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**RAISED BOG NATURAL HERITAGE AREAS
(NHA)**

PROJECT 2002

Dúchas, the Heritage Service

By

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1 SUMMARY

The original area of raised bogs in the Republic of Ireland was approximately 310,000 ha or 5% of the national area of 70,282km² (Hammond, 1979). It has been estimated that the area of remaining high bog of conservation interest accounts for 18,000 ha of this total, the remainder being cutover (J. Ryan, 2002). Raised bog habitat is rare in the E.U. and becoming increasingly scarce and under threat in Ireland. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion (over 50%) of the total E.U. resource of this very threatened habitat and so has a special responsibility for its conservation at an international level.

Since the early 1980s various surveys have been organised by Dúchas, National Parks and Wildlife (NPW), to identify and protect the most important sites for this habitat in Ireland. Raised bog sites were surveyed and given quality ratings by NPW during a national survey from 1983-87. In total 141 raised bogs were identified as being of conservation importance and these were listed by NPW (Cross, 1990). As part of the Natural Heritage Area (NHA) survey in 1993 and 1994, site boundaries were prepared for these raised bogs and most were re-surveyed. The Raised Bog Restoration Project (Kelly, Doak and Dromy, 1995) re-surveyed a total of 47 raised bogs with 36 raised bogs being designated in 31 SACs. A further 27 were re-surveyed as part of the second Raised Bog Restoration Project (Derwin and McGowan, 2000).

This current project considered the remaining 105 non-SAC raised bogs, for assessment as Raised Bog NHAs. Due to the rarity of this habitat type, most of the remaining resource of conservation value was of significant ecological interest and received designation. A further 26 sites were assessed following recommendation from other sources (NGOs) and 5 new sites were identified by NPW during this survey as requiring assessment. Of these 136 sites, 38 have already been surveyed in detail by either the 1995 or 2000 Raised Bog Restoration Projects. These sites have detailed site descriptions, habitat and drainage maps.

Of the remaining 98 sites, 93 (67 NPW and 26 NGO) sites were assessed using NHA Survey Site Reports (1993-1995), Cross Report (1990) and Field Survey Cards (1983-1987). From these site accounts the presence of features such as pools, hummock/hollow complexes, flushes, characteristic and indicator species were noted as indications of active peat formation. Using recent aerial photographs, the high bog areas and any visible features such as flushes and pools were mapped and measured. Drains, areas of burning and forestry on the high bog along with active peat cutting were also recorded. Landuse and drainage in the cutover bog was recorded and the cutover assessed for regeneration potential. Any other features of interest such as eskers, turloughs, lakes or rivers were also noted. The 5 new sites, which have not been previously surveyed, were assessed using aerial photography and field surveys where possible.

The following criteria were used to select raised bogs of conservation importance.

1. Location/ Peat Archive
2. Past Ratings (Cross, 1990)
3. Active Peat Formation: Hummock/ Hollows, *Sphagnum* spp.
4. High bog Area (>60ha)
5. Integrity: % of High Bog remaining
6. Habitat Diversity: Pools, Flushes, Soaks, Bog Woodland and Semi-Natural Margins
7. Geomorphology (Geohydrology): Basin, Ridge, Floodplain
8. Geology
9. Climate/ Altitude
10. Proximity to SACs, SPAs, & NHAs, especially other raised bog sites.

Of the 136 raised bogs assessed, 103 were recommended as 101 NHAs. In total 96 of the NPW sites (in 94 NHAs), 3 NGO and 4 new sites were selected. The remaining 33 sites were not selected (9 NPW, 23 NGO and 1 new sites) due to extensive modification or lack of high bog habitat.

The 101 NHAs selected together with the 31 SACs, cover an area of 53,705ha. As well as other habitats such as eskers, lakes, turloughs and woodlands etc., these protected sites contain 31,326ha of raised bog habitat including 17,584ha of high bog. This high bog accounts for 97.6% of the estimated National Resource of 18,000ha.

2 INTRODUCTION

Habitat Description

Raised bogs are domed masses of peat occupying former lake basins or shallow depressions. They primarily develop in basins formed by glacial drift on carboniferous limestone. Raised bogs are poor in nutrients and ombrotrophic in nature, meaning that once developed, they are sustained by rainwater, with a water level generally higher than the local water table. They occur, principally below 130m and are mainly concentrated in the central lowlands of Ireland with some isolated sites to the north-west and south-west. In Western Europe, raised bogs are now rare outside Ireland and Irish raised bog represent some of the most important examples of this habitat in the world (Cross, 1990).

Raised bogs are characterised by low growing, open vegetation dominated by *Sphagnum* mosses, (which are the main peat-forming species), sedges and Ericaceous shrubs. They are distinguished from blanket bogs by their morphology, the presence of characteristic species (*Andromeda polifolia* and *Vaccinium oxycoccos*) and the absence of *Schoenus nigricans* and *Molinia caerulea* on the bog dome. They are classified as either True Midland or Western raised bogs by the presence of the indicator species *Campylopus atrovirens*, *Pleurozia purpurea* and *Carex panicea* on Western raised bogs (Cross, 1990).

Raised bogs once covered an area of approximately 310,000ha (Hammond, 1979) in the Republic of Ireland. Due to extensive exploitation for peat-extraction and forestry, much of the original raised bog habitat has been lost. The remaining raised bog habitat now consists of small areas of intact unmodified high bog dome and extensive man-modified cutover. High bog represents the remnant of the original raised bog habitat with an intact peat archive. The cutover has been exploited for peat extraction and so has lost its peat archive and is affected by drainage. The area of high bog of conservation interest remaining in the Republic of Ireland is estimated to be approximately 18,000ha, 5.8% of the original area of raised bog (J. Ryan, 2002).

Raised bog habitat, as described in this project, includes both areas of high bog and cutover. Raised Bog contains the EU Habitats: Active Raised Bog, Bog Woodland, *Rhynchosporion* Depressions and Degraded Raised Bog. Active raised bogs are characterised by active peat formation with high *Sphagnum* cover (and in Central and Western Ireland, usually by the presence of pools). **Active Raised Bogs (7110)** is listed as a priority habitat in Annex I of the E.U. Habitats Directive and is described as "still supporting a significant area of vegetation that is normally peat-forming" (EU, 1996). This habitat occurs in the wetter, quaking areas of the bog mainly in the centre of intact high bog.

Areas of nutrient enrichment (flushes) occur on many bogs, (especially the larger ones) due to concentrated run-off of surface water. They are common on slopes towards the high bog margin or along internal soak systems. These flushes are dominated by *Molinia caerulea*, *Myrica gale* with occasional *Phragmites australis* and *Sphagnum recurvum* is often present.

Trees are rarely present on the surface of intact high bog, but can occur in these flushed areas, forming the rare habitat of Bog Woodland. **Bog Woodland (91D0)** is listed as a priority habitat in Annex I of the Habitats Directive and is described as "coniferous and broad-leaved forests on a humid to wet peaty substrate, with the water level permanently high and even higher than the surrounding water table". In Ireland either *Betula pubescens* or *Pinus sylvestris* dominate stands that may be of interest (EU, 1996).

Depressions on Peat Substrates of the *Rhynchosporion* (7150) is listed in Annex I of the Habitats Directive as "Highly constant pioneer communities of humid exposed peat.....of blanket bogs or raised bogs" (EU, 1996). This habitat occurs on the high bog in areas dominated by *Rhynchospora alba* or *R. fusca* on wet areas at the margins of pools and *Sphagnum* lawns.

Degraded raised bogs are areas of high bog where active peat formation has ceased, but with proper management, may be restored in the foreseeable future. **Degraded Raised Bogs Still Capable of Regeneration (7120)** is listed in Annex I of the Habitats Directive and described as "raised bogs where there has been disruption (usually anthropogenic) to the natural hydrology of the peat body, leading to surface dessication and/ or species change or loss.....sites judged to be still capable of regeneration will include those areas where the hydrology can be repaired and where, with appropriate rehabilitation management, there is a reasonable expectation of re-establishing vegetation with peat-forming capability within 30 years" (EU, 1996).

This habitat occurs on the drier sections of high bog, mainly at the margins, but can occur towards the centre if there has been damage to the hydrology, due to drainage and burning. Degraded raised bog can also occur on cutover, where there is re-wetting and regeneration of raised bog species. Cutover that consists largely of bare peat or is dominated by agricultural grasses or closed canopy woodlands is not considered to qualify as degraded raised bog habitat (EU, 1996).

The Habitats Directive states that "In order to support the conservation of this ecosystem (Active Raised Bogs) over its geographic range and its genetic diversity, marginal areas of lower quality as a result of damage or degradation which abut active raised bogs may need to be included, protected and, where practicable, regenerated." (EU, 1996). It is for this reason that extensive areas of cutover are included in raised bog NHAs, to protect the hydrological integrity of the raised bog and aid restoration

Restoration work initially takes the form of preventing any further damage from activities such as drainage, forestry, burning and active peat-cutting. These activities all adversely affect the raised bog, by drying out the bog surface, damaging and modifying the high bog vegetation or actively removing the high bog habitat. Once damaging operations have ceased, measures can be taken to restore the potentially wetter areas on the high bog. This involves removal of any forestry and blocking of drains on the high bog. On degraded sites some subsidence may occur, due to drying out of the high bog. This creates internal slopes and depressions on the high bog surface. With the blocking of drains, water will flow into these depressions, re-wetting the high bog. Over time *Sphagnum* spp will begin to dominate and active peat formation may be restored.

Blocking drains on the cutover has the two effects of slowing further water loss from the raised bog system and also leading to flooding of the cutover. Over time, flooded cutover will be colonised by bog species and regeneration of raised bog habitat will occur. With water run-off from the high bog and blocking of cutover drains, large areas of cutover could regenerate and it is in such areas that active peat-formation is likely to be most successful in the medium to long term.

Project Background

In the 1980s, a total of 141 raised bogs in Ireland were identified as being of conservation importance by NPWS. These were surveyed, rated and subsequently listed in, Cross (1990). These sites were delineated as Natural Heritage Areas during the NHA survey (1994-1995). Of the 141 sites, 47 sites were resurveyed during the Raised Bog restoration Project (Kelly, Doak and Dromy, 1995) and 36 of these were designated as 31 Special Areas of Conservation (SACs). As part of the second Raised Bog Restoration Project (Derwin and McGowan, 2002), 29 raised bogs were resurveyed, which included a further 27 sites not surveyed in 1995.

Project aims

The aim of this project is to assess the remaining raised bog resource in Ireland and recommend NHA designation for sites that are of ecological interest to represent the range and diversity of raised bogs in Ireland. Because of the rarity of this habitat type, most of the remaining resource of nature conservation value is likely to be of significant ecological interest and receive designation. This project will initially consider the remaining 105 sites listed as pNHAs for assessment as Raised Bog NHAs. A further 31 sites, identified from other sources (NGOs, NPW Regional Staff and fieldwork) will also be assessed. Table 2.1 lists the 136 sites assessed by this project.

A selection system was designed to identify limits below which designation was not deemed useful. This also helped in identifying and prioritising conservation needs of each raised bog. Most of the sites selected contain over 60 ha of high bog with associated cutover. In the case of remote sites, which add to the range of raised bogs represented in Ireland, smaller areas of high bog were considered. Raised bogs, which have been entirely cutover (cutaway), will not be considered by this project as they contain no intact high bog and have an incomplete peat archive. The restoration potential of these entirely man-modified sites to active raised bog would be extremely difficult to assess and is beyond the scope of this project.

Table 2.1: List of 136 Raised Bog Sites Assessed by RBNHA Project

Site Code	Site Name	County	Status	RB Survey status	Nat Grid East	Nat Grid North	Total Area
70	TULLAHER LOUGH AND BOG NHA	CL	NHA	Ecologist	009500	106200	365.00
220	LOUGH NAMUCKA BOG NHA	GA/RO	NHA	Unsurveyed	106100	207300	276.00
221	MOORFIELD BOG/FARM COTTAGE NHA	GA/RO	NHA	Unsurveyed	164300	274000	137.00
222	SUCK RIVER CALLOWS	GA/RO	SPA 97	Ecologist	108400	232700	2,932.00
229	BALLYGAR BOG NHA	GA	NHA	Ranger	178000	253500	120.00
235	BRACKLAGH BOG NHA	GA	NHA	Unsurveyed	106500	207000	105.00
240	CAMDERRY BOG NHA	GA	NHA	Ecologist	170000	257300	281.00
245	CLOONCULLAUN BOG NHA	GA	NHA	Ecologist	170000	259500	190.00
247	SLIEVE BOG NHA	GA	NHA	Ecologist	156000	263000	269.00
249	CLOONOLISH BOG NHA	GA	NHA	Ecologist	108300	201500	119.00
254	CRUT ISLAND WEST NHA	GA	NHA	Ecologist	107500	203500	421.00
256	CURRAGHLEHANAGH BOG NHA	GA	NHA	Ecologist	106800	205400	215.00
263	DRUMBULCAUN BOG	GA	NHA/IPCC	Ecologist	105100	205700	41.00
267	FUNSHIN BOG NHA	GA	NHA	Ecologist	171500	260000	176.00
280	CASTLEFFRENCH WEST BOG NHA	GA	NHA	Ecologist	107600	204500	124.00
281	KEELOGES BOG NHA	GA	NHA	Ecologist	168500	262500	163.00
283	KILMORE BOG NHA	GA	NHA	Ecologist	107400	205500	162.00
284	KILNABORRIS BOG NHA	GA	NHA	Ecologist	109700	201700	166.00
292	LEAHA BOG NHA	GA	NHA	Ecologist	171600	258500	93.00
307	LOUGH TEE BOG NHA	GA	NHA	Ecologist	105900	203600	239.00
310	MENEEN BOG NHA	GA	NHA	Ecologist	109000	201200	196.00
311	MONIVEA BOG NHA	GA	NHA	Ecologist + Ranger	105400	203500	206.00
321	RAFORD RIVER BOG NHA	GA	NHA	Ecologist	106200	202900	247.00
333	ANNA MORE BOG NHA	KE	NHA	Ranger + Unsurveyed	102000	105500	90.00
337	DOON LOUGH NHA	CL	NHA	Ecologist	105500	107300	592.00
374	MOANVEANLAGH BOG NHA	KE	NHA	Ranger + Unsurveyed	100400	103500	213.00
390	BALLINA BOG NHA	KD	NHA	Ranger	207000	204200	118.00
395	MOUDS BOG NHA	KD	NHA	Ranger	207800	201200	590.00
413	ANNAGHMORE LOUGH FEN (OFFALY) NHA	LA/OF	NHA	Ranger	203000	201400	277.90
415	COOLRAIN BOG NHA	LA	NHA	Ecologist	202600	209100	136.00
419	KNOCKACOLLER BOG NHA	LA	NHA	Ecologist	203100	209100	117.00
422	AGHNAMONA BOG NHA	LE/LF	NHA	Unsurveyed	200600	208700	482.00
442	BROWN BOG NHA	LF	NHA	Ecologist	200900	207600	77.00
445	CLOONEEN BOG NHA	LF	NHA	Ecologist	207000	284500	214.00
447	DERRYMORE BOG NHA	LF	NHA	Ranger	201500	207200	180.00
502	GOWLAUN BOG NHA	MA	NHA	Ecologist	105600	300400	232.00
510	KILGARRIFF BOG NHA	MA	NHA	Ecologist	157500	303000	76.00
564	RIVER LITTLE BROSNA CALLOWS NHA	OF/TI	SPA 564	Ecologist	109800	201100	1,157.60
565	CLONYDONNIN BOG NHA	OF/WM	NHA	Ecologist	201200	203300	125.00
570	BLACK CASTLE BOG NHA	OF	NHA	Ecologist	257500	235000	165.00
578	KILLBALLYSKEA	OY	IPCC		20070	10920	70
586	WOODFIELD BOG	OF	NHA/ IPCC		202600	203500	252.00
587	LOUGH GARA NHA	RO/SL	NHA	Ecologist	107100	300000	2,504.00
591	BELLA BRIDGE BOG NHA	RO	NHA	Unsurveyed	175500	293500	187.00
599	CLOONCRAFF/CLOONLARGE BOG NHA	RO	NHA	Ecologist	109500	206300	291.00
602	CORBO BOG NHA	RO	NHA	Ecologist	109400	206900	192.00
603	CORNAVEAGH BOG NHA	RO	NHA	Unsurveyed	107500	209500	127.00
605	DERRYCANNAN BOG NHA	RO	NHA	Ecologist	190500	272500	268.00
640	ARRAGH MORE BOG NHA	TI	NHA	Unsurveyed	109800	200200	257.00
642	BALLYMACEGAN BOG NHA	TI	NHA	Unsurveyed	109200	201100	107.00
648	KILLEEN BOG NHA	TI	NHA	Unsurveyed	200200	200300	173.00
652	MONAINCHA BOG/BALLAGHMORE BOG NHA	LA/TI	NHA	Unsurveyed	201800	208900	377.00
654	REDWOOD BOG NHA	TI	NHA	Unsurveyed	109400	201100	555.00

Table 2.1 continued: List of 136 Raised Bog Sites Assessed by RBNHA Project

Site Code	Site Name	County	Status	RB Survey status	Nat Grid East	Nat Grid North	Total Area
674	BALLYNAGRENIA AND BALLINDERRY BOG NHA	WM	NHA	Ecologist	202100	204100	273.00
676	CARN PARK BOG NHA	WM	NHA	Ecologist	211500	241500	207.00
677	CLONCROW BOG (NEW FOREST) NHA	WM	NHA	Ecologist	239800	238500	214.00
678	CROSSWOOD BOG NHA	WM	NHA	Ecologist	200900	204000	148.00
684	LOUGH DERRAVARAGH NHA	WM	NHA	Ecologist	204000	206700	1,400.00
691	RINN RIVER NHA	LE/LF	NHA	Ecologist + Unsurveyed			272.00
694	WOODDOWN BOG NHA	WM	NHA	Ecologist	204800	205400	129.00
839	KILKEASY BOG	KK	NHA/ New		205400	203000	29.00
846	RED BOG, DUNGARVAN	KK	NHA/ IPCC		206100	204900	10.00
868	MANNIN WETLAND		IPCC				
879	CLONSOGHY BOG	LS	IPCC				
890	CANGORT BOG	OF/TI	NHA/ IPCC		203500	293500	100.00
893	CLONLYON GLEBE BOG	OF	NHA/ IPCC		200900	202800	116.00
921	SCREGGAN BOG NHA	OF	NHA	Ecologist	228700	219500	174.00
937	SCOHABoy BOG NHA	TI	NHA	Unsurveyed	109600	109200	428.00
974	ANNAGH LOUGH (BALLYCONNELL)	CV	NHA/ IPCC		229000	318800	62.70
985	LOUGH KINALE AND DERRAGH LOUGH NHA	CV/LF/WM	NHA	Ranger	238500	281000	412.00
987	LOUGH SHEELIN NHA	CV/ME/WM	NHA	Unsurveyed	204700	208500	254.00
993	AYLE LOWER BOG NHA	CL	NHA	Ranger	105400	108300	49.00
1020	LOUGHANILLOON BOG NHA	CL	NHA	Ranger	105600	108200	90.00
1224	ARDGRAIGUE BOG NHA	GA	NHA	Unsurveyed	108300	201400	176.00
1227	AUGHRIM BOG NHA	GA	NHA	Ecologist	178000	256500	185.00
1240	CAPIRA/DERREW BOG NHA	GA	NHA	Ecologist	108500	201000	112.00
1244	CASTLEFRENCH EAST NHA	GA	NHA	Ecologist	107700	204600	82.00
1254	DERRINLOUGH BOG	GA	NHA/IPCC	IPCC	164300	274000	69.00
1255	DERRYNAGRAN BOG AND ESKER NHA	GA	NHA	Ecologist	157800	252000	73.00
1264	ESKERBOY BOG NHA	GA	NHA	Ecologist	107900	201700	0.00
1280	KILLACLOGHER BOG NHA	GA	NHA	Ranger	105500	204100	419.00
1283	KILLURE BOG NHA	GA	NHA	Ecologist	108200	203300	203.00
1303	MOORFIELD BOG NHA	GA	NHA	Ecologist	108600	201600	133.00
1324	JAMESTOWN BOG NHA	ME	NHA	Ranger	207800	206600	173.00
1352	BUNNARUDDEE BOG NHA	KE	NHA	Ranger + Unsurveyed	103500	140500	156.00
1365	LOUGH BOORA	OF	NHA/ IPCC		216400	217800	36.00
1388	CARBURY BOG NHA	KD	NHA	Ranger	206800	203600	253.00
1393	HODGESTOWN BOG NHA	KD	NHA	Unsurveyed ?	208000	203000	94.00
1405	CASHEL BOG (LEITRIM) NHA	LE	NHA	Ecologist	200800	209000	126.00
1420	CORRACRAMPH BOG NHA	LE	NHA	Ecologist	207300	290000	175.00
1423	CLOONAGEEHER BOG NHA	LE/LF	NHA	Unsurveyed	201000	208500	299.00
1448	FORTHILL BOG NHA	LF	NHA	Ecologist	206500	259000	111.00
1450	MOUNT JESSOP BOG NHA	LF	NHA	Ranger	212500	270000	121.00
1496	DERRYKINLOUGH BOG	MO	IPCC		10590	30050	85
1577	DOOLYSTOWN BOG	ME	NHA/ IPCC		207500	205100	20.00
1580	GIRLEY BOG NHA	ME	NHA	Unsurveyed	207000	207000	112.00
1582	MOLERICK BOG NHA	ME	NHA	Ranger	206700	204700	79.00
1584	MOUNT HEVEY BOG NHA	ME/W M	NHA	Ranger + Unsurveyed	206300	204800	424.00
1593	THOMASTOWN BOG	ME	NHA/ IPCC		300100	306900	48.00
1613	CLOGHAN DEMESNE BOG AND WOOD NHA	OF	NHA	Ranger + Unsurveyed	109700	201200	164.00
1623	CARRICKYNAGHTAN BOG NHA	RO	NHA	Unsurveyed	200300	203700	488.00
1632	DRUMALOUGH BOG NHA	RO	NHA	Ecologist + In-house	106200	208300	305.00
1652	TULLAGHAN BOG (ROSCOMMON) NHA	RO	NHA	Unsurveyed	107800	209600	93.00
1657	CLOONGOONAGH BOG NHA	SL	NHA	Ecologist + Ranger	104400	300700	204.00

Table 2.1 continued: List of 136 Raised Bog Sites Assessed by RBNHA Project

Site Code	Site Name	County	Status	RB/Survey status	Nat Grid East	Nat Grid North	Total Area
1684	LORRHA BOG NHA	TI	NHA	Unsurveyed	109300	200500	77.00
1709	TIAQUIN BOG NHA	GA	NHA	Ranger	156500	234500	70.00
1725	NURE BOG	WM	NHA/ IPCC		236500	244500	143.00
1812	LOUGH GARR NHA	WM	NHA	Ecologist	234100	266500	0.00
1840	LISLANNAN BOG	MO	NHA/IPCC		254900	330300	15.00
1849	BALLYVORHEEN BOG NHA	LI	NHA	Ecologist	175400	153800	93.00
1850	DROMSALLAGH BOG NHA	LI	NHA	Ecologist	176300	152700	70.00
1853	NORE VALLEY BOGS NHA	TI	NHA	Unsurveyed	218000	287500	301.00
2013	TULLAGHANROCK BOG NHA	RO	NHA	Ecologist	166000	295000	95.00
2033	DAINGEAN BOG NHA	OF	NHA	Ecologist	244600	226000	192.00
2069	ARDAGULLION BOG NHA	LF	NHA	Ecologist	231500	275000	101.00
2072	LISNANARRIAGH BOG NHA	RO	NHA	Ecologist	195000	267500	104.00
2302	BALLYNAMONA BOG AND CORKIP LOUGH NHA	RO	New NHA	Ecologist + Ranger			
2307	CLOONLOUM MORE BOG NHA	CL	New NHA	Unsurveyed ?			
2308	CREEVOSHEEDY BOG NHA	CL	New NHA	Unsurveyed ?			
2310	LOUGH REE NHA	LF/RO/ WM	SAC 440	Ecologist	200100	205300	13,626.00
2323	MILLTOWN PASS		New				
2344	ANNAGHBEG	GA	New				
2355	HAWKSWOOD		New				
2357	CLONREHER BOG	LS	New				
No Code	LULLYMORE EAST	KD	IPCC		20707	20250	10
No Code	TULLYCROSS	WH	IPCC		20075	20425	74
No Code	THE DERRIES	OY	IPCC		20120	20070	120
No Code	MOANAVAN/ YELLOW BOG	LS	IPCC		20510	10980	26
No Code	KILLAUN BOG	OY	IPCC		20115	20056	80
No Code	KILLNAMUCK (ABBYLEIX) BOG	LS	IPCC		20438	10833	100
No Code	FARRENCONNELL ESTATE	CN	IPCC		20490	20820	140
No Code	CLOONARKIN	GA	IPCC		10555	20560	90
No Code	CLOONKIERAN	RN	IPCC		10800	20905	35
No code	DRUMMIN	CW	IPCC		207032	10360	15
New code	RIVER SHANNON CALLOWS NHA	GA/OF/R O/TI/W M	SAC 216, SPA 96	Ecologist	109800	202300	5,787.00
New code	TEMPLEHOUSE AND CLOONACLEIGHA LOUGHS NHA	SL	SAC 636	Ecologist	106200	301700	481.00

3 METHODS

Site Selection

The 105 raised bog sites remaining on the NPW, pNHA list were the first sites to be assessed for selection as Raised Bog NHAs by this project. Of these, 11 sites have been surveyed in detail during the Raised Bog Restoration project (1995) and a further 27 NHAs (containing 28 raised bogs) were surveyed as part of the Raised Bog Restoration Project (2000). These sites, which have detailed site descriptions and habitat maps, could be assessed as NHAs without any further preparatory work. The remaining 68 sites required all available data to be collated and a site description and habitat map produced, before they could be assessed. Once all these sites had been assessed as NHAs the remaining 31 sites obtained from other sources were assessed using all available information and fieldwork where necessary.

This project relates to sites containing significant areas of high bog. All sites to be considered in this project must possess, as a minimum requirement significant areas of intact high bog as this will ensure the conservation of a complete Quarternary Peat Archive. These may be small dried out remnants of the original raised bog system, dominated by highly modified vegetation types, but they will be given a high rating for geographical extremes of the distribution range of raised bogs in Ireland or for having developed under unique geomorphological conditions.

Apart for these examples, a raised bog must have significant areas of intact, unmodified high bog with active peat growth or the potential for active peat growth in the foreseeable future. Deterioration of the high bog is expected to occur in most cases, over time due to desiccation following peat-cutting or drainage and so restoration of the cutover is an important consideration. However no sites were examined that consisted entirely of cutover habitat (cutaway) as an assessment of this extensive habitat is beyond the scope of this project.

Selection Criteria

The following criteria were used to select raised bogs of conservation importance.

- 1 Location/ Peat Archive
- 2 Past Ratings (Cross, 1990)
- 3 Active Peat Formation: Hummock/ Hollows, *Sphagnum* spp.(>4ha)
- 4 High bog Area (>60ha)
- 5 Integrity: % of High Bog remaining (>50%)
- 6 Habitat Diversity: Pools, Flushes, Soaks, Bog Woodland and Semi-Natural Margins
- 7 Geomorphology (Geohydrology): Basin, Ridge, Floodplain
- 8 Geology
- 9 Climate/ Altitude
- 10 Proximity to SACs, SPAs & NHAs

1. Location:

The majority of raised bogs in Ireland are located on the limestone midland plain and extend to the west as far as Galway. There are outlying sites to the north, east and south-west, which represent the extremes of the range of raised bogs in Ireland. There are also raised bogs located in remote regions, which have developed under isolated conditions and contain a unique peat archive. These raised bogs are important in representing the complete range of raised bogs in Ireland and can qualify on their location alone. These sites must contain some high bog to retain a complete peat archive.

Raised bogs that extended the range of protected raised bog habitat in Ireland were selected. These included sites to the east of the country as well as sites to the north-east, north-west and south-west.

2. Past ratings (J. Cross criteria)

During previous surveys, raised bogs were given a quality rating and listed in Cross (1990).

A & Bi, high conservation interest

Bii, damaged, selected if no A or Bi present.

Biii, badly damaged

C and D largely destroyed and only with potential for restoration to wetland – not assessed in this project.

All 105 NPW sites are A, Bi or Biis.

A's and Bi's were selected as Raised Bog NHAs, if not severely damaged in the intervening period with Bii's and Biii's selected if isolated or representing unique geomorphological conditions.

3. Active Peat Formation

The following features were used to assess active peat formation.

- Positive : areas with > 4ha active peat formation (*Sphagnum* cover with *Eriophorum*)
Hummocks & hollows essential
Pools (except tear pools) Note: pools are naturally absent in eastern bogs.
Flushes
Rare plants (associated with active peat formation)
- Negative: Dried out margins
>10% Dense Heather, Bracken and Scrub (outside flushes).
Algal pools, dropping water levels

All sites with over 4ha of active peat formation, as indicated by pools, hummock/hollow complexes and wet flushes were selected for active raised bog.

4. High Bog Area

Using a digital planimeter and aerial photographs (2000) enlarged to the 1: 10,560 scale, it is possible to measure the area of the remaining high bog. The national resource of high bog is estimated to be approximately 18,000ha (J. Ryan, 2002). Sites with over 2% (360ha) of this national total contain a significant amount of the remaining high bog habitat, were selected as NHAs.

In general most of the remaining raised bogs were smaller in area and any raised bog possessing over 60ha of high bog habitat was considered for selection. This is considered to be the minimal area required, to support active raised bog habitat. Any sites that have a high bog area significantly less than 60ha must possess other features to warrant selection as raised bog NHAs.

5. Integrity

There are no intact raised bogs remaining in Ireland. All raised bogs to some extent have been modified by man. Turf-cutting is the most common landuse with all sites subject to marginal turf-cutting, but forestry and land reclamation has also occurred. These activities impact on raised bog habitat through drainage or burning.

Extensive areas of high bog, that are unaffected by drainage are also uncommon. It is in these areas that primary active peat formation occurs and so it is essential to protect these areas. Sites with large areas of the original raised bog remaining will be the least impacted by man and so are of added importance.

Most raised bogs in Ireland have been substantially affected by peat-cutting and drainage. Any site with >50% of the original high bog intact were considered to be of conservation importance.

6. Habitat Diversity

High Bog: Hummocks/ Hollows, Pools, *Molinia* flushes.

Annexed Habitats: Active Raised Bog, Degraded Raised Bog, Bog Woodland and Turloughs.

Raised bogs, which have areas of high bog with semi-natural margins such as transitions between the high bog and streams or esker ridges are very rare and should be protected.

Species Quality : High Bog

Positive: *Sphagnum pulchrum* / *Sphagnum imbricatum* / *S. fuscum* /
S. cuspidatum / *S. auriculatum*
Abundant *Eriophorum angustifolium* / *E. vaginatum* outside flushes
S. recurvum in flushes

Negative: Abundant *Trichopherum* / *Calluna*
Abundant *Narthecium* in central zone
Abd. *S. magillanicum* in central zone

Indicator species:

(Western) *Pleurozia purpurea*, *Campylopus atroveriens* and *Carex panicea*

(Northern and Western) *Racomitrium*

(Midlands) *Andromeda*, *Vaccinium oxycoccos* and *Sphagnum magillanicum*

The presence of Annexed Habitats such as Active Raised Bogs and Bog Woodland or a diverse range of semi-natural habitats, further increased the ecological importance of sites. Sites with semi-natural margins or bog woodland were selected.

7. Geomorphology

There is a range of raised bog types, which developed under different hydrogeomorphological conditions. These types are listed below.

Geomorphological classification: Broad Floodplain, Ridge River, Basin, Ridge Basin and Blanket (Dromy and Kelly, 1995).

Broad Floodplain:

This type of bog occurs in a wide low gradient floodplain where the underlying subsoils are low permeability clays.

Ridge River

This bog type lies at the bottom of a slope adjacent to a river or lake.

Basin

This is the most common bog type and occurs in depressions and typically form great convex masses of peat which grow above the fluctuations of the original groundwater-table.

Ridge Basin

These bogs lie intermediate between the domed mires of basins and the blanket bogs of western Ireland.

Blanket

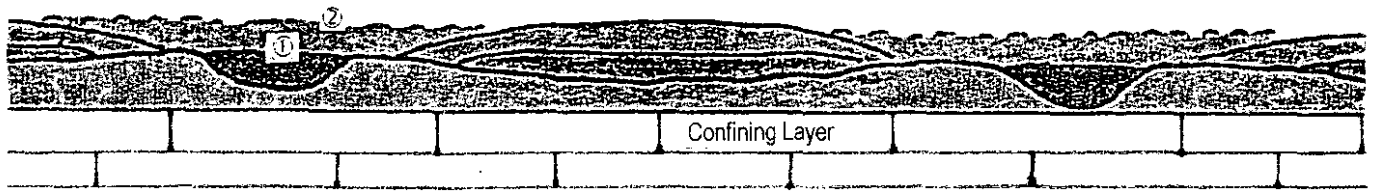
These develop directly on the mineral soil and up to a considerable slope in a response to a wetter climate.

The majority of raised bogs are of the Basin Type. Raised bogs, which represent the other bog types were selected to cover the range of raised bogs present in the country.

Figure 3.1: Diagrams of Raised Bog Geomorphological Types

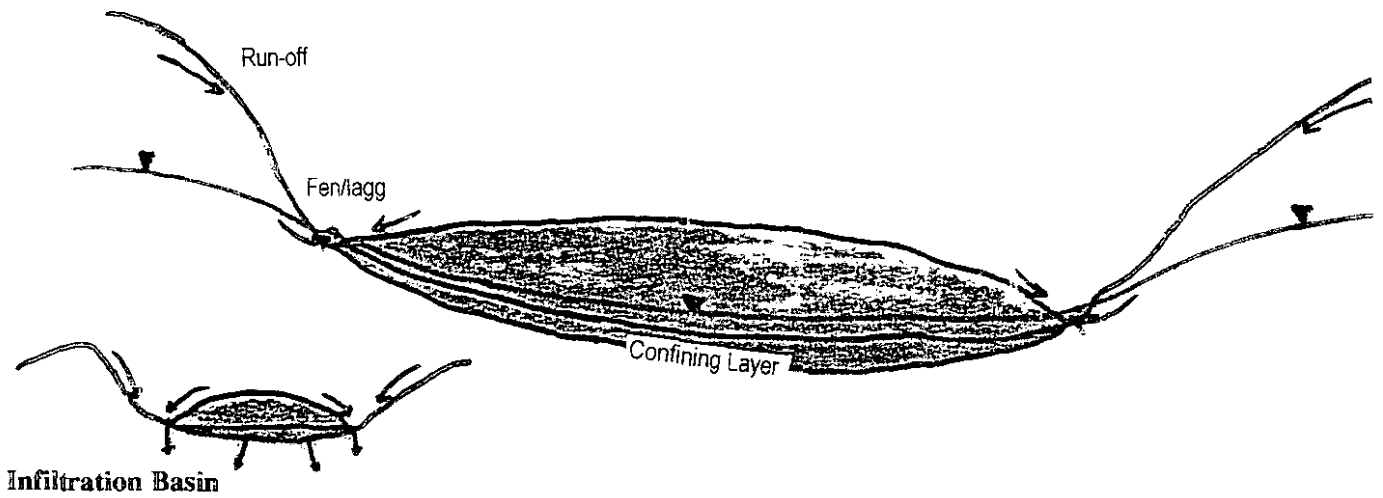
FIGURE 6.1a

Broad Floodplain



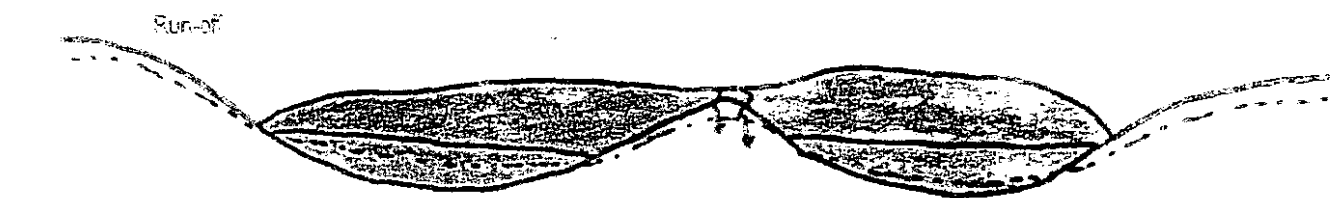
FIGURE

Basin



FIGURE

Ridge Raised



FIGURE

Blanket









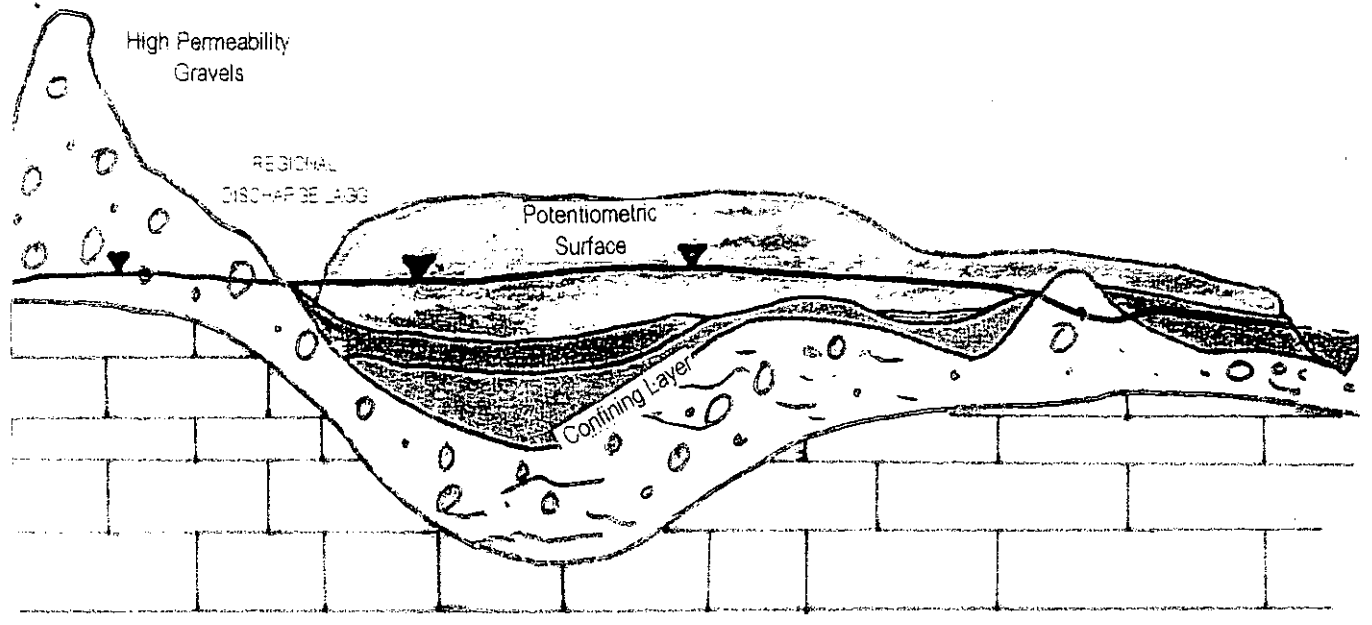
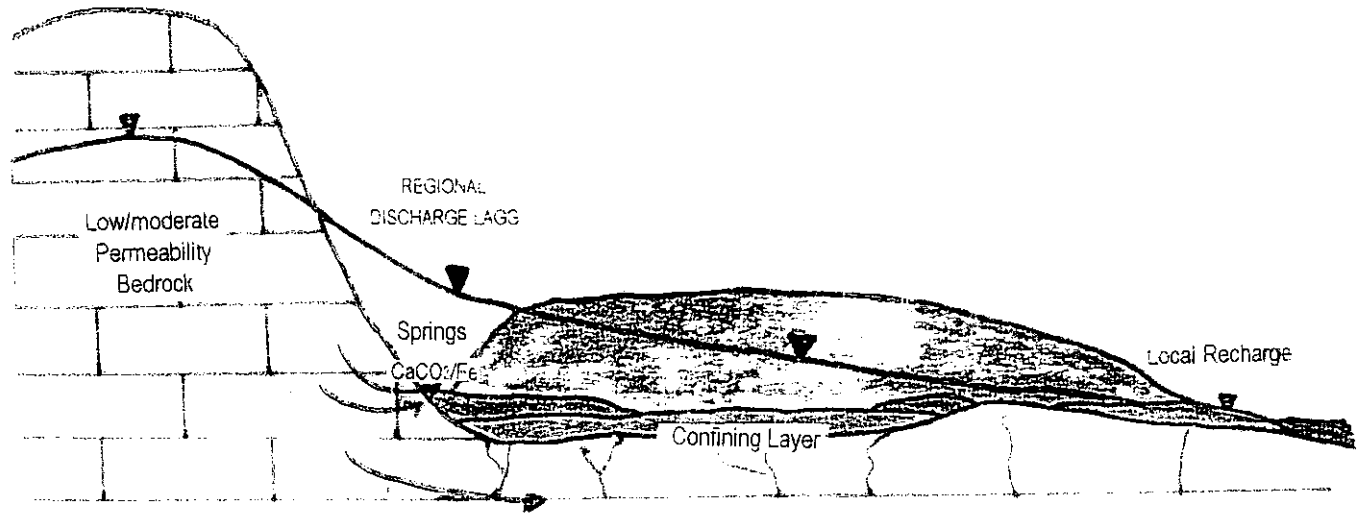
-  Peat
-  Clays
-  River
-  Fen Peat
-  Limestone
-  Flood level

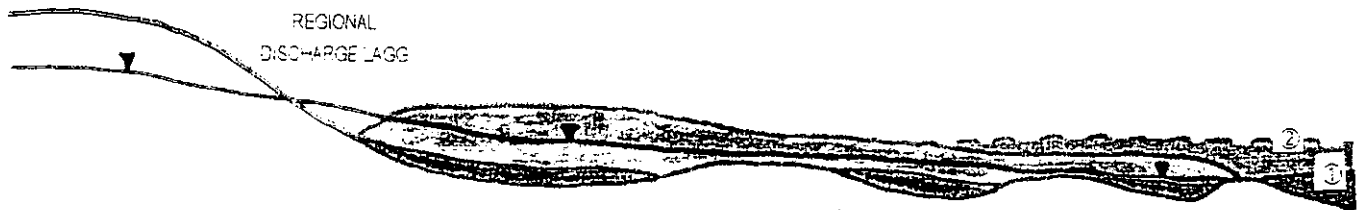
FIGURE 6.1b



Ridge River B



Ridge River C



Sketch diagrams of the Ridge River geomorphic setting

- | | | |
|----------|-----------|-------------|
| Peat | Clays | River |
| Fen Peat | Limestone | Flood level |

8. Geology

The majority of raised bogs developed on the Carboniferous Limestone bedrock of the midlands. There are however, some sites that have developed on different bedrock types, such as Old Red Sandstone. Any raised bogs, which developed on other rock types add to the diversity of raised bogs. These sites may have unique hydrochemical properties associated with flushes and marginal areas and so were selected for ecological importance.

9. Climate/ Altitude

The occurrence and morphology of raised bogs is determined by climatic conditions in particular, effective rainfall (rainfall less evapo-transpiration) and temperature. Rainfall and temperature are related to location and altitude. Since location has already been used, as a selection criteria, selection of raised bogs covering the range of altitudes, will be representative of the climatic range of raised bogs in Ireland. Raised bogs generally develop below 130m and can occur near sea level in the west. The complete altitude range of raised bog needs to be represented in the NHA sites. Any sites at the extreme of the range of altitudes were selected.

10. Proximity to SACs, SPA and NHAs

Raised bogs that are in close proximity to other protected sites especially other raised bogs are of added interest. Some raised bogs have been selected as they form part of a larger complex of protected sites. When a raised bog occurs in close proximity to another raised bog site (NHA or SAC) it can act as a support site (refuge for species during short term impacts on main site eg; severe burning), to ensure that raised bog habitat can recover from any damage. The proximity of other NHAs, SPAs and SACs adds interest to a site, as it increases the habitat diversity in the region and reduces long term management costs.

Data Collection

Once sites have been selected as Raised Bog NHAs, the following information will be detailed for each NHA. Of the 101 sites selected, 38 have already been surveyed in detail by either the 1995 or 2000 Raised Bog Restoration Projects. These sites have detailed site descriptions, habitat and drainage maps.

For the remaining 98 sites all available information was collected. Field cards and Site Reports from the NPW (1983-1987) and NHA (1993-1995) surveys were compared and any other reports for each site examined. Past ratings and classification were obtained from Cross, (1990). The 1840s maps (1:10,560) from the Geological Survey of Ireland (GSI) provided information of the original extent of each raised bog. From these maps, the area of the original peat basin was measured. Vertical aerial photography (1970s, 1995 and 2000) and oblique aerial photographs (1993-1995) provided information on the presence of pools, flushes and the extent of the remaining high bog. Enlarged aerial photographs (2000) were used to measure the remaining high bog area and the percentage of intact high bog remaining was calculated. Using the aerial photographs (1970s and 2000) the reduction of the area of high bog was assessed. Due to time constraints fieldwork was restricted to sites with limited information. Ownership, where available was obtained for each raised bog. This was divided into Private, Semi-State and State Owned.

APPEALS FOR EXCLUSION ON RAISED BOG SITES.

Raised bogs formed over a long period of time and occupy what would have been a lake basin at one time. When designating raised bogs the 1840 maps were used to identify what the original basin might have been in hydrological terms. This basin area was designated as the SAC although due to turf cutting over many years the bogs now occupy less than the original basin. If a nearer hydrological boundary was found this was taken as the boundary for designation.

This area of designation is necessary in the long term to save the area of active raised bog. This will be done by raising the water table and will result in the flooding of some land. We have to do this because where turf cutting has been carried out over the last 20 - 40 years the bogs are still drying out. This is resulting in the area of active bog being depleted and it is a priority habitat under the EC Habitats Directive.

When a landowner appeals the designation of land which may initially seem to have little scientific interest it is important to remember that its scientific value may be because it is part of the original basin and it is necessary that it stays in the SAC in order to save the priority habitat. The basin is the minimum management unit for the conservation of raised bogs. The SAC/NHA boundaries need to be drawn on what is the minimum management unit for nature conservation for raised bogs.

Boundary Maps

For the sites that have NHA site boundary maps (1:10,560) the site boundary was examined to ensure that all areas of ecological interest are included. Using the Geological Survey maps (1840s) as an indicator of the original area of raised bog and the aerial photographs (2000) to obtain the area of remaining high bog, the site boundary to each site was examined and amended where necessary to protect the hydrological integrity of the high bog.

The extent of the original peat basin can be identified from GSI (1840s) maps, which distinguish peat basins from the surrounding mineral soil. Where possible, the original peat basin was included in the site. For small raised bogs the site boundary was extended to include the original peat basin. For larger sites, where the area of cutover greatly exceeded the area of remaining high bog, the boundary was extended as required to protect the hydrological integrity of the remaining high bog. The boundary was also extended to provide suitable areas for restoration work on the cutover to counterbalance expected losses of wet areas on the high bog.

Non-pNHA sites with no boundary map were delineated using aerial photography and GSI 1840s (1:10,560) maps. The amended site boundary maps were digitised (at 1:20,000 scale) for publication purposes.

Site Maps

By overlaying the site maps (1:10,560) with enlarged 2000 aerial photographs, the area of remaining high bog area was outlined on tracing paper using a light-box and measured using a digital planimeter. By repeating the process with 1970s aerial photographs, the decline in high bog area can be measured.

Habitat Maps

By overlaying the Site Maps (1:10,560) with aerial photographs (2000), enlarged x400% to approximately 1:10,560 scale, and using oblique aerial photographs (1993-1995) and survey notes, where available, the habitat of the site was mapped onto tracing paper. Habitats were divided into three types, to highlight those occurring on high bog, cutover bog and mineral soil.

Site Descriptions

From previous surveys (Dromy and Kelly, 1995/ Derwin and MacGowan, 2000), Site Descriptions are available for 39 Raised Bogs (incorporated into 38 NHAs). Using all available information, the site descriptions for the remaining 65 sites (58 NPW, 3NGO and 4 New bogs) were prepared following the same format as in previous reports. For each site, the Site Name, Site Code, Grid Reference, Area, Map Numbers and Aerial Photograph numbers were listed at the start of each report.

A short introduction described past surveys, boundary amendments and the location of the site. The proximity to other NHAs, SPAs and SACs was also described. The physical features of each site, such as geomorphology, geology and hydrology, were described using all available information, (GSI Maps, Aerial Photography, Geology Maps and Discovery Maps). The GSI (1840s) maps in conjunction with stereoscopic images were used to identify the geomorphological classification for each site i.e. Basin, Ridge or River floodplain.

From the enlarged aerial photographs (2000) the remaining area of high bog was measured, using a digital planimeter, and perimeter of the high bog was also measured. The length of old and new drains was mapped from aerial photographs (1970s, 1995 and 2000) and measured. Using the original area of bog and the area of remaining high bog, the % of the bog that has been cutover was calculated. From the aerial photographs (2000) the approximate length of active peat-cutting was mapped and measured and the % of the margin actively cut was calculated.

The biological features of each raised bog were also described. The habitats were described using the habitat details from previous surveys. From past site reports, the presence of features such as hummock/ hollow complexes, flushes, characteristic and indicator species were noted as indications of active peat formation. Aerial photography (1970s and 2000) was used to describe changes occurring over time and since the previous field survey. Using these enlarged aerial photographs, any visible features such as flushes and pools were mapped. Forestry on the high bog along with active peat cutting were also mapped. From this habitat map, the area of wet habitat and the % cover of other habitats were measured. Burning on the high bog was noted.

Landuse and habitats on the cutover bog was also mapped and assessed for regeneration potential. Any features of interest such as semi-natural margins, eskers, turloughs, lakes or rivers were also noted.

Taking all the previous information into account the restoration potential for both the high bog and cutover was assessed. Finally, the reasons for site selection were outlined, using the listed selection criteria.

NHA Assessments

An NHA Assessment form was prepared for each selected site. Explanatory notes with each assessment form describe and evaluate the selected habitat i.e. Raised Bog and list additional habitats along with species of ecological interest. These assessments follow a standardised format, which is similar to that used for NATURA 2000 forms for SACs, with: Site Identification, Site Location, Ecological Information, Site Description and Site Designation tables. At present Ecological Information lists only the raised bog NHA but may be expanded at a future date to include other selected habitats. Impacts and Activities are listed along with the Maps and Photographs available for each site. Site Quality for raised bog habitat was assessed, using all available information. When assessing the ecological importance of each selected site for raised bog habitat, the following assessments were used (these broadly reflect those used in NATURA 2000):

Raised Bog habitat will be assessed for the following:

1 Representativity

2 Relative Surface

3 Conservation Status

i) Conservation of structure:

High bog Area

Area of wet habitat

Past ratings (J. Cross)

Changes since the 1970s (Aerial Photos, 1970s, 1995 and 2000).

Changes in area/intensity of APC (Outline of high bog for 1970 and 2000 on one map)

Cutover habitat: APC, OPC, Scrub/ Wood, Wet/ Intensive Grassland and Forestry

Annexed Habitat/ Species

ii) Conservation of function (trends):

% high bog remaining

% wet habitat

Shape: Area – Perimeter

Extent of recent peat-cutting

Extent of recent drainage

Threats

Prospects

iii) Restoration Potential

High bog

Cutover

4 Global Assessment: Takes all the above information into account and Ireland's special responsibility for raised bogs.

1. Representativity/ Typicality

Representativity: General description of high bog including areas of wet habitat, with Pools, Flushes, Bog Woodland and Semi-natural margins.

Size: Large sites >100ha.

Location: Remoteness, extreme limit of range of raised bogs, proximity to SACs

Diversity: Habitat and Species

Indicator species N/S, E/W

2. Relative Surface

The national resource of intact high bog is estimated to be approximately 18,000ha (J. Ryan, 2002). Raised bogs with over 2% of the national resource (>360ha) are considered to be of major ecological significance. All raised bogs over 60ha have potential ecological significance as they are large enough to maintain areas of active raised bog.

3. Conservation Status

i) Conservation of Structure: (current situation)

High Bog:

Area: High Bog

Area: Wet Habitat: active (pools) and flushes (>4ha active, >5ha wet flush)

Bog woodland

Description of Wet Habitat

Species diversity: Species lists

Past Rating

Changes Since the 1970s (Trends, comparison of photographs)

Past Rankings

Cutover:

Habitat/ Species Diversity

Habitat Descriptions: Molinia, Scrub, Lake, semi-natural grassland, lakes, turloughs and scrub.

Regeneration of bog species

ii) Conservation of Function: (Trends)

High Bog:

Integrity: Area of high bog remaining intact, (2000 area as % of 1840s area)

Area of Wet Habitat remaining (area of wet habitat as % of high bog area)

Human impact: Active peat-cutting (APC), Drains, forestry, grazing, dumping

Changes in high bog over time (1970-2000), High bog Area, Area Active/ flush,

Length of Old Drains

Length of New Drains

Shape: Area/ perimeter (Large perimeter to area, increase in edge effects)

An equation relating perimeter to area was used to quantify shape (circle =1.0)

Using the formula below, a measure of the ratio of area to perimeter can be calculated:

$$\frac{\text{Perimeter (m)}}{2 (\sqrt{[\text{area (m}^2\text{)} \cdot \pi]}}$$

This formula will give an indication of the complexity of the shape of the high bog with a simple shaped bog scoring low (a circle scores 1). In general high bogs with a simple shape will be easier to conserve as there is less edge effects.

Cutover:

Habitat, APC, regeneration / Reclamation

Intactness, Proximity to other NHAs

Presence of undisturbed vegetation Positive

Regenerating Peat cuttings (OPC) (with scrub)

Regeneration indicator species: *Sphagnum* Hummocks Sundews (*Drosera* spp)

Wet Grassland

Low level reclamation

Intensive reclamation, deep drains Negative

iii) Restoration Potential

High Bog:

Taking into account the presence of areas of active peat formation, presence of drains and landuse (APC, Forestry). The potential to maintain active areas and re-wet other areas through the blocking of high bog drains and removal of forestry is assessed. The presence of drains on the high bog, if blocked, can aid the re-wetting of the bog surface.

Cutover:

Degree of management, drainage, wet regenerating

Taking into account the extent of the cutover and landuse intensity. All active peat-cutting must be stopped and forestry removed from the cutover to protect the hydrological integrity of the high bog. Drains in the cutover should be blocked and where the slopes are favourable, this will cause re-wetting at the high bog facebank. Over time bog species will colonise these flooded areas and regeneration of bog habitat will occur.

With the blocking of drains and the water run-off from the high bog, these cutover areas may become the wettest parts of the raised bog and will have the best potential for active peat formation. Some sites selected for raised bog NHAs already have regenerating cutover and have a high restoration potential.

4. Global Assessment

This assessment takes an overall view of each raised bog and highlights the important reasons for assessment.

Site Synopsis

When the Boundary Amendments, Site Descriptions and NHA Assessments are completed, the Site Synopsis for each selected Raised Bog NHA was edited. This followed a format that describes; site location, habitat description, vegetation description, current landuse, damaging activities and reason for selection. Site Synopsis will be distributed to all known landowners for each NHA along with a digitised (1: 20,000) map, of the site boundary and a list of Notifiable Actions.

Notifiable Actions

These are landuse activities that are restricted on NHAs. Before any of these operations can be carried out, the landowner must consult with NPW staff. Notifiable Actions for raised bog habitat are outlined below.

Activities that should not be undertaken before consulting NPW staff:

- Cutting turf or peat moss extraction
- Drainage works on the bog or within the local water catchment area
- Alteration of the banks, bed or flow of watercourses
- Burning areas of vegetation
- Reclamation, in-filling, ploughing or other cultivation
- Reseeding, planting of trees or any other species
- Cutting trees or removing timber
- Dumping, burning or storing any materials
- Introduction (or re-introduction) into the wild of plants or animals of species not currently found in the area
- Grazing of livestock
- Grazing by livestock treated within the previous week with a pesticide which leaves persistent residues in the dung
- Use of any pesticide or herbicide, including sheep dip
- Adding lime
- Adding fertiliser of any sort
- Creation of new tracks or paths
- Operation of commercial recreation facilities (e.g. botanical tours)
- Any other activity of which notice may be given by the Minister from time to time

4 RESULTS

Selected Sites

Of the 136 sites assessed, 101 sites (incorporating 103 raised bogs) were selected for designation as Raised Bog NHAs. These are listed in Table 4.1. The remaining 33 sites have not been selected and these are listed in Table 4.2.

Of the 136 sites 94 NPWS sites were selected (incorporating 96 bogs), 3 NGO sites were selected and 4 new sites were selected. During the selection process 33 sites were dropped, 9 NPWS, 23 IPCC and 1 new bogs site. Information gathered on each site was entered into a Database and using this database sites could be ranked for various criteria.

Table 4.1 Sites Selected

Site Code	Site Name	County	Status	RB/Survey status	Nat Grid East	Nat Grid North	Total Area
70	TULLAHER LOUGH AND BOG NHA	CL	NHA	Ecologist	009500	106200	365.00
220	LOUGH NAMUCKA BOG NHA	GA/RO	NHA	Unsurveyed	106100	207300	276.00
221	MOORFIELD BOG/FARM COTTAGE NHA	GA/RO	NHA	Unsurveyed	164300	274000	137.00
229	BALLYGAR BOG NHA	GA	NHA	Ranger	178000	253500	120.00
235	BRACKLAGH BOG NHA	GA	NHA	Unsurveyed	106500	207000	105.00
240	CAMDERRY BOG NHA	GA	NHA	Ecologist	170000	257300	281.00
245	CLOONCULLAUN BOG NHA	GA	NHA	Ecologist	170000	259500	190.00
247	SLIEVE BOG NHA	GA	NHA	Ecologist	156000	263000	269.00
249	CLOONOLISH BOG NHA	GA	NHA	Ecologist	108300	201500	119.00
254	CRIT ISLAND WEST NHA	GA	NHA	Ecologist	107500	203500	421.00
256	CURRAGHLEHANAGH BOG NHA	GA	NHA	Ecologist	106800	205400	215.00
267	FUNSHIN BOG NHA	GA	NHA	Ecologist	171500	260000	176.00
280	CASTLEFFRENCH WEST BOG NHA	GA	NHA	Ecologist	107600	204500	124.00
281	KEELOGES BOG NHA	GA	NHA	Ecologist	168500	262500	163.00
283	KILMORE BOG NHA	GA	NHA	Ecologist	107400	205500	162.00
284	KILNABORRIS BOG NHA	GA	NHA	Ecologist	109700	201700	166.00
292	LEAHA BOG NHA	GA	NHA	Ecologist	171600	258500	93.00
307	LOUGH TEE BOG NHA	GA	NHA	Ecologist	105900	203600	239.00
310	MENEEN BOG NHA	GA	NHA	Ecologist	109000	201200	196.00
311	MONIVEA BOG NHA	GA	NHA	Ecologist + Ranger	105400	203500	206.00
321	RAFORD RIVER BOG NHA	GA	NHA	Ecologist	106200	202900	247.00
333	ANNA MORE BOG NHA	KE	NHA	Ranger /Unsurveyed	102000	105500	90.00
337	DOON LOUGH NHA	CL	NHA	Ecologist	105500	107300	592.00
374	MOANVEANLAGH BOG NHA	KE	NHA	Ranger/Unsurveyed	100400	103500	213.00
395	MOUDS BOG NHA	KD	NHA	Ranger	207800	201200	590.00
415	COOLRAIN BOG NHA	LA	NHA	Ecologist	202600	209100	136.00
419	KNOCKACOLLER BOG NHA	LA	NHA	Ecologist	203100	209100	117.00
422	AGHNAMONA BOG NHA	LE/LF	NHA	Unsurveyed	200600	208700	482.00
442	BROWN BOG NHA	LF	NHA	Ecologist	200900	207600	77.00
445	CLOONEEN BOG NHA	LF	NHA	Ecologist	207000	284500	214.00
502	GOWLAUN BOG NHA	MA	NHA	Ecologist	105600	300400	232.00
510	KILGARRIFF BOG NHA	MA	NHA	Ecologist	157500	303000	76.00
565	CLONYDONNIN BOG NHA	OF/WM	NHA	Ecologist	201200	203300	125.00
570	BLACK CASTLE BOG NHA	OF	NHA	Ecologist	257500	235000	165.00
587	LOUGH GARA NHA	RO/SL	NHA	Ecologist	107100	300000	2,504.00
591	BELLA BRIDGE BOG NHA	RO	NHA	Unsurveyed	175500	293500	187.00
602	CORBO BOG NHA	RO	NHA	Ecologist	109400	206900	192.00
603	CORNAVEAGH BOG NHA	RO	NHA	Unsurveyed	107500	209500	127.00
605	DERRYCANAN BOG NHA	RO	NHA	Ecologist	190500	272500	268.00
640	ARRAGH MORE BOG NHA	TI	NHA	Unsurveyed	109800	200200	257.00
642	BALLYMACEGAN BOG NHA	TI	NHA	Unsurveyed	109200	201100	107.00
648	KILLEEN BOG NHA	TI	NHA	Unsurveyed	200200	200300	173.00
652	MONAINCHA BOG/BALLAGHMORE BOG NHA	LA/TI	NHA	Unsurveyed	201800	208900	377.00
654	REDWOOD BOG NHA	TI	NHA	Unsurveyed	109400	201100	555.00
674	BALLYNAGRENIA AND BALLINDERRY BOG NHA	WM	NHA	Ecologist	202100	204100	273.00
676	CARN PARK BOG NHA	WM	NHA	Ecologist	211500	241500	207.00
677	CLONCROW BOG (NEW FOREST) NHA	WM	NHA	Ecologist	239800	238500	214.00
678	CROSSWOOD BOG NHA	WM	NHA	Ecologist	200900	204000	148.00
684	LOUGH DERRAVARAGH NHA	WM	NHA	Ecologist	204000	206700	1,400.00
691	RINN RIVER NHA	LE/LF	NHA	Ecologist			272.00
694	WOODDOWN BOG NHA	WM	NHA	Ecologist	204800	205400	129.00
890	CANGORT BOG	OF/TI	NHA		203500	293500	100.00
921	SCREGGAN BOG NHA	OF	NHA	Ecologist	228700	219500	174.00
937	SCOHABOY BOG NHA	TI	NHA	Unsurveyed	109600	109200	428.00

Table 4.1 continued: Sites Selected

Site Code	Site Name	County	Status	RB Survey status	Nat Grid East	Nat Grid North	Total Area
985	LOUGH KINALE AND DERRAGH LOUGH NHA	CV/LF/WM	NHA	Ranger	238500	281000	412.00
987	LOUGH SHEELIN NHA	CV/ME/WM	NHA	Unsurveyed	204700	208500	254.00
993	AYLE LOWER BOG NHA	CL	NHA	Ranger	105400	108300	49.00
1020	LOUGHANILLOON BOG NHA	CL	NHA	Ranger	105600	108200	90.00
1224	ARDGRAIGUE BOG NHA	GA	NHA	Unsurveyed	108300	201400	176.00
1227	AUGHRIM BOG NHA	GA	NHA	Ecologist	178000	256500	185.00
1240	CAPIRA/DERREW BOG NHA	GA	NHA	Ecologist	108500	201000	112.00
1244	CASTLEFRENCH EAST NHA	GA	NHA	Ecologist	107700	204600	82.00
1254	DERRINLOUGH BOG	GA	NHA		164300	274000	69.00
1255	DERRYNAGRAN BOG AND ESKER NHA	GA	NHA	Ecologist	157800	252000	73.00
1264	ESKERBOY BOG NHA	GA	NHA	Ecologist	107900	201700	0.00
1280	KILLACLOGHER BOG NHA	GA	NHA	Ranger	105500	204100	419.00
1283	KILLURE BOG NHA	GA	NHA	Ecologist	108200	203300	203.00
1303	MOORFIELD BOG NHA	GA	NHA	Ecologist	108600	201600	133.00
1324	JAMESTOWN BOG NHA	ME	NHA	Ranger	207800	206600	173.00
1352	BUNNARUDDEE BOG NHA	KE	NHA	Ranger/Unsurveyed	103500	140500	156.00
1388	CARBURY BOG NHA	KD	NHA	Ranger	206800	203600	253.00
1393	HODGESTOWN BOG NHA	KD	NHA	Unsurveyed ?	208000	203000	94.00
1405	CASHEL BOG (LE/TRIM) NHA	LE	NHA	Ecologist	200800	209000	126.00
1420	CORRACRAMPH BOG NHA	LE	NHA	Ecologist	207300	290000	175.00
1423	CLOONAGEEHER BOG NHA	LE/LF	NHA	Unsurveyed	201000	208500	299.00
1448	FORTHILL BOG NHA	LF	NHA	Ecologist	206500	259000	111.00
1450	MOUNT JESSOP BOG NHA	LF	NHA	Ranger	212500	270000	121.00
1580	GIRLEY BOG NHA	ME	NHA	Unsurveyed	207000	207000	112.00
1582	MOLERICK BOG NHA	ME	NHA	Ranger	206700	204700	79.00
1584	MOUNT HEVEY BOG NHA	ME/WM	NHA	Ranger/Unsurveyed	206300	204800	424.00
1623	CARRICKYNAGHTAN BOG NHA	RO	NHA	Unsurveyed	200300	203700	488.00
1632	DRUMALOUGH BOG NHA	RO	NHA	Ecologist / In-house	106200	208300	305.00
1652	TULLAGHAN BOG (ROSCOMMON) NHA	RO	NHA	Unsurveyed	107800	209600	93.00
1657	CLOONGOONAGH BOG NHA	SL	NHA	Ecologist + Ranger	104400	300700	204.00
1684	LORRHA BOG NHA	TI	NHA	Unsurveyed	109300	200500	77.00
1725	NURE BOG	WM	NHA	Unsurveyed	236500	244500	143.00
1812	LOUGH GARR NHA	WM	NHA	Ecologist	234100	266500	0.00
1853	NORE VALLEY BOGS NHA	TI	NHA	Unsurveyed	218000	287500	301.00
2013	TULLAGHANROCK BOG NHA	RO	NHA	Ecologist	166000	295000	95.00
2033	DANGEAN BOG NHA	OF	NHA	Ecologist	244600	226000	192.00
2069	ARDAGULLION BOG NHA	LF	NHA	Ecologist	231500	275000	101.00
2072	LISNANARRIAGH BOG NHA	RO	NHA	Ecologist	195000	267500	104.00
2302	BALLYNAMONA BOG AND CORKIP LOUGH NHA	RO	New	Ecologist + Ranger			
2307	CLOONLOUM MORE BOG NHA	CL		New NHA			
2323	MILLTOWN PASS	WH		New NHA			
2344	ANNAGHBEG	GA		New NHA			
2355	HAWKSWOOD	OY		New NHA			
2310	LOUGH REE NHA	LF/RO/WM	SAC 440	Ecologist	200100	205300	13,626.00
564	RIVER LITTLE BROSNA CALLOWS NHA	OF/TI	SPA 564	Ecologist	109800	201100	1,157.60
222	SUCK RIVER CALLOWS	GA/RO	SPA 97	Ecologist	108400	232700	2,932.00
2357	CLONREHER BOG	LS	New				

Table 4.1a: Sites incorporated into larger NHAs

599	CLOONCRAFF/CLOONLARGE BOG NHA (included in Lough Ree NHA 2310)	RO	NHA	Ecologist	109500	206300	291.00
1613	CLOGHAN DEMESNE BOG AND WOOD NHA (included in River Little Brosna NHA 564)	OF	NHA	Ranger + Unsurveyed	109700	201200	164.00

Table 4.2 Sites Not Selected

Site Code	Site Name	County	Comments	Total Area
263	DRUMBULCAUN BOG	GA	Too Small	41.00
390	BALLINA BOG NHA	KD	APC over 50% of High Bog, Severely Damaged	118.00
413	ANNAGHMORE LOUGH FEN (OFFALY) NHA	LA/OF	Fen, No Raised Bog Habitat	277.90
447	DERRYMORE BOG NHA	LF	Too Much Recent Drainage	180.00
578	KILLBALLYSKEA	OY	High bog 100% drained	70
586	WOODFIELD BOG	OF	Too Much Recent Drainage and Invasive species	252.00
839	KILKEASY BOG	KK	Poor, Healthy Habitat	29.00
846	RED BOG, DUNGARVAN	KK	Small Fen, No Raised Bog Habitat	10.00
868	MANNIN WETLAND		Fen, No Raised Bog Habitat	
879	CLONSOGHY BOG	LS	Highly Man-Modified	
974	ANNAGH LOUGH (BALLYCONNELL)	CV	Fen, No high Bog Habitat	62.70
893	CLONLYON GLEBE BOG	OF	75% drained	116.00
1365	LOUGH BOORA	OF	Cutaway Bog, No High Bog Habitat	36.00
1496	DERRYKINLOUGH BOG	MO	Afforested and Drained	85
1593	THOMASTOWN BOG	ME	100% Afforested	48.00
1577	DOOLYSTOWN BOG	ME	Small Heath, No Raised Bog Habitat	20.00
1709	TIAQUIN BOG NHA	GA	Highly Man-modified, Severely Fragmented	70.00
1840	LISLANNAN BOG	MO	Poor Fen, No Raised Bog Habitat	15.00
1849	BALLYVORHEEN BOG NHA	LI	Cutaway Bog, No High Bog Habitat	93.00
1850	DROMSALLAGH BOG NHA	LI	Cutaway Bog, No High Bog Habitat	70.00
2308	CREEVOSHEEDY BOG NHA	CL	Highly Man Modified, Too Fragmented	
New code	RIVER SHANNON CALLOWS NHA	GA/OF/R O/TI/W M	No significant Area of High Bog Habitat	5,787.00
New code	TEMPLEHOUSE AND CLOONACLEIGHA LOUGHS NHA	SL	No significant Area of High Bog Habitat	481.00
New	LULLYMORE EAST	KD	Cutaway Bog, No High Bog Habitat	10
New	TULLYCROSS	WH	High bog 100% drained by Bord na Mona	74
New	THE DERRIES	OY	High bog 100% drained by Bord na Mona	120
New	MOANAVAN/ YELLOW BOG	LS	Too Small	26
New	KILLAUN BOG	OY	High bog 100% drained by Bord na Mona	80
New	KILLNAMUCK (ABBYLEIX) BOG	LS	High bog 100% drained	100
New	FARRENCONNELL ESTATE	CN	Insufficient Data	140
New	CLOONARKIN	GA	Insufficient Data	90
New	CLOONKIERAN	RN	Insufficient Data	35
New	DRUMMIN	CW	Insufficient Data	15

Selection Process

Sites were selected under the following categories.

1 Location/ Peat Archive

Raised bogs that extended the range of protected raised bog habitat in Ireland were selected. These included sites to the east of the country as well as sites to the north-east, north-west and south-west. In total 28 sites were selected for their location (See Table 4.3).

Table 4.3 Sites Selected for Remote Location

Code	Name	County	High Bog 2000 (ha)
987	Lough Sheelin/Moneybeg/Clare Island	Cavan, Meath, Westmeath	143.4
70	Tullaheer Lough/Monmore	Clare	21.4
337	Doon Lough	Clare	9.78
993	Ayle Lower Bog	Clare	30.86
1020	Loughanilloon Bog	Clare	10.7
2307	Cloonloun More	Clare	56.9
333	Anna More	Kerry	39.25
374	Moanveanlagh	Kerry	130
1352	Bunnaruddee Bog	Kerry	51.5
395	Mouds	Kildare	286.8
1388	Carbury	Kildare	80.9
1393	Hodgestown Bog	Kildare	34.1
415	Coolrain	Laois	60.1
419	Knockacoller	Laois	54
2357	Clonreher Bog	Laois	69.1
1405	Cashel	Leitrim	61.54
1420	Corracramph	Leitrim	128.65
985	Lough Kinale	Longford, Cavan & Westmeath	7.35
502	Gowlaun	Mayo	178.77
510	Kilgariff	Mayo	42.34
1324	Jamestown	Meath	42.94
1580	Girley	Meath	68.4
1582	Molerick Bog	Meath	14.45
1584	Mount Hevey	Meath, Westmeath	200
1657	Cloongoonagh	Sligo	166.1
2033	Daingena	Offaly	89.1
2323	Milltown Pass	Westmeath	44.9
2355	Hawkswood	Offaly	60.8

2 Past Ratings

Raised bogs that were rated as either A or Bi with few changes since the 1970s were selected as NHAs. In total 19 sites were selected for this criteria (See Table 4.4).

Table 4.4: Sites Selected on Past Ratings

Code	Name	County	IC Rating	High Bog-2000 (ha)
256	Curraghlehanagh	Galway	A	155
442	Brown Bog	Longford	A	51
1224	Ardgraique	Galway	A	82
220	Lough Namucka	Galway	Bi	122.75
235	Bracklagh	Galway	Bi	56.6
280	Castlefrench West	Galway	Bi	67.6
283	Kilmore	Galway	Bi	71
284	Kilnaborris (Killeragh)	Galway	Bi	118
311	Monivea	Galway	Bi	155.5
419	Knockacoller	Laois	Bi	54
564	River Little Brosna	Offaly	Bi	74
570	Blackcastle	Offaly	Bi	97.5
587	Callow (part of Lough Gara)	Roscommon, Sligo	Bi	163
602	Corbo	Roscommon	Bi	121
640	Arragh More	Tipperary	Bi	179.5
654	Redwood	Tipperary	Bi	181.5
678	Crosswood	Westmeath	Bi	110
937	Scohaboy	Tipperary	Bi	214.2
1632	Drumalough West	Roscommon	Bi (Biii)	64.2
1632	Drumalough East	Roscommon	Bi (Biii)	82.23

3 Active Peat Formation: Hummock/ Hollows, *Spagnum* spp.

All sites with over 4ha of active peat formation, as indicated by pools, hummock/hollow complexes and wet flushes were selected for active raised bog. In total 51 sites were selected for their active area (See Table 4.5).

Table 4.5: Sites Selected on Area Active/ Bog Woodland

Code	Name	Active/pools (ha)	Flush (ha)	Bog Woodland (ha)	High Bog - 2000 (ha)	A+F+B/(HB)
1584	Mount Hevey	62.9	1	0	200	32
284	Kilnaborris (Killeragh)	56.3	0.2	0	118	47.9
674	Ballynagrenia	56.1	2.1	0	130.4	44.6
654	Redwood	41.4	8	0	181.5	27.2
676	Carn Park	38	0	0	156.4	24.3
648	Killeen	35	0	0	57.34	61
565	Clonydonnin	32.6	0	0	116.6	28
415	Coolrain	31.9	1.1	0	60.1	54.9
602	Corbo	30.3	2	0	121	26.7
678	Crosswood	27.2	6.1	0	110	26.8
570	Blackcastle	23.8	0	0	97.5	24.4
256	Curraghlehanagh	23.3	10.3	0	155	21.67
987	Lough Sheelin	21.7	0	0	143.4	15.1
254	Crit Island	20	1	0	336.56	6
395	Mouds	19.2	4.2	0	286.8	8.2
419	Knockacoller	17.1	0	0	54	31.7
1283	Killure	16.5	15.9	0	269.51	12
2069	Ardagullion/Cloonshannagh	16.4	0.1	0	55.9	29.7
442	Brown Bog	16.3	2.2	0	51	36.3
307	Lough Tee	16	0	0	250.8	6.4
1632	Drumalough West	15	2	0	64.2	26.48
283	Kilmore	14	4	0	71	25
281	Keeioges	14	2	0	222	7.2
1632	Drumalough East	13	3	0	82.23	19.46
1255	Derrynagran	12.13	0	0	32.24	12.13
1448	Forthill	12	1	0	55.9	23
456	Camderry	11.5	7.9	0	197	10
510	Kilgarriff	11.5	0	0	42.34	27
2013	Tullaghanrock	10.7	4.8	0	67.4	23
677	Cloncrow Bog (New Forest)	10.5	0	0	119.53	8.7
674	Ballinderry	10.3	0	0	43.7	26.1
229	Ballygar	10.2	2.7	0	106.3	12
1623	Carrickynaghtan	10	0	0	225	4.44
1420	Corracramph	9	1	0	128.65	7.8
1224	Ardgraique	8.2	4.39	0	82	15.4
70	Tullaheer Lough/Monmore	8	4	0	21.4	56.1
694	Wooddown	7.81	2.52	0	115.4	8.96
587	Callow (part of Lough Gara)	7.7	15	0	163	13.92
245	Clooncullaun	7.6	3.8	0	128	8.9
321	Raford River	7.2	5.3	0	122.3	10.2
1405	Cashel	7	0	0	61.54	11.37
937	Scohaboy	6.3	0	0	214.2	0.02
374	Moanveanlagh	5.9	12	0	130	13.8
220	Lough Namucka	5.5	6	0	122.75	9.4
1303	Moorfield	5.4	6	0	77.5	14
280	Castlefrench West	5	5	0	67.6	14.8
640	Arragh More	5	3	0	179.5	4.5
2323	Milltown Pass	5	0	0	44.9	11
221	Moorfield Bog/Farm Cottage	4.55	0.08	0	61.26	7.56
1853	Nore Valley/Timoney	4.4	4.8	0	114.5	8
2310	Lough Ree (Clooncraff/Cloonlarge)	4	1	6	507.1	2
1244	Castlefrench East	4	4	0	63.6	12.6
1388	Carbury	4	0	0	80.9	4.9

4 High bog Area (>60ha)

Raised bogs with >60ha of high bog area were considered to be sufficiently large enough to support wet areas, which may contain active peat formation. Because all sites have been subject to marginal turf-cutting, those sites with <60ha were considered too small to support wet areas and so required further qualities to warrant designation. In total 69 sites were selected for their high bog area (See Table 4.6).

Table 4.6: Sites Selected on High Bog Area

Code	Name	County	High Bog Area-2000 (ha)	A + P + B
2310	Lough Ree (Clooncraft/Cloonlarge)	Roscommon	507.1	11
254	Crit Island	Galway	336.56	21
395	Mouds	Kildare	286.8	23.4
422	Aghnamona	Leitrim, Longford	277.68	9
1283	Killure	Galway	269.51	32.4
307	Lough Tee	Galway	250.8	16
1623	Carrickynaghtan	Roscommon	225	10
281	Keeloges	Galway	222	16
937	Scohaboy	Tipperary	214.2	6.3
1584	Mount Hevey	Meath, Westmeath	200	63.9
456	Camderry	Galway	197	19.4
654	Redwood	Tipperary	181.5	49.4
640	Arragh More	Tipperary	179.5	8
502	Gowlaun	Mayo	178.77	8
247	Slieve (Cloonmore/Cloon Felly)	Galway	176.4	13.6
605	Derrycanan	Roscommon	174.3	3.6
1657	Cloongoonagh	Sligo	166.1	11.5
587	Callow (part of Lough Gara)	Roscommon, Sligo	163	22.7
2344	Annaghbeg	Galway	163	2
1227	Aughrim	Galway	158.9	3.7
676	Carr Park	Westmeath	156.4	38
311	Monivea	Galway	155.5	33.3
256	Curraghlehanagh	Galway	155	33.6
1280	Killaclogher	Galway	148.61	3.5
1423	Cloonageeher Bog	Leitrim, Longford	145.33	5
987	Lough Sheelin/Moneybeg/Clare Island	Cavan, Meath, Westmeath	143.4	21.7
1254	Derrinlough Bog	Galway	131.3	1
674	Ballynagrenia	Westmeath	130.4	58.2
374	Moanveanlagh	Kerry	130	17.9
1420	Corracramph	Leitrim	128.65	10
245	Clooncullaun	Galway	128	11.4
652	Monaincha/Ballaghmore	Tipperary, Laois	125.13	4
220	Lough Namucka	Galway	122.75	11.5
321	Raford River	Galway	122.3	12.5
602	Corbo	Roscommon	121	32.3
677	Cloncrow Bog (New Forest)	Westmeath	119.53	10.5
284	Kilnaborris (Killeragh)	Galway	118	56.5
565	Clonydonnin	Westmeath	116.6	32.6
694	Wooddown	Westmeath	115.4	10.33
1853	Nore Valley/Timoney	Tipperary	114.5	9.2
310	Meneen	Galway	110.49	10
678	Crosswood	Westmeath	110	33.3
229	Ballygar	Galway	106.3	12.9
570	Blackcastle	Offaly	97.5	23.8

Table 4.6 continued: Sites Selected on High Bog Area

Code	Name	County	High Bog Area- 2000 (ha)	A + F + B
267	Funshin	Galway	96.3	2
691	Rinn River	Leitrim, Longford	95.3	3
445	Cloneen	Longford	94.8	23.1
1264	Eskerboy	Galway	93.3	0
2033	Damgean	Offaly	89.1	0.75
1725	Nure Bog	West Meath	85.2	0
591	Belia Bridge	Roscommon	84.6	3
1632	Drumalough East	Roscommon	82.23	16
1224	Ardgraugue	Galway	82	12.59
1388	Carbury	Kildare	80.9	4
1303	Moorfield	Galway	77.5	11.4
564	River Little Brosna	Offaly	74	0
283	Kilmore	Galway	71	18
2357	Clonreher Bog	Laois	69.1	0
1580	Girley	Meath	68.4	1.8
280	Castlefrench West	Galway	67.6	10
2013	Tullaghanrock	Roscommon	67.4	15.5
1632	Drumalough West	Roscommon	64.2	17
1450	Mount Jessop	Longford	64.01	2.5
1244	Castlefrench East	Galway	63.6	8
1405	Cashel	Leitrim	61.54	7
921	Screggan	Offaly	61.38	2
221	Moorfield Bog/Farm Cottage	Galway	61.26	4.63
2302	Ballynamona & Corkip Lough	Roscommon	61	21.7
2355	Hawkswood	Offaly	60.8	2
415	Coolrain	Laois	60.1	33

5 Integrity: % of High Bog remaining

Most raised bogs in Ireland have been substantially affected by peat-cutting and drainage. Any site with >50% of the original high bog intact was considered to be of conservation importance. In total 21 sites were selected for the integrity of high bog (See Table 4.7).

Table 4.7: Sites Selected on % Remaining of Original High Bog

Code	Name	County	% Area Remaining since 1800's	Area-1800's (ha)	Area-2000 (ha)
565	Clonydonnin	Westmeath	71.1	164	116.6
247	Slieve	Galway	67.6	261	176.4
2013	Tullaghanrock	Roscommon	66.7	101	67.4
1254	Derrinlough Bog	Galway	66	198.2	131.3
2344	Annaghbeg	Galway	59.3	275	163
280	Castlefrench West	Galway	58.5	115.5	67.6
1255	Derrynagran	Galway	56.97	56.59	32.24
1227	Aughrim	Galway	56.1	283.2	158.9
654	Redwood	Tipperary	55.5	328	181.5
456	Camderry	Galway	54.9	359	197
229	Ballygar	Galway	54.5	195	106.3
245	Clooncuilaun	Galway	54	236	128
1283	Killure	Galway	54	544.33	269.51
422	Aghnamona	Leitrim, Longford	53.98	514.4	277.68
937	Scohaboy	Tipperary	53.5	400	214.2
442	Brown Bog	Longford	53.1	96	51
678	Crosswood	Westmeath	53.1	207	110
284	Kilnaborris	Galway	52.9	222.8	118
256	Curraghlahanagh	Galway	51	306	155
281	Keeloges	Galway	50	448.09	222
510	Kilgariff	Mayo	50	76.96	42.34

6 Habitat Diversity: Bog Woodland and Semi-Natural Margins

The presence of Annexed Habitats such as Bog Woodland or semi-natural Margins, further increase the ecological importance of sites. In total 19 sites were selected for the presence of Annexed habitats or semi-natural margins(See Table 4.8).

Table 4.8: Sites Selected on Presence of Semi-Natural Margins or Bog Woodland

Code	Name	County	Presence of semi-natural margins	Bog Woodland
2310	Lough Ree	Roscommon	Yes	Yes
654	Redwood	Tipperary	Yes	No
987	Lough Sheelin	Cavan, Meath, Westmeath	Yes	No
456	Camderry	Galway	Yes	No
510	Kilgariff	Mayo	Yes	No
2013	Tullaghanrock	Roscommon	Yes	No
321	Raford River	Galway	Yes	No
220	Lough Namucka	Galway	Yes	No
1227	Aughrim	Galway	Yes	No
691	Rinn River	Leitrim, Longford	Yes	No
249	Cloonoolish	Galway	Yes	No
247	Slieve	Galway	Yes	No
642	Ballymacegan	Tipperary	Yes	No
993	Ayle Lower Bog	Clare	Yes	No
1020	Loughanilloon Bog	Clare	Yes	No
1254	Derrinlough Bog	Galway	Yes	No
1582	Moleric Bog	Meath	Yes	No
2302	Ballynamona & Corkip Lough	Roscommon	No	Yes
445	Cloneen	Longford	No	Yes

7 Geomorphology (Geohydrology): Basin, Ridge, Floodplain

The majority of raised bogs are of the Basin Type. Raised bogs, which represented the other bog types were selected to cover the range of raised bogs present in the country. In total 42 sites were selected for their geomorphology (See Table 4.9).

Table 4.9: Sites Selected on Geomorphology

Code	Name	County	High Bog Area-2000 (ha)	Geomorphology
1264	Eskerboy	Galway	93.3	ridge river A
654	Redwood	Tipperary	181.5	Ridge River
640	Arragh More	Tipperary	179.5	ridge river
502	Gowlaun	Mayo	178.77	ridge river
587	Callow (part of Lough Gara)	Roscommon, Sligo	163	ridge river
1227	Aughrim	Galway	158.9	ridge river
1280	Killaclogher	Galway	148.61	ridge river
245	Clooncullaun	Galway	128	ridge river
564	River Little Brosna	Offaly	74	ridge river
2013	Tullaghanrock	Roscommon	67.4	Ridge River
221	Moorfield Bog/Farm Cottage	Galway	61.26	ridge river
235	Bracklagh	Galway	56.6	Ridge River
419	Knockacoller	Laos	54	Ridge River
510	Kilgarraff	Mayo	42.34	ridge river
1020	Loughanilloon Bog	Clare	10.7	ridge river
395	Mouds	Kildare	286.8	ridge basin
456	Camderry	Galway	197	Ridge Basin
1423	Cloonageeher Bog	Leitrim, Longford	145.33	ridge basin
1254	Derrinlough Bog	Galway	131.3	ridge basin
374	Moanveanlagh	Kerry	130	Ridge Basin
1420	Corracramph	Leitrim	128.65	ridge basin
591	Bella Bridge	Roscommon	84.6	ridge basin
1632	Drumalough East	Roscommon	82.23	ridge basin
1632	Drumalough West	Roscommon	64.2	ridge basin
603	Cornaveagh	Roscommon	54.1	ridge basin
890	Cangort Bog	Offaly & Tipperary	54	ridge basin
1652	Tullaghan	Roscommon	36.1	ridge basin
1255	Derrynagran	Galway	32.24	ridge basin
2310	Lough Ree (Clooncraft/Cloonlarge)	Roscommon	507.1	floodplain
422	Aghnamona	Leitrim, Longford	277.68	floodplain
1283	Killure	Galway	269.51	floodplain
987	Lough Sheelin/Moneybeg/Clare Island	Cavan, Meath, Westmeath	143.4	floodplain
321	Raford River	Galway	122.3	floodplain
1853	Nore Valley/Timoney	Tipperary	114.5	floodplain
310	Meneen	Galway	110.49	floodplain
691	Rinn River	Leitrim, Longford	95.3	floodplain
445	Cloneen	Longford	94.8	floodplain
1448	Forthill	Longford	55.9	floodplain
642	Ballymacegan	Tipperary	51.87	floodplain
1352	Bunnaruddee Bog	Kerry	51.5	floodplain
684	Lough Derravaragh	Westmeath	49	floodplain
222	River Suck Callows	Galway, Roscommon	39.7	floodplain
985	Lough Kinale	Longford, Cavan & Westmeath	7.35	floodplain

8 Geology

The majority of raised bogs in Ireland occur on Calcareous Limestone bedrock. Any raised bogs, which developed on other rock types such as Old Red Sandstone, add to the diversity of raised bogs. These may have unique hydrochemical properties associated with flushes and marginal areas and so were selected for ecological importance. In total 8 sites were selected for their geology (See Table 4.10).

Table 4.10: Sites Selected on Geology

Code	Name	County	Geology
1352	Bunnaruddee Bog	Kerry	Upper Avonian shales and sandstones)
2013	Tullaghanrock	Roscommon	Carboniferous Limestone and Lower Avonian Shales and Sandstones
220	Lough Namucka	Galway	Old Red Sandstone and Lower Carboniferous Limestone
1420	Coracramph	Leitrim	Sandstone and shale bedrock
2357	Clonreher Bog	Laois	on junction between carboniferous limestone and sandstone
415	Coolrain	Laois	Old Red Sandstone, Carboniferous Slate Series and Calciferous Sandstone
1853	Nore Valley/Timoney	Tipperary	Old Red sandstone and ABL
70	Tullaher Lough/Monmore	Clare	Grey siltstone and Sandstone

9 Climate/ Altitude

The complete altitude range of raised bog will be represented in the NHA sites. Any sites at the extreme of the range of altitudes will be included. In total 6 sites were selected for their altitude less than 40m and 13 sites greater than 90m (See Table 4.11).

Table 4.11: Sites Selected on Altitude Range

Code	Name	County	High Bog Area 2000 (ha)	Min Alt (m)	Max Alt (m)
70	Tullaher Lough/Monmore	Clare	21.4	10	30
374	Moanveanlagh	Kerry	130	30	41
1352	Bunnaruddee Bog	Kerry	51.5	30	30
564	River Little Brosna	Offaly	74	30	35
642	Ballymacegan	Tipperary	51.87	35	35
691	Rinn River	Leitrim, Longford	95.3	35	40
1632	Drumalough West	Roscommon	64.2	90	95
1632	Drumalough East	Roscommon	82.23	90	95
1393	Hodgestown Bog	Kildare	34.1	90	90
1725	Nure Bog	West Meath	85.2	90	90
395	Mouds	Kildare	286.8	90	92
419	Knockacoller	Laois	54	99	99
677	Cloncrow Bog (New Forest)	Westmeath	119.53	99	99
694	Wooddown	Westmeath	115.4	100	100
2069	Ardagullion/Cloonshannagh	Longford	55.9	100	100
267	Funshin	Galway	96.3	100	100
281	Keeloges	Galway	222	100	100
415	Coolrain	Laois	60.1	105	110
652	Monaincha/Ballaghmore	Tipperary, Laois	125.13	110	110
1853	Nore Valley/Timoney	Tipperary	114.5	110	110

10 Proximity to NHAs, SPAs, SACs

Some raised bogs have been selected as they form part of a larger complex of protected sites. Where a raised bog occurs in close proximity to a Raised Bog SAC, it acts as a support function for the SAC and so is selected as an NHA. In total 30 sites were selected for their proximity to Raised Bog SACs (See Table 4.12).

Table 4.12: Sites Selected on Proximity to Raised bog SACs

Code	Name	County	Proximity to SAC	Proximity to NHA
2013	Tullaghanrock	Roscommon	Yes (Bog)	Yes (the NHA is a SAC)
256	Curraghlehannagh	Galway	Yes (Bog)	Yes (the NHA is a SAC)
1632	Drumalough West	Roscommon	Yes (Bog)	Yes (the NHA is a SAC)
1632	Drumalough East	Roscommon	Yes (Bog)	Yes (the NHA is a SAC)
890	Cangort Bog	Offaly & Tipperary	Yes (Bog)	Yes (Other)
247	Slieve (Cloonmore/Cloon Felly)	Galway	Yes (Bog)	Yes (Bog)
267	Funshin	Galway	Yes (Bog)	Yes (Bog)
281	Keeloges	Galway	Yes (Bog)	Yes (Bog)
456	Camderry	Galway	Yes (Bog)	Yes (Bog)
221	Moorfield Bog/Farm Cottage	Galway	Yes (Bog)	Yes (Bog & Other)
640	Arragh More	Tipperary	Yes (Bog)	Yes (Bog & Other)
648	Killeen	Tipperary	Yes (Bog)	Yes (Bog & Other)
684	Lough Derravaragh	Westmeath	Yes (Bog)	Yes (Bog & Other)
985	Lough Kinalc	Longford, Cavan & Westmeath	Yes (Bog)	No
1240	Capira/Derrew	Galway	Yes (Bog & Other)	Yes (Bog)
1448	Forthill	Longford	Yes (Bog & Other)	Yes (Bog & Other)
1393	Hodgestown Bog	Kildare	Yes (Bog & Other)	Yes (Other)
1420	Corracramph	Leitrim	Yes (Bog & Other)	Yes (Other)
235	Bracklagh	Galway	Yes (Bog & Other)	Yes (Bog)
245	Clooncullaun	Galway	Yes (Bog & Other)	Yes (Bog)
292	Leaha Bog	Galway	Yes (Bog & Other)	Yes (Bog)
591	Beila Bridge	Roscommon	Yes (Bog & Other)	Yes (Bog)
603	Cornaveagh	Roscommon	Yes (Bog & Other)	Yes (Bog)
691	Rinn River	Leitrim, Longford	Yes (Bog & Other)	Yes (Bog)
1652	Tullaghan	Roscommon	Yes (Bog & Other)	Yes (Bog)
220	Lough Namucka	Galway	Yes (Bog & Other)	Yes (Bog & Other)
502	Gowlaun	Mayo	Yes (Bog & Other)	Yes (Bog & Other)
510	Kilgarraff	Mayo	Yes (Bog & Other)	Yes (Bog & Other)
1684	Lorrha	Tipperary	Yes (Bog & Other)	Yes (Bog & Other)
1812	Lough Garr	Westmeath	Yes (Bog & Other)	Yes (Bog & Other)
2072	Lisnarragh Bog	Roscommon	Yes (Bog & Other)	Yes (Bog & Other)

In summary Table 4.13 lists 101 selected sites and the criteria for selection

Table 4.13 Selected Sites and Qualifying Criteria (1-10)

Site Code	Site Name	1	2	3	4	5	6	7	8	9	10
70	TULLAHER LOUGH AND BOG NHA	X		X					X	X	
220	LOUGH NAMUCKA BOG NHA		X	X	X		X		X		X
221	MOORFIELD BOG/FARM COTTAGE NHA			X	X			X			X
222	SUCK RIVER CALLOWS							X			
229	BALLYGAR BOG NHA			X	X	X					
235	BRACKLAGH BOG NHA		X	X				X			X
240	CAMDERRY BOG NHA			X	X	X	X	X			X
245	CLOONCULLAUN BOG NHA			X	X	X		X			X
247	SLIEVE BOG NHA			X	X	X	X				X
249	CLOONOLISH BOG NHA						X				
254	CRIT ISLAND WEST NHA			X	X						
256	CURRAGHLEHANAGH BOG NHA		X	X	X	X					X
267	FUNSHIN BOG NHA				X					X	X
280	CASTLEFRENCH WEST BOG NHA		X	X	X	X					
281	KEELOGES BOG NHA			X	X	X				X	X
283	KILMORE BOG NHA		X	X	X						
284	KILNABORRIS BOG NHA		X	X	X	X					
292	LEAHA BOG NHA										X
307	LOUGH TEE BOG NHA			X	X						
310	MENEEN BOG NHA			X	X			X			
311	MONIVEA BOG NHA		X	X	X						
321	RAFORD RIVER BOG NHA			X	X		X	X			
333	ANNA MORE BOG NHA	X									
337	DOON LOUGH NHA	X									
374	MOANVEANLAGH BOG NHA	X		X	X			X		X	
395	MOUDS BOG NHA	X		X	X			X		X	
415	COOLRAIN BOG NHA	X		X	X				X	X	
419	KNOCKACOLLER BOG NHA	X	X	X				X		X	
422	AGHNAMONA BOG NHA			X	X	X		X			
442	BROWN BOG NHA		X	X		X					
445	CLOONEEN BOG NHA			X	X		X	X			
502	GOWLAUN BOG NHA	X		X	X			X			X
510	KILGARRIFF BOG NHA	X		X		X	X	X			X
564	RIVER LITTLE BROSNA CALLOWS NHA		X		X			X		X	
565	CLONYDONNIN BOG NHA			X	X	X					
570	BLACK CASTLE BOG NHA		X	X	X						
587	LOUGH GARA NHA		X	X	X			X			
591	BELLA BRIDGE BOG NHA				X			X			X
602	CORBO BOG NHA		X	X	X						
603	CORNAVEAGH BOG NHA							X			X
605	DERRYCANAN BOG NHA				X						
640	ARRAGH MORE BOG NHA		X	X	X			X			X
642	BALLYMACEGAN BOG NHA						X	X		X	
648	KILLEEN BOG NHA			X							X
652	MONAINCHA BOG/BALLAGHMORE BOG NHA			X	X					X	
654	REDWOOD BOG NHA		X	X	X	X	X	X			
674	BALLYNAGRENIA AND BALLINDERRY BOG NHA			X	X						
676	CARN PARK BOG NHA			X	X						
677	CLONCROW BOG (NEW FOREST) NHA			X	X					X	
678	CROSSWOOD BOG NHA		X	X	X	X					
684	LOUGH DERRAVARAGH NHA							X			X
691	RINN RIVER NHA				X		X	X		X	X
694	WOODDOWN BOG NHA			X	X					X	
890	CANGORT BOG							X			X

Table 4.13 continued: Selected Sites and Qualifying Criteria (1-10)

Site Code	Site Name	1	2	3	4	5	6	7	8	9	10
921	SCREGGAN BOG NHA				X						
937	SCOHABOY BOG NHA		X	X	X	X					
985	LOUGH KINALE AND DERRAGH LOUGH NHA	X						X			X
987	LOUGH SHEELIN NHA	X		X	X		X	X			
993	AYLE LOWER BOG NHA	X					X				
1020	LOUGHANILLOON BOG NHA	X					X	X			
1224	ARDGRAIGUE BOG NHA		X	X	X						
1227	AUGHRIM BOG NHA			X	X	X	X	X			
1240	CAPIRA/DERREW BOG NHA										X
1244	CASTLEFRENCH EAST NHA			X	X						
1254	DERRINLOUGH BOG				X	X	X	X			
1255	DERRYNAGRAN BOG AND ESKER NHA			X		X		X			
1264	ESKERBOY BOG NHA				X			X			
1280	KILLACLOGHER BOG NHA				X			X			
1283	KILLURE BOG NHA			X	X	X		X			
1303	MOORFIELD BOG NHA			X	X						
1324	JAMESTOWN BOG NHA	X									
1352	BUNNA RUDDEE BOG NHA	X						X	X	X	
1388	CARBURY BOG NHA	X		X	X						
1393	HODGESTOWN BOG NHA	X								X	X
1405	CASHEL BOG (LEITRIM) NHA	X		X	X						
1420	CORRACRAMPH BOG NHA	X		X	X			X	X		X
1423	CLOONAGEEHER BOG NHA			X	X			X			
1448	FORTHILL BOG NHA			X				X			X
1450	MOUNT JESSOP BOG NHA				X						
1580	GIRLEY BOG NHA	X		X	X						
1582	MOLERICK BOG NHA	X					X				
1584	MOUNT HEVEY BOG NHA	X		X	X						
1623	CARRICKYNAGHTAN BOG NHA			X	X						
1632	DRUMALOUGH BOG NHA		X	X	X			X		X	X
1652	TULLAGHAN BOG (ROSCOMMON) NHA							X			X
1657	CLOONGOONAGH BOG NHA	X		X	X						
1684	LORRHA BOG NHA										X
1725	NURE BOG				X					X	
1812	LOUGH GARR NHA			X							X
1853	NORE VALLEY BOGS NHA			X	X			X	X	X	
2013	TULLAGHANROCK BOG NHA			X	X	X	X	X	X		X
2033	DAINGEAN BOG NHA				X						
2069	ARDAGULLION BOG NHA			X						X	
2072	LISNANARRIAGH BOG NHA										X
2302	BALLYNAMONA BOG AND CORKIP LOUGH NHA			X	X		X				
2307	CLOONLOUM MORE BOG NHA	X									
2310	LOUGH REE NHA			X	X			X			
2323	MILLTOWN PASS	X		X							
2344	ANNAGHBEG				X	X					
2355	HAWKSWOOD	X			X						
2357	CLONREHER BOG	X			X				X		

Table 4.14 lists the total areas of all the selected Raised Bog NHAs and SACs. Fig 4.1 shows the distribution of Raised Bog NHAs and SACs in Ireland

In total, 101 Raised Bog NHAs have been selected which along with the 31 SACs cover an area of 53,705 ha of which 31,327 ha is raised bog habitat including 17,584 ha of intact high bog. This accounts for 97.6% of the estimated national total of 18,000 ha.

For each site selected a Site Description and NHA Assessment Form was prepared (See Appendix II and III). All the information gathered on selected sites was entered into a database. Information contained in the raised bog database for each selected raised bog is summarised in Appendix I Summary Tables.

Table 4.14 Total Areas for Raised Bog NHAs and SACs

Code	Name	Designation	Area-1800's (ha)	High Bog Area-2000 (ha)	% Area Remaining since 1800's	Area active (ha)	Area flush (ha)	Area bog woodland (ha)	A + F + B	NHA area (ha)	Bog NHA area (ha)
240	Camderry	PSAC	359	197	54.9	11.5	7.9	0	19.4	281	281
247	Slieve (Cloonmore/Cloon Felly)	NHA	261	176.4	67.6	0	14	0	13.6	268	268
256	Curraghiehanagh	PSAC	306	155	51	23.3	10	0	33.6	278	278
284	Kilnaborris (Killeragh)	NHA	222.8	118	52.9	56.3	0.2	0	56.5	168	168
311	Monivea	PSAC	382.5	155.5	40.7	1.1	22	0	33.3	287	287
374	Moanveanlagh	PSAC	333	130	39	5.9	12	0	17.9	215	215
395	Mouds	PSAC	1605	286.8	17.9	120	4.2	0	124	590	590
415	Coolrain	PSAC	251.8	60.1	23.8	31.9	1.1	0	33	141	141
419	Knockacoller	PSAC	266	54	20.3	17.1	0	0	17.1	117	117
442	Brown Bog	PSAC	96	51	53.1	16.3	2.2	0	18.5	77	77
445	Cloneen	PSAC	238.4	94.8	39.8	1.9	12	9.6	23.1	215	215
565	Clonydonnin	NHA	164	116.6	71.1	32.6	0	0	32.6	130	130
602	Corbo	PSAC	412	121	29.4	30.3	2	0	32.3	207	207
654	Redwood	PSAC	328	181.5	55.5	41.4	8	0	49.4	555	555
674	Ballynagrenia	NHA	500	130.4	26.1	56.1	2.1	0	58.2	273	273
674	Ballinderry		500	43.7	11.4	10.3	0	0	10.3	273	above
676	Carn Park	PSAC	358.4	156.4	43.7	38	0	0	38	205	205
678	Crosswood	PSAC	207	110	53.1	27.2	6.1	0	33.3	152	152
1632	Drumalough East	PSAC	211.4	82.23	38.9	13	3	0	16	260	138
1632	Drumalough West		172.3	64.2	37.3	15	2	0	17	260	106
2013	Tuilaghanrock	PSAC	101	67.4	66.7	10.7	4.8	0	15.5	104	104
2302	Ballynamona & Corkip Lough	PSAC	285	61	21.4	0	0	22	21.7	244	83
70	Tullaher Lough / Monmore	PSAC	267.5	21.4	8	8	4	0	12	365	365
605	Derrycanan	NHA	516.1	174.3	33.8	0	3.6	0	3.6	136	136
937	Scohaboy	NHA	400	214.2	53.5	6.3	0	0	6.3	207	207
1227	Aughrim	NHA	283.2	158.9	56.1	3.2	0.5	0	3.7	185	185
1584	Mount Hevey	PSAC	541.8	200	36.9	62.9	1	0	63.9	537	537
2033	Daingean	NHA	189	89.1	47.1	0	0.8	0	0.75	192	192
2069	Ardagullion/ Cloonshannagh	PSAC	678.8	55.9	8.2	16.4	0.1	0	16.5	101	101
1264	Eskerboy	NHA	161.9	93.3	37.4	0	0	0	0	132	132
229	Ballygar	NHA	195	106.3	54.5	10.2	2.7	0	12.9	149	149
570	Blackcastle	NHA	264	97.5	36.9	23.8	0	0	23.8	165	165
1580	Girley	NHA	188.9	68.4	36.2	1.8	0	0	1.8	112	112
1853	Nore Valley/Timoney	NHA	465	114.5	24.6	4.4	4.8	0	9.2	188	188
2307	Cloonlough More	NHA	234.8	56.9	24.2	0	0	0	0	169.2	169
235	Bracklagh	NHA	139	56.6	41	3.5	6.5	0	10	105	105
254	Crit Island	NHA	943.9	336.6	36	20	1	0	21	421	421
267	Funshin	NHA	386.3	96.3	32	0	2	0	2	165	165
281	Keeloges	NHA	448.1	222	50	14	2	0	16	300	300
283	Kilmore	NHA	337.4	71	21	14	4	0	18	150	150
307	Lough Tee	NHA	760.2	250.8	33	16	0	0	16	375	375
321	Raford River	NHA	297.4	122.3	41	7.2	5.3	0	12.5	200	200
333	Anna More	NHA		39.25		0	0	0	0	277.9	278
2310	Lough Ree	SAC	1457	507.1	34.8	4	1	6	11	13626	*220
642	Ballymacegan	NHA		51.87		0	2.8	0	2.83	109	109
648	Killeen	NHA	258.4	57.34	22.2	35	0	0	35	217	217
1224	Ardgraugue	PSAC	198.7	82	41.3	8.2	4.4	0	12.6	188	188
1255	Derrynagran	NHA	56.59	32.24	57	12.1	0	0		73	73
1283	Killure	NHA	544.3	269.5	54	16.5	16	0	32.4	477	477
1303	Moorfield	NHA	197.9	77.5	39.1	5.4	6	0	11.4	133	133

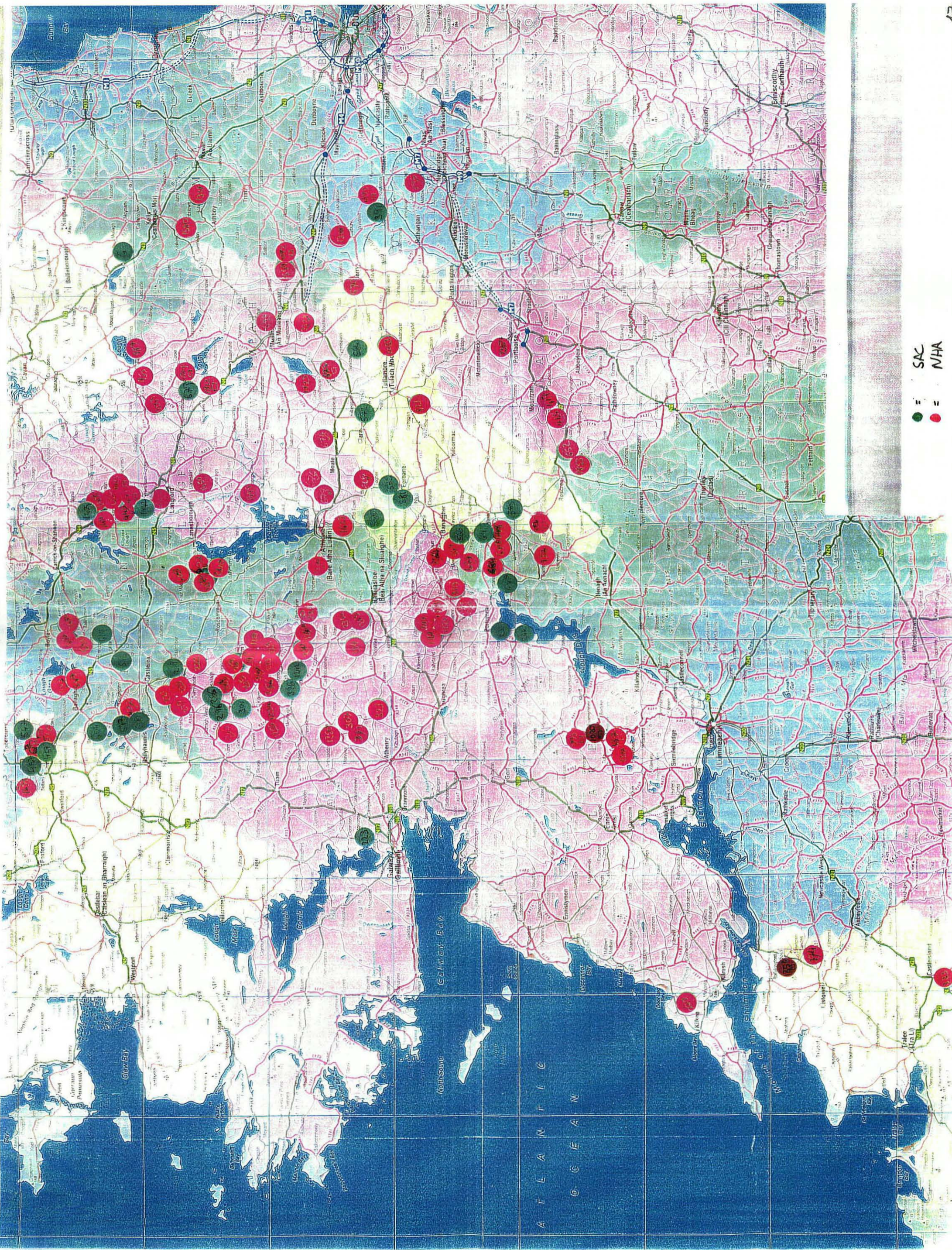
Table 4.14 continued: Total Areas for Raised Bog NHAs and SACs

Code	Name	Designation	Area-1800's (ha)	High Bog Area-2000 (ha)	% Area Remaining since 1800's	Area active (ha)	Area flush (ha)	Area bog woodland (ha)	A + F + B	NHA area (ha)	Bog NHA area (ha)
1324	Jamestown	NHA	508.1	42.94	8	0	0	0	0	152	152
1388	Carbury	NHA	622.3	80.9	0.13	4	0	0	4	136.8	136
1405	Cashel	NHA	126.7	61.54	48.6	7	0	0	7	126	126
564	River Little Brosna (Cloghan Demesne)	NHA	166	74	44.6	0	0	0	0	1157	191
1623	Carrickynaghtan	NHA	569	225	39.6	10	0	0	10	488	488
987	Lough Sheelin/Moneybeg/Clare Island	NHA	476.8	143.4	31	21.7	0	0	21.7	254*	348
587	Lough Gara (Callow)	PSAC	520	163	31.3	7.7	15	0	22.7	2504	258
310	Meneen	NHA	298	110.5	37	2	8	0	10	196	196
245	Clooncullaun	NHA	236	128	54	7.6	3.8	0	11.4	196	196
921	Screggan	NHA	265.2	61.38	23	2	0	0	2	174	174
1420	Corracramph	NHA	424.4	128.7	30.3	9	1	0	10	190	190
1448	Forthill	NHA	167.5	55.9	33.4	12	1	0	13	111	111
2072	Lisnarrigh	NHA	155	43.76	27.7	2	0	0	2	104	104
694	Wooddown	NHA	294.6	115.4	39	7.81	2.5	0	10.3	198.9	199
249	Cloonoolish	NHA	152.8	55.99	36.6	1	0	0	1	119	119
280	Castlefrench West	NHA	115.5	67.6	58.5	5	5	0	10	124	124
1244	Castlefrench East	NHA	1060	63.6	6	4	4	0	8	82	82
220	Lough Namucka	NHA	321	122.8	38.2	5.5	6	0	11.5	276	276
221	Moorfield Bog/Farm Cottage	NHA	151.2	61.26	40.5	4.55	0.1	0	4.63	139	139
422	Aghnamona	NHA	514.4	277.7	54	0	9	0	9	482	482
591	Bella Bridge	NHA	381.1	84.6	22.2	0	3	0	3	187	187
603	Cornaveagh	NHA	178.2	54.1	30.4	1	1	0	2	127	127
652	Monaincha/Ballaghmore	NHA	745.7	125.1	16.8	0	4	0	4	400	377
1280	Killaclogher	NHA	484.6	148.6	31	2	1.5	0	3.5	419	419
1450	Mount Jessop	NHA	195.8	64.01	33	2.5	0	0	2.5	121	121
1652	Tullaghan	NHA	165.1	36.1	21.9	0	0.8	0	0.8	93	93
1684	Lorrha	NHA	113.2	16.9	14.9	0	0.2	0	0.2	77	77
640	Arragh More	NHA	756	179.5	23.7	5	3	0	8	257	257
2344	Annaghhbeg	NHA	275	163	59.3	2	0	0	2	265	265
2355	Hawkswood	NHA	182.2	60.8	33.0	1	1	0	2	138	117
2323	Milltown Pass	NHA	204.1	44.9	22	5	0	0	5	56	56
222	River Suck Callows	NHA	130.6	39.7	30.4	2	1	0	3	2932	81
691	Rinn River	NHA	335.8	95.3	28.4	3	0	0	3	85	185
337	Doon Lough	NHA	56.41	9.78	11	0	0	0	0	592	61
292	Leaha Bog	NHA	134.7	55.7	41.4	0	0	0	0	93	93
1812	Lough Garr	NHA	155.5	51.6	33	0	5.5	0	5.5	214	168
1582	Molerick Bog	NHA	127.9	14.45	11	0	0	0	0	87	87
1423	Cloonageeher Bog	NHA	337	145.3	43	1	4	0	5	270	270
1393	Hodgestown Bog	NHA	323.7	34.1	10.5	1	0	0	1	125	125
1352	Bunnaruddee Bog	NHA	150	51.5	18.7	0	0	0	0	150	150
1020	Loughanilloon Bog	NHA	58.2	10.7	18.4	0	0.5	0	0.5	90	90
993	Ayle Lower Bog	NHA	109	30.86	28	0	0	0	0	81	49
684	Lough Derravaragh	NHA	119.2	49	41	1	0	0	1	1400	95
677	Cloncrow Bog (New Forest)	NHA	248	119.5	48	10.5	0	0	10.5	238	238
502	Gowlaun	PSAC	410.7	178.8	43.5	0	8	0	8	357	357
510	Kilgarraiff	PSAC	76.96	42.34	50	11.5	0	0	11.5	76.5	76.5
1657	Cloongoonagh	PSAC	522.1	166.1	31.8	1.5	10	0	11.5	300	300
1240	Capira/Derrew	NHA	160	42.9	26.8	1	0	0	1	124	124
890	Cangort Bog	NHA	215.3	54	25	0	0	0	0	122	122

Table 4.14 continued: Total Areas for Raised Bog NHAs and SACs

Code	Name	Designation	Area-1800's (ha)	High Bog Area-2000 (ha)	% Area Remaining since 1800's	Area active (ha)	Area flush (ha)	Area bog woodland (ha)	A + F + B	NHA area (ha)	Bog NHA area (ha)
1254	Derrinlough Bog	NHA	198.2	131.3	66	0	1	0	1	69	69
1725	Nure Bog	NHA	302.4	85.2	28.2	0	0	0	0	228	228
2357	Clonreher Bog	NHA	244.5	69.1	28	0	0	0	0	175	175
985	Lough Kinale	NHA	138	7.35	5.3	0	0	0	0	484	15
6	Killyconny	SAC	230	85	37	38.2			38.2	191	191
	Cloonfelliv (in Corliskea)	SAC	100	50	50						In Corliskea
219	Corliskea	SAC	591	284	48.1	51.6			56.6	726	726
	Trien (in Corliskea)	SAC	212	126	59.4	10.6			27.3		In Corliskea
223	Addergoole	SAC	1083	171	15.8	62.8			74	568	568
231	Barroughter	SAC	202	91.5	45.3	26.5			26.5	174	174
248	Cloonmoylan	SAC	677	440	65	174			216	554	554
285	Kilsallagh	SAC	352	189	53.7	19.1			19.1	280	280
296	Lisnageeragh	SAC	443	283	63.9	12.8			14.8	455	455
301	Lough Lurgeen	SAC	658	583	88.6	15.9			25.9	1154	1154
326	Shankill West	SAC	114	70.5	61.8	14.8			14.8	136	136
382	Sheheree	SAC	9	9	100				4	17	17
391	Ballynafagh	SAC	249	67	26.9	22.6			22.6	156	156
457	Derrynabrock	SAC	218	107	49.1	22.3			22.3	114	114
497	Flughany	SAC	130	101	77.7	9.6			9.6	231	231
547	Tawnaghbeg	SAC	134	78	58.2	15.6			15.6	117	117
566	All Saint's Bog	SAC	476	234	49.2	106			135	387	387
572	Clara	SAC	1000	414.5	41.5	138			162	873	873
575	Ferbane	SAC	217	117	53.9	40.5			40.5	153	153
580	Mongan	SAC	309	125	40.5	50.9			50.9	208	208
581	Moyclare	SAC	309	79	25.6	44.6			46.1	130	130
582	Raheenmore	SAC	200	135	67.5	61.8			61.8	210	210
585	Sharavogue	SAC	286	137	47.9	23.1			23.1	223	223
592	Bellanagare	SAC	2315	741	32	110			115	1207	1207
597	Carrowbehy	SAC	696	189.5	27.2	66.6			66.6	341	341
600	Cloonchambers	SAC	521	193.5	37.1	3.2			3.2	348	348
604	Derrinea	SAC	95	60	63.2	16.7			16.7	86	86
614	Cloonshanville	SAC	282	152	53.9	54.8			68.4	240	240
	Ballyduff (in Clonfinane)	SAC	128	95	74.2	17			17		In Clonfinane
641	Clonfinane	SAC	222	150.5	67.8	20.2			22.1	270	270
	Firville (in Kilcarren)	SAC	315	188	59.7	31.7			31.7		In Kilcarren
647	Kilcarren	SAC	332	185	55.7	53			65.9	677	677
679	Garriskil	SAC	329	169	51.4	69.8			71.8	325	325
1242	Carrowmagappul	SAC	636	320	50.3	90			90	491	491
1439	Ballykenny	SAC	265	177	66.8	113			113	520	520
	Fisherstown (in Ballykenny)	SAC	165	105	63.6	52.9			52.9		In Ballykenny
		TOTALS	47854	17584		2676	282	37	3174	53705	31326

Fig 4.1: Map of the Distribution of Selected Raised Bogs in Ireland



● = SAC
● = NHA

5 RECOMMENDATIONS

In total 101 NHA containing 103 raised bogs have been selected with 17,584 ha of high bog. A selection process for raised bogs has also been standardised. The list of 101 Raised Bog NHAs is by no means definitive, but the selection process can be repeated for other sites to ensure consistency in Raised Bog NHA site selection.

During this project new sites were discovered that had not been previously recorded and sites believed to be destroyed were found to be intact. Further research is required to ensure that all significant areas of raised bog have been assessed. This may require examination of aerial photographs to locate areas of raised bog that have yet to be identified.

Some of the raised bogs will require field visits to ensure that the available data is accurate and that no significant changes have occurred. All sites that have not been visited during the 1995 and 2000 survey will require a field visit to assess drainage and slopes in the high bog and cutover for restoration purposes.

A number of new sites will need further information before they can be assessed. These include 4 sites that have been suggested as potential Raised bog NHAs by NGOs. These are listed in Table 4.2 as having insufficient data for selection. Due to lack of information and time constraints these could not be assessed by this project and will require further study.

In the future there may be a need for designation of cutaway sites where regeneration is occurring that have not been considered by this study.

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RAISED BOG NHA PROJECT

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APPENDIX I

SUMMARY TABLES (1-101)