

The Assessment of Red squirrels (*Sciurus vulgaris*) on Howth peninsula 2011
A report to Fingal County Council.



William Carr BSc,
Environmental Biologist,
Sciurus Ecological Solutions Ltd.

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1 Introduction

After habitat destruction, alien species that are introduced to an area cause the serious threat to biodiversity (Clout and Lowe 1996; Crooks and Soule 1996; Illueca 1996). One fifth of all vertebrates that are in danger of extinction are under threat in some way from alien species (Berntsen 1996). Introduced species can have a dramatic effect on the ecosystem that they have been introduced into. Some species can physically change their new habitat while others out-compete the native species for nesting sites and other resources and they can act as vectors of disease (Lever 1994).

Two species of squirrel are found in Ireland, the European red squirrel (*Sciurus vulgaris*) and the Eastern grey squirrel (*Sciurus carolinensis*). The introduced grey squirrel is now found in 26 of the 32 counties and their continued expansion has coincided with a decline in red squirrel numbers and a contraction of their range within Ireland. The Irish Squirrel Survey 2007 showed that although red squirrels are abundant in Ireland they have largely disappeared from four counties in the Leinster region - Meath, Westmeath, Carlow, Kilkenny. The speed of this replacement is of grave concern. Reds have been almost completely replaced by greys in Carlow and Kilkenny in the space of only 10 years (Carey *et al.* 2007). Since the previous survey (1997), grey squirrels had increased significantly along the eastern seaboard, from where they had been predominantly absent. Given these findings, there is a clear threat to the continued existence of red squirrels in the Leinster region and any remaining strongholds should be identified and protected from invasion by grey squirrels. The aim of this report is to assess the red squirrel population and find any grey squirrels that may have moved onto the Howth peninsula.

Red squirrel populations seem particularly susceptible to disease and have historically suffered numerous declines as a result (Edwards 1962; Vizoso 1968; Scott, Keymer and Labram 1981; Keymer 1983). Of particular concern in Britain currently is infection with squirrel poxvirus (SQPV). This disease has been shown to be a significant factor in red squirrel population declines (Tompkins *et al.* 2002; Tompkins, White and Boots 2003). Grey squirrels act as hosts without developing the disease (Sainsbury *et al.* 2000) and as they colonise a new area they spread the disease into previously unexposed red populations. On the 100th anniversary of the introduction of the grey squirrel to Ireland the first clinical cases of SQPV in the republic of Ireland was identified in a red squirrel from county Wicklow in November 2011 (Tom Hayden, personal communication), grey squirrels have been found to have antibodies to the disease both in Northern Ireland (McKay *et al.* 2004) and also in the Republic (Colin Lawton, personal communication).

The historical presence of red squirrels in many Dublin parks indicates that population/species requirements were being met and a preliminary study indicated that the disappearance of red squirrels from many of the

Dublin urban parks coincided with the establishment of grey squirrels within these parks (Madigan 2007). Previous studies indicate that red squirrels disappear from an area anytime between 5 and 16 years after the appearance of grey squirrels (Reynolds 1985; Skelcher 1993). Of the two areas in Dublin where red squirrels are still known to be present, grey squirrels were first seen in 2005 in Killiney Hill Park (Madigan 2007) and in 2007 on the Howth peninsula. The control of the grey squirrels in these areas started in 2008 and is still ongoing at present.

The red squirrel population on the Howth peninsula is the last strong hold in Dublin city and could possibly be protected due to the natural narrow entry corridor for squirrel movement at Sutton Cross. Continued monitoring of the remaining Howth red squirrels populating is necessary. There were 21 red squirrels marked in the Deer Park site alone by 2010 and another 8 new individuals were marked in 2011. There is a slight change in the population dynamics as the ratio of males to females has changed from 1:1 to 1.75:1. The captured females showed signs of breeding activity, but it is not known if recruitment of new individuals will be enough to offset mortality within the population. Between the distance sampling and trapping the estimated size of the population of red squirrels in Howth would be approximately 25 individuals. Deaths related to road crossings have been observed in Howth Sutton area. The loss of even a few extra individuals could mean the difference between survival and extinction.

2 Methods:

2.1 *Distribution of squirrels*

The distribution of squirrels the Howth peninsula was determined by walking along trails in Deer park and Red rock woods in Sutton on the 6th May 2011. The location of fresh feeding signs was recorded. Freshly eaten cones were distinguished by their bright colour, green remaining scales and lack of desiccation (see figure 1).



Figure 1: Example of a freshly eaten Maritime pine cone (*Pinus pinaster*). An older cone is on the left of the picture.

2.2 *Hair traps*

The hair traps (Figure 2) were constructed from square down pipe cut to lengths of 280mm, a strip of flexible laminate with 3M pressure sensitive double sided tape was placed inside the tube. Hair traps were placed in the around the Sutton area in May 2011 and left for 4 weeks. The location of the hair tubes are given in Table 4.



Figure 2: Hair tub that was used in Howth/Sutton

2.3 *Howth questionnaire survey*

In June 2011 questionnaires were distributed to two national schools in the Howth area. This was to determine the location of both red and grey squirrels. Each school was given 50 questionnaires during the last two week of term. Questionnaires were also placed in the libraries in Baldoyle and Howth. They were placed in Howth Golf course and Deer park Golf course. Walkers were also offered the chance to fill in the questionnaire when they were met on the Muck rock and Red rock. The results can be seen in table 4 and a copy of the questionnaire can be found in Appendix 1

2.4 *Trapping and handling procedures*

The initial trapping in Howth during 2011 started in the first week of June with the trap placement and after three weeks of pre-baiting the traps were set to catch,

Squirrels were trapped using standard wire mesh cage traps with baseboard and nest box attached (see figure 4). The door mechanism is triggered by a pedal mechanism towards the rear of the trap. The nest box provides the squirrel with a place to hide out of view and out of any adverse weather conditions. Traps were attached securely to selected trees at approximately 3 meters above ground level. The nest boxes were filled with hay and the traps baited with a combination of acorns and peanuts. Once set, traps were checked at regular intervals throughout the day (dawn to dusk) and any trapped squirrels processed immediately upon discovery.



Figure 4: Red squirrel trap.

Squirrels were removed from the traps into a modified Koprowski cloth handling cone (see figure 5; Koprowski 2002). Handling time was kept to a minimum. Squirrels were typically only handled for between 10 and 15 minutes, the minimum time taken to take body measurements and attach/implant tags (ear-tags and PIT tags). The handling cone is specially designed to allow access to various body parts while keeping the squirrel securely restrained. Measurements taken included body weight (measured to nearest 5g using a Pesola spring balance) and hind foot/leg length. The reproductive status was also assessed using standard criteria (Wauters and Dhondt 1989; Wauters *et al.* 2000).



Figure 5: Red squirrel in the Koprowski cloth handling cone

2.5 *Educational*

Some educational days were included for the general public to promote the awareness of the conservation of red squirrels and the importance of the population on the Howth peninsula. Educational events can be seen in table 1 below

Table 1: List of educational events that were part of this study.

Location	Description	Date
Library	Poster (Living on the edge)	28/07/2011
Deer Park Howth	Educational Walk (AM)	28/08/2011
Deer Park Howth	Educational Walk (PM)	28/08/2011
Deer Park Howth	Educational Walk (AM)	01/09/2011
Library	Presentation (Living on the Edge)	13/09/2011

2.6 *Density and abundance:*

There are a number of methods available to determine the presence and abundance of squirrels. The most direct method involves live-trapping and marking individuals but this method can be complicated by variations in the probability of catching individuals within and between trapping periods (e.g. Gurnell 1983, 1996; Lurz, Garson & Rushton 1995). There are five main indirect methods for assessing squirrel populations; these are visual surveys, hair tube surveys, Drey counts, feeding transect and whole maize bait (Gurnell, Lurz and Pepper 2001). Visual surveys allow for density and abundance estimates to be obtained. The remaining four methods require calibration and are generally used to give a population index rather than a direct estimate of density.

Transect surveys were conducted over 5 weekdays between 20/09/11 and 25/10/11. Weekends were avoided due to the increased use of the reserve by walkers. Surveys were only conducted in dry weather with either no wind or light breezes only. On most days (n = 5) two surveys (early morning and midday) were conducted during the day with a minimum of 120 minutes between consecutive surveys of the same transect. Surveys were walked in silence at a slow steady pace (= 41m per minute). Each transect was repeated 10 times. Squirrels were detected both visually (sighting, movement and falling pieces of cone) and aurally (movement and feeding sounds). On detecting a squirrel, the observer moved to a position on the transect perpendicular to the squirrel and measured the distance to the squirrel with a laser rangefinder (Bushnell tour2 slope edition). Data also noted included behaviour of the squirrel and the tree species (if feeding)

Conventional Distance Sampling (CDS) line transect methods require that:

Transect lines are placed randomly with respect to the animals.

Animals do not move prior to sampling or in response to the observer.

Distances are measured accurately.

Animals directly on the line are counted with certainty.

The transect locations are shown in table 2 below.

Table 2: The line transects used for the distance sampling in 2011

Number	Location	Length (m)	Area(ha)
1	Red rock woods	180.5	5
2	Pines at Lions Head	168.26	0.7
3	Grace O'Malley woods	253.81	4
4	Windgate woods	129.44	2.5
5	Leamore	191.28	2.9
6	Transport museum	194.74	5
7	Megalithic tomb	236.37	5

3. Results:

3.1 Distribution of red squirrels

After walking the woodland in Deer Park and Red rock, red squirrel traps were placed in areas that showed signs of current feeding. Table 2 gives the GPS location of red squirrel traps. These locations were obtained using a GARMIN nuvi.

Table3: The location of fresh feeding signs and red squirrel traps placement in Howth and Sutton 2011

Trap	N	W
1	53 ⁰ 22.635	006 ⁰ 04.855
2	53 ⁰ 22.646	006 ⁰ 04.817
3	53 ⁰ 22.618	006 ⁰ 04.799
4	53 ⁰ 22.614	006 ⁰ 04.787
5	53 ⁰ 22.622	006 ⁰ 04.639
6	53 ⁰ 22.646	006 ⁰ 04.464
7	53 ⁰ 22.641	006 ⁰ 04.562
8	53 ⁰ 22.672	006 ⁰ 04.667
9	53 ⁰ 22.778	006 ⁰ 04.566
S1	53 ⁰ 22.246	006 ⁰ 05.602
S2	53 ⁰ 22.239	006 ⁰ 05.624
S3	53 ⁰ 22.219	006 ⁰ 06.621
S4	53 ⁰ 22.206	006 ⁰ 06.614

3.2 Hair tubes

Hair tubes were set in place in May 2011 around the Sutton and Howth area, the placement can be seen in table 4. The GPS locations were taken from Google map tool. Two of the tubes had rat hair, one had a feather and one was positive for red squirrel hair sample. One hair tube was stolen.

Table 4: Hair tube placement and results for 2011

Hair tube number	Location	N	W	Result
H1	Deer Park Gate	53 ⁰ 38.829	006 ⁰ 08.066	Rat hair
H2	Claremount	53 ⁰ 39.110	006 ⁰ 08.803	Stolen, removed
H3	Claremount Bridge	53 ⁰ 39.105	006 ⁰ 09.113	No hair
H4	Burrow School	53 ⁰ 39.146	006 ⁰ 10.039	No hair
H5	Burrow Rd	53 ⁰ 19.196	006 ⁰ 10.790	No hair
H6	Sutton Church	53 ⁰ 38.698	006 ⁰ 10.327	Feather
H7	St Fintan grave yard	53 ⁰ 37.918	006 ⁰ 09.638	Rat hair
H8	Shielfmartin rd	53 ⁰ 37.208	006 ⁰ 09.234	No hair
H9	Red rock woods S	53 ⁰ 36.950	006 ⁰ 09.300	Red squirrel
H10	Red rock woods N	53 ⁰ 37.080	006 ⁰ 09.450	No hair

3.3 Howth questionnaires returns

There were six hundred questionnaires distributed throughout Howth and Sutton during 2011, the response was 12% returned. Overall 70 questioners were returned of which 44 had sighted red squirrels and 26 grey squirrels. The sightings were between 2000 and 2011. The sightings included Raheny, Howth, Portmarnock,

Kilbarrack and Sutton and there were no sighting of grey squirrels in Sutton or Howth in 2011. Appendix 2 shows the returns for the questioners.

Table 4: results of the questionnaires distributed in the Howth and Sutton areas.

Name	Red & Grey	Red Only	Grey Only
Burrow National School	18	13	5
Scoil Mhuire	15	13	2
Library	16	9	7
Walkers	11	5	6
Golf course	10	4	6
Total	70	44	26

3.4 Trapping results

There were three trapping sessions between July 2011 and October 2011. Trapping was confined to Deer park and Red rock in Sutton. A total of 11 individuals were trapped with a ratio of male to female of 1.75:1. Three of the red squirrels were previously trapped in 2009. The remaining 8 were new to the population and had not been trapped in previous years. All new red squirrels were fitted with ear tags and PIT tags. Their mean weight of 323g for female and 296.82g for males. This can be seen in figure 6 below and figure 7 shows the population structure of the captured red squirrels on the Howth peninsula

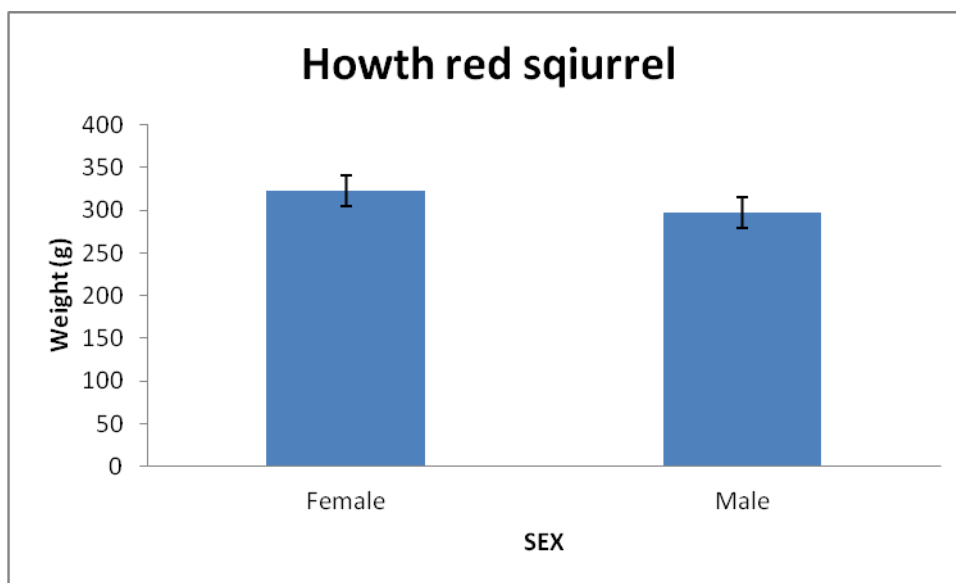


Figure 6: There weight of the red squirrels trapped in Howth and Sutton in 2011

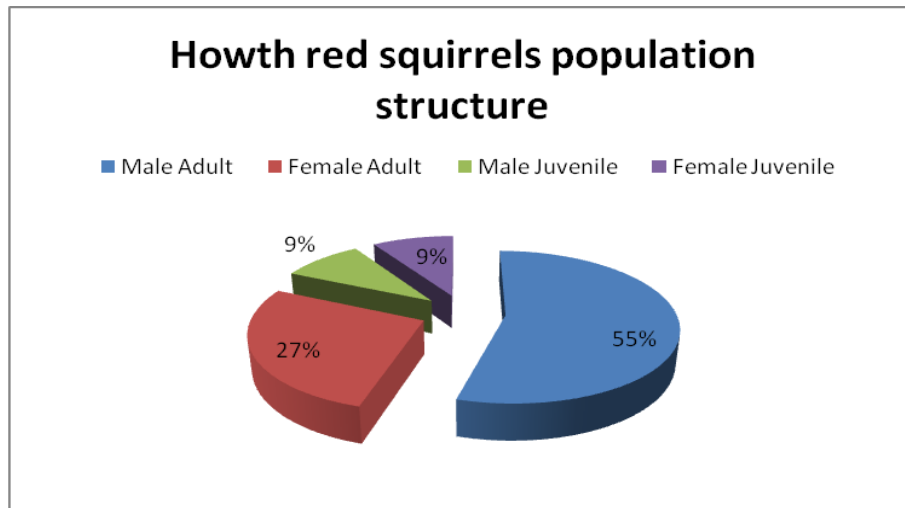


Figure 7: The population structure of the captured red squirrels on the Howth peninsula

3.5 Education

There was a small turn out for the presentation in the Baldoyle library on the 13/09/2011 but those that were there had a positive response. All the guided walks were with small groups which were better, as there are fewer disturbances to the squirrels that are in traps. This showed the general public that the animals were not harmed in any way and that the stress to the squirrel was kept to a minimum. This can help reduce damage to equipment as the general public understand what is happening.

3.6 Distance sampling

The results for the line transects in Howth did not include the area around Muck rock in deer park as this was one of the main trapping sites. The seven locations used in this part of the study only one was later used for trapping as it belongs to Fingal county council. When the information was put into the Distance 5 programme the result showed that a density of 0.6 squirrels per hectar or 17 squirrels in the area surveyed (see table 5). Figure 8 below shows the detection probability for 2011

Table 5: shows the results of the areas surveyed using line transects in Howth (Distance 5 was used to analyse data)

	Estimate	%CV	df	95%Confidence Interval	
D	0.66150	30.69	18.99	0.35302	1.2395
N	17.000	30.69	18.99	9.0000	31.000

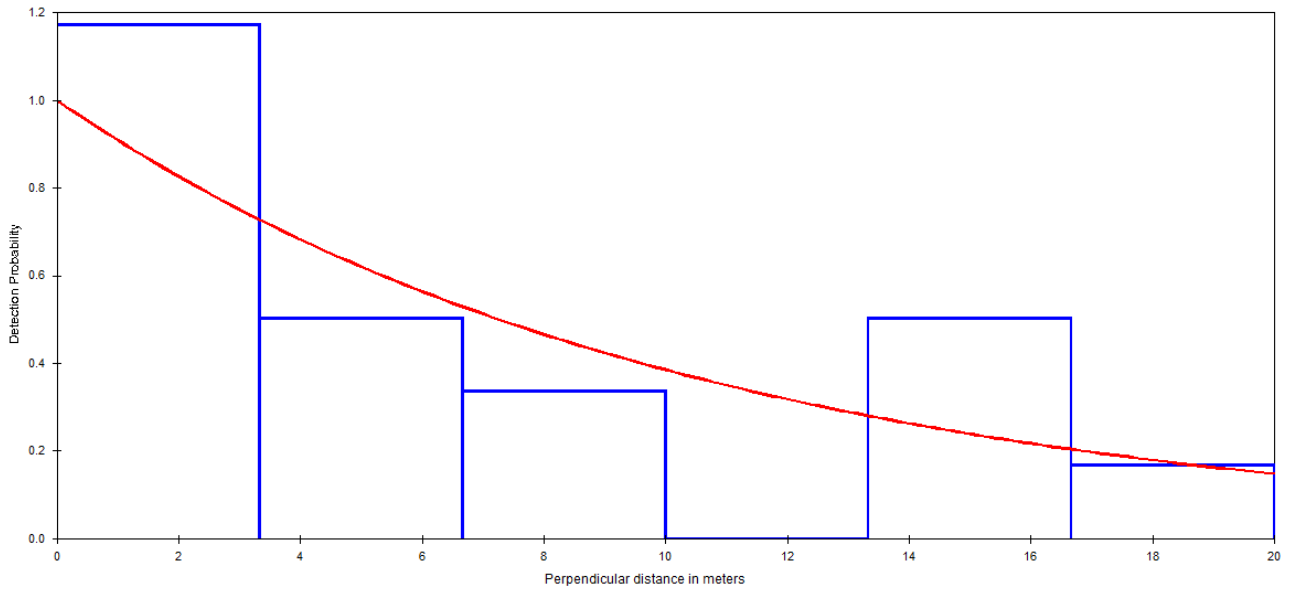


Figure 8: Shows the detection probability graph for the transects conducted in Howth in 2011

Discussion:

There are two species of squirrel found in Ireland European red squirrel (*Sciurus vulgaris*) and introduced eastern grey squirrel (*Sciurus carolinensis*). Grey squirrels were first introduced in County Longford in 1911 and first reached the outskirts of Dublin in the 1970s. The expansion of the grey squirrel across the country has coincided with the decline of the red squirrel numbers. The latest National squirrel survey of 2007 revealed that red squirrels have become increasingly marginalised. In Dublin red squirrels are now only found in isolated pockets in Howth and Killiney. By 2009 the nearest population in St Anne's had become extinct, and the population in Killiney had dropped to an estimated two or maybe four individuals. The population on Howth head was assessed in 2009 and was estimated to be approximately twenty individuals.

The current study set out to assess both red and grey squirrel populations on the Howth peninsula, which has approximately 89 hectares of woodland. This is spread out over 36 small woodlot ranges in size from 19 hectares to 0.4 of a hectare. The majority of these woodlots are mixed but some of the smaller woodlots on the Deer Park golf course that are Scot pine (*Pinus sylvestris*) around 30 to 40 years old. Through the distribution of questionnaires looking for sightings of both red and grey species and visual transect surveys it was established that there was only a presence of red squirrels in 2011 on the Howth peninsula. The main trapping site was established in the woodland above the rhododendrons garden in Deer park hotel. This site is approximately 19 hectares of mixed woodland. The other woodland site that was trapped during this study was at Red rock in Sutton.

The Red rock woodlot is approximately three hectares of woodland. The initial study in Howth in 2009 had indicated that there were very few greys and at that time the greys were removed from Howth. From the 2011 study it now appears that at no greys have come back into the Howth area. The hair tubes that were placed around the Sutton and Howth resulted in no grey squirrel hairs found. One hair tube at Red rock Woods had red squirrel hair present. This was the only positive results of the ten hair tubes. The questionnaires had a 12% return and this would have been more or less the expected result, as people are becoming less inclined to complete surveys. The survey provided enough information to find out if anyone had seen grey squirrels and where the red squirrels are at present. In that respect it was positive enough to set up line transects appropriately areas

Line transect were setup in several woodlots which were based on reported sightings of red squirrels. The data from this distance sampling was analysed using DISTANCE 5. This found a density of 0.6 squirrels per hectare in the areas where the transects were completed. This area did not include the woods above the rhododendrons gardens in which eight squirrels were captured this year. The density of .6 squirrels for a hectare equated to approximately 17 squirrels and throughout the rest of the woodland on Howth and is at confidence interval of between 9 and 31 squirrels

The trapping was conducted under licence from NPWS in Deer park golf course and with the consent of the owner. In 2009 and 2010 the Home range fixes were collected for nine red squirrels over ten days in late February/early March (3 point per day, 30 points per animal in total). Analysis using Ranges IV revealed a mean home range size of 2.19ha. The mean home range of males and females were 2.252ha and 2.125 ha respectively. The mean home ranges for the red squirrels in the Raven woods were for males and females 7.35 ha and 7.43 ha respectively. This comparison shows that in a large continuous forest the home ranges are significantly larger ($t = -6.893$, $df = 12.863$, $p < 0.001$). Of the red squirrels captured in 2010 three were recaptured in 2011. The total captures for 2011 was 11 individuals. Seven males and four females, the ratio of male to female in 2010 was 1:1 and this has changed in favour of the males in 2011 to 1.75:1. Eight of these animals are new to the population and have been marked, this is showing some recruitment into the population, two juveniles were of a weight that would indicate that they were born into this population on Muck rock. The Dublin red squirrels are living on the edge. They have been pushed to the brink of extinction by the threat invasion by grey squirrels. The last remaining red squirrel population on Howth head is at risk from both invading grey squirrels and small population effects due to isolation.

Conservation measures are urgently required to prevent their demise. Control of grey squirrels by way of monitoring in the Sutton area should be encouraged. This could be achieved by using local volunteers and training them to make and use hair tubes. Plans to use this method is currently been arranged on the south side of the city. This would make continuous monitoring much more affordable. Habitat restoration on council property should be encouraged. Trees resistant to grey squirrels should be preferentially planted. It would be recommended that more pine species be planted in areas where clearings appear from fallen trees. Sycamore (*Acer pseudoplatanus*) could be removed to facilitate the planting of new trees. Species such as Maritime pine (*Pinus pinaster*), Lodgepole pine (*Pinus contorta*) and Corsican pine (*Pinus nigra*) may be used to create a rotational crop of pine cones from year to year. The removal of some of the Cherry laurel and Rhododendrons last year has created an area where Hazel (*Corylus avellana*) could be planted as an understory species; this will produce a seed crop much quicker than other broadleaf trees and may be of benefit to the remaining red squirrels. Supplementary feeding could be used as long as the grey squirrels are not in the area. Augmentation of current populations may be required at a later stage but for the present continued monitoring of the population is needed and trapping late in 2012 would be recommended to assess the structure of the population and ensure that the male to female ratio is improving. Female recruitment into this population is needed for its survival. Death related road crossings have been observed. The loss of even a few extra individuals could mean the difference between survival and extinction of a remaining north Dublin population.

Collaboration with other County Councils, Agencies and Government departments involved in control of grey squirrels and conservation of red squirrels in the greater Dublin area should be further developed.

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Appendices 1



Dublin Squirrel Survey 2011 Co-ordinated by UCD Please fill out details below

Name: _____
Address: _____

Contact Phone Number: _____
E-mail address: _____

May we contact you for more information? Yes No

Location details

Name of Area: _____
Address / Road: _____

Type of Habitat? Coniferous Broadleaf Mixed Urban Garden

Have you seen a squirrel? Yes No

If yes which species? Red Grey

When was the most recent sighting of: Red squirrel

Last Week	<input type="checkbox"/>
Last Month	<input type="checkbox"/>
Last Year	<input type="checkbox"/>
Even longer	<input type="checkbox"/>

When was the most recent sighting of: Grey Squirrel

Last Week	<input type="checkbox"/>
Last Month	<input type="checkbox"/>
Last Year	<input type="checkbox"/>
Even longer	<input type="checkbox"/>

In what year did you first see a Grey squirrel?
In what year did you last see a Red squirrel?

Any further information

Please return to:

William Carr

Dublin Red squirrel survey,
Mammal Research Group,
School of Biology and Environmental Science.
Science building west,
UCD, Belfield, Dublin

E-Mail: dublinredsquirrels@ucd.ie or william.carr@ucdconnect.ie



Appendices 2
Survey returned 2011

Sample	Donnor	Date sighted	Species	Location	Road
1	Karen Foley Heather Grant	20/02/2009	Red	Howth	Garden in howth
2	Duggan		Red	Howth	Deer park at the Castle
3	Cian Hansen	12/01/2000	Red	Howth	Asgard Rd
4	Dylan Cagney	06/02/2006	Red	Howth	Howth Golf Course
5	Andrew Kane	15/06/2007	Red	Howth	Deer park at the Castle 8th tee
6	Conor Sealy	17/05/2008	Red	Howth	Casana View
7	Shane O'Dea	15/06/2008	Red	Howth	Deer Park Golf Course
8	Louise Flynn-Byrne	May-08	Red	Howth	Bailey
9	Patrick Borel	23/05/2007	Red	Howth	23 Asgard Park
10	Ellie Doyle	Jan-08	Grey	Howth	Deer Park Golf Course
11	Virienne O'Hanlan	25/06/2008	Red	Howth	Deer Park Thormanby Rd(turning to Casana View
12	Conor Cooke	30/06/2008	Red	Howth	View
13	Killian Caulfield	Apr-07	Red	Howth	Paddy Priest wood Deer Park
14	Callum Clark	23/03/2008	Red	Howth	Howth Castle farm yard
15	Catherine Glynn	Mar-07	Red	Howth	Andeens Grave Dolmen
16	Catherine Glynn	Mar-07	Grey	Howth	Andeens Grave Dolmen
17	Sinead Mc Loughlin	2007	Grey	Howth	Howth Castle farm yard
18	Jake Heffernan	18/06/2008	Grey	Howth	Care Bridge crossing Howth rd
19	Billy Minto	Oct-07	Red	Howth	Howth Castle
20	Lee Moore	Feb-08	Red	Howth	Grace O'Malley Golf Course
21	Adam Barry	March/April 08	Red	Howth	Howth wood and Golf course
22	Aaron Lanrtry	15/06/2008	Red	Howth	62 St Peters Tce
23	Meadhbh Slattery	26/12/2007	Red	Howth	Deer Park
24	Ruth Farren	Mar-08	Red	Howth	Deer Park (Top of hill) forest
25	Cailinn Walsh	24/12/2007	Red	Howth	6 Seaview Tce
26	Jonny Bell	2009	Red	Howth	Summit
27	Lara Jameson	22/04/2011	Red	Howth	Rhododendroms deer park
28	Alex Curtis	16/06/2011	Red	Howth	Grainage Baily Howth
29	Brian Murry	07/10/2011	Red	Howth	Howth rd, backing on to deer park
30	Paddy Harford	07/10/2011	Red	Howth	Thormanby Rd
31	Deirdre Costello	01/09/2011	Red	Howth	Deerpark
32	Gemma O Connor	01/09/2011	Red	Howth	Deerpark
33	Deirdre Mc Swiney	07/10/2011	Grey	Howth	Carrickbrack Rd
34	Deirdre Mc Swiney	07/10/2011	Red	Howth	Carrickbrack Rd
35	Mary Sealy	07/10/2011	Red	Howth	Thormanby rd
36	A Kissane	07/10/2011	Red	Howth	South hill
37	Robert Dickson	2004	Red	Kilbarrack	Kilbarrack Road
38	Roisin Arthurs	at present	Grey	Malahide	Streamstown
39	Catherine Bushe	01/10/2008	Grey	Malahide	Biscayne, Coast Rd
40	Michelle Harrison	2009	Grey	Malahide	Malahide Castle
41	Ann Charleton	Feb-09	Grey	Malahide	The Rise
42	Ann Short	14/10/2011	Grey	Portmarnock	Portmarnock dr

43	Conor Clinch		Grey	Raheny	St Ann'es Park
44	Conor Clinch		Grey	Raheny	St Paul's College, Sybill Hill
45	Marian Redmond	Feb-09	Grey	Raheny	St Ann'es Park, above pond
46	Mary Forrest Maire Ni		Grey	Raheny	St Ann'es park, red stables
47	Shuilleabhain	Feb-09	Grey	Raheny	St Ann'es Park
48	Adrienne Coleton	2011	Grey	Raheny	St Ann'es Park
49	Adrienne Coleton	2008	Red	Raheny	St Ann'es Park
50	Cliona Geary	2009	Grey	Raheny	St Ann'es Park
51	Marie Murphy	Feb-09	Grey	Raheny	St Ann'es Park
52	Robert Dickson Heather Grant	2009	Grey	Raheny	St Ann'es Park
53	Duggan	25/05/2008	Grey	Raheny	St Ann'es Park
54	Timmy McDonnell	25/06/2008	Grey	Raheny	St Ann'es Park
55	Sophie Harrison	25/06/2008	Grey	Raheny	St Ann'es Park
56	Nelly Rayn	25/06/2008	Grey	Raheny	St Ann'es Park
57	Nelly Rayn Sabelle ian den	25/06/2008	Red	Raheny	St Ann'es Park
58	Bergh	Jun-07	Red	Raheny	St Ann'es Park
59	Katie Grant Duggan	18/05/2008	Red	Raheny	St Ann'es Park
60	Aimee Brennan	25/06/2008	Red	Raheny	St Ann'es Park
61	Aimee Brennan	25/06/2008	Grey	Raheny	St Ann'es Park
62	Dermot Murphy	07/10/2011	Grey	Raheny	Watermill rd, St Annes
63	Kim Masterson	14/10/2011	Red	Raheny	St Ann'es
64	Val Dunne	Jan-09	Grey	Santry	Santry Domaine
65	Val Dunne	Jan-09	Grey	Santry	Old Santry Road
66	John Lawer	30/03/2009	Grey	Santry	Santry woods opposite the lakeside
67	Barney Croghan	30/01/2009	Red	Sutton	Sutton Castle wood's
68	Katie Grant Duggan		Red	Sutton	Martello Tower
69	Mollard	16/06/2009	Red	Sutton	Howth Golf Course on road dead
70	Sheila Bourke	Dec-08	Grey	Swords	Elmwood Park