6 CRISIS findings and outputs

6.1 Effects of grey squirrel control upon tree damage

The efficacy of limiting tree damage by reducing the number of grey squirrels in a population was tested in 9 of the 10 privately owned Project CRISIS sites. The baseline damage levels found at each site at the start of the project are reproduced in Table 6.1. No control took place at the Treacy site due to the absence of squirrels and fresh damage at the start of the project; it was however consistently monitored for such evidence. In the majority of cases, control was carried out via warfarin poisoning in 2006 and 2007, though some shooting and trapping also took place at Dalgan Park and the Barry and Galvin sites. Monitoring of warfarin uptake took place during each site's control cycle in order to relate the probable number of animals removed from the population to the frequency of any subsequent bark stripping damage. The findings of this work are shown in Table 6.1 as well as Figure 6.4 and Figure 6.5

In 2006, seasonal damage in the majority of sites was reduced, with most success being attained where hoppers were sited in or near adjacent holding habitat. New damage was not noticeably reduced in three sites (Murray, Fanning and Finnegan). Both the Murray and Fanning sites lie adjacent to holding habitats belonging to other parties where control was not possible; it is likely that new damage was caused by squirrels resident in these habitats that extended their ranges into the respective project sites after the control cycles were completed. In the case of the Finnegan site, it is possible that the new damage detected occurred before the control cycle, as hoppers were sited here relatively late in the season. In the Fanning and Finnegan sites, the majority of new damage was caused to sycamore; in the Murray site, damage was found in several species, including sycamore and oak.

Photographs of grey squirrel damage on several tree species found at the project sites are shown in Figure 6.1.

Figure 6.1 – Cases of grey squirrel damage at project sites (clockwise from top left: beech, oak, alder, sycamore)

Table 6.1 - Results of damage assessments at start of project and after control cycles in 2006 and 2007

Site	Composition	Estimation of resident grey squirrel population	Baseline damage frequency	Baseline mean severity of damage (1-5)	2006 damage frequency	2006 mean severity of damage (1-5)	2007 damage frequency	2007 mean severity of damage (1-5)
Boyd	Old estate woodland. Woodland improvement scheme – Oak, Ash, Sycamore, Alder etc Farmed block – Oak, Scots Pine	High	67%	2.6	2%	1.9	5%	1.6
Galvin	Old estate woodland. Woodland improvement scheme – Oak, Ash, Sycamore, Chestnut, Hornbeam, Willow	High	61%	2.8	6%	1.3	5%	1.1
Preston	Old estate woodland. Planted shelter belt – Oak.	High in mature woodland, low in shelter belt	0%	-	0%	-	2%	1.3
Farrell	Planted farmland. Blocks of Sycamore and Ash/Sycamore mix.	Medium	13%	2.7	2%	3.8	27%	2.8
Fanning	Planted farmland. Blocks of Ash, Sycamore and Oak.	High in neighbouring mature woodland, medium in plantation	25%	2.2	12%	2.1	6%	2.2
Finnegan	Planted shelter belt on farmland. Blocks of Sycamore/Sitka Spruce mix.	Medium	21%	1.9	15%	1.7	17%	1.5
Murray	Old broadleaf wood – Partially felled and subsequently planted with Oak, Beech, Ash and Alder. Adjoining block of Douglas Fir, Sitka Spruce, Cherry and Ash.	High	26%	2.4	19%	2.5	24%	2.2
Dalgan	Planted shelter belt adjoining remnants of estate woodland. Blocks of Oak/Ash/Sycamore mix.	High	35%	2.8	3%	1.4	7%	1.9
Barry	Planted blocks of Ash and Sycamore.	Medium	31%	2.6	2%	4.5	1%	3.0
Tracey	Planted blocks of Ash and Sycamore.	Low	5%	1.7	0%	-	1%	1.3

Overall tree damage in the sites was noted as being patchy in its distribution, but it was often severe where it did occur. This patchiness is likely to be caused by squirrels not affected by a control cycle that subsequently caused damage to trees in the focal areas of their ranges. Damage at the Barry site was limited to a small group of beech trees; the animal responsible for this was caught and dispatched soon after the damage was detected.

It should be noted at this stage that fluctuations in grey squirrel populations were noted during the course of the project; this information was related to the project team by several of the project landowners and by third parties in other areas. Such fluctuations naturally occur in wild squirrel populations and are a result of shifts in birth and mortality rates resulting from changes in food availability and weather. The recorded reduction in squirrel damage in Table

6.1 may therefore not be 100% attributable to the applied control in each site, though the levels of warfarin uptake indicate that squirrels were both initially active and subsequently removed in the project sites where control was attempted. Overall, it was found that where control took place, sightings were reduced for several months. However, recolonisation of the project sites by grey squirrels from neighbouring woodlands did eventually take place.

Overall, it is apparent that a correlation exists between the removal of grey squirrels from a woodland and a subsequent reduction in bark stripping. It is clear that in high risk woodlands, some form of grey squirrel control will be a necessity to protect the commercial and/or recreational value of a plantation.

Regarding tree species susceptibility, the findings of the project team generally correspond with those of earlier studies, with sycamore, maple and beech being most severely at risk from bark stripping by grey squirrels. However, frequent damage to oak was also recorded during the course of the damage assessments, this being particularly severe in woodland improvement sites. Oak may need to be reconsidered as a high risk species in the future.

6.2 Damage assessments in woodlands beyond original project sites

Damage assessments were carried out at Coillte's Oak Provenance trial in Shillelagh, Co. Wicklow. This woodland consists of numerous small square blocks of various provenances of Oak, sourced from Ireland, the UK, Germany and the Netherlands. Some damage was found, though the majority of trees at the site are still below 5cm DBH and are unaffected by grey squirrels, as they have not entered the main damage risk window that exists between 5 and 20cm DBH. No bias in damage towards any one provenance or country of origin was detected, but this may be as a result of the overall low frequency of damage. It is recommended that Coillte carry out similar damage assessments in another five years, when more of the trees in the plantation will be at risk from damage.

The level of damage in oak at both Oak Park and Borris House in Co. Carlow was quantified using the same method applied in the CRISIS sites in Co. Meath. Following a visit to the former site by the CRISIS team in January 2007, the estate engaged in a control programme resulting in some 173 grey squirrels being trapped and/or shot. However significant numbers appear to be still present, as fresh damage was noted during the assessments carried out at the site. Damage distribution charts showing the severity of damage across a range of trees of differing diameters are shown in Figure 6.2 and Figure 6.3.

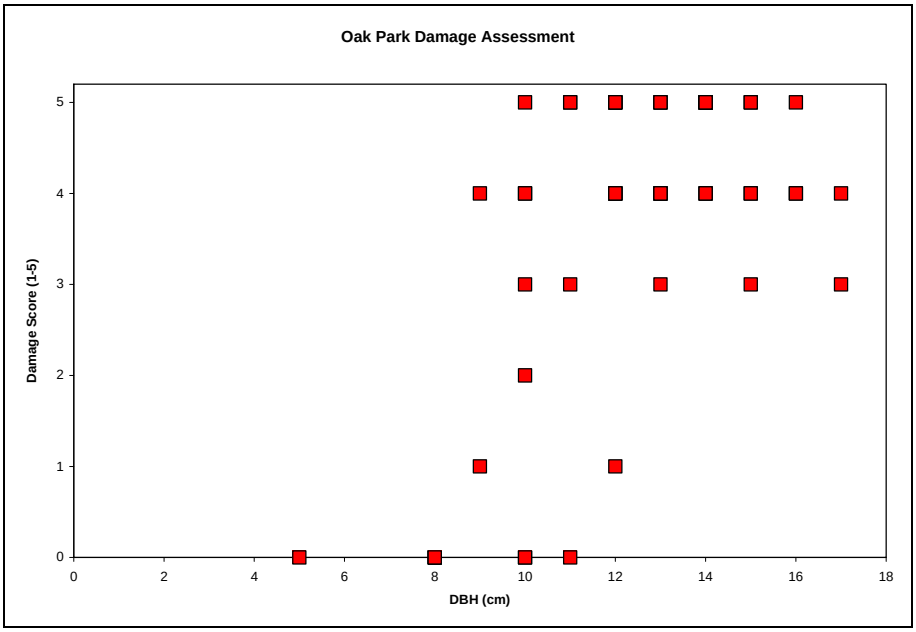

Figure 6.2 - Oak damage assessments at Oak Park, Co. Carlow

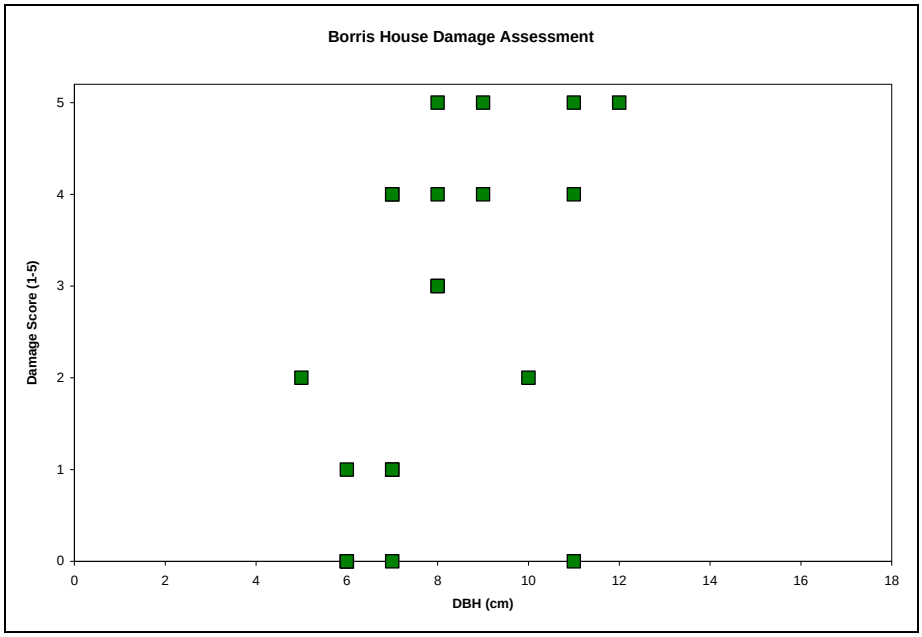

Figure 6.3 - Oak damage assessments at Borris House, Co. Carlow

Damage was found overall to be very frequent in both sites (Oak Park = 85% / Borris House 80%). A bias towards more severe damage (3-5 score) was also apparent at Oak Park. It should be noted that the trees at Borris House are of a lower age and size class; given the damage that has already occurred, one can predict that in only a few years, the situation in the woodlands will be very similar.

6.3 Assessment of warfarin hoppers as a grey squirrel control option

Information gathered from the landowners in late 2006 and early 2007 revealed that squirrel numbers in nearly all the sites had returned to levels similar to those present before the first control cycle. Reinvasion by grey squirrels from neighbouring properties allows sites to be recolonised relatively quickly; numbers may return to pre-cull levels within 3 months (Lawton and Rochford 2007). In spring 2007, a second year of warfarin poisoning was initiated in several selected project sites (Galvin, Boyd, Dalgan, Murray, Preston and Fanning). The remaining sites were used for comparison, as examples of what may happen if control is not operated on a continuous basis from year to year.

In the 2007 control cycles, there was noticeable variation between the total quantities of bait consumed from the hoppers at each site. These amounts are outlined in Figure 6.4. It takes around 200g of warfarin to be consumed for it to reach lethal levels in a grey squirrel; the horizontal lines extending from the y-axis in Figure 6.4 reflect the possible numbers of squirrels removed at each site. When compared to 2006, significantly less bait was taken in general; an abundance of natural food in the Spring of 2007 possibly resulted in the hopper bait being less attractive to squirrels. At the landowner's request, traps were also utilised at the Galvin site after the completion of hopper control, as a large influx of squirrels was noted.

Figure 6.5 compares the levels of damage recorded in 2006 with that in 2007. It can be seen that the frequency of damage occurrence increased in the majority of sites. In the Finnegan, Tracey and Farrell sites, this can be attributed to the absence of control (the latter site shows a particularly large increase in damage). Though hoppers were deployed in six sites, damage at four was seen to increase when compared to the previous year. Damage was less in the Galvin and Fanning sites, the former case possibly being as a result of continuing control via trapping and shooting; in the latter site, control with hoppers may have been relatively successful. Damage in the Barry site was limited to a small area of oak; though the overall frequency of damage for the entire plantation was very low, over 20% of trees were damaged to some degree in the oak compartment.

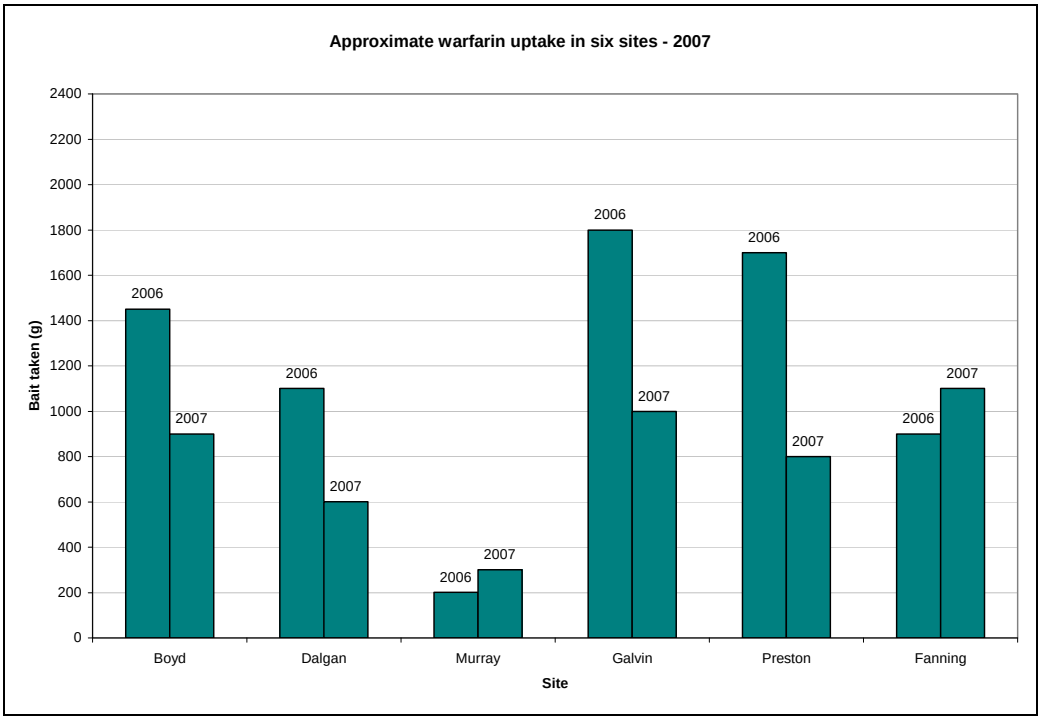

Figure 6.4 - Warfarin uptake during respective control cycles in 2006 and 2007[1]

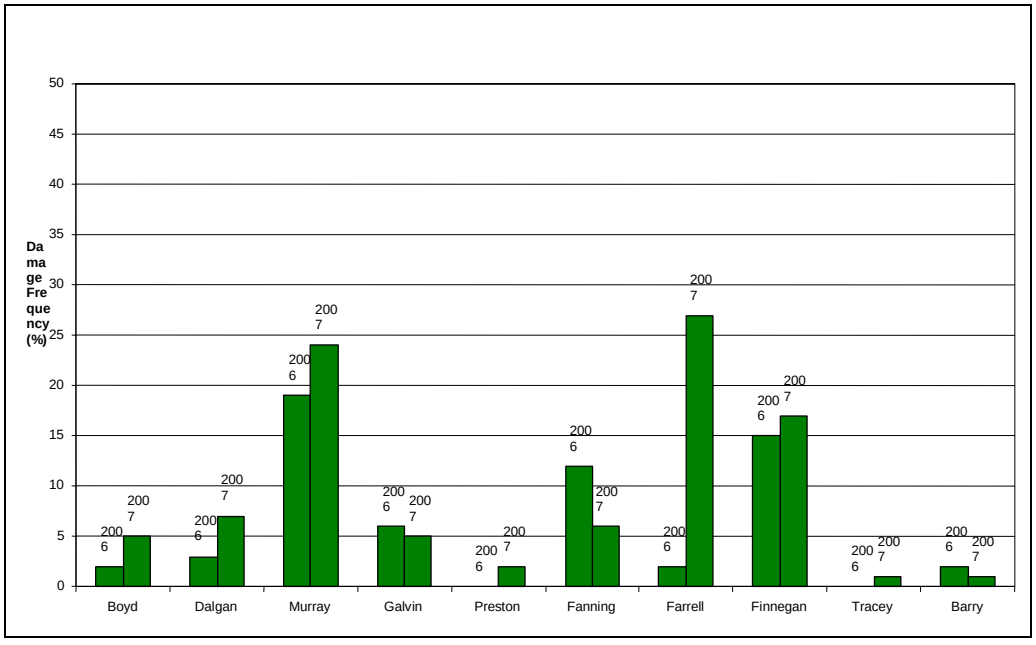

Figure 6.5 Damage frequency in 10 sites (based on number of trees damaged per 100 surveyed)

[1] It takes around 200g of warfarin to be consumed for it to reach lethal levels in a grey squirrel

Overall, the observed increase in tree damage in the sites where control was applied is likely to be a result of poor bait uptake and consequently inadequate control. This indicates that even when control reduces damage in one year, such damage will increase once more if control is not continued or is less effective in removing squirrels the following year. The poor control success noted in 2007 suggests that poison hoppers may not be a reliable method of grey squirrel control in Ireland. Possible reasons include insufficient repeated exposure when there is an abundant natural food, and the hoppers were found to get easily blocked in wet weather, which is particularly frequent during the optimal February to May control window.

6.4 Assessment of live trapping as a grey squirrel control option

Trapping has taken place at the Barry site over several years, carried out effectively by the landowner himself in response to severe damage, predominantly affecting sycamore, entire blocks of which have now essentially been written off. Mr. Barry reports that the initial capture frequency was very high, approaching 60 to 70 animals per trapping season. Consistent trapping over several years has reduced the annual catch to less than 10, these animals presumably moving in from neighbouring lands. Damage caused by grey squirrels has subsequently fallen significantly and any contemporary occurrences are highly localized. Mr. Barry, who frequently monitors his plantation for new damage is able to target traps into areas of new damage and has reported that animals responsible are quickly dispatched.

The assessment of trapping methodology and labour cost took place at Carton House Estate in Kildare (see section 4.4). Results found that if a regimented approach to trap siting, setting and checking was applied, then trap success can be maximized and labour costs consequently minimized. In total, 35 grey squirrels were removed from the population over the course of 8 days of trapping, with the highest number being caught on day 5. Daily catches are shown in Figure 6.6 and, as expected, the number of squirrels increased as they encountered the traps to reach a maximum of day 5 and then decreased as individuals were removed from the population and not replaced. This may be described as a normal distribution.

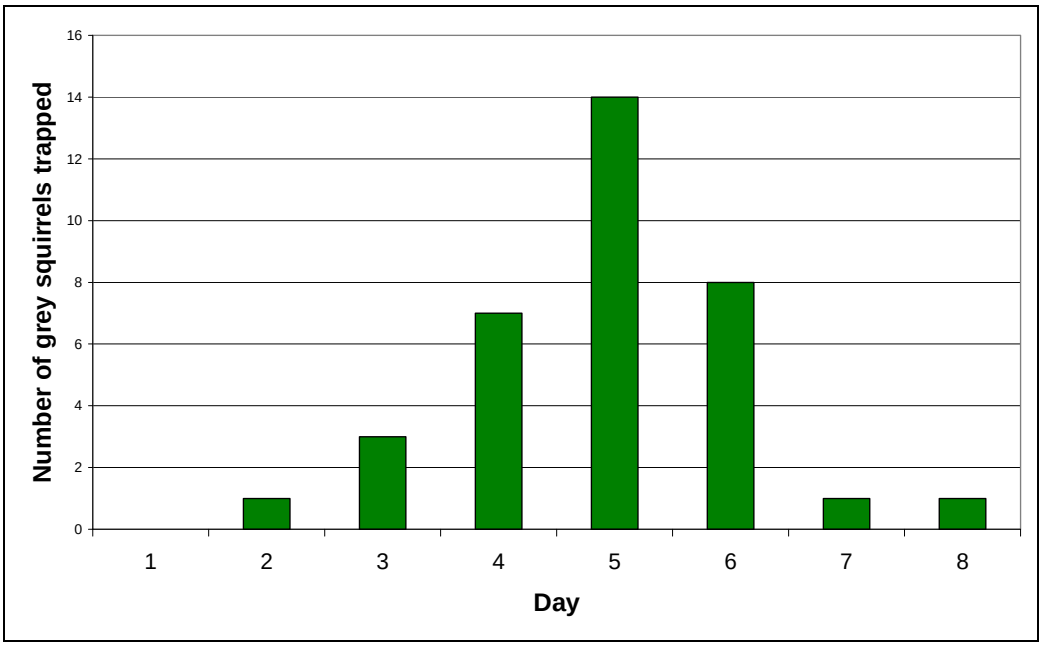

Figure 6.6 - Numbers of grey squirrels trapped per day at Carton House

It can be seen that the first two days of trapping yielded only one catch in total; as pointed out in Section 5.3.2.4, no prebaiting took place for any traps. It is reasonable to assume that had this been the case, the number of catches following the initiation of active trapping would have been much higher. Comparison should also be made with the amounts of warfarin consumed at the respective project sites. It takes around 200g of warfarin to be consumed for it to reach lethal levels in a grey squirrel; the most consumed at any site was 1800g, at the Galvin estate. Assuming that the warfarin in the hoppers was consumed equally between several squirrels, this computes to a maximum of only nine squirrels being removed from the population. While the removal of only these 9 animals was sufficient to reduce damage in a season, it is reasonable to suggest that the application of trapping provided a much more thorough reduction of a grey squirrel population for one season. Evidence of a bias towards males and younger animals was detected in the demography of the trapped population. This is indicative of the time of year that the control took place, with new animals in the population dispersing from their natal home ranges during the spring; males also tend to travel more widely during this period. When using warfarin it is not possible to tell the sex or age of the animals removed (unless the corpse is located but this is unlikely)

Man-hours were not as great as expected; checking, squirrel dispatch and re-setting at trap stations took approximately 2 hours per day for eight days. This is not significantly more than that required to prebait with maize and monitor warfarin uptake during the course of poison-based control cycle. The need for a licensed firearm for dispatching squirrels may be an issue,

though it is the swiftest and most humane method available. In situations where the use of a firearm is not convenient, squirrels may also be dispatched humanely using another method; this is covered in Section 9.1.

6.5 Assessment of shooting as a grey squirrel control option

Fours hour in total were spent patrolling both Carton House and the Lyons Estate (two hours at each location), during which time, six animals were dispatched at Carton House while only two animals were dispatched at the Lyons Estate. In two hours at Carton House, the animals removed were predominantly juveniles in and around the woodland across the river from the Shell Cottage Wood. These juveniles are likely to have been from 2007's first litters in the area. The lower numbers encountered at the Lyons Estate may have been a result of poor weather on the day control took place, though it should be noted that control at the Lyons Estate has been ongoing and more intensive in recent years than on much of the Carton estate. It is reasonable to assume therefore that the population of grey squirrels at the Lyons Estate already exists at a lower density.

The method of patrolling the estate in a vehicle was found to be very efficient for the type of landscape one finds at the respective estates; both are very well served by access roads that flank woodland and squirrels were often easily sighted along the road verges. In the case of a woodland with poorer access, such an approach may be better applied on foot, though depending on the area this maybe be more time consuming from the point of view of labour required.

Control success rates from trapping and shooting are closely comparable; on average between four and five animals were removed on each estate per day of labour ('per day' in reality refers to the two hours dedicated to grey squirrel control on each day). It is also reasonable to assume that the use of baited feeding stations to attract grey squirrels to specific areas would further increase the efficiency of shooting as a control method. A combination of trapping and shooting may also be considered to fully maximize efficiency, with shooting patrols taking place during prebaiting for trapping; any animals seen feeding around prebaited traps may be dispatched before active trapping begins. Mature dominant grey squirrels in a population may exclude other suobordinate animals from food resources; removing possibly dominant squirrels before active trapping in this manner may increase overall control success by allowing immature animals to access traps earlier in a control cycle.

6.6 Comparison of grey squirrel control methods

A costing analysis on the three methods of control was carried out, based on a hypothetical 10 hectare broadleaf woodland; see Table 6.2. Equipment, consumables, labour and other expenses were estimated for each method of control were it to be applied in the woodland. Labour costs were based on a casual labour rate of €20 per hour. It is assumed that anyone hired to carry out such work would be properly trained in the appropriate methods. It should also be noted that costs for a contracted professional wildlife manager/gamekeeper/pest controller would be significantly higher, possibly up to €50 or €60 per hour. The logistical pros and cons of each control method were also documented; these are shown in Table 6.3.

Table 6.2 - Estimation of costs per year for each control method tested for a 10ha broadleaf woodland

	Equipment (Year 1 only)	Consumables	Setup labour	Active labour	Other expenses	Year 1 cost	Subsequent year cost
Poisoning	10 hoppers @ €20	50kg whole maize @ €20 25kg warfarin wheat @ €80	8 hrs siting of hoppers 10 hrs prebaiting across several days	10 hrs warfarin monitoring across several days	-		
Cost	€200	€100	€360	€200	-	€860	€660
Trapping	10 traps @ €35 Air rifle @ €200	25kg whole maize @ €10 Rifle pellets @ €10	8 hrs siting of traps 10 hrs prebaiting across 5 days	20 hrs active trapping across 10 days	Gun licence @ €38 Insurance @ €60		
Cost	€550	€20	€360	€400	€98	€1428	€878
Shooting	Rifle / Shotgun	Ammo (250 rounds / cartridges)	-	Max 40 hours	Gun licence @ €38 Insurance @ €60		
Cost	€600	€70	-	€800	€98	€1568	€968

Table 6.3 - Pros and cons of each respective grey squirrel control option

Method of control	Pro	Con
Warfarin poisoning	Cheapest method of control Labour less 'hands-on' Little training needed	Risk of accidental and/or secondary poisoning to other wildlife, especially red squirrels and pine martens Public may consider method inhumane Future of poisons in forestry uncertain due to pressure from EU Necessity for disposal of toxic materials (unused bait) Hard to gauge success of control Hoppers tend to clog easily in damp conditions No licensing exists in Ireland Hoppers require regular maintenance
Trapping	Little risk to non-target species, which if caught can be released Instant knowledge of success More humane dispatch than poison Landowners may already have access to appropriate firearms	Traps require regular maintenance Setting mechanism can be awkward – trained personnel advised
Shooting	Little risk to non-target species, provided training is provided on identification of squirrel species Instant knowledge of success More humane dispatch than poison Landowners may already have access to appropriate firearms	May not always result in 'clean kill' Public safety an issue

6.7 Trap trial results

The daily captures in the respective trap designs tested at Donadea are shown in Figure 6.7. The results show that there was no significant difference between any of the trap designs in terms of the number of animals trapped. However, the largest number of squirrels (4) was

caught in the Dingle Poultry single-catch trap. No squirrels were found in the 'multicatch' trap on any of the days (also supplied by Dingle Poultry).

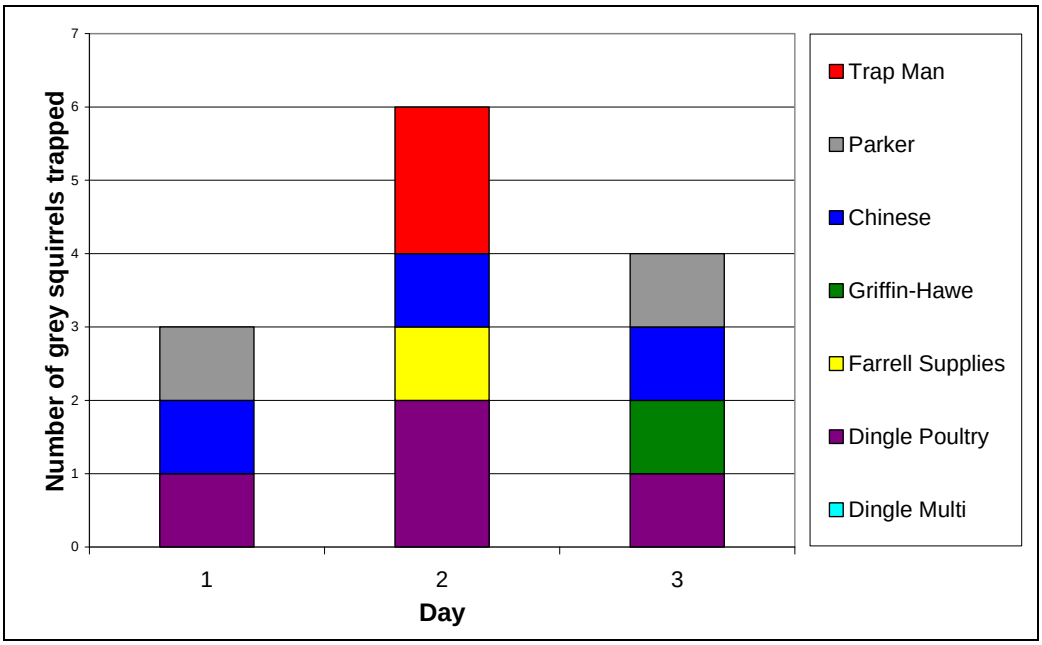

Figure 6.7 - Pattern of grey squirrel catches in each type of trap during Donadea trial

As no major bias towards any one design was obvious the selection of a trap for more widespread use should be based on a wider range of criteria. During the trapping trial, other points on the functionality of each trap were noted for further comparison, such as ease of setting, portability and escape likelihood. Once the trial had concluded, each trap was subsequently subjected to a durability test, initially through an assessment of each trap's susceptibility to rust. This was facilitated through exposing each trap to a solution of Hydrogen Peroxide and Salt, which greatly accelerated the rusting process (see Figure 6.8). A score of 1 to 5 was applied to each trap in relation to the aforementioned variables, with 1 representing the poorest performance and 5 the best. The results of this scoring are shown in Table 6.4; these scores are by their nature purely subjective, and are based solely on the Project Officer's experience in using each design.

Figure 6.8 - Application of rusting solution to traps

Costs listed in the table are based on purchasing a single trap from the supplier; bulk prices will obviously be less depending on the size of order. Trapping success score directly relates the number of animals caught in each design of trap during the Donadea trial. Strength score reflects each trap's performance when subjected to severe force. Rust score reflects the degree to which rust had occurred on each trap following exposure to the peroxide solution. Ease of use score relates to the Project Officer's experience in setting and opening a trap in the field. Portability score reflects the size and weight and weight of each trap. Escape likelihood score is based on a prediction of how easy it would be for a trapped squirrel to lever open the trap door after it has sprung.

It was found that the 'Athy', 'Farrell' and 'Parker' traps were somewhat more difficult to set and/or release a dispatched animal from. Given that landowners may choose to carry out control themselves (as opposed to hiring a professional pest controller), simplicity of use is a key variable. The results of the rusting treatment showed that some traps ('Trap Man' and 'Farrell') rusted much faster than the others (see Figure 6.9); all traps showed some early signs of corrosion, but this was found to be least on the 'Dingle' traps. Based on the scores and overall experience from the trap trial, it can be seen that the 'Dingle' single-catch trap appears to present the best balance between efficiency, reliability, and ease of use. However, cost must also be factored in; this trap is three times more expensive than the cheapest 'Chinese' trap, which also scored reasonably well.

Table 6.4 - Trap performance scores

		SCORE						
Trap	*Cost*	Trapping success	Strength	Rust resistance	Ease of use	Portability	Escape likelihood	**Total**
Dingle (Single)	*€44*	4	5	5	4	4	4	**26**
Athy	*€35*	1	3	3	2	5	5	**19**
Chinese	*€15*	3	3	4	5	4	3	**22**
Farrell	*€32*	1	2	2	3	4	3	**15**
Trap Man	*€30*	2	5	1	4	4	4	**20**
Parker	*€35*	2	3	4	2	4	5	**20**
Dingle (Multi)	*€70*	0	5	5	5	2	3	**20**

Figure 6.9 - Results of accelerated rusting tests (significant corrosion highlighted)

The project team has concluded that although the best performing trap is the most expensive, reductions in cost from bulk ordering and good long-term durability still make it the most feasible option for use in a government-funded project. Furthermore, purchasing this model encourages Irish manufacture, as opposed to outsourcing to a foreign supplier.

6.8 Raising Public Awareness

As stated in Section 5.5, the raising of public awareness regarding squirrel management and conservation in Ireland was one of the key objectives set for the CRISIS project. This was achieved through engaging the public both directly via lectures and other presentations, and indirectly through the media. Various deliverables in this regard are detailed below.

A thorough summary of the project was published in the Farmers Journal on April 20th 2006 and its call for information on red and grey squirrels in other parts of the country prompted several responses via email. An article, written by the Project Officer on the main issues concerning grey squirrels in Ireland was featured in CRANN magazine (Autumn Issue 2006, No. 74). Several individuals also made contact subsequent to this publication to report red/grey squirrel presence or damage to trees. A more detailed article on the history of squirrels in Ireland and the conservation issues therein was also written by the project officer for the journal of the Irish Wildlife Trust.

A presentation was made at the NARGC AGM in Tullamore on June 17th 2006. The main objectives and methods of CRISIS were described, and it was agreed by the NARGC representatives that the organisation would fully support the project. Copies of the presentation on CD were subsequently forwarded to Mr. Des Crofton, Director, NARGC, for circulation to the regional NARGC bodies.

A public lecture about the project took place on June 15th 2006 in the Glendalough Education Centre as part of the Wicklow Mountains National Park Summer Events Schedule. It was attended by circa 60 people, mostly local amateur naturalists with an interest in red squirrel conservation. Grey squirrels have recently been sighted near the visitor centre, which prompted a constructive discussion with the public attendees and NPWS staff on how best to minimise their incursion into the Glendalough valley.

Representatives from the Irish Farmer's Association (Ms. Barbara Maguire and Mr. John Jackson) were shown two of the project sites (Dalgan and Boyd) on August 22nd 2006. Damage to trees therein was demonstrated to the representatives, as well as describing the control methods applied, and results from the control cycles. Subsequent to this meeting, a short synopsis of the project was featured in the IFA newsletter, with a call for any information on grey squirrel sightings or tree damage from around the country.

The CRISIS team was also major contributors at several forestry field days, including Dalgan Park on April 27th 2007 (organized jointly by the Society of Irish Foresters and the Irish Timber Growers Association), Vicarstown, Co. Laois on June 20th 2007 and Whitehall, Co. Westmeath (both organized by Teagasc, COFORD and the Forest Service). Presentations to timber growers were made on-site detailing grey squirrel damage and control options. Stands were also run by the project team at Dublin Zoo's Native Species Weekends in 2007 and 2008; these provided an excellent opportunity to meet the public face-to-face and discuss their views relating to squirrels in Ireland.

The Irish Squirrel Survey 2007 was of particular interest to several TV and radio broadcasters. During the early stages, the project team was interviewed on both *Ear to the Ground* and *Today With Pat Kenny* in February 2007. Subsequently a number of local radio stations also featured the story, including East Coast, Northern Sound and Shannonside FM. The project officer also appeared as a guest on *Mooney Goes Wild*.

The publication of the final report of the survey on October 9th 2007 facilitated an excellent opportunity to engage the media. A conscious decision was taken to target the RTE radio programme *Morning Ireland* and the *Six-One News* on RTE television on the day of the survey report launch. Although the impact of both initiatives has not been quantified it is apparent that one or either was heard by a very large number of listeners and viewers. Other sectors in the media copied the story either the following day or during the following weeks. This was the case with both national and provincial newspapers and with local radio stations. In general the reporting of the results was positive and only one letter appeared in a national newspaper asking for the grey to be spared suggesting that the public is generally concerned about the negative effects the grey squirrel may be having upon Irish forest ecosystems. The project officer was also interviewed by Duncan Stewart for an episode of *Eco-Eye*, which was broadcast in February 2008.

The project team believes that public awareness of the problems caused by grey squirrels and the threat posed to the red squirrel increased significantly as a result of the widespread media work carried out in relation to both CRISIS and The Irish Squirrel Survey. A sample of the general public were surveyed using a short questionnaire during Dublin Zoo's native species weekend in April 2008.

In all, 203 questionnaires were completed and analysed. The results, broken down between adults and school pupils are shown in Figures 6.10 and 6.11. The findings of the survey

indicate that the majority of people are aware of the issues regarding squirrels in Ireland, though there still appears to be a lack of knowledge regarding the threat greys pose to trees, this being particularly notable amongst the school pupils sampled. This discrepancy is something that may be addressed via the Education Pack covered in Section 3.3. Ninety percent of adults and 85 percent of school pupils supported the concept of controlling grey squirrel populations. Conversations on the day suggested that support was predominantly conditional on the fact that any control would be carried out in the most humane manner possible.

Questionnaires revealed that students are extremely interested in the ‘squirrel issue’, though their knowledge of the facts was frequently skewed. From ongoing dealings with teachers and students of two Meath schools, it is apparent that the school-going population, has a keen interest in Irish squirrels and that pupils readily accept the concept of controlling grey squirrels to protect both the red squirrel and young woodlands. However, it has been found that the factual knowledge of the problems and ecological background needs to be improved.

The project team has concluded that an ongoing education scheme in relation to squirrels is therefore of key importance and that the most efficient way of ensuring this is done is via a syllabus-related education pack that provides teachers with resources to teach ecology-related topics, using squirrels as case studies.

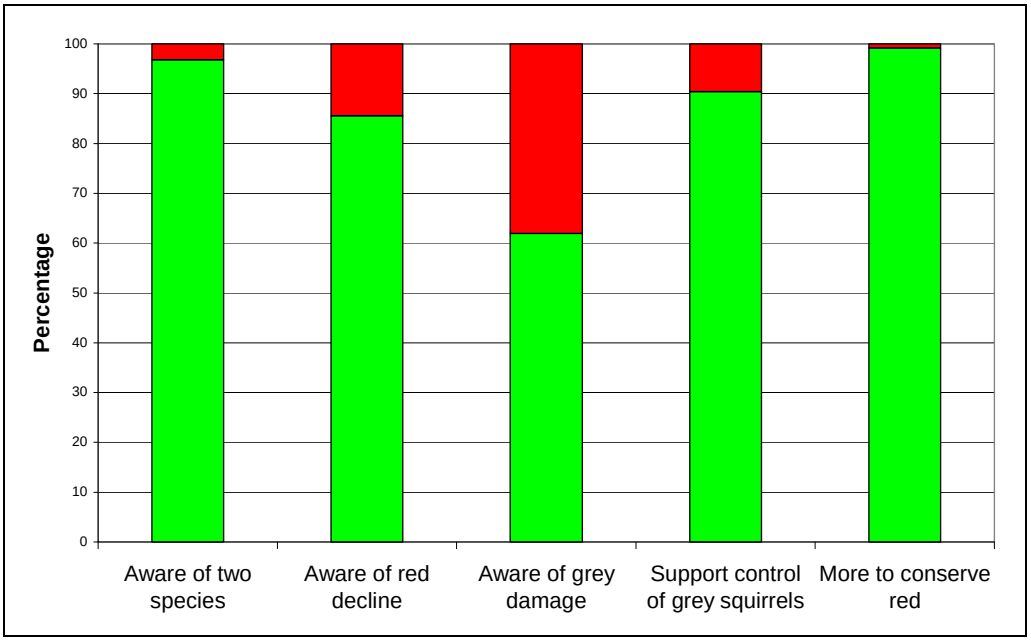

Figure 6.10 - Responses of adults to questionnaire
(■ = yes / ■ = no)

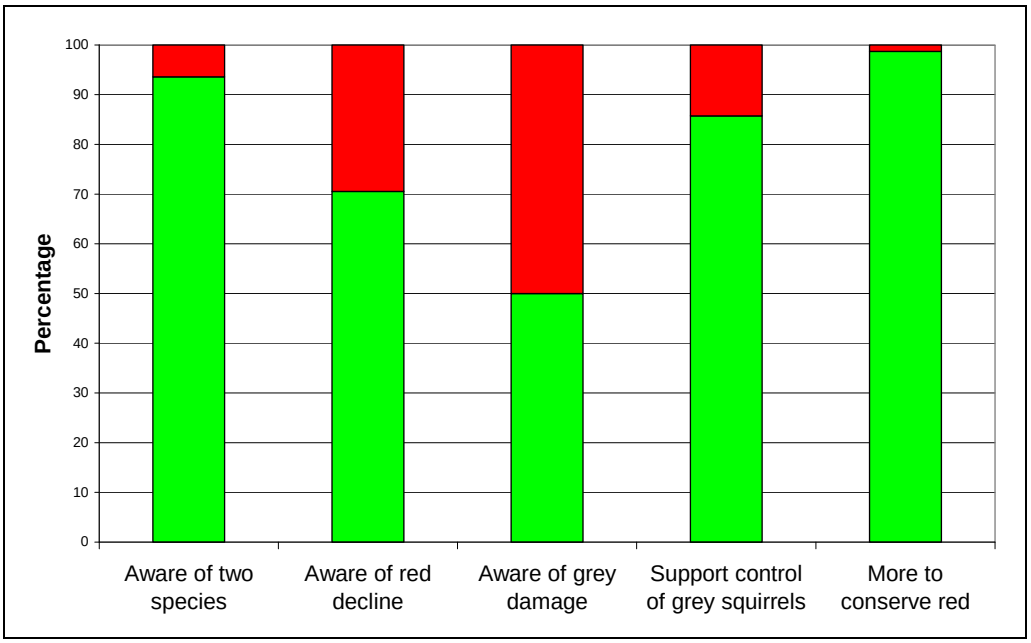

Figure 6.11 - Responses of school pupils to questionnaire
(■ = yes / ■ = no)