PRELIMINARY SURVEY OF WILD MAMMALS IN THE CARNSORE POINT / LADY'S ISLAND AREA CO. WEXFORD

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Contents

Introduction

This study, financed by the Electricity Supply Board, is one of several conducted to provide information on the natural resources and land use of south-east Co. Wexford. These 'base-line' studies have been prompted by the proposed siting of Ireland's first nuclear-powered generating plant at Carnsore Point.

The present work was confined to an area of 5 km radius from Carnsore Point and was carried out over a seven week period from September to November 1980. Marine mammals were not considered within the scope of the study.

Mammals are by nature extremely secretive and the majority of Irish species are crepuscular or nocturnal. They are therefore seldom observed, and, except in those instances where trapping is feasible, indications of their presence have largely to be obtained from signs of their discreet activities.

Useful as their traces are, it is pertinent to note that some species leave few signs whereas others, principally those with strong territorial instincts, leave deliberately obvious marks of their presence. In addition, marks of different individuals of the same species cannot usually be differentiated and individuals as well as species differ in the size of range they utilise. Hence only gross approximations of density may be obtained without resorting to intensive and long term investigations.

In view of the short duration of this work, not all of the area could be covered intensively and the more elusive species have undoubtedly been underestimated. The results presented here must therefore be considered as preliminary rather than definitive.

The Study Area

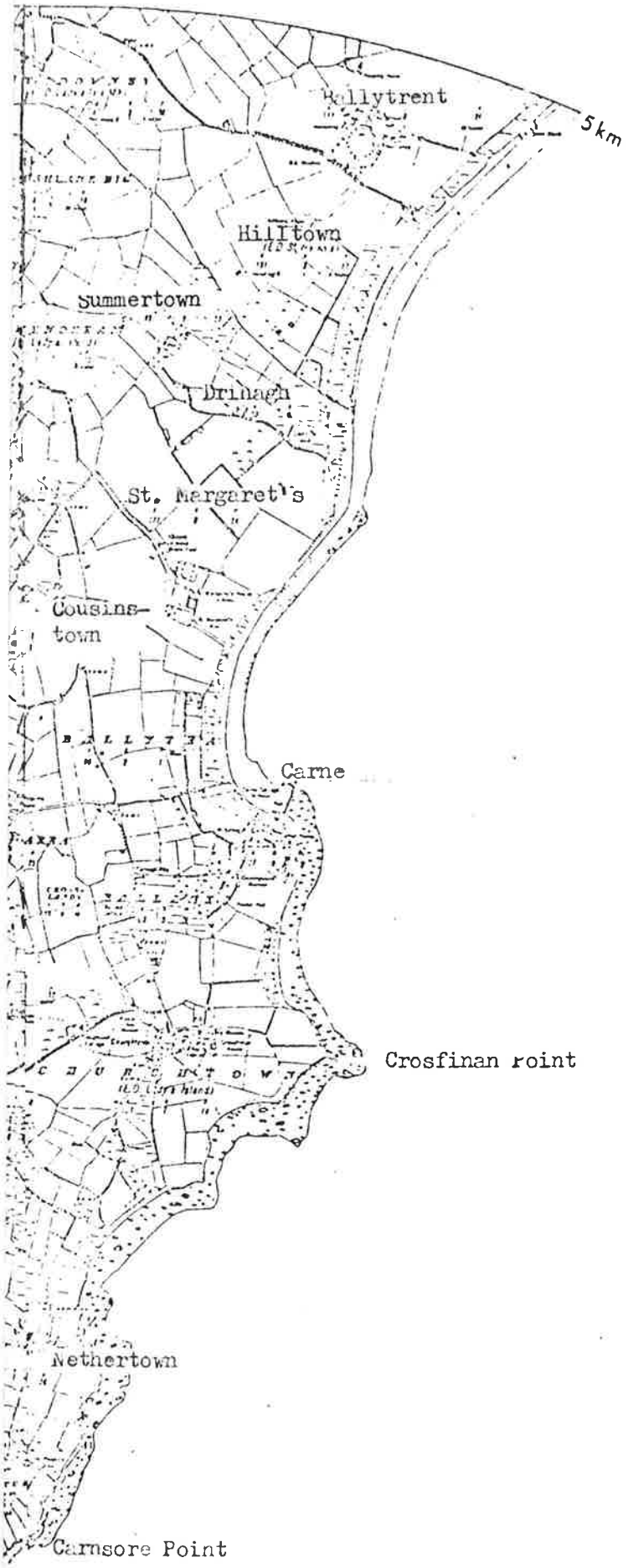
The land use and vegetation of the 0-5 km zone has been described in detail in a study by An Foras Talúntais (1977). Since mammals are associated with habitat types rather than particular species associations, only a brief description is merited here.

The study area (Fig. 1) covers approximately 22.2 km , the Irish Sea forming the eastern and southern boundaries. Almost two-thirds of this coastal fringe consists of sandy dunes, which are particularly extensive on the southern seaboard. The area is remarkably flat, all of it below 30 m (above sea level), but the uniformity is broken by the large expanse of Lady's Island Lake (approximately 3.3 km) and the marshes at Ring (c. 12.7 ha).

Marram grass Ammophila arenaria is dominant in the dune ecosystems, except at Carne where it is largely replaced by lyme grass Elymus arenarius. Sea buckthorn Hippophae rhamnoides forms a dune scrub at Carne and at Ballytrent. On the older and more stable dunes succession has led to a mixture of grassland species and woodland herbs such as bracken Pteridium aquilinum. Occasional cover is provided by patches of bramble Rubus sp. and gorse Ulex europaeus. Intensive grazing by rabbits, such as at Rostonstown Burrow has resulted in replacement of areas of marram by a low species-rich sward, the principal species being red fescue Festuca rubra, restharrow Ononis repens and thyme Thymus drucei.

Lady's Island Lake is slightly brackish. Its shoreline vegetation is extremely variable depending upon frequency of flooding, salinity and intensity of grazing. Though subject to occasional flooding from Lady's Island Lake, the areas of permanent water at Ring Green and Raheenmoor are freshwater in character. There are extensive reed beds Phragmites australis providing cover for considerable numbers of waterfowl. These lakes are surrounded by a considerable area of peaty bog and marsh. The boundary between these lakes and the farming land consists of often extensive scrub, cheifly bramble,

Figure 1 : The Study Area. Townlands referred to in the text have been typed in.


Ballytrent
5km
Hilltown
Summertown
Drinagh
St. Margaret's
Cousins-
town
Carne
Crosfinan roint
Nethertown
Carnsore Point

gorse and willows Salix sp. These areas of scrub and the adjacent flood zone are an important largely undisturbed habitat for many mammals.

To the south and south-east of Ring Green as far as Carnsore Point, the fields are poor with many rocky outcrops. Often neglected, many have reverted to scrub.

In general, the remainder and largest portion of the study area is productive and is intensively farmed, the proportion of tillage being much higher than for Ireland as a whole (see section on rats Rattus sp., page 12). The impression is one of a patchwork of large fields (grazed or tilled) separated by a network of hedgerows and drainage channels. None of the trees are of significant age, and indeed, a notable feature of the study area is the total absence of any woodland, barring that of small or narrow shelter belts. This lack of a major habitat type has consequent repercussions on the diversity and abundance of mammal species in the study area.

Methods

(a) direct observation of mammals, including road casualties.

(b) information obtained from local people has been followed up and verified where necessary. In some instances these records are presented in this report, with comment.

(c) trapping using Longworth live-traps (Chitty & Kempson, 1949) and break-back traps was necessary to determine the distribution of small mammals. The live-traps were prebaited with whole barley for two days followed by one day's trapping. Cheese was used as bait in the break-back traps, which were lifted the day after being laid down. At each station, ten traps were placed in a line at five metre intervals. Limitations of time and the danger of theft or disturbance of traps did not allow detailed investigation of small mammal densities using a grid layout and capture-mark-recapture methods.

A small number of stoat and mink traps were baited with raw meat, rabbit or fish oil as appropiate. These traps also attracted rats. In most cases the traps were prebaited for several days before trapping commenced.

Trapping of other mammals was not attempted.

(d) indirect observations:

i) tracks and trails: footprints left in soft mud have been especially useful in this study, though the smaller mammals only rarely leave identifiable prints. Paths indicate regular routes and distinguishing signs are often found along them. Such work is best carried out in winter or spring when growth has ceased and paths are well defined.

ii) droppings: most species leave identifiable droppings, usually at random. Otters and, to a lesser extent, rabbits and foxes, leave droppings as territorial markers in prominent positions. Those of hedgehogs and stoats are rarely found.

iii) feeding signs: the grazing activity of herbivores, prey remains of carnivores and seed caches of granivores may indicate

the species involved.

iv) living quarters such as rabbit burrows, hare forms, fox earths, badger sets, rat holes, squirrel dreys etc. are usually indicative of the species inhabiting them and their present status verified by signs of activity around them.

v) prey remains: analysis of mammal droppings or the pellets of predatory birds may be useful in revealing prey species. In particular, the barn owl Tyto alba leaves readily identified bones in its pellets. Unfortunately this species was absent from the study area. A kestrel Falco tinnunculus roost was located at Clougheast Castle but time has not permitted the analysis of the pellets which contain only hair and no bones.

Results

Long-tailed field mouse *Apodemus sylvaticus* L.

Trapping records are available for twenty-two locations and individuals were also observed on several occasions (Fig. 2). Although traps were usually concealed in hedgerow or scrub, trapping sites were adjacent to a variety of habitats representative of those to be found in the study area.

Full details are given in the Appendix. The mean number of captures at each station was 2.2 in live-traps and 1.9 in kill traps (ten traps at each station). Mean weight was 16.3 g with a range from 12.0 g to 21.0 g. The only surprising feature was the absence of any fecund individuals - in other areas breeding usually continues up to November if not later. No especial importance is attached to this observation, factors such as weather or availability of food may be responsible.

The field mouse was found to be common in all the habitats investigated: adjacent to neglected grazing, high-quality grazing, cultivated land, scrub, lake margins, dunes and amongst sea buckthorn (at Carne). As is generally the case for this species, it would appear to be most plentiful amongst extensive cover of brambles.

Kestrels were seen hunting almost every day: mice and rats probably being the principal prey species.

Bank vole *Clethrionomys glareolus* Schr.

This species is confined, at present, to the south-west of the country (Smal & Fairley, 1978) but is spreading rapidly. Its absence despite the intensive trapping for small mammals confirms that the present distribution does not yet include the study area. There is no doubt that it will eventually become established in habitats similar to that of the long-tailed field mouse.

Figure 2 : Trapping and observations of the long-tailed field mouse Apodemus sylvaticus

- ● stations where species captured
- ♦ stations with no captures
- ■ other observations

Pygmy shrew Sorex minutus L.

This insectivore is only rarely captured in Longworth live-traps but more often in break-back traps, possibly as a result of being attracted to insects feeding on the bait.

Only three captures were made in the course of this study: two at Carne dunes amongst sea buckthorn, and one in Ballyfane in heavy bramble cover (Fig. 3). Despite this paucity of data, the results would suggest the species is quite common in suitable habitats. Southern (1964) notes that a preferred habitat is duneland, and this is certainly indicated here. The mean weight of the individuals was 3.6 g.

House mouse Mus musculus L.

The house mouse has been recorded in the 10 km square covering the eastern portion of the study area in the Provisional Distribution Atlas (Ni Lamhna, 1979). However a note is included that these records may in some cases be those of the field mouse, and I would regard them as quite unreliable.

It is closely associated with man, living in houses, barns and stores. Although no evidence of its presence was found in this study it is a species that is likely to be present, albeit in small numbers because of the scattered nature of the human population.

Figure 3 : Trapping for the pygmy shrew Sorex minutus

● stations where species captured

♦ stations with no shrew captures

Brown rat Rattus norvegicus Berkenhout and Black rat Rattus rattus L.

The brown rat is probably the most common mammal in the study area - the only other contender being the largely nocturnal field mouse. In addition to indirect evidence - holes and droppings - many observations were made of live animals, road casualties and remains. Signs of the species' presence may be found in every hedgerow, marshland or scrubland in the area. Almost every muddy hollow revealed recent rat activity in the form of footprints. Three individuals, captured in stoat and mink traps, were released.

Although especially abundant in hedgerows alongside roads and in good agricultural land it is ubiquitous. Least evidence was found amongst dunes, its presence nevertheless frequent in hedges adjoining the dunes - signs may have been fewer in sandy areas simply because of the nature of the terrain. It was plentiful too on rocky coastlines such as that between Nethertown and Carnsore Point.

The brown rat is certainly more common here than would generally be the case for Ireland as a whole, undoubtedly due to the high proprtion of land devoted to arable crops (An Foras Talúntais, 1977). The zone 0-20 km from Carnsore Point has 26% of its acreage devoted to tillage, in comparison with 10% for the 26 counties as a whole. The study area has a similarly high proportion, with an emphasis on potatoes and sugar beet.

No evidence for the black rat was found here, though indirect evidence of rats would not usually distinguish the species. The brown rat aggressively excludes the black rat (Southern, 1964) so the latter's presence within 5 km of Carnsore is extremely unlikely. Although associated with shipping, it has not been noted from Wexford or Rosslare, the nearest ports.

Hedgehog Erinaceus europaeus L.

Although the species does exist in the area, the small number of records (one road casualty and two sets of prints - see Fig. 4) precludes an assessment of its abundance. Coupled with information supplied by local people, this secretive species would appear to be quite common. The land use of the area would encourage the hedgehog. It is preyed upon by foxes and dogs, possibly limiting its numbers in some areas (see distribution of fox activity).

Rabbit Oryctolagus cuniculus L.

Droppings provided the principal means of comparing rabbit densities in different habitats. Rabbits are to be found throughout the study area but their density varied enormously. For reasons that must remain unclear they were frequent in some areas of grassland yet virtually absent in others. Generally, however, the frequency and distribution of rabbits in farmland and on the poorer scrub areas is similar to that found elsewhere.

They are common along lake shores using the scrub margins for cover. However, the shore from Lady's Island to Ballysheen was notably little used by rabbits - an area that also had little fox activity.

Undoubtedly the highest densities of the species were to be found on the dunes and in adjacent fields. In particular, they are especially dense in the western portion of Rostonstown Burrow, which has an extensive system of warrens. As already noted, they affect the vegetational cover there significantly. Fertilisation of the soil by urine and droppings as well as selective and close cropping has resulted in patches of species-rich sward from which marram grass has been excluded.

Rabbits travel considerable distances in search of food, and this probably accounts for numerous signs of their activity northward from the Burrow on both sides of the Lake, decreasing with

Figure 4 : Observations of the hedgehog Erinaceus europaeus ■
and the Irish hare Lepus timidus hibernicus ●

distance from the warrens.

Although abundant on the Burrow west of Carnsore Point, they do not appear to be as dense as at Rostonstown. Surprisingly, no signs were seen on the dunes north and south of Carne, and few along the verge of the more rocky coastline from Crosfinan Point to Carnsore. A smaller warren is located in the dunes and sandy fields at Drinagh.

Snaring and shooting of rabbits is a common practice throughout the area and one of the reasons for the persecution of foxes is to maintain rabbit numbers!

At the time of this study myxamotosis was not in evidence.

Irish hare Lepus timidus hibernicus L. and Brown hare Lepus europaeus Pallas

The brown hare does not exist in the study area, its distribution being limited to the north of Ireland, where it has been introduced on a number of occasions.

Presence of the Irish hare was confirmed by sixteen observations, including three sightings (Fig. 4). With the exception of some records in Ring and Ballysheen townlands, they were all on marginal land - lake shores and adjacent scrub, dunes, and poor or neglected grazing land. Since the hare does not range over large distances, most of these records are probably of different individuals.

It is difficult to assess the density of hares in comparison with Ireland as a whole. By no means rare in the study area, it is less common than on marginal land in many parts of Co. Clare for example, but more plentiful than in most of Co. Kerry.

As far as I could ascertain, no hares are taken for coursing and the species is not hunted for specifically, but would be shot or snared incidental to hunting for other game.

Red squirrel Sciurus vulgaris L. and Grey squirrel Sciurus carolinensis Gm.

These species are restricted to woodland, though they will forage along hedgerows. However, the latter do not constitute a permanent habitat and consequently no squirrels were seen, no evidence of them noted, and it is not envisaged that any exist in the area.

The red squirrel has been recorded in an adjoining 10 km square but the nearest grey squirrel record is some 70 km distant (Ni Lamhna, 1979).

Red fox Vulpes vulpes L.

The fox is common in the study area, the individuals clearly revealing their presence by footprints, scent-marking and droppings. In addition they were sighted on several occasions. The records numbering about fifty are shown in Fig. 5.

There is a concentration of fox activity along the western shore of Lady's Island Lake but presence of foxes was noted in most parts of the area. Nevertheless, signs were surprisingly few along the entire eastern shore of the Lake and within an area approximately two kilometres from Carnsore Point. In view of the importance of these areas for game, especially wildfowl, fox numbers are controlled by gun club members, obviously with some success.

Snaring and shooting of foxes is practised throughout, but, although the results cannot be interpreted in terms of numbers, it would appear that in general foxes are thriving in the study area.

Of the few droppings that contained identifiable remains, food items included fruits (mainly blackberries Rubus sp.), mice, rabbits and a seagull (species unknown).

Figure 5 : Observations or tracks of the red fox Vulpes vulpes

Pine marten Martes martes L.

The pine marten is scarce east of the river Shannon, the nearest records to Carnsore being in Co. Waterford. Like the squirrel species it is largely confined to woodland and is not present in the study area.

Irish stoat Mustela erminea hibernica L.

The stoat is an elusive animal and although its presence is certain, it was not observed in the course of this study. It has been reliably identified by others at Carnsore Point itself and at several other locations throughout the area. Ni Lamhna (1979) gives records for both 10 km squares.

An attempt to trap stoats (total of 35 trap-nights at 7 locations) was not successful (see Fig. 6).

The conclusion must be that the stoat is scarce in the area. It is a species whose numbers are known to fluctuate dramatically, and its present scarcity may only be temporary.

Otter Lutra lutra L. and American mink Mustela vison Schr.

Almost two weeks of this study were devoted to searching lake and sea shores for prints or droppings of otters or mink. Otters leave their spraints on prominent tussocks or rocks to mark their territories. Although mink use similar habitats to otters, they are not strictly territorial and signs of their presence are a little more elusive.

Conditions at the time were ideal for the search because of low lake levels but no signs of otters were found and only one footprint of mink. It is clear that otters are not present in the study area despite the large extent of land/water interface. The lack of this species was confirmed by local people, although one fisherman maintained he saw individuals occasionally. There is a possibility that otters do sometimes pass through the area but there is no resident population.

A total of 30 trap-nights at 5 locations (Fig. 6) failed to

Figure 6 : Trap sites for Irish stoats Mustela erminea hibernica ♦ and for American mink Mustela vison ■

Observations of mink ● and approximate areas where they have been shot are also indicated ☆

catch mink, but they do exist in the area. In addition to the footprint at the eastern end of the lake at Ring Green, three specimens have been shot (on the western shore of Lady's Island Lake and at Ringsherane).

The species has probably spread from the river Slaney where it has long been established. It does not appear to have been present in the Carnsore area for more than two years. Despite exaggerated claims for the damage inflicted on game species by the mink, it seems that they are in fact only few in number in the area as yet.

Badger Meles meles L.

Like the fox a badger may have a considerable home range and numbers cannot be determined by tracking records alone. It is, however, surprisingly common in view of the lack of woodland in the area.

Two sets were found (Fig. 7), that at Bunargate being inhabited, the other at Ballare disused at present. In the latter case however the badgers probably have a nearby set which they use in rotation - footprints were present in the adjacent muddy track.

The groups of prints shown in the figure may represent several families of badgers. Local comment would suggest that badgers are still persecuted whenever sets are found.

Bat species

Extensive enquiries and visits to suitable buildings failed to reveal any bat roosts. Bats are occasionally seen in the area, around the village at Lady's Island and at Bunargate. I only observed two individuals flying near Broadway, although I spent considerable time out at dusk.

Seven species have been recorded in Ireland (Lesser horseshoe bat Rhinolophus hipposideros Bechstein, Whiskered bat Myotis mystacinus Kuhl, Natterer's bat Myotis nattereri Kuhl, Daubenton's bat Myotis daubentoni Kuhl, Leisler's bat Nyctalus leisleri Kuhl, Pippestrelle Pipistrellus pipistrellus Schreber, and Long-eared bat Plecotus auritus L.) but Ni Lamhna (1977) only notes the last two species within 20 km of Carnsore and none within the study area.

Figure 7 : Observations of badger Meles meles signs ●
and sets ●

One bat roost was eventually located at Butlerstown Castle which is within 10 km of Carnsore. Although the roost was only a summer one and had been vacated by the end of October, three carcases, all of Pippestrelle, were found. Mr. H. Prendergast, a visiting zoologist, confirmed that the roost consisted totally of Pippestrelles earlier in the year, numbering some forty individuals.

Of the descriptions given by local people who have handled bats, they would also appear to be Pippestrelles, and certainly not Long-eared. They have often been encountered in the demolition or re-roofing of old buildings.

- Others

None of the remaining Irish species, with the exception of feral cats, occur in the area - deer, feral goats or feral ferrets.

Conclusions

Despite the ecological diversity of the study area at Carnsore, it is not exceptional for mammals. Indeed, because of the absence of a particular habitat type, namely woodland, squirrels, deer and pine martens are excluded, and others less common than might be expected e.g. bats, and perhaps badgers. In contrast however, otters are absent despite the abundance of suitable habitat.

The presence of at least nine species is certain, out of a total of twenty-nine (not including feral ferrets) that occur in Ireland. Of these ten, rats are exceptionally common due to the intensive agriculture practised in the area. Hares too are more common than might be expected because of the large proportion of marginal land in the south of the area and around the lake shores. It has not been possible to make useful comparisons on the densities of the other species, in view of the preliminary nature of this study and because of the general paucity of information on mammals elsewhere in Ireland.

The only species taken for human consumption are rabbits and hares, and may be an important source of meat for some. Although fox skins contribute a little to the local economy, the number of foxes killed must remain small. Mink are a serious potential threat to both game and protected species, and in view of the importance of Lady's Island Lake for wildfowl, control measures are advisable.

Species list

Long-tailed field mouse Apodemus sylvaticus.....common in most habitats

Bank vole Clethrionomys glareolus.....absent

Pygmy shrew Sorex minutus.....present in suitable habitat

House mouse Mus musculus.....no confirmation of presence possibly absent

Brown rat Rattus norvegicus.....extremely common, present in all habitats

Black rat Rattus rattus.....absent

Hedgehog Erinaceus europaeus.....present, common?

Rabbit Oryctolagus cuniculus.....present throughout, abundant on sand dunes

Irish hare Lepus timidus hibernicus.....common on marginal land, probably absent elsewhere

Brown hare Lepus europaeus.....absent

Red squirrel Sciurus vulgaris.....absent

Grey squirrel Sciurus carolinensis.....absent

Red fox Vulpes vulpes.....common

Pine marten Martes martes.....absent

Irish stoat Mustela erminea hibernica.....present, but scarce?

Otter Lutra lutra.....absent

American mink Mustela vison.....present in small numbers

Badger Meles meles.....quite common

Bat species - Pippestrelle Pipistrellus pipistrellus ...probably present but scarce

- others.....probably absent

Deer species.....absent

Feral goats.....absent

Feral ferrets.....absent

Feral cats..... ?

Appendix - Results of line-trapping for small mammals

(a) Live-traps - 10 at each station, 5 m spacing

Location	Habitat	Captures				
		Apodemus			Sorex	
		n	sex/wt.		n	sex/wt.
Hilltown	Hedge adj. to grazing	3	m3	-		
Rostonstown	" " "	5	m4	-		
			f1	-		
Carne	Hedge adj. to tillage	2	m	13.5 g		
			f	13.5 g		
Ring	Neglected garden, bramble scrub	4	m	17.0 g		
			m	18.0 g		
			f	19.5 g		
			-	escape		
Barnawheel	Bramble/gorse scrub, adj. to poor grazing	2	m	21.0 g		
			f	12.0 g		
Clougheast	Hedge adj. to grazing	3	m	19.0 g		
			m	escape		
			f	15.0 g		
Crosfinan	" " "	0	-			
St. Margaret's	" " "	2	m	16.5 g		
			f	18.0 g		
Lady's Island	" " "	3	f	14.0 g		
			f	15.5 g		
			-	escape		
Cousinstown	Hedge adj. to sugar beet	1	f	19.0 g		
Ballare	Bramble scrub adj. to grazing and marl hole	2	m	-		
			f	-		
Hilltown	Neglected garden, thin scrub	1	m	15.0 g		
Ballyhitt	Hedge adj. to abandoned grazing	0	-			

(b) Break-back traps - 10 at each station, 5 m spacing

Location	Habitat	Captures					
		Apodemus			Sorex		
		n	sex/wt.		n	sex/wt.	
Carne	Sea buckthorn scrub adj. to sandy dunes	2	f f	16.5 g 13.5 g	2	f m	4.0 g 3.3 g
Burrow	Established dunes, bramble/gorse cover	2	- -				
Burrow	" " "	1	m	16.0 g			
Ring Green	Scrub adj. to lake flood zone	3	m f -	14.5 g 19.0 g half eaten			
Rathshillane	Hedge adj. to tillage and grazing	2	m -	17.0 g one eaten			
Ring Green	Hedge adj to grazing	0	-	all traps triggered			
Castletown	Bramble scrub adj. to neglected grazing	2	m m	17.5 g 18.0 g			
Nethertown	" " "	1	f	13.0 g			
Ballyfane	Extensive bramble scrub adj. to grazing	4	m f f f	18.5 g 21.0 g 12.5 g 13.5 g	1	f	3.6 g