, found using the database at [www.irishnewsarchive.com](http://www.irishnewsarchive.com). The *Kerryman* website was not used because it only granted access to articles from part of the period studied. Articles repeated in end-of-year recap sections were excluded. Subsequent research found additional articles dated 9 June 2010 and 22 July 2009 that were not found in the original search. These articles were found using the search function on the official *Kerryman* website ([www.kerryman.ie](http://www.kerryman.ie)). The *Irish Farmers Journal* is the principal farming publication in Ireland, and sold an average of 69,982 issues per week from 2007 to 2011 (NNI 2012). Due to a lack of access to an online or computer database, articles were found by searching through hardcopies. 'Letters to the Editor' were deemed worthy of inclusion as the newspapers chose to publish them, but were not obliged to do so, and thus reflect on the media's policy.

Articles were assigned valence categories of 'positive', 'negative' or 'ambiguous', depending on how they portrayed the eagles. Articles were deemed positive if they focused on their benefits to Ireland and Kerry in terms of biodiversity and tourism, if the eagles were described with favourable adjectives (e.g. 'majestic', 'beautiful', etc.), if the eagles were mentioned as an intrinsic part of the Kerry and Killarney landscape (e.g. '...soaring above the mountains and valleys...') or if their poisoning was portrayed as a loss or an illegal activity. If the article did not contain any of these positive portrayals, but also did not mention any negative aspects of the eagles or their presence, and just reported on a recent poisoning, then the article was deemed to be positive, because it was highlighting poisoning as a problem. Articles deemed negative were those that focused on the potential and probable likelihood of the eagles killing lambs or which portrayed them as an overall menacing and unwelcome addition to the countryside. Some articles contained both explicitly positive and explicitly negative portrayals of

the eagles, and such articles were described as 'ambiguous'. Articles were not assigned to random subsamples but coded for each article found for the *Irish Farmers Journal*, the *Irish Daily Star* and *Irish Daily Star Sunday*. A subsample of articles was coded to set the coding protocol. One person then coded the remaining sample of articles after agreement on definitions was reached (Gore *et al.* 2005). In addition, throughout the study, there were regular consultations to standardise article categorisations. This classification is highly interpretable given that there were only three categorisations.

### Statistical analysis

Independent explanatory variables of newspaper type, format and date were used, as was the dependent explanatory variable of valence. The overall valence of the articles was analysed using two-way contingency tables. Chi-squares were calculated for the three explanatory variables. Two-way and three-way contingency tables were formed to obtain count and frequency distributions for all article valence levels for type, format and date (Knuth and Nielsen 1986). Generalised linear models (GLMs) were used to test for the significance of explanatory variables and all interactions with valence. Separate models were formed from the individual two and three-way contingency tables, including and excluding the interaction among type, format and date. The statistical programme R version 2.14.1 (2011), the package Visualizing Categorical Data version 1.2-13 (2012) and R-Commander version 1.8-4 (2006) were used to run all contingency tables, perform chi-square tests and GLM analysis (R Development Core Team 2011).

### Results

Of the 172 articles analysed, 90.7% were published in broadsheet newspapers (including the *Irish Farmers Journal*) and 9.3% in tabloids (Table 1). A total of 61.6% of articles were published in national newspapers, 29.7% in local newspapers and 8.7% in special-interest publications. During the 2007-2011 period, 26.2% of articles were published in 2007, 11.6% in 2008, 16.3% in 2009, 35.5% in 2010 and 10.5% in 2011. There was a significant difference in the number of articles published by national newspapers compared to local or special-interest publications ( $\chi^2 = 73.2674$ ,  $df = 2$ ,  $P < 0.0001$ ). Similarly, there was a significant division in the valence of articles produced over the five-year period ( $\chi^2 = 24.15$ ,  $df = 8$ ,  $P < 0.01$ ). In particular, there were more negative (15.6%) and ambiguous (15.6%) articles published during 2007 than any other subsequent year. The number of positive articles published in 2010 was significantly higher than in other years ( $z = 2.496$ ,  $df = 166$ ,  $P = 0.013$ ). Special-interest publications were also shown to publish a higher percentage of negative articles (33.3% versus 2.8% and 2% respectively) than national or local newspapers ( $z = -2.934$ ,  $P < 0.001$ ). The number of positive articles did not significantly differ between local and national newspapers, nor did the number of ambiguous articles significantly differ between local, national or specialised publications.

Table 1. Two-way contingency table depicting the total percentage of articles for each valence (Negative, Positive and Ambiguous) for the three newspaper types (Local, National and Special-interest Publication).

Newspaper Type	Valence (% Articles)			Count (n=172)
	Negative	Positive	Ambiguous	
Local	2.0	88.2	9.8	51
National	2.8	94.3	2.8	106
Special-interest Publication	33.3	46.7	20.0	15*

\* A total of 4 out of 15 articles were 'Letters to the Editor'

Table 2. Frequency and percentages of the valence (Negative, Positive, Positive and Negative) of articles found in Local, National and Special-interest Publication newspapers in the Republic of Ireland differentiated by year, 2007 to 2011.

Newspaper Type	Valence	Frequency and Percentages				
		2007	2008	2009	2010	2011
National (n=106)	Negative	3 (6.7%)	-	-	-	-
	Positive	15 (33.3%)	9 (45%)	21 (75%)	41 (67.2%)	14 (77.8%)
	Ambiguous	2 (4.4%)	-	1 (3.6%)	-	-
Local (n=51)	Negative	1 (2.2%)	-	-	-	-
	Positive	16 (35.6%)	9 (4.5%)	6 (21.4%)	10 (16.4%)	4 (22.2%)
	Ambiguous	3 (6.7%)	1 (5%)	-	1 (1.6%)	-
Special-interest Publication (n=15)	Negative	3 (6.7%)	-	-	2 (3.3%)	-
	Positive	-	1 (5%)	-	6 (9.9%)	-
	Ambiguous	2 (4.4%)	-	-	1 (1.6%)	-
Count	(n=172)	45	20	28	61	18

Table 1 was used to calculate the significant differences between newspapers excluding year from the analysis while Table 2 includes the year in a three-way contingency table. Figure 1 displays the differentiation in article valence between newspaper types, highlighting the occurrence of positive articles in the national and local press with a more balanced distribution of positive, ambiguous and negative coverage in specialised publications.

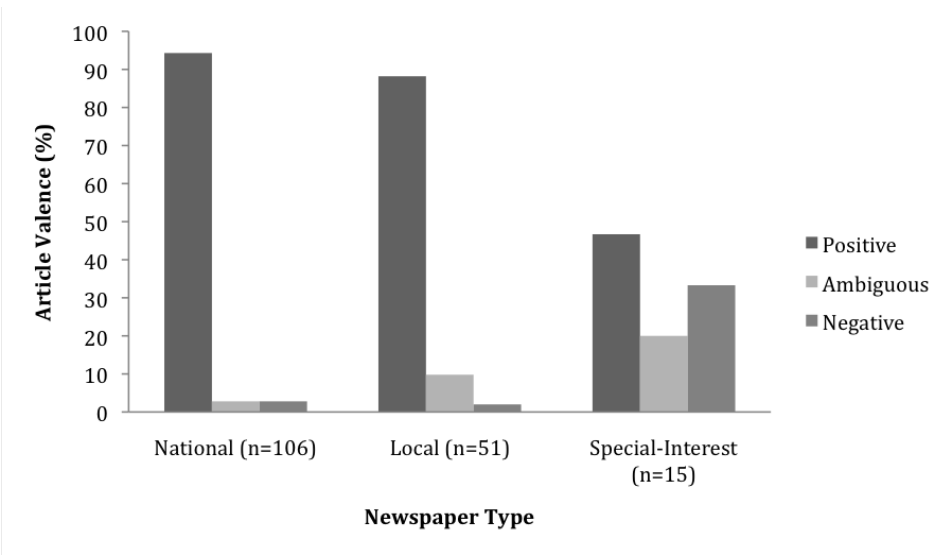


Figure 1. Total percentages of positive, ambiguous and negative articles for the three newspaper types (National, Local and Special-Interest Publication).

## Discussion

### *Effect of distance*

Local and national newspapers published a high number of positive articles about the eagles, implying an overall approval of the reintroduction. However, negative media coverage was observed before and after the initial releases. More ambiguous articles were published in local newspapers compared to negative articles (five versus one respectively), confirming that proximity to the species resulted in greater emphasis on associated risk but did not lead to the presentation of only negative aspects. Similar results relating to Florida panthers *Puma concolor coryi* have also been documented (Jacobson *et al.* 2011), where despite high numbers of local articles mentioning the risk of predation or attack, the overall emphasis was that the objectively assessed risk was low. Many studies that focused on other carnivores have found similar results (Karlsson and Sjöström 2007, Dandy *et al.* 2012). Bandara and Tisdell (2003) and Stronen *et al.* (2007) propose that public belief, and as a consequence attitudes, will be affected by the individual's rural proximity and connection to practical land management (Dandy *et al.* 2012). This is clearly evident in the finding that the special-interest stakeholder publication, the *Irish Farmers Journal*, had the highest frequency of negative and ambiguous articles (combined 9 out of 15 articles). The main readership of this newspaper includes farmers and land management professionals, and it is visibly skewed in presenting the risk factors relating to eagles and depredation on livestock over positive aspects of the birds. However, there was a decline in the number of negative articles after 2007, with no negative articles published in any of the



three newspaper types in 2008. The majority of the negative articles in 2007 were featured during the months of January to June, before the eagles were reintroduced, and again in the first half of 2010. Fear of sheep depredation was the dominant topic in negative articles, and the timing of these articles might be expected to peak around lambing season (i.e. January and March to April). Another factor that could be considered is the period of poisonings, many occurring just prior to and during lambing season, when fear of depredation would be highest. However, poisonings were deemed and claimed to be accidental, resulting from the use of baited carcasses intended to target other predator species such as red foxes *Vulpes vulpes* or corvids. One of the released eagles was confirmed or presumed dead in 2007, three in 2008, five in 2009 (Nygård *et al.* 2010), six in 2010 and four in 2011 (Mee 2012). At the same time the number of negative articles published decreased. The *Irish Farmers Journal* published only one article about the eagles between June 2007 and February 2010 when there was somewhat of a resurgence in negativity as farmers wrote letters defending their need to use poisons, with birds of prey a seemingly acceptable casualty in their attempts to control foxes and corvids. Of the four eagles that died in 2011, two died from collisions with wind turbines, and toxicology analyses on the other two found no traces of poisoning, so the lack of confirmed poisonings probably explains the lack of negative articles in that year. Possibly due to the confusion originally surrounding legal and illegal poisons methods, an improved awareness of more targeted predator control has helped to improve the overall survival and stakeholder appreciation of the eagles.

### ***Public awareness and appreciation***

The majority of the positive articles portrayed the eagles as ‘great’, ‘magnificent’, of ‘enormous benefit’ and ‘gracing the coasts’ (e.g. Hickey 2010, McCarthy 2011). Similarly, many articles romanticise them as deeply interlinked with Irish culture and mythology (*The Kerryman* 2009). Images were used in numerous articles, many showing the eagles in full flight over the lakes and mountains of south-west Ireland, further-emphasising their beauty and showing them as an intrinsic part of the landscape (Lucey 2009). Furthermore, the fact that they are a large air-borne species, clearly visible from the ground and were released close to Killarney, a part of the country with a significant population of both residents and tourists at any given time, helps to illustrate their beauty to the public. Both their positive depiction in the media, and the fact that they are easily noticeable and recognisable has undoubtedly helped ease their integration into both their new surroundings and into the consciousness of the public in Kerry and throughout Ireland. Indeed, sightings have been submitted by members of the public from almost every county in Ireland (Golden Eagle Trust 2012). Many of those who were previously sceptical of their reintroduction have developed an appreciation for them as an important part of Kerry, with a sense of ownership developing, noticeable in the lack of negative articles published locally in both *The Kerryman* and the *Irish Examiner* since their initial release (Hogan 2010a).

This positive image should not be taken for granted, however. The sense of

appreciation, ownership and concern over the fate of the eagles developed since their reintroduction can be put into stark contrast with other species of conservation concern in the same parts of Kerry over which the eagles now fly. Many other species facing threats are not portrayed as well in the media. The Kerry Slug *Geomalacus maculosus*, a protected species in Ireland under the EU Habitats Directive and mainly found in the Kerry region, received news coverage in 2007 because of a proposed motorway bypass that was due to be constructed through much of its habitat. A Special Area of Conservation was designated to protect any damage to the slug or its habitat, a decision that proved to be highly controversial. The *Irish Independent* (2007) quoted a local politician as stating that ‘people should come before snails’ and that the slug should be ‘uprooted’ and ‘moved’ somewhere else, showing little concern or affection for the species. Similarly, the natterjack toad *Epidalea calamita* and the marsh fritillary butterfly *Euphydryas aurinia* have also come into negative light. It was reported that the Government is spending nearly €110,000 on studying both species (*Irish Independent* 2012). A letter published in the *Sunday Independent* (2012) argued that the money could be spent on employing teachers, nurses or doctors. Reactions to national frog and bat surveys indicate a similar lack of appreciation for other species native to, and currently present in, Ireland but in need of conservation attention, with the decision to allocate money for the surveys labelled ‘ridiculous’ and ‘outrageous’ (*Irish Independent* 2010, Hogan 2010b). Indeed, any sympathy for species less charismatic and photogenic than the recently reintroduced white-tailed eagles, golden eagles *Aquila chrysaetos* or red kite *Milvus milvus* is hard to come by within the Irish media. This is possibly a reflection of a similar lack of concern amongst the general public or may suggest that those opposed to conservation efforts go unchallenged in the media. Again, the easily-seen and noticed white-tailed eagles offer a contrast with the fact that only a small minority of the Irish population are likely to have ever seen a Kerry slug or natterjack toad in their lifetime, and were probably disinterested or unable to identify them as anything more than a ‘slug’ or ‘frog’. The monetary costs of surveying and protecting the aforementioned species is considerably smaller than that associated with reintroducing birds of prey, yet the raptor projects seem to have elicited a much more positive response (Hogan 2010b, Golden Eagle Trust 2012). With this in mind, it seems likely that future reintroduction or conservation initiatives could rally public and political support if the presence and plight of the species involved is presented obviously to the public. Increased attention in the print media and perhaps with television programmes similar to those that documented the raptor reintroductions (e.g. *The Eagles Return* or *Living with Wildlife* on RTE), as well as helping the public to see and notice the species *in situ* should help foster a sense of ownership and concern for endangered species similar to that which has developed for the white-tailed eagle. The intrinsic value as well as economic value of biodiversity, e.g. provision of ecosystem functions, needs to be effectively communicated to the Irish public if there is to be an understanding that investing in a national bat survey, for example, is money well spent. Biodiversity is worth an estimated €2.6 billion per annum to

the Irish economy (DoEHLG 2008) and this is possibly a gross underestimation. White-tailed eagle watching alone is worth at least €6 million to the Island of Mull in Scotland annually (RSPB 2011) and such information has undoubtedly played a part in the way the tourism-savvy people of Kerry have embraced the return of the eagle. These figures are rarely featured in the media, but emphasising the tourism and economic potential of conservation should also be conveyed to the public to aid the success of similar future projects.

### ***The importance of building a positive media presence and dialogue with stakeholders***

The reintroduction project gained extensive regional and national coverage, most of which was positive (88.2% and 94.3% respectively). Positive local and national coverage are important for the long-term future of the population given that white-tailed eagles are a highly mobile species and while many are expected to nest and breed in Killarney, Kerry and nearby Cork, suitable habitat and nesting sites exist all along the west coast, the River Shannon and in other parts of the country. To date, GPS data and public sightings have seen individuals recorded in almost every county in Ireland on exploratory flights (Mee 2012). The first documented nesting and breeding attempt of the birds was confirmed in April 2012 in Co. Clare, along the Shannon valley but further north than Co. Kerry. The information spread as a result of the national media coverage is invaluable to ensure the birds are welcomed rather than persecuted when they disperse from Kerry. The nesting pair in Mountshannon received considerable positive attention, both within the media and from nature enthusiasts and curious locals. The local Community Council, as well as local angling and gun clubs all offered help and messages of goodwill, but their co-operation or even an acknowledgement of the birds' presence would likely have been less certain had the national media not been covering the white-tailed eagle reintroduction for several years previously, and in a mostly positive way. Conveying the tourism benefits seen in Killarney and Kerry since their release is likely to have helped guarantee their welcome in Clare. There was a similarly positive media response when two eagle chicks fledged in July 2013. In contrast, local gun clubs in Kerry closer to the original release date were among the sea eagles' worst detractors with fears that they might impact on pheasant numbers (O'Rourke 2014).

The reintroduction project staff clearly monitored the newspaper and media coverage of the white-tailed eagle closely. Most articles at both local and national level, and some in the *Irish Farmers Journal*, directly quoted the project manager, Dr Alan Mee, who was able to offer first-hand updates on the eagles' progress and to discuss any potential controversy, condemn poisonings (Hughes 2010a) and ensure the communication of responsible information. As well as providing information and interviews, he directly contributed some articles (Mee 2010). Similarly, BirdWatch Ireland's Raptor Conservation Officer was on hand to write a letter asking the *Irish Farmers Journal* to retract a piece which they had featured that informed readers that baiting meat with poison could be used to control

predators (Lusby 2010).

A crucial aspect of any conservation plan is the identification and consultation of stakeholders prior to any formal management plans being put in place (Riley and Decker 2000). Furthermore, any emerging conflicts should be quickly addressed, particularly in a situation such as this where the risks were high (Redpath *et al.* 2013) and the white-tailed eagle population vulnerable to extinction again if the matter was not resolved. One of the major fears of these individual farmers and the Irish Farmers' Association was the possible depredation of lambs, but a report commissioned by Scottish Natural Heritage (Simms *et al.* 2010) showed that only a minuscule number of lamb deaths could be attributed directly to the eagles (<2% of deaths) in Scotland. Further research into fluctuations in lamb depredation is on-going, but to date no Irish lambs have been depredated by white-tailed eagles. However, it has been found elsewhere that in cases of human-wildlife conflict people's perception of risk is as important as actual losses and so ongoing communication with stakeholders and the provision of information can be vital in minimising conservation conflict (Naughton-Treves and Treves 2005). If conservation plans are to be managed efficiently, all stakeholders must be involved and informed of the potential ecological and livelihood effects of reintroduced species (Siemer *et al.* 2007). Riley and Decker (2000) found that the majority of professional stakeholders' concerns were not dealt with in relation to conservation management of cougar populations in Montana and that managers 'did not listen'.

The *Irish Farmers Journal* published no relevant articles from July 2010 onwards, with the exception of an article published on 11 February 2011 entitled 'Wildlife & Hill Sheep Farming – a mutually beneficial coexistence' which demonstrated that through the reintroduction, an understanding and respect had developed between those involved in the project and sheep farmers. This engagement between stakeholders facilitated the development of trust between the parties. Meetings between Teagasc (The Irish Agricultural and Food Development Association), the Irish Farmers' Association, the Irish Creamery Milk Suppliers Association, the Departments of Environment and Agriculture and the Golden Eagle Trust began on 8 June 2010, which seems to indicate that these talks were productive in terms of reaching a common understanding with regards to the eagles' presence and future (Hughes 2010b). This led to the formation of the Kerry Sustainable Rural Environment Group to address future eagle mortalities in Kerry and to reduce poisoning risk by promoting alternative predator management methods. Dialogue between stakeholder groups can help forge good-quality agreements and improve relationships, but good quality information must be provided to participants in order to maximise the effectiveness of that engagement and any future working relationship (Emerson *et al.* 2009, Redpath *et al.* 2013). Thus, the project staff's ongoing interactions with the media as well as the information campaign borne from meetings between the stakeholders involved in the aforementioned meetings are likely to have improved attitudes of farmers in Kerry and further afield towards the eagles, as can be seen in the reduction in

negative articles in the *Irish Farmers Journal* in recent years. It can only be of benefit to have all stakeholders supporting a project (Gusset *et al.* 2008).

Management of human-wildlife conflicts often depends on a cross-disciplinary approach (Redpath *et al.* 2013), utilised to good effect here not just in the project staff's engagement with the media and dialogue with farmers, but in their framing of the cause of the conflict. Throughout the study period the conservationists were careful to communicate the fact that the poisonings at the heart of the conflict were likely to be unintentional and the result of out-dated practices of predator control, rather than to farmers intentionally and illegally targeting the eagles, allowing for a collaborative approach to help reach a joint solution. Some of the earlier poisonings had resulted in a very negative light being shone on farmers and farming practices in Kerry, with a growing anti-farmer sentiment amongst conservationists and the general public, turning farmers who were initially indifferent to the eagles against them (O'Rourke 2014). Had the project staff allowed this adversarial approach from the conservationist side (and general public) to continue and made stark accusations against farmers, it would likely have resulted in both parties becoming increasingly polarised in their views for and against the eagles and it seems unlikely that a cooperative solution could have been reached. A similar 'blame game' mentality has been common between the farming lobby, environmental NGO's and the relevant state agencies in Ireland in the past, resulting in a lack of trust and co-operation, and ultimately, a poor track record on issues of sustainable development and environmental policy in this country (Flynn 2007). Thus, the early framing of the conflict as one that needed a joint solution, rather than as an adversarial win/lose scenario, pitting conservationists and farmers against each other, allowed for meaningful dialogue between the two parties that would go on to help improve cooperation and minimise conflict.

### ***Legislation related to use of poison***

The white-tailed eagle reintroduction has brought, or looks likely to deliver, the benefits expected when the project was first proposed. It has enhanced Ireland's biodiversity, helping to fulfil the country's commitments under the Convention on Biological Diversity and the EU Habitats Directive, as well as enhancing the tourism potential of Killarney, Co. Kerry and Ireland as a whole by reinforcing the image of the natural and 'green' Irish countryside and allowing for the possibility of eagle-watching 'safaris'. It has also had the added bonus of bringing attention to the issue of indiscriminate, non-targeted poisoning in Ireland which has undoubtedly been afflicting raptor and carnivorous mammal populations for decades, not to mention being a distressing source of mortality among pet dogs. Farmers (particularly sheep farmers), in an attempt to control foxes and corvids, which they believe is necessary to protect sheep and new born lambs, lace meat baits or dead sheep carcasses with large doses of highly-toxic compounds such as carbofuran, alphachloralose or nitroxylin (normally used to treat liver fluke) and leave them in an open area to be found and eaten by pest species. Presumably, other non-target species are poisoned including birds of prey, pine martens *Martes*

*martes* and other animals protected under the Irish Wildlife Act 1976, Amendment Act 2000 and the EU Habitats Directive [92/43/EEC], but evidence of such is very hard to gather. The white-tailed eagle is a known scavenger and some individuals inevitably found and fed on these poisoned baits soon after their reintroduction. All of the eagles were fitted with solar-powered GPS transmitters upon release and so could be located when continuous stationary radio or GPS-fixes indicated that they were injured or dead. Toxicology analyses found significant levels of poisons in the dead eagles, confirming poisons as the cause of death. These poisonings received much attention in the newspapers examined here, with many featuring pictures of the reintroduction project manager and lab technicians holding up the body of poisoned eagles. Similar articles and pictures featured the reintroduced red kites and golden eagles, both species that have fallen victim to similar poisonings. Between November 2007 and June 2010 eight white-tailed eagles were confirmed to have been poisoned using the chemicals mentioned, with each death given considerable media attention and condemned not only by the Golden Eagle Trust, BirdWatch Ireland and the NPWS, but by local politicians, tourism chiefs and local hotel owners, the ministers for agriculture and the environment, and by the Norwegian Ambassador to Ireland (the country from which the eagles were sourced). The involvement of Norwegian politicians provoked the headline ‘Stop poisoning our eagles’ in the *Irish Independent* (Hogan 2010a) and the Ambassador was quoted as saying ‘We in Norway are deeply concerned about the situation and hope that all can be done to make such poisoning illegal’. The Department of the Environment made legislative changes in 2008 to ban the use of meat-baits to poison corvids and other bird species, S.I. No.252 of 2008 European Communities (Transmissible Spongiform Encephalopathies and Animal By-Products) Regulations 2008, but this did not affect poison laid with the intention of controlling red foxes – a loophole which allowed the continued use of poison and maintained the threat to birds of prey. In December 2009, the Golden Eagle Trust submitted a formal complaint to the European Commission (the agency responsible for implementing the Habitats Directive) that allowing the use of meat baits to poison red foxes, without having sufficient safeguards to prevent non-target poisoning of birds of prey, contravened Articles 4 and 9 of the EU’s Birds Directive, given that discriminate alternatives such as shooting, live-trapping and deterrents (e.g. electric fencing, increased lighting, radio noise) are available. They added that the Department of Agriculture, Food and the Marine was failing to implement cross compliance measures (complying with the Birds Directive) within the Single Farm Payment Scheme (part of the EU Common Agricultural Policy) because farmers found to have killed an eagle should face appropriate financial sanctions. The Irish Raptor Study Group, an unincorporated group that went on to help form the Golden Eagle Trust, had written to the EU Environmental Directorate in the late 1990s about the illegal use of poison in Ireland and its known threat to buzzards (*Buteo buteo*). They were told that the apparent permissiveness and non-conformity of Irish legislation would be raised with the national authorities (Irish Raptor Study Group 2012). Environmental

groups in Ireland are generally viewed as politically weak, with little influence at governmental level to enact what they see as necessary or beneficial changes, despite having the public good of environmental protection as their focus and often having considerable scientific evidence and expertise to back up their claims (Flynn 2007). This is in direct contrast to interest groups like the Irish Farmers' Association (IFA), whose strong political influence can be attributed to their interests being immediate economic ones, i.e. the income of farmers, and their strong and active organisational structure working the local, national and European levels of political influence (Flynn 2007). The vocal condemnation of sea eagle poisonings by representatives of the tourism sector, a largely neutral/silent player in matters of conservation in Ireland but one with comparable economic and political influence to the farming lobby, cannot be underestimated in its importance in helping to finally gain the political will for legislative changes regarding the indiscriminate use of poisons. Similarly, the comments by the Norwegian ambassador are likely to have caused great concern at a political level that the poisonings would tarnish Ireland's reputation abroad as a 'green' and unspoilt natural tourist destination, something that could damage the tourism-dependant local economies of Killarney and county Kerry as well as have repercussions at a national level.

The media attention given to the white-tailed eagle poisonings and the resultant pressure from the public, tourism representatives as well as political pressure from Norway and the EU, led to the poisoning problem being addressed in legislation in October 2010 with the introduction of Statutory Instrument 481/2010 European Communities (Birds and Natural Habitats) (Restrictions on use of Poisoned Bait) Regulations 2010. It is now illegal to poison foxes or crows using poisons with meat, eggs or other animal substances and there are no pesticides registered or approved for poisoning foxes or birds in the Republic of Ireland. Alphachloralose is now registered and approved only for the control of mice and rats, the poisoning of which is still permitted. Special exceptions are only possible with an appropriately issued license/derogation from the NPWS, and breaking this law can result in fines of up to €5,000, a twelve-month prison sentence, or both, as well as deduction of Single Farm Payments. The Golden Eagle Trust had been calling for such legislative changes for ten years previously (Irish Raptor Study Group 2012) but the attention brought by the reintroduction and subsequent poisoning of the white-tailed eagles resulted in the public and political pressure seemingly necessary to motivate Irish authorities to make the change. This law is expected to benefit not only the white-tailed eagles, but also a range of other species, including red kites and golden eagles. Heberlien (2012) argues that people should not be relied upon to change their behaviour based on information alone and that environmental or contextual 'fixes', in this case changing the context of the problem by making the use of indiscriminate poisons illegal, are more effective, with information and engagement a useful tool to enhance the effectiveness of the contextual change in resolving the environmental or conservation problem.

Since the introduction of the Statutory Instrument, a number of poisoning incidents were reported, highlighting that changes to the law are only the first step

in tackling this problem (Irish Raptor Study Group 2012). The Departments of Environment and Agriculture, NPWS, Golden Eagle Trust and regional interest groups have been making farmers aware of the change to the law as well as the legal alternative methods of control available (Hickey 2011). In early 2011, formal protocols for the recording of poisoning of raptors and for the appropriate toxicology and post-mortem analyses were implemented which should help enforcement (Irish Raptor Study Group 2012). A report on the white-tailed eagle reintroduction identified poisoning as being the main threat to reintroduced white-tailed eagles, as for other raptors in Ireland (Nygård *et al.* 2010). Conservation conflicts are rarely, if ever, fully resolved to the extent that there is no future threat of previous conflicts continuing to some extent, or re-emerging in the future (Redpath *et al.* 2013). The poisoning ban is an important first step in solving the problem, aided by the increased co-operation between farming and conservation bodies (amongst others) seen in recent years, and it is hoped that the benefits will be seen in Ireland's raptor populations in the near future, although another problem remains with the risk of secondary poisoning from the consumption of rodents that have been legally poisoned with rodenticide (Irish Raptor Study Group 2012, Stone *et al.* 2003).

## Conclusions

There is repeated evidence that newspaper articles and mass media are key sources of information relating to wildlife management issues (Corbett 1992, Riley and Decker 2000, Dandy *et al.* 2012). Gusset *et al.* (2008) highlight the need for appropriate positive media coverage to avoid misconceptions in relation to wildlife conservation, especially when the species is considered potentially dangerous to humans or livestock. White-tailed eagles are clearly visible from a distance when flying due to a 1.8 to 2.4 metre wingspan, but actual close encounters with individuals are quite rare. The majority of the public gain most of their knowledge of the species through media coverage, which would impact their perception of such a large bird of prey. This study has found that the white-tailed eagle reintroduction project has received considerable media coverage since it began in 2007. The fact that there has been some negative media coverage and even public protests, especially in the first years of the project, demonstrates how controversial any wildlife conservation project can be in some settings, even of highly charismatic birds like white-tailed eagles. This can be taken as a warning to all conservation projects to ensure that they engage with stakeholders, the media and the public before initiating any actions in order to avoid or minimise any potential conflict and to help foster a more cooperative relationship to help deal with any unforeseen issues that may arise. Encouragingly, the overall trend has been for an increased frequency of positive articles that seems likely to reflect improved public opinion of the project and the eagles themselves. The project staff seems to have become effective at engaging with stakeholders directly and with the wider public through the media, utilising a multi-disciplinary approach early on to the benefit of the reintroduction project. The media also seem to have been



providing a well-balanced coverage of the issue and have avoided sensationalising issues and causing any conflicts to escalate. It is still too early to say whether the project will succeed or fail, but survival rates of reintroduced individuals are good and the main threat from poisoning has been addressed with a change to national legislation. In addition, the recent public support for the project as well as successful breeding attempts by the first pair in Mountshannon in 2013 and 2014 and the establishment of seven pairs in counties Kerry, Cork, Clare and Galway in 2014, are encouraging signs for the future of the project and for the establishment of a self-sustaining breeding population of white-tailed eagles in Ireland. One of the two chicks to fledge in 2013 was found dead in March of the following year, however, having been shot at the north-east end of the same lake from which it fledged, indicating that the threat of persecution, though substantially reduced since the project began, still remains (Hickey 2014). Given the sensitivity of the white-tailed eagle population at this stage, efforts to engage and inform farmers and other stakeholders must continue in an attempt to further reduce this risk, and to obtain successful prosecutions of those who refuse to acknowledge both the law and wider public sentiment on the current and future role of white-tailed eagles in the Irish countryside.

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