



R.A.P.T.O.R.

**Recording and Addressing Persecution and
Threats to Our Raptors**

2012



REPORT PREPARED BY

NATIONAL PARKS & WILDLIFE SERVICE
DEPARTMENT OF ARTS, HERITAGE AND THE GAELTACHT

UTILISING ANALYSIS AND RESULTS FROM

REGIONAL VETERINARY LABORATORIES,
DEPARTMENT OF AGRICULTURE, FOOD AND THE MARINE

AND

THE STATE LABORATORY
DEPARTMENT OF PUBLIC EXPENDITURE AND REFORM

PUBLISHED AUGUST 2015

Corresponding author:

Dr. Barry O'Donoghue,
NPWS,
Custom House,
Flood Street,
Galway.

Barry.O'Donoghue@ahg.gov.ie

CONTENTS

SUMMARY 4

1. INTRODUCTION..... 6

2. CONFIRMED PERSECUTION AND POISONING INCIDENTS 2012 8

3. HUMAN-RELATED BIRD OF PREY INJURY AND MORTALITY INCIDENTS OTHER THAN PERSECUTION AND POISONING IN 2012 12

4. DISCUSSION OF RESULTS..... 14

5. OTHER DATA RECORDED AND ANALYSED..... 16

6. LEGAL CASES ARISING 17

7. INDIVIDUAL LIFE STORIES 17

8. CONCLUSION 19

ACKNOWLEDGEMENTS 21

REFERENCES..... 21

APPENDIX 1: PERSECUTION AND POISONING INCIDENTS RECORDED BETWEEN 2007 AND 2011 22

APPENDIX 2: ALL CONFIRMED POISONING AND PERSECUTION INCIDENTS 2007-2012 24

APPENDIX 3: KEY LEGISLATION 25

APPENDIX 4: E.U. SINGLE PAYMENT SCHEME..... 28

APPENDIX 5: PROTOCOL FOR INVESTIGATION OF DEATHS OF IRISH BIRDS OF PREY AND OTHER WILDLIFE..... 30

APPENDIX 6: CAMPAIGN FOR RESPONSIBLE RODENTICIDE USE..... 41

APPENDIX 7: CENTRAL CONTACT DETAILS OF STAKEHOLDERS..... 42

SUMMARY

This is the second annual report on poisoning and bird of prey persecution in Ireland. In 2012, the RAPTOR scheme was expanded to include other bird of prey injury and mortality incidents such as collisions with vehicles, fences and wind turbines. Collating, analysing and reporting such records can provide a picture as to the threats (other than habitat loss) faced by our native birds of prey. In turn, this provides a platform for informed, targeted and effective approaches to education, enforcement and planning to mitigate these threats.

In 2012, a total of 17 poisoning or bird of prey persecution incidents were confirmed in Ireland. This figure is a 48% reduction from 33 incidents in 2011. The 17 poison/persecution incidents were comprised of 14 poison incidents (involving 10 birds of prey, 3 ducks (in one incident), 1 mammal and 2 incidents of poison meat bait) and 4 shooting incidents. One of the birds (a White-tailed Sea Eagle) was both shot and poisoned. In three cases, more than one type of poison was found in the system of the casualty. One bird (a Common Buzzard) that was a road casualty was found to have levels of poison in its system and it is likely that other road casualties (especially owls) had also ingested poisons (indirectly by eating poisoned rodents) though these were not tested for in 2012. Four further birds were suspected to have been poisoned but tests were not possible due to the level of body decomposition. A number of anecdotal and unconfirmed incidents were also recorded and while not detailed in this report are held in a database for informative purposes.

Of the raptor incidents recorded in 2012, the most frequent casualty was Common Buzzard (4 dead), followed by Red Kite (3), White-tailed Sea Eagle (2), Hen Harrier (1) and Short-eared Owl (1). In addition, Muscovy Duck (3), Raven (2), Jackdaw, Rook, Magpie and Pheasant (30 individuals in total) and Otter (1) were affected by poisoning.

In addition to poisoning and persecution incidents, there were a further 24 injury and mortality incidents recorded in 2012, namely 22 road casualties, 1 wind turbine collision and 1 power line collision. Barn Owl (15), Long-eared Owl (4), Sparrowhawk (2) and Common Buzzard (1) were recorded as road casualties in 2012, while White-tailed Eagle (1) was recorded as a collision with a wind turbine and Peregrine Falcon (1) was recorded as a collision with power lines.

1. INTRODUCTION

This is the second annual report derived from a national scheme to monitor human related injury and mortality in Irish birds of prey, as well as any incidents of poisoned bait or poisoning of any wildlife. The scheme is known as the RAPTOR (Recording and Addressing Persecution and Threats to Our Raptors) scheme.

In 2011, a protocol for dealing with suspected poisoning and persecution incidents was agreed between the National Parks & Wildlife Service (Department of Arts, Heritage & the Gaeltacht), the Veterinary Laboratory Service (Department of Agriculture, Food and Marine) and The State Laboratory (Department of Public Expenditure & Reform). The full text of the protocol as updated in 2013 is presented in Appendix 5. The majority of records produced in this report have been derived from work under this protocol. The NPWS RAPTOR Database was also set up in 2011.

The protocol has seven key aims:

1. Collection of evidence to support prosecutions for illegal poisoning.
2. Monitoring of the impact of poisoning on Irish raptor populations.
3. Monitoring the incidence of poisoning and impact of illegal poisoning on other vulnerable species (e.g. Raven)
4. Monitoring the incidence of poisoning in species vulnerable to secondary poisoning by rodenticides (in particular Common Buzzard, Barn Owl, Kestrel, Red Kite and Long-eared Owl).
5. Monitoring the impact of other types of persecution on Irish raptors and maintaining a database of such incidents.
6. Providing evidence of the causes of death of other wildlife species where poison is strongly suspected
7. Quantifying the use of specific poisons.

The incident recording database maintained by the National Parks & Wildlife Service has now also moved on to incorporate other human related incidents of raptor deaths or injury (other than habitat loss), such as road casualties and collisions with fences, wind turbines and power lines.

The recording, analysis and reporting of raptor poisoning, persecution, injury and mortality events provides tools for an informed approach to dealing with various risks and threats by means of education, enforcement and/or forward planning. Data includes poison and persecution methods, peak months for incidents, associated land-use types, black spot areas, damage by infrastructure and much more.

2. CONFIRMED PERSECUTION AND POISONING INCIDENTS 2012

Table 1 lists all persecution and poisoning incidents that were confirmed and recorded in 2012, while Figure 2 displays the geographical location of these incidents.

Table 1. Confirmed Persecution & Poisoning Records 2012

No.	10km	County	Month	Bait	Receiving Species	Cause of Death	Comments
1	N10	Offaly	Jan	Dead Ewe	-	-	Laced with Alphachloralose
2	O25	Dublin	Jan	-	Common Buzzard	Poison	Flocoumafen and Brodifacoum
3	N50	Laois	Feb	-	Common Buzzard	Poison	Flocoumafen
4	T17	Wexford	Mar	-	Raven	Poison	Carbofuran 2 individual birds killed
5	T00	Wexford	Mar	-	Rook, Jackdaw, Magpie, Pheasant	Poison	Alphachloralose 30 individual birds killed
6	V78	Kerry	Mar	Uncooked Chicken	-	-	Laced with Nitroxylnil Found by school children
7	M09	Mayo	Apr	-	White-tailed Sea Eagle	Poison Shot	Nitroxylnil
8	G99	Donegal	Apr	-	White-tailed Sea Eagle	Poison	Nitroxylnil
9	S88	Wicklow	May	-	Otter	Poison	Flocoumafen and Nitroxylnil
10	N06	Longford	May	-	Muscovy Duck	Poison	3 individuals, accidental lead poisoning
11	T17	Wicklow	Sep	-	Red Kite	Poison	Carbofuran, flocoumafen.
12	T29	Wicklow	Oct	-	Red Kite	Poison	Methiocarb Released and seen at roost in Nov and Dec
13	T18	Wicklow	Nov	-	Red Kite	Poison	Methiocarb
14	S54	Kilkenny	Nov	-	Common Buzzard	Poison	Flocoumafen
15	T02	Wexford	Nov	-	Hen Harrier	Shot	
16	O07	Meath	Dec	-	Common Buzzard	Shot	
17	Q93	Kerry	Dec	-	Short-eared Owl	Shot	Shot Christmas Eve Rehabilitated but unable to fly

Figure 1 compares the amount and type of poison and persecution incidents recorded in 2011 and 2012.

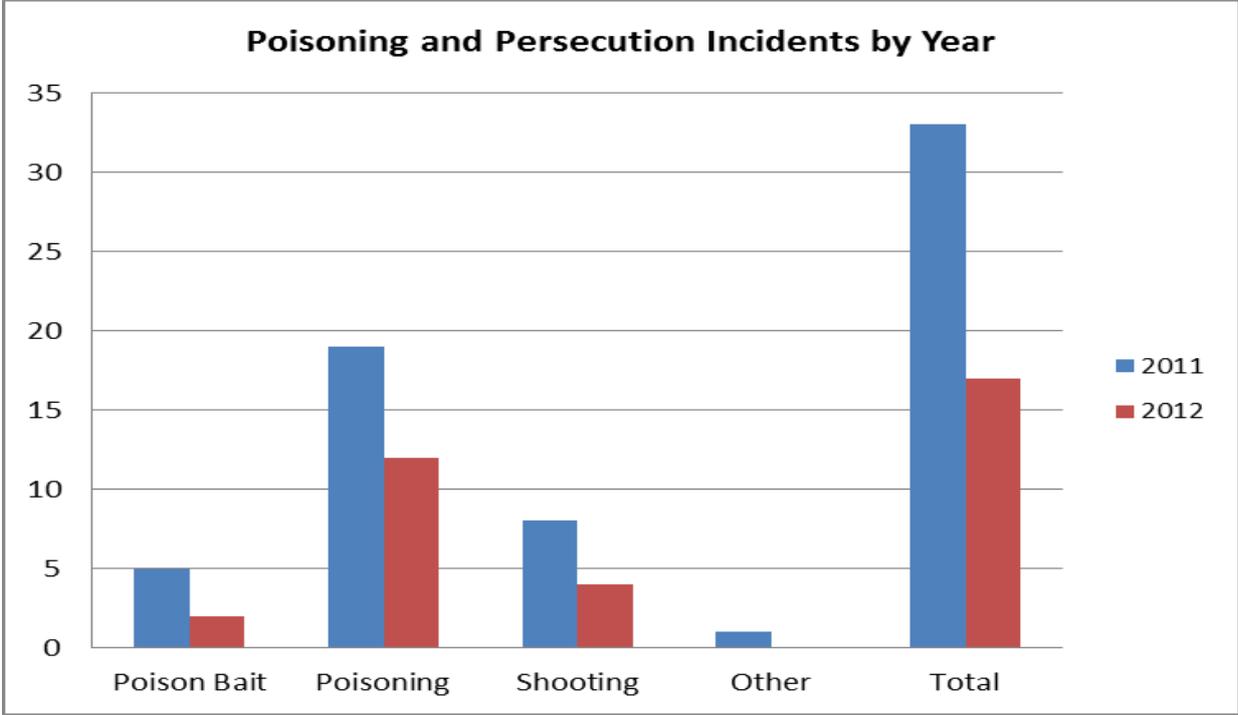


Figure 1. Annual poison and persecution incidents 2011 and 2012.

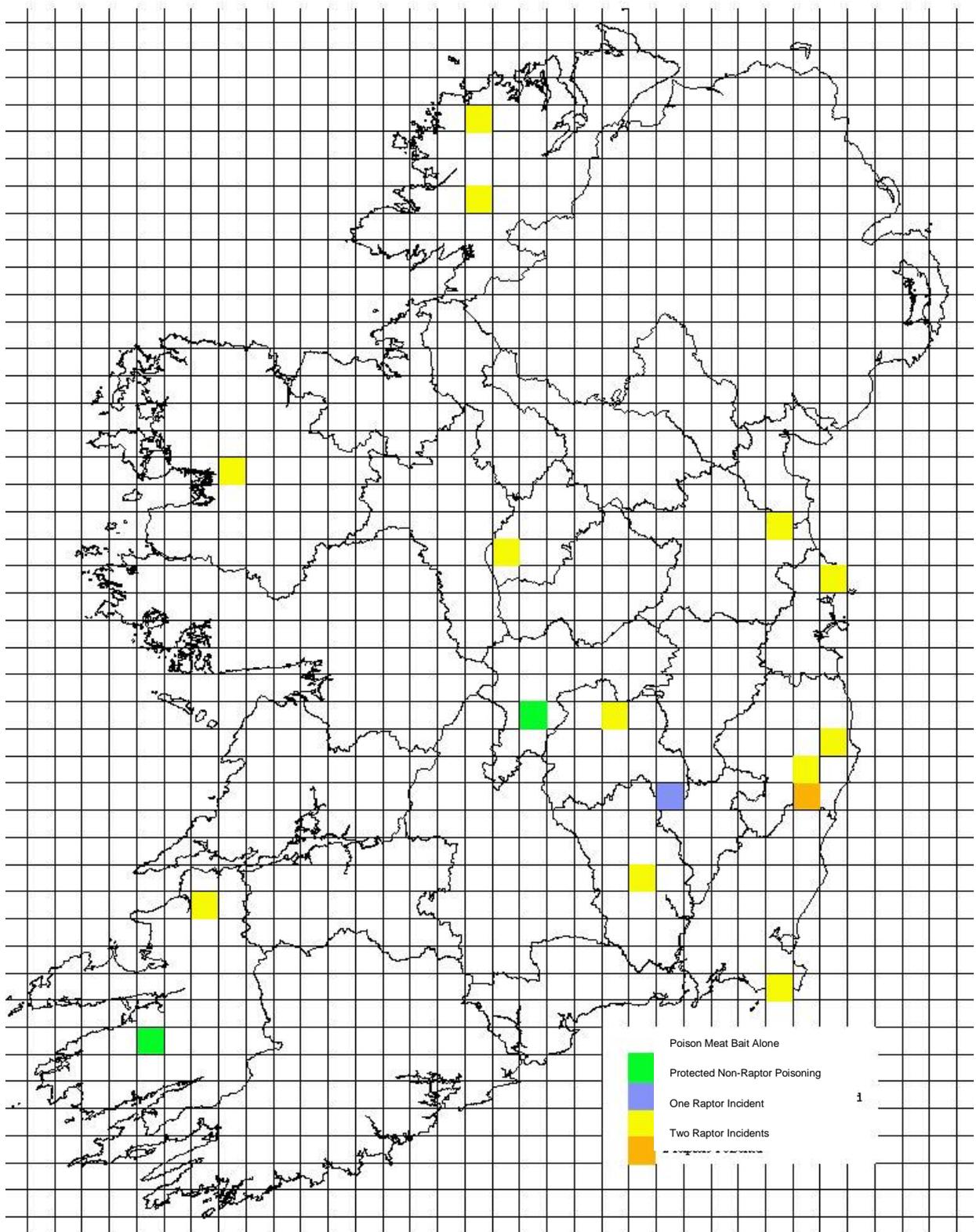


Figure 2. Map of Confirmed Poisoning and Persecution Incidents in Ireland 2012.

Figure 3 summarises the confirmed illegal incidents on a monthly basis in 2012, while Figure 4 summarises the incidents of poisoning on a monthly basis in 2012.

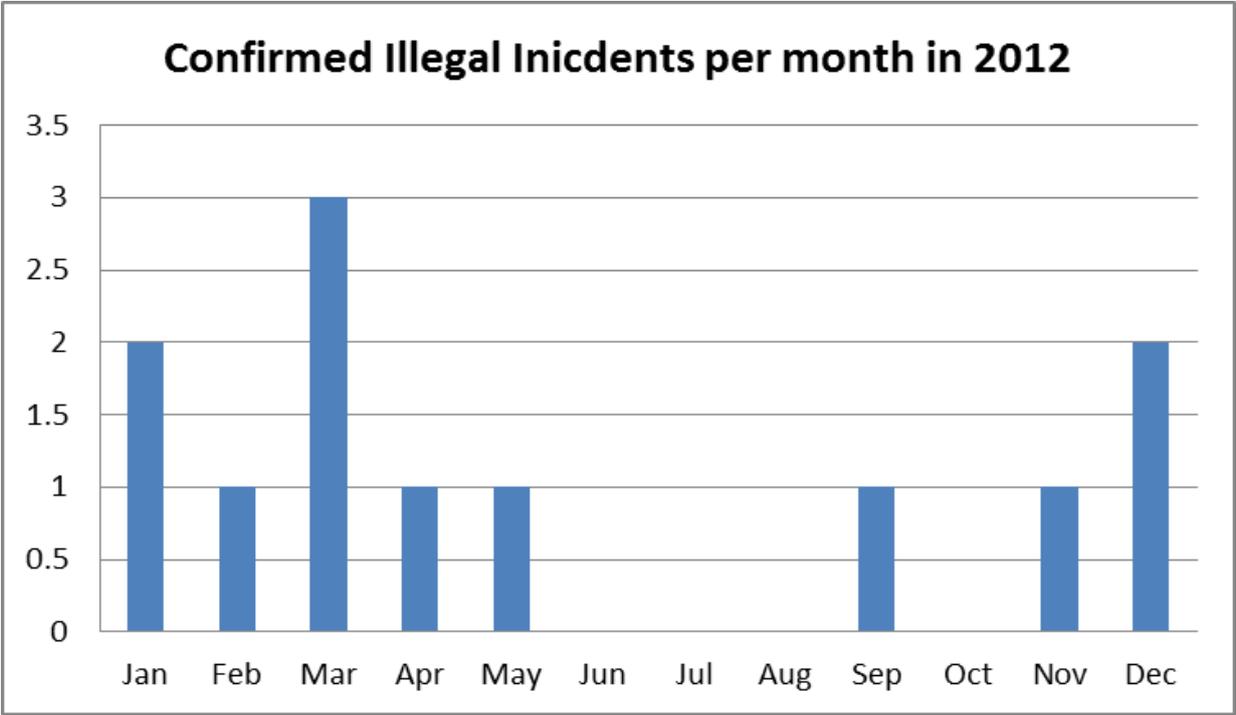


Figure 3. Confirmed illegal incidents per month in 2012.

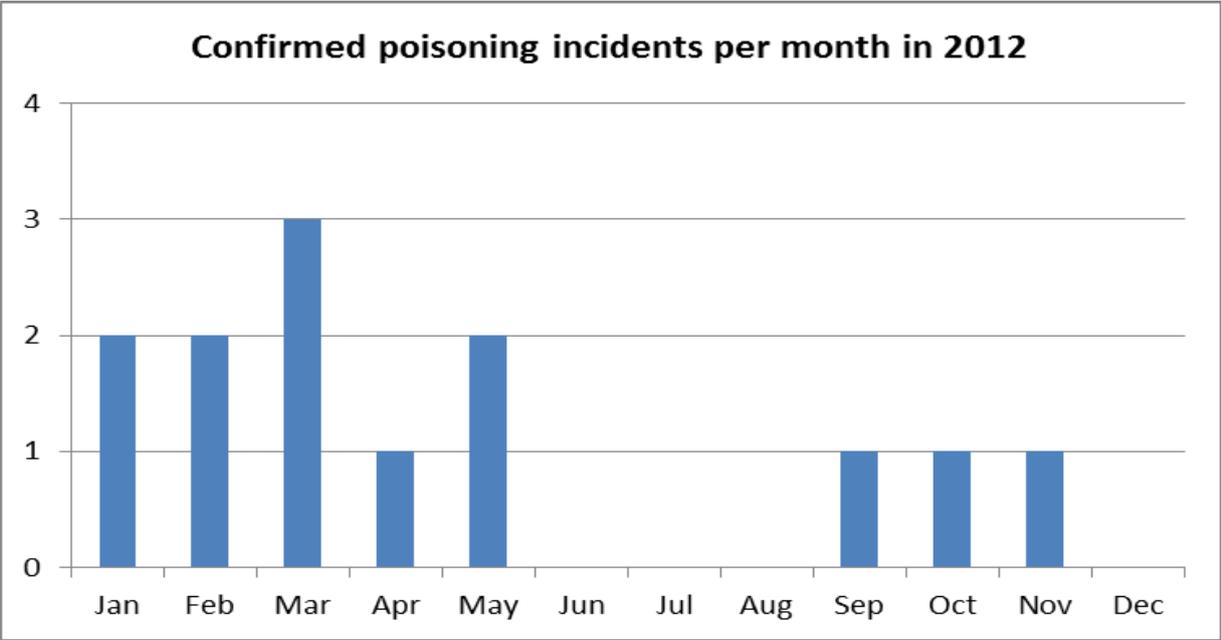


Figure 4. Confirmed poisoning incidents on a monthly basis in 2012.

3. HUMAN-RELATED BIRD OF PREY INJURY AND MORTALITY INCIDENTS OTHER THAN PERSECUTION AND POISONING IN 2012

Table 2 summarises the incidents other than poisoning or persecution that were recorded in 2012, detailing species, month, location, road and road type.

Table 2. Human-related bird of prey injury and mortality incidents other than poisoning or persecution.

No.	10km	County	Month	Species	Cause of Death	Road Type	Comments
1	C53	Donegal	Jan	Long-eared Owl	Road Collision	Regional	
2	W77	Cork	Jan	Barn Owl	Road Collision	National	
3	S26	Tipperary	Jan	Barn Owl	Road Collision	Motorway	
4	R76	Tipperary	Feb	Barn Owl	Road Collision	National	
5	S04	Tipperary	Feb	Barn Owl	Road Collision	Motorway	
6	N11	Offaly	Feb	Barn Owl	Road Collision	National	
7	R83	Tipperary	Feb	Barn Owl	Road Collision	National	
8	W08	Kerry	Mar	Barn Owl	Road Collision	National	
9	S08	Tipperary	Mar	Barn Owl	Road Collision	Motorway	
10	S04	Tipperary	Mar	Barn Owl	Road Collision	Motorway	

11	S02	Tipperary	May	Long-eared Owl	Road Collision	Motorway	
12	S23	Tipperary	May	Long-eared Owl	Road Collision	Regional	
13	S49	Laois	Jul	Long-eared Owl	Road Collision	Motorway	
14	C53	Donegal	Aug	Sparrowhawk	Road Collision	Regional	
15	C53	Donegal	Aug	Sparrowhawk	Road Collision	National	
16	R54	Limerick	Sep	Barn Owl	Road Collision	National	
17	N11	Offaly	Oct	Peregrine Falcon	Power line Collision	-	Dislocated elbow joint Ringed as chick in Wicklow May 2012
18	R80	Cork	Oct	Barn Owl	Road Collision	Motorway	
19	R81	Cork	Oct	Barn Owl	Road Collision	Motorway	
20	O17	Meath	Oct	Barn Owl	Road Collision	National	
21	S54	Kilkenny	Nov	Common Buzzard	Road Collision	Motorway	Crushed skull. Tested for poison - had levels of Flocoumafen in its system.
22	Q81	Kerry	Dec	Barn Owl	Road Collision	National	
23	R80	Cork	Dec	Barn Owl	Road Collision	Motorway	
24	W07	Cork	Jun	White-tailed Sea Eagle	Wind Turbine Collision	-	

4. DISCUSSION OF RESULTS

In 2012, 10 cases of poisoning of birds of prey were recorded, and 4 further birds were recorded to have been shot. The number of incidents recorded in 2012 was less than in 2011. However the 2012 figures can be considered only a proportion of the number of incidents that occurred in total. Four of these incidents may not have come to light for radio/satellite tracking devices that enabled discovery of the dead birds. As the monitoring scheme continues and expands in the future, a more complete picture of the threats to our native birds of prey and a long-term trend of poisoning and persecution will emerge. This will inform the relevant authorities of where best to target actions to prevent such incidents re-occurring and act as a measure of success with regard to actions taken.

As in 2011, a significant proportion (61%) of poison and persecution records in 2012 were in the east of the country, in Counties Wicklow, Wexford, Kilkenny, Meath, and Dublin. Counties Offaly, Mayo, Kerry, Donegal and Laois also featured, showing that poisoning and persecution incidents are widespread throughout the country. There are however, certain areas where poison and persecution incidents are recorded more than others and these can be seen on a 10km square basis in Figure 6.

The majority of persecution/poisoning incidents in 2012 occurred in lowland locations, with 12 incidents at elevations less than 100m above sea level, whereas 6 occurred at elevations greater than 100m above sea level. The key months for poison and persecution incidents in 2012 were March and May.

Up to half of the poisoning incidents involved rodenticide poisons and so are believed to have been unintentional (the birds having caught rats or mice that were poisoned). Irrespective of whether the method was intentional or unintentional, uninformed use of rodenticides is believed to be impacting on Irish birds of prey – particularly Red Kite, Barn Owl and Buzzard.

The six principal poisons that were implicated in the deaths of birds of prey were Flocoumafen (6 cases), Nitroxylin (3), Alphachloralose (2), Carbofuran (2), Methiocarb (2) and Brodifacoum (1). Flocoumafen and Brodifacoum are second generation anticoagulant rodenticide ingredients that are regularly linked with primary and secondary poisoning of wildlife. Nitroxylin is an active ingredient in flukicides. Alphachloralose is now only registered and approved in Ireland for the control of rats and mice at a low concentration. It is believed that it is the higher concentration previously used to kill birds such as Grey Crows and Magpies that was involved in the incidents recorded in 2012. Carbofuran, which is highly toxic to vertebrates, has been banned in Europe since 2008. Methiocarb is used in Ireland as a molluscicide and as a seed treatment and may affect birds of prey that eat slugs, snails or smaller birds that have been affected themselves.

There are a number of anecdotal records of birds of prey having been poisoned or persecuted in 2012. While such incidents are not included on the confirmed persecution list, they are recorded and collated. In total, anecdotal information suggests that five more birds of prey may have been killed.

Other records of bird of prey mortality and injury records are useful as they point towards other existing and potential threats to these species. In 2012, a total of 24 such events were recorded, 23 of these being road casualties. The reason why Barn Owls feature so heavily in this data (n=15) is due to a specific project on Barn Owl road deaths undertaken by BirdWatch Ireland and National Parks & Wildlife Service (see Lusby et al., 2014 for more information on this project).

Five more potential poison or persecution cases were submitted for toxicology tests at the regional and state laboratories, including a White-tailed Eagle in Donegal, 2 Red Kites from Dublin, a Common Buzzard from Cavan and a Mute Swan from Wicklow, though test results for these were either not possible or inconclusive. Other confirmed poisoning

incidents in 2012 included 3 dogs (though it is not clear whether these were targeted directly or indirectly by using poisoned meat baits). The bait ingested by these casualties could have also been a potential risk to wildlife and indeed humans.

5. OTHER DATA RECORDED AND ANALYSED

The data collected includes the land use type with which poisoning and persecution incidents have been associated. While particular trends with regard to land-use type and recent activity in the areas are already emerging, for the time being these will not be reported on publically.

Other data recorded includes the age and sex of the birds/animals affected. Of the 17 poisoning or persecution events recorded, 3 individuals may have been rearing young at the time, so it is important to consider that the effects of the poisoning or persecution may have extended beyond the individual themselves, if young were depending on that bird or animal as a parent, for food and protection.

Wildlife rehabilitators were successful in helping at least two individuals survive poisoning incidents, while as many were recorded to be euthanised in 2012.

National Parks & Wildlife Service personnel were involved in virtually all incidents to some degree. Regional Veterinary Labs and the State Lab were involved in 18 wildlife cases in 2012. Private veterinary clinics provided x-ray services.

6. LEGAL CASES ARISING

In 2012, there was one prosecution relating to poisoning, taken against a person who had laced a sheep carcass with poison in the hope of killing foxes. This person was fined a total of €1050. Suspects were identified and spoken to by NPWS staff in a number of other cases. For more information on the legislation surrounding poisoning and persecution in Ireland, see Appendix 3.

7. INDIVIDUAL LIFE STORIES

Reading a report such as this, which deals primarily in facts and figures, can remove the reader somewhat from the real damage caused to our environment and wildlife by the irresponsible or deliberate actions of certain individuals. Every individual bird or animal that was lost in 2012 and indeed in previous years has their own individual life story, as seen in the case below.

Fiadhna – a female White-tailed Sea Eagle born in Norway and released in Killarney National Park in 2010, named after a local school girl who helped paint her wing tags. Fiadhna’s satellite tag allowed her travels throughout Ireland to be followed. From her release in Kerry in August 2010, Fiadhna was seen to be a bird destined to travel. She visited many parts of Ireland, right along the east coast, to the North and North West before finally coming to County Donegal.

On 08 January 2012, walkers in Glenveagh National Park saw Fiadhna fall through the woodland canopy, along the track near Glenveagh Castle. They had heard some “commotion” above the trees a little earlier. They photographed Fiadhna, as she lay motionless on the woodland floor and then walked to the Castle and reported it. A National Parks & Wildlife Service officer and a Golden Eagle Trust officer returned to the spot and searched, but Fiadhna had left the area. She was seen a few days later and the

satellite tag showed her to be moving about freely. Experts believe that a local Golden Eagle hit Fiadhna in mid-air and stunned it.

Fiadhna lived a further three months in Donegal before being found dead in the Blue Stack Mountains. Post Mortem examination showed Fiadhna to have likely died as a result of Nitroxylnil poisoning.



Figure 5. Fiadhna, a female White-tailed Sea Eagle released in Killarney in 2009 and found in County Donegal in April 2012 with levels of Nitroxylnil poison. Photos © Lorcán O'Toole, GET

8. CONCLUSION

It would be naive to think that the majority of raptor poisoning and persecution can be detected. The chances of finding a bird carcass, considering a varied landscape and terrain, tall vegetation and scavengers can be considered as slim. The relatively large proportion of individuals found in both 2011 and 2012 that had been fitted with telemetry (namely radio and satellite tags) suggests that many more birds without telemetry devices were not discovered. It is considered even more difficult to discover birds that have been shot illegally, as the perpetrator will often remove or conceal the carcass to reduce the chance of being apprehended. Nevertheless, these first two annual reports have provided a useful picture of poisoning and persecution in Ireland by documenting the species known to be affected by poisoning and persecution, the devices of poisoning and persecution and the known locations of these incidents. Continuing to record known events in a systematic fashion will build on this database and provide stronger background information to target illegal activity through enforcement and education and in turn combat human-related raptor mortality. Likewise, the information garnered from recording and analysing incidents of road, turbine or fence collisions can help inform forward planning on such matters.

Recording information

Members of the public are asked to contact their local National Parks & Wildlife Service office (see www.npws.ie/contactus) with any information regarding poisoning or persecution incidents. These matters will be treated confidentially. If the incident occurs out of normal office hours, please take a photograph of the carcass/poison and record its precise location.

Your local wildlife rehabilitator may be best placed to treat injured wildlife (see www.irishwildlifematters.ie).

Wildlife rehabilitators are asked to submit annual returns of injuries and deaths of birds of prey to NPWS, using a standard reporting form. Where foul play is suspected, NPWS or the Gardai should be contacted immediately upon receiving the animal or hearing about

the incident. For live birds where poisoning is suspected, the first faecal droppings to be passed should be collected and sent via NPWS for testing at the RVLs or State Lab. Carcasses should not be frozen, but can be refrigerated if necessary.

Combating Poisoning and Persecution

The poisoning and persecution protocol agreed between the relevant state agencies is reviewed on an annual basis or as necessary. With regard to enforcement of legislation, the responsible authorities will continue in concerted efforts to combat illegal poisoning and persecution and the misuse of drugs and biocides. Education is seen as an important tool in this campaign also. The continued reporting and recording of relevant incidents will ensure a targeted and more effective approach.

In a very useful development, the Department of Agriculture, Food and the Marine has decided that it will use information on poisoning events in its risk assessment procedure used to determine areas for farm inspections.

Detecting poison levels

At present, the tests undertaken under this protocol can detect poison above particular levels but it is not possible to determine the precise level. If tests can be developed and made available under the protocol to determine exact toxin levels, these can be used to provide more certainty as to whether the toxins found in the system were enough to have killed the bird, or whether there may have been sub-lethal effects.

ACKNOWLEDGEMENTS

Thanks to NPWS staff for finding, collecting and submitting samples and reporting incidents. Those on the frontline in 2012 included Damian Clarke, Eamonn Doran, Pascal Dower, Ann Fitzpatrick, Niall Harmey, Annette Lynch, John Matthews, David McDonagh, Tony Murray, Barry O'Donoghue and Lorcán Scott. Micheál Casey and staff of the Regional Veterinary Laboratories are credited for their professionalism and diligence. Ed Malone of the State Laboratory for expert analysis of toxin levels. The Golden Eagle Trust, in particular Lorcan O'Toole, Marc Ruddock and Allan Mee for reports and advice. BirdWatch Ireland, in particular John Lusby for reports and advice. Local wildlife rehabilitators and Wildlife Rehabilitation Ireland for providing an insight on the prevalence and nature of non-poison/persecution related incidents.

REFERENCES

Hughes, J., Sharp, E., Taylor, M.J., Melton, L. and Hartley, G. (2013). Monitoring agricultural rodenticide use and secondary exposure of raptors in Scotland. , *Ecotoxicology* **22(6)**, 974-984.

Lusby, J., Lynch, Á., Breen, J. and O'Halloran, J. (2014). The importance of vehicle collisions as a mortality factor impacting Barn Owls (*Tyto alba*) in Ireland. Sixth Irish Ornithological Research Conference, Book of Abstracts P. 32.

Appendix 1: Persecution and Poisoning Incidents Recorded between 2007 and 2011

No.	10km sq	Bird of Prey Species	Incident	Date found	County
1	G13	Red Kite	Poison	Oct 2007	Leitrim
2	V98	White-Tailed Sea Eagle	Poison	Nov 2007	Kerry
3	V77	White-Tailed Sea Eagle	Poison	Feb 2008	Kerry
4	V78	White-Tailed Sea Eagle	Poison	Feb 2008	Kerry
5	V77	White-Tailed Sea Eagle	Poison	May 2008	Kerry
6	B81	Golden Eagle	Poison	Feb 2009	Donegal
7	T29	Redkite	Poison	Mar 2009	Wicklow
9	V99	White-Tailed Sea Eagle	Poison	Mar 2009	Kerry
10	G74	Golden Eagle	Poison	Feb 2010	Leitrim
11	T39	Red Kite	Poison	Feb 2010	Wicklow
12	T18	Red Kite	Poison	Feb 2010	Wicklow
13	N70	Red Kite	Poison	Mar 2010	Kildare
14	T27	Peregrine	Poison	Mar 2010	Wicklow
15	X09	Common Buzzard	Poison	Mar 2010	Waterford
16	W87	Buzzard	Poison	Mar 2010	Cork
17	V89	White-Tailed Sea Eagle	Poison	Apr 2010	Kerry
18	V89	White-Tailed Sea Eagle	Poison	Apr 2010	Kerry
19	T08	Red Kite	Poison	Apr 2010	Wicklow
20	B83	Common Buzzard	Poison	Apr 2010	Donegal
21	N55	Common Buzzard	Poison	Apr 2010	Westmeath
22	T27	Peregrine	Poison	Apr 2010	Wicklow
23	V89	White-Tailed Sea Eagle	Poison	May 2010	Kerry
24	V44	Poison Meat Bait	Poison Meat Bait	Mar 2011	Cork
25	F71	Hooded Crow	Poison	Apr 2011	Mayo
26	-	Hooded Crow	Poison	Apr 2011	Kerry
27	S19	Poison Meat Bait	Poison Meat Bait	Jul 2011	Offaly
28	S19	Common Buzzard	Poison	Jul 2011	Offaly
29	S19	Common Buzzard	Poison	Jul 2011	Offaly

30	T18	Poison Meat Bait	Poison Meat Bait	Jul 2011	Wicklow
31	T18	Peregrine Falcon	Poison Meat Bait	Jul 2011	Wicklow
32	O26	Red Kite	Poison	Jul 2011	Dublin
33	S19	Sparrow-hawk	Poison	Jul 2011	Offaly
34	Q96	Peregrine Falcon	Shot	Jul 2011	Clare
35	Q96	Kestrel	Shot	Jul 2011	Clare
36	Q96	Sparrow-hawk	Shot	Jul 2011	Clare
37	N74	Common Buzzard	Shot	Aug 2011	Meath
38	N93	Gulls, Corvids, Pigeons	Poison	Aug 2011	Kildare
39	T27	Common Buzzard	Poison	Aug 2011	Wicklow
40	T27	Red Kite	Poison	Sep 2011	Wicklow
41	H40	Common Buzzard	Shot	Sep 2011	Cavan
42	N80	Common Buzzard	Shot	Oct 2011	Kildare
43	B92	Poison Meat Bait	Poison Meat Bait	Nov 2011	Donegal
44	B61	Poison Meat Bait	Poison Meat Bait	Nov 2011	Donegal
45	C20	Rook (x20)	Poison	Nov 2011	Donegal
46	O25	Red Kite	Poison	Nov 2011	Dublin
47	O26	Red Kite	Poison	Nov 2011	Dublin
48	T28	Red Kite	Poison	Nov 2011	Wicklow
49	O25	Red Kite	Poison	Nov 2011	Dublin
50	O25	Red Kite	Poison	Nov 2011	Dublin
51	T38	Red Kite	Poison	Dec 2011	Wicklow
52	O25	Red Kite	Poison	Dec 2011	Dublin
53	O25	Red Kite	Poison	Dec 2011	Dublin
54	S77	Common Buzzard	Shot	Dec 2011	Carlow
55	R55	Peregrine Falcon	Shot	2011	Clare
56	R44	Peregrine Falcon	Injury	2011	Limerick

Appendix 2: All Confirmed Poisoning and Persecution Incidents 2007-2012

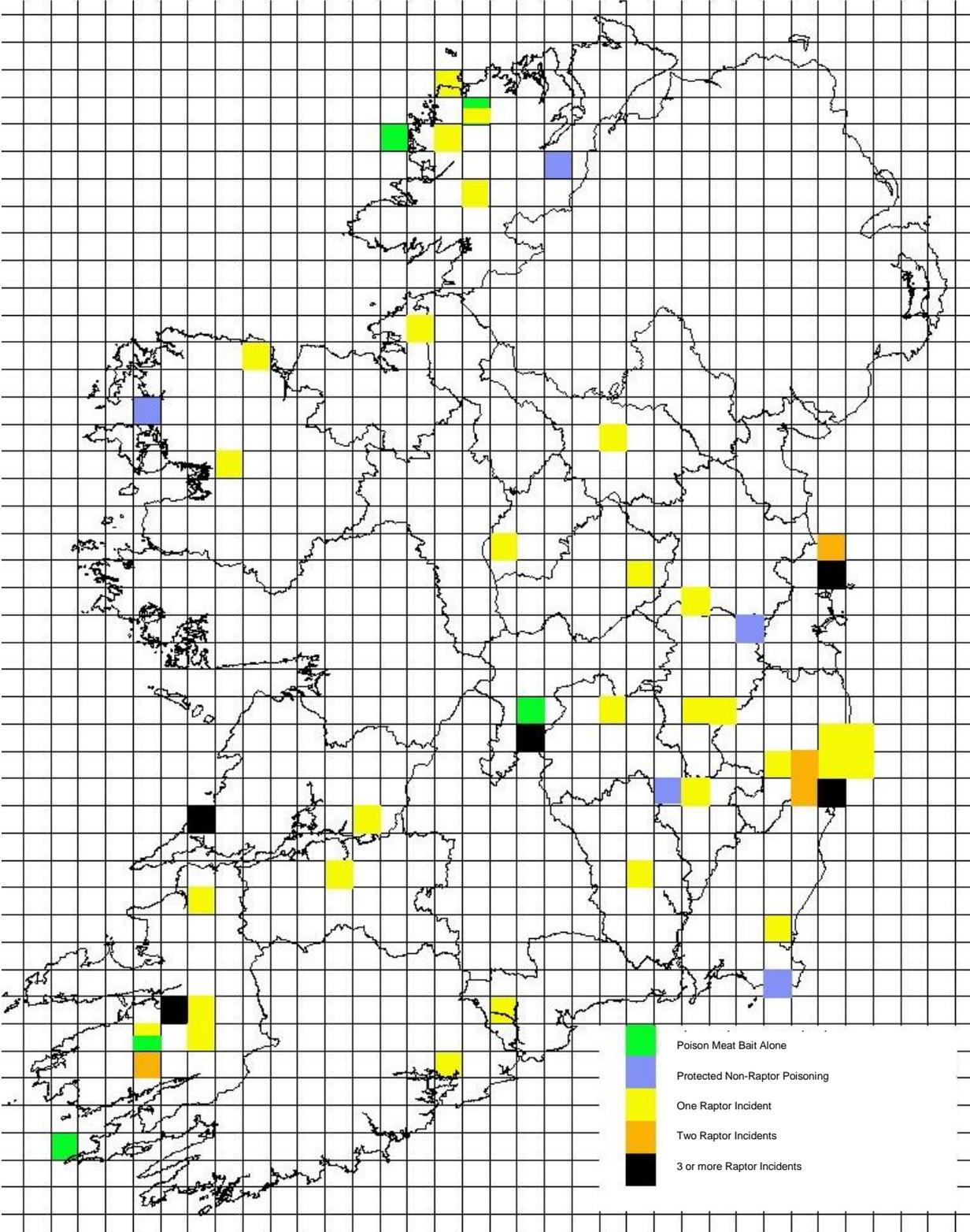


Figure 6. All poison and persecution incidents recorded between 2007 and 2012.

Appendix 3: Key Legislation

There are a number of key Irish statutes that deal with the poisoning and persecution of wildlife. The Wildlife acts 1976, 2000 and 2010 are the primary Acts concerning the protection of wildlife in Ireland. Under the Wildlife Acts, in line with the EU Birds Directive (2009/147/EC), all birds in Ireland are protected. Article 9 of the Birds Directive allows Member States to make derogations from its protective measures in the interests of public health and safety, air safety, to protect flora and fauna and to prevent serious damage to crops, livestock, forests, fisheries and fauna. The European Communities (Wildlife Act, 1976) (Amendment) Regulations, 1986 – (S.I. No. 254 of 1986) allow specific derogations to be implemented by way of Ministerial Declarations, which are renewed every four months. The species included in the Irish Ministerial Declarations are grey crows, magpies, rooks, jackdaws and some members of the pigeon family. Until the beginning of 2008, poisoned or anesthetic bait was allowed for control of grey crows, magpies and pigeons. From 1 January 2008, the Ministerial Declarations allowed the use of non-meat baits only when laying poison for the control of grey crows, magpies and pigeons. The change was made due to concerns that the use of meat baits could lead to the accidental poisoning of birds of prey such as the reintroduced species. Ministerial Declarations with effect from September 2010 have prohibited the use of any poisoned or anaesthetic bait for the control of grey crows and magpies. Thereafter, grey crows and magpies could only be controlled by shooting or the use of legal cage traps. The provision in the Ministerial Declarations on the use of non meat-based poisoned or anaesthetic bait to control certain species of pigeon was retained on the basis of a licensing regime by National Parks & Wildlife Service.

There are various directives and regulations concerning the use of biocides and poisons in the EU and Ireland (e.g. Poisons Regulations 2008; Use and Control of Biocidal Products) Regulations, 2001) and it is illegal to sell or use any pesticides/biocides in a manner which is not registered or approved. Since 2008 there has been no pesticide/biocide registered for use in the control of birds or any mammal other than rabbits, rats or mice. Proper use is ensured through inspections at wholesale, retail and farm level and through the testing of food commodities on the Irish market for the presence of pesticides

residues. The State took prosecutions in 2009 and 2010 which led to convictions and fines against landowners using Alphachloralose to kill rooks. The Restrictions on Use of Poison Bait Regulations (SI No. 481 of 2010) underpin the legalities relating to poison bait. The Animal Health and Welfare Act (2013) outlines an offence where a person lays “poison by a method or in a manner that a protected animal has or would have access to the poison.”

The conservation of biodiversity in Ireland has been strengthened and expanded by EU law, most notably by the EU Birds Directive and EU Habitats Directive (92/43/EEC) and also by the EIA Directive (85/337/EEC). The European Communities (Birds and Natural Habitats) Regulations 2011 consolidate the European Communities (Natural Habitats) Regulations 1997 to 2005 and the European Communities (Birds and Natural Habitats)(Control of Recreational Activities) Regulations 2010. Many of our native raptors (including Peregrine Falcon, Merlin, Hen Harrier, Golden Eagle, White-tailed Sea Eagle and Red Kite) are listed on Annex I of the EU Birds Directive (Directive 2009/147/EC). Special Protection Areas (SPAs) may be designated to protect the habitats and ranges of these species. Article 4(4) of the same directive requires that even outside of SPAs, Member States shall strive to avoid pollution or deterioration of habitats of these birds.

For farmers, poisoning of bird species is a breach under cross-compliance (Statutory Management Requirement 1 - Conservation of Wild Birds and Statutory Management Requirement 9 – Plant Protection Products (Pesticides)). Further details are provided in Appendix 4.

Where to find relevant legislation:

Wildlife Acts 1976, 2000 and 2010

www.irishstatutebook.ie

EU Birds Directive Derogations

<http://www.npws.ie/legislationandconventions/irishlaw/eubirdsdirectivederogations/>

SI No. 481 of 2010. Restrictions on Use of Poison Bait Regulations 2010

www.irishstatutebook.ie

Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market as amended by Council Regulation 1882/2003/EC) and Commission Directives 2006/50/EC, 2006/140/EC and 2007/20/EC

<http://eur-lex.europa.eu>

S.I. No. 625 of 2001. European Communities (Authorization, Placing on the market, Use and Control of Biocidal Products) Regulations 2001

www.irishstatutebook.ie

S.I. No. 511 of 2008. Poisons Regulations 2008.

www.irishstatutebook.ie

Regulation (EU) No. 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products.

<http://eur-lex.europa.eu>

Animal Health and Welfare Act 2013

www.irishstatutebook.ie

Appendix 4: E.U. Single Payment Scheme

The E.U. Single Payment Scheme replaced the Arable Aid and Livestock Premia Schemes in 2005. Whereas the schemes it replaced were largely production based the Single Payment Scheme is area based and is not tied to production. Farmers applying for any of the following schemes must make a Single Payment application; Single Payment Scheme, Disadvantaged Area Scheme, Afforestation Premium, REPS and Suckler Welfare scheme.

The Single Payment Scheme has as one of its main measures, the implementation of cross compliance measures. An important part of this reform are measures aimed at protecting the environment and improving the countryside as well as achieving high standards in food safety, animal health and welfare. In pursuit of this objective it is necessary to put in place adequate checking and control arrangements to ensure adherence to the required standards. Under the Single Payment Scheme, respect for basic standards for the environment, public, animal and plant health, animal welfare and for good agricultural and environmental condition is now incorporated as a condition of the scheme.

Cross compliance involves two key elements:

- A requirement for farmers to comply with a number of statutory management requirements (SMRs) set down in EU legislation (Directives and Regulations) on the environment, food safety, animal health and environmental condition.
- A requirement to maintain land in good agricultural and environmental condition (GAEC).

The Cross Compliance conditions consist of respecting a total of 18 Statutory Management Requirements (SMRs) in addition to maintaining the land in Good Agricultural and Environmental Condition (GAEC). If an applicant is found to be non-compliant sanctions will be applied under the Single Payment Scheme. Two of the Single Management Requirements related to the protection of birds of prey and the use of poison are:

- SMR 1 Conservation of Wild Birds (Birds Directive)

All Irish Birds of Prey are fully protected under the 1979 European Birds Directive and any killing of a Bird of Prey is in breach of this Cross Compliance Measure.

- SMR 9 Plant Protection Products (Pesticides)

Anyone using a non-registered or non-approved poison product or an approved product or a veterinary medicine contrary to its approved uses that kill Birds of Prey is in breach of this Cross Compliance Measure.

The Irish Government is required to carry out on farm inspections of 1% of Single Farm Payment Participants annually. At a meeting between the Minister for Agriculture, Food and Fisheries, Brendan Smith, T.D. and the Minister for Environment, Heritage and Local Government, John Gormley, T.D. and their officials on the 23 June 2010, the Department of Agriculture said that anyone found poisoning birds of prey could be in breach of SMRs 1 and 9. In addition DAFF stated that if the National Parks and Wildlife Service notified them that they thought that a farmer may have been responsible for a confirmed poisoning incident, they would include that individual within their required 1% farm inspection list.

Responsible use of rodenticides, and abiding by the law with regard to poisons, pesticides and veterinary medicines is imperative if Ireland is to promote the image of green environmentally sustainable produce and of being a place to enjoy nature and the outdoors.

Protocol for investigation of deaths of Birds of Prey and other wildlife

**Veterinary Laboratory Service (Department of Agriculture, Fisheries and the Marine),
The State Laboratory (Dept. of Finance)**

and

National Parks and Wildlife Service (Department of Arts, Heritage and the Gaeltacht)

May 2013

Further to a series of meetings between representatives of the Veterinary Laboratory Service of the Department of Agriculture, Fisheries and the Marine, the State Laboratory, and the National Parks and Wildlife Service (NPWS), the following protocol is agreed.

Scope:

This is a national scheme to monitor mortality in Irish birds of prey and other wildlife species with seven key aims:

1. Collection of evidence to support prosecutions for illegal poisoning.
2. Monitoring of the impact of poisoning on Irish raptor populations.
3. Monitoring the incidence of poisoning and impact of illegal poisoning on other vulnerable species (e.g. Raven)
4. Monitoring the incidence of poisoning in species vulnerable to secondary poisoning by rodenticides (in particular Barn Owl, Kestrel, Common Buzzard, Red Kite and Long-eared Owl).
5. Monitoring the impact of other types of persecution on Irish raptors and maintaining a database of such incidents.
6. Providing evidence of the causes of death of other wildlife species where poison is strongly suspected
7. Quantifying the use of specific poisons.

Scale of Work:

It is expected that the scale of the work is unlikely to exceed 50 specimens per annum. The State Laboratory has the capacity to deal with 5 of these specimens as urgent and treat them accordingly. Cases will be deemed urgent by a designated Wildlife Inspector with National Parks & Wildlife Service. Any urgent cases in excess of this would be dealt with on a case by case basis but urgent processing of these could not be guaranteed due to the extra resources required.

Stakeholders:

Government Departments and Agencies:

Department of the Arts, Heritage and the Gaeltacht (National Parks and Wildlife Service)

Department of Agriculture (Veterinary Laboratory Service)

The State Laboratory

Environmental Protection Agency

NGOs:

Farm organisations

Golden Eagle Trust Ltd

BirdWatch Ireland

NARGC

1. Publicising awareness of the scheme

A national awareness campaign will be carried out, targeting NARGC Gun Clubs, Farming representative bodies, Raptor Study Group members, Bird Watch Ireland branches, Gardai, veterinary practices, wildlife rehabilitation centres, falconers and taxidermists, giving details of scheme, and contact details for members of the public finding carcasses of wild birds of prey.

Information will also be provided on the NPWS website.

2. Day-to day operation of Scheme:

Routine Submissions:

Specimens for testing (i.e. dead birds or faecal samples from suspected poisoned but living birds) will normally be submitted by NPWS rangers to Regional Veterinary Laboratories (RVLs), or by certain other nominated individuals only. Members of the public and NGOs are asked to contact NPWS in the first instance to arrange delivery of specimens to RVLs where possible. Protocols on collection, assessment, investigation and chain of evidence will be followed. [RVL may decide to accept specimens from other sources.]

In the following cases, specimens will be held for post-mortem and toxicology analysis in monthly batches to allow for cost-effectiveness:

- Any bird of prey or Raven, or other bird species where a number of specimens are involved, found dead in circumstances suggesting poisoning but where prosecution is not considered appropriate/possible [Note: where multiple birds/samples arise from the same event, they will share a common submission form, reference number etc.]
- Any barn owl, long-eared owl or kestrel
- Suspected bait items where poisoning is suspected but where a prosecution is not considered possible
- Suspected poisons or other chemicals recovered during an investigation or search
- Faecal samples from birds suspected to have been poisoned but still living (these samples should be taken at the very earliest stages of discovering the bird).

Urgent Submissions:

In the following cases, and where NPWS requests through Wildlife Inspector Dr. Barry O'Donoghue, post-mortem and toxicology analysis will be fast-tracked (subject to the note on capacity in the State laboratory under "Scale of Work" on p1):

- Any Golden Eagle, White-tailed Eagle or Red Kite
- Any other bird of prey found dead in circumstances suggesting poisoning and where a prosecution following investigation is considered possible

- Any bird species where a number of specimens are found dead suggesting poisoning and where a prosecution following investigation is considered possible
- Any suspected bait items where poisoning is suspected and a successful prosecution is considered likely

Sample Reception:

Cases will be booked in advance, by an NPWS conservation ranger, who will specify that this is a Raptor Poisoning case. The ranger & RVL will agree a suitable time to deliver it to the RVL. The NPWS Ranger will be given the name of a person to hand it to, who will complete the 'chain of custody' section of the submission form (see below).

RVL Addresses, directions, and contact times are attached in Appendix 1

On arrival at the RVL, the NPWS ranger will present

- carcass/suspect bait as defined in NPWS section of protocol
- specimen will be in a leak-proof container (e.g. Ziploc bag, plastic box), sealed and clearly labelled with species, site, contact number (ranger's mobile)
- completed submission form – this will show chain of custody, and this should be maintained in the RVL. This form (with copy retained in RVL is sent to the State Lab with the samples
- hard copy of x-rays (if digital X-Ray system has been used, a set of digital images e-mailed in advance to Research Officer on duty will substitute) [RVLs do not undertake x-rays. X-rays should be undertaken at designated veterinary practices]

Chain of custody:

Each person taking custody of the samples will complete the “chain of custody section’ of the form and will take responsibility for securely handling, storing, testing or dispatching samples as required.

Post mortem examination, sampling and sample dispatch by the RVL:

Post Mortem Examination:

1. Keep a printed copy of the attached PM summary in the post mortem area where it can be referred to by the duty pathologist, and the most recent version of this protocol in the front office where it can be referred to by reception staff
2. Record details of each Raptor Protocol submission on LIMS as per submission form (*attached*) using the Raptor Protocol Workflow (*currently in development & testing*)
3. Weigh the bird, record the weight
4. Photograph the carcass before the PM, and photograph any significant lesions, ensuring that the case number and scale are visible in the photos
5. Record carcass condition in respect of fat, muscle, degree of crop fill
6. Record plumage condition, any evidence of chemical staining or burns
7. Perform full post mortem where carcass is intact and fresh, with bacteriology, virology, histology as judged appropriate by the duty pathologist, and keeping a contemporaneous record of as a hard copy. Perform a post mortem directed primarily at sampling where carcass is decomposed and or scavenged, recording reasons for this.
8. Test a sample of fresh kidney for lead content

Sampling:

Regardless of condition of carcass, sample as many as possible of the following into rigid screw-top containers or twist-seal sterile sampling bags:

- Crop contents
- Stomach contents
- Intestinal contents
- Cloacal contents
- Liver
- Kidney

- Skeletal Muscle
- Blood
- Samples of suspected poison

Create a separate aliquot for each sample collected above, store each aliquot in a sealed container (universal type, or larger).

Label each tube with sample ID and state which matrix it contains (e.g. blood, faeces)

The aim of sampling is to recover a sample for testing and a sample for archiving, so up to 10g/10ml of each of the above to be sampled if available.

Dispatch of samples to State Lab:

1. Notify State Lab contact point (Ed Malone and John McBride) in advance of the arrival of Raptor Protocol samples by email to edward.malone@statelab.ie and john.mcbride@statelab.ie, and only dispatch samples when it is confirmed that somebody will be available to receive them
2. Dispatch all samples to Ed Malone, State Laboratory, Backweston Laboratory Campus, Young's Cross, Celbridge, Co. Kildare by registered post, clearly marked as "Raptor Protocol Samples" by the end of the working day after receipt.
3. Include the original submission form, keeping a photocopy on file at the RVL
4. Inform State Lab of any specific reasons to suspect toxicity, and any circumstantial evidence seen at PM e.g. yellow staining of nitroxynil
5. Put all samples into individual sealed evidence bags, labelled and identified on the included form

Testing by the State Lab:

1. The State Lab proposes to carry out all testing by LC-MS/MS and using confirmatory criteria commonly applied in others areas of similar testing,

2. These tests will not be accredited by the State Lab but validation work will be carried out to determine the fitness for purpose of the tests. The tests will be deemed confirmatory and stand up to some scrutiny because mass spectrometry is used as the primary detection technique.

3. Where a prosecution is in train, the State Lab will send reference samples to another laboratory in the UK for confirmatory testing if this is deemed necessary.

4. The State Lab currently tests for:

	Reporting Level ($\mu\text{g}/\text{kg}$)
a. Strychnine	2000
b. Nitroxylnil	50
c. Paraquat	5000
d. Alpha Chloralose	500
e. Carbofuran	50
f. Methaldehyde	2500
g. Warfarin	50
h. Brodifacoum	1000
i. Dicumarol	50
j. Difenacoum	50
k. Flocoumafen	500
l. Flunixin	250

5. The State Lab will report results as

- Present at greater than the reporting level
- A response was noted at the retention time of “analyte” but is less than the reporting level.
- Not Detected
- Not tested

6. The number of matrices tested will depend on whether the sample is routine or urgent
 - a. On urgent samples liver and crop contents will be tested, with other matrices examined only if SL believes that this may provide more information.
7. On routine samples, only crop contents and liver tissue will be tested routinely.
8. The State Lab will hold an archive of the tissues submitted. Tissues will be released for subsequent testing on
 - a. A case-by-case basis, by agreement between representatives of the State Lab (I. Kinahan) Veterinary Lab Service (M. Casey) and NPWS (B. O'Donoghue)
 - b. Or on the basis of a further protocol on sample sharing

Testing by the Agri-food Biosciences Institute, Northern Ireland:

Although not a party to this protocol, AFBI were consulted during its preparation and indicated that they may be in a position to support this scheme from time to time by:

- Botulism testing
- Confirmatory testing
- Testing urgent samples (which could be directed to State Lab/AFBI, depending on which one had a batch of routine samples 'ready to run')

Reporting arrangements

Routine cases:

A preliminary report will be issued by the receiving RVL within one week, giving PM findings and test results received to date. The State Lab will typically report toxicology results from routine cases in 28 days to the RVL

A final report on routine cases will typically issue from the RVL within one week of all tests being completed and results received at RVL

Urgent cases, where prosecution is likely:

Where sample has been flagged as urgent (by NPWS Wildlife Inspector Barry O'Donoghue), the preliminary findings of the PM will be issued by phone/email within two working days. Test results from the RVL on urgent cases will ordinarily be completed and reported within one week of the carcass's submission.

The State Lab will typically report toxicology results from urgent cases in 7 days to the RVL. A final report on urgent cases will typically issue within two working days of the last test result being received in the RVL

Publication of aggregated results:

3. Outputs

For all recording and reporting purposes, the RVLs shall send post mortem reports (preferably by email) to NPWS Wildlife Inspector Dr. Barry O'Donoghue and include in the same correspondence, NPWS staff member(s) relevant to the particular case.

Correspondence should include a full post mortem report and a copy of the completed submission form (showing reference number, chain of custody etc.). Where cases are referred to the State laboratory, the results will be sent back to the RVL, with NPWS contact point Dr. Barry O'Donoghue included in the same correspondence.

NPWS staff seeking updates shall contact Dr. Barry O'Donoghue only.

The NPWS will provide an annual report of the poison use surveillance data, with mapping of incidents associated with specific poisons, published in first quarter of each year.

Copies of the report will be sent to the Minister for Agriculture, Fisheries and the Marine, the Minister for Arts, Heritage and the Gaeltacht, , the Pesticide Registration & Control Division (Pesticides Registration Authority), the EPA and interested NGOs.

Peer-reviewed scientific publication of the aggregated results of this testing shall be by agreement of representatives of the State Lab (I. Kinahan) Veterinary Lab Service (M. Casey) and NPWS (C. O'Keefe).

All three partner organisations will be able to use aggregated results in non-peer-reviewed publications e.g. annual reports, which can be published on official websites where agreed.

Enforcement of Legislation

Depending on the situation, follow-up investigation or enforcement will be carried out by the authority/authorities responsible for the relevant legislation.

Legislation that may be invoked includes

Legislation	Responsible Authority
The Wildlife Acts	NPWS, An Garda Síochána
SI No. 481 of 2010. Restrictions on Use of Poison Bait Regulations 2010	NPWS, An Garda Síochána
S.I. No. 625 of 2001. European Communities (Authorization, Placing on the market, Use and Control of Biocidal Products) Regulations 2001	
S.I. No. 511 of 2008. Poisons Regulations 2008.	

Review of Protocol

This protocol will be reviewed annually or as necessary, so that changes can be agreed if required ahead of the following calendar year, and a full uniform set of data acquired for the following using the revised Protocol.

Mícheál Casey,
On behalf of RVLs

Barry O'Donoghue
On behalf of NPWS

Ita Kinahan
On behalf of State Lab.

Appendix 6: Campaign for Responsible Rodenticide Use

The demands of consumers for high quality and safe food means that there is an ever-increasing need for higher standards in all stages of the food chain. This has led to much stricter quality assurance requirements from buyers, such as supermarkets and food processing companies.

Among these requirements is the need for more effective control of pests, such as rodents, which contaminate and destroy food while still in farm stores. At the same time, there is a greater recognition of the need to protect and enhance wildlife in rural areas.

The Campaign for Responsible Rodenticide Use (CRRU) aims to protect wildlife while promoting and providing effective rodent control through the responsible use of rodenticides. In a bid to ensure that any negative impact on wildlife caused by poor pest control practice is eliminated, CRRU is actively promoting the responsible use of rodenticides and has launched a code under the banner 'Think Wildlife'. These essential guidelines promote best practice in rodent control.

From advising those using rodenticides to have a planned approach and always using enough baiting points, to warning them never to leave bait around at the end of treatment, the code will help rural users to get the best results from their rodent control programmes, yet reduce the potential harmful effects on wildlife.

To learn more on this initiative, launched in Ireland in September 2013, or how to minimise risk to wildlife, go to www.thinkwildlife.org

Appendix 7: Central Contact Details of Stakeholders

Central Contact Details of Key Stakeholders	
Stakeholder	Contact Details
National Parks & Wildlife Service, Department of Arts, Heritage & the Gaeltacht	7. Ely Place, Dublin 2 +353 1 888 3242 www.npws.ie nature.conservation@ahg.gov.ie
Regional Veterinary Laboratories Department of Agriculture, Food & Marine	Agriculture House, Kildare St. Dublin 2 +353 1 607 2000 www.agriculture.gov.ie info@agriculture.gov.ie
The State Laboratory Department of Finance	Backweston Laboratory Campus Celbridge Co. Kildare +353 1 5057000 www.statelab.ie info@statelab.ie