RAISED BOG RESTORATION PROJECT

A CONTINUATION OF THE INVESTIGATION INTO THE CONSERVATION AND RESTORATION OF SELECTED RAISED BOG SITES IN IRELAND

PART 1
SUMMARY REPORT

A REPORT TO DÚCHAS, THE HERITAGE SERVICE, DUBLIN.

John Derwin
Fiona Mac Gowan

March 2000

SUMMARY OF THE CONTENTS OF ALL REPORTS

This report is divided into three sections:

Part 1
This contains details of the aims of the project, methods used in the field survey/site selection, summary of the results and the recommendations for conservation and restoration.

Part 2
This contains detailed reports of the 29 sites surveyed. These are arranged in county order. Paper copies of the maps prepared for each bog follow the relevant site report. Transparent copies of these maps are contained in Appendix 1.

Appendix 1
This contains the transparent copies of the maps for the 29 sites surveyed. The maps are: Drains Map, Slopes Map, Landuse Map, Ecotope Map and Vegetation Complexes Map. Also contained is the 1995 OS aerial photograph, blown up by 400% to approximately 1:10,560 scale, a 6" map of the NHA site boundary, a 1:50,000 map of the site location and a copy of the 6" 1840s geological map.

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1. INTRODUCTION

The 1995 survey of raised bog sites resulted in the identification of 47 potential active raised bogs with 31 of these put forward as potential active raised bog SACs. These sites covered 6,753ha, 33.8% of the total raised bog habitat in the country. This has subsequently been increased to 7,500ha. It was proposed to increase the area protected by 3-4000ha to give a total of 55-60% of the remaining national raised bog habitat.

To increase the area of habitat protected as Raised Bog SACs, sites which were described as degraded raised bog in the 1995 report were re-examined by Jim Ryan of Dúchas and put forward as active or degraded Raised Bog SACs with potential for restoration.

A further survey was required to assess other sites not surveyed in 1995 as potential active or degraded Raised Bog SACs. A preliminary examination of NHA and previous bog survey reports revealed that there was a total of 102 sites that could potentially be considered as degraded raised bogs. These sites were examined during this project for their conservation potential.

2. METHODS

2.1 INITIAL RECONNAISSANCE

This involved collating the existing information on each site, from NHA reports and previous raised bog surveys. Copies of NHA boundary and access maps were obtained.

Aerial Photography
Using the 1995 series of OS aerial photographs for Ireland, prints were obtained for each site to be assessed. Taken in 1995, these photographs are more recent than those used in any previous survey therefore giving a more accurate indication of the present status of the sites being examined.

Recent drainage, peat extraction and afforestation could be easily seen on these photographs. Also recent burning was evident by a lighter colouration of the bog surface. Some surface features such as flushes, scrub encroachment, tear pools and pool systems could also be identified. These photographs provided an excellent opportunity to assess the sites prior to the survey work.

On closer examination, sites that were either too small or too badly degraded were dropped from the survey list. This left a total of 38 worthy of a field survey. The 38 selected sites were divided into two groups of high and low priority due to time constraints. All 28 high priority sites would be visited and the remaining 10 low priority sites would be visited if time allowed. The 10 low priority sites would also act as back-up for any high priority sites lost. The sites selected for a field visit are outlined in Table 2.1 and their locations are illustrated in Figure 2.1. The 10 low priority sites are outlined in Table 2.2. The reasons for relegating the remaining 64 sites are outlined in Table 2.3.

2.2 FIELD VISITS

All high priority sites were visited between November 1999 and January 2000. As all sites were visited within this 3 month period, the condition of the sites was comparable.

2.1.1 Geohydrology Section

2.2.1.1 *Topography*

Prior to the field visits, the aerial photographs were examined to determine the general position of each bog within the landscape. Interesting topographic features such as quarries, eskers and swallow-holes were noted. On each visit, slopes on the high bog and slopes on the bog cutaway were noted along with the topography of the surrounding land.

2.2.1.2 *Geology*

The geology of each site was determined from existing maps at the Geological Survey of Ireland, particularly the Chevron/GSI map series of 1992. Where these were unavailable, the original notes on the 1840s maps (Scale 1:10,560) were used to obtain geological information from around each site.

2.2.1.3 *Geohydrology*

The hydrology of the high bog was mapped during the vegetation survey of each site. Drainage in the cutaway was noted while gaining access to the high bog surface. Slopes, depth of peat and additional drainage in the cutaway were noted from the high bog margins.

2.2.2 Ecology Section

2.2.2.1 *Vegetation*

Detailed notes were taken of each community complex and any flushed or soak areas present. These included: species lists; estimation of % cover of dominant species; acrotelm depth; percentage *Sphagnum* cover; evidence of damage (due to burning, grazing or drainage); and presence of *Cladonia* species in a method similar to the 1995 survey. A change from the 1995 field survey method was that site cards were not used as all species present were described in field notes. Percentage cover was recorded for species with regard to their cover and the overlaying of different vegetation layers led to the sum of covers exceeding 100% in most cases. The approximate boundaries for each vegetation complex were drawn onto aerial photographs in the field. These had been enlarged by 400% in order to approximate the 6" scale.

2.2.2.2 *Human Impact*

Peat Cutting: Notes were taken at each site indicating where any active peat cutting occurred, the methods being used (Hopper, Difco or hand) and what effects this was having on the bog margin (cracking or subsidence).

Bog Drainage: Notes were taken on the width, depth, depth of water, direction of flow and associated vegetation of drains on both the high bog and the cutaway.

Forestry: Notes were taken on the approximate age and type of any forestry on the high bog. Notes on the understorey were also taken.

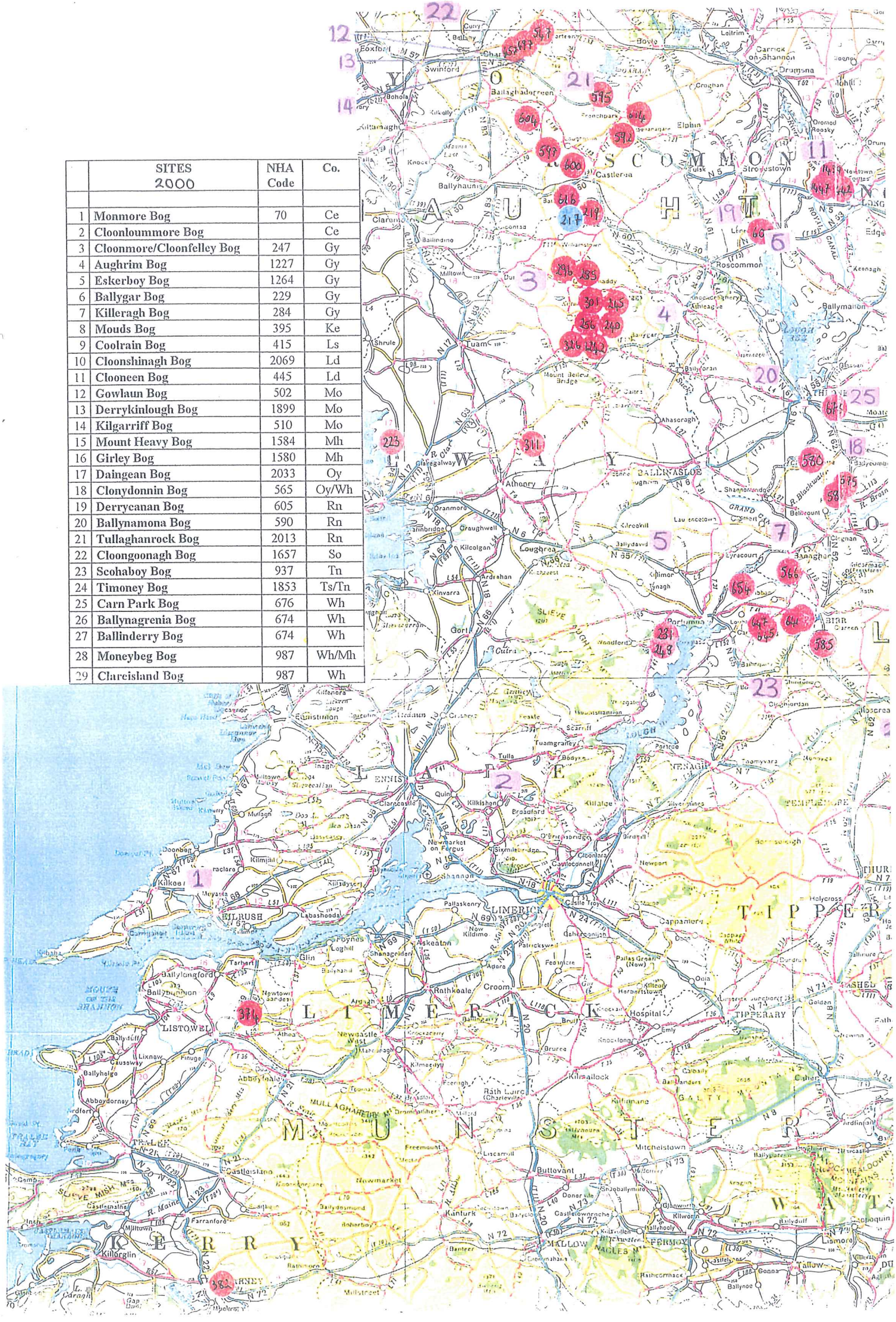
Dumping: Any dumping occurring in the cutaway of domestic, industrial or agricultural origin was noted and marked on the aerial photograph.

Agricultural reclamation: Bog cutaway is often reclaimed for agricultural grassland and this was noted on the aerial photograph along with the landuse of the surrounding areas (agriculture, forestry, roads and buildings).

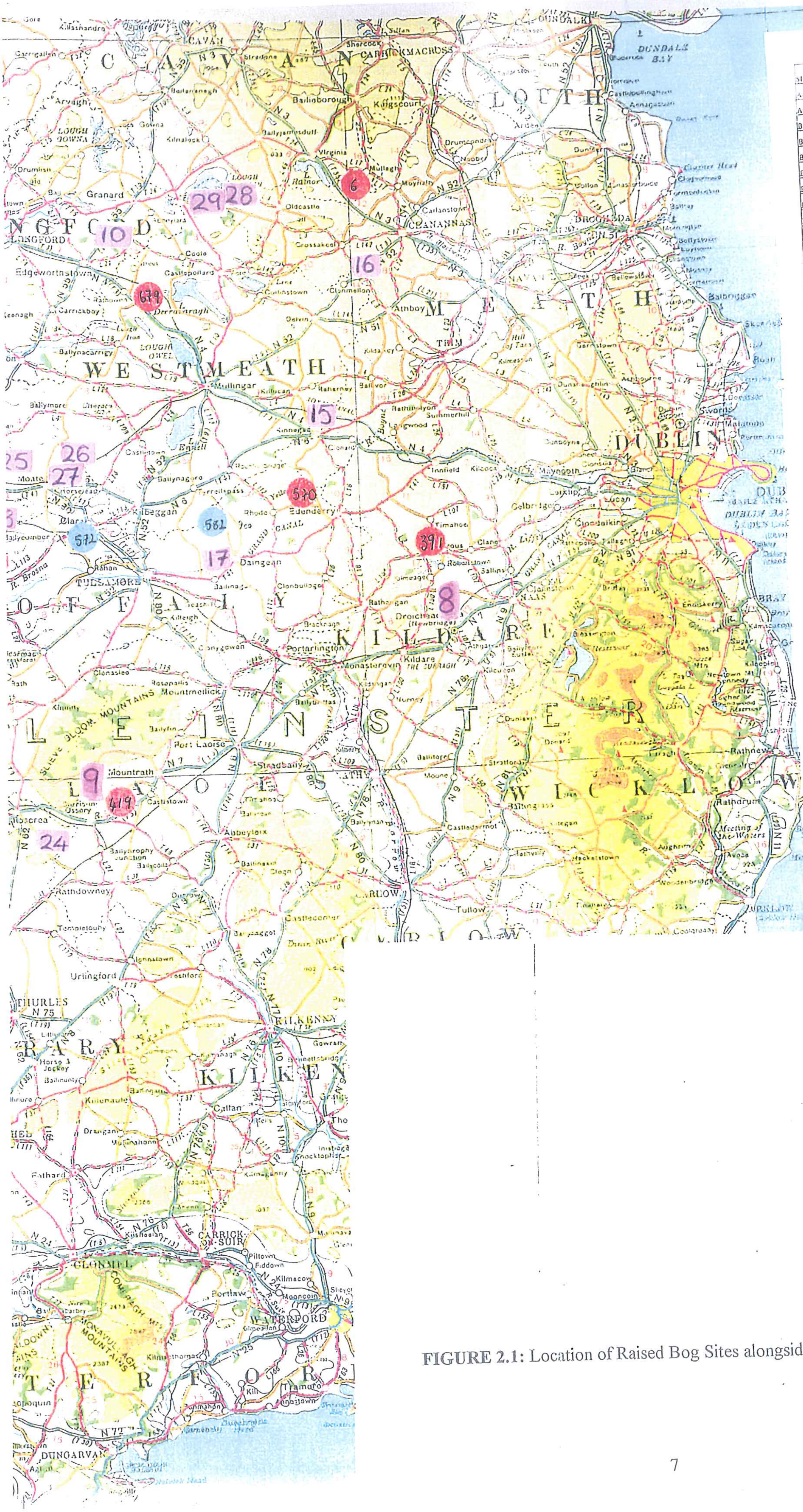
2.2.2.3 *Photography*

Photographs were taken at each site, weather permitting. These were taken to record any interesting vegetation features (pool systems, regenerating cutaway, flushes and soaks), new drainage, recent burning and general site appearance. The film and frame numbers and a short description of each print are outlined in Table 2.4.

FIGURE 2.1 Location of Raised Bog Sites visited alongside those of the 1995 report.



	SITES 2000	NHA Code	Co.
1	Monmore Bog	70	Ce
2	Cloonloummore Bog		Ce
3	Cloonmore/Cloonfelley Bog	247	Gy
4	Aughrim Bog	1227	Gy
5	Eskerboy Bog	1264	Gy
6	Ballygar Bog	229	Gy
7	Killeragh Bog	284	Gy
8	Mouds Bog	395	Ke
9	Coolrain Bog	415	Ls
10	Cloonshinagh Bog	2069	Ld
11	Clooneen Bog	445	Ld
12	Gowlaun Bog	502	Mo
13	Derrykinlough Bog	1899	Mo
14	Kilgarriff Bog	510	Mo
15	Mount Heavy Bog	1584	Mh
16	Girley Bog	1580	Mh
17	Daingean Bog	2033	Oy
18	Clonydonnin Bog	565	Oy/Wh
19	Derryeanan Bog	605	Rn
20	Ballynamona Bog	590	Rn
21	Tullaghanrock Bog	2013	Rn
22	Cloongoonagh Bog	1657	So
23	Scohaboy Bog	937	Tn
24	Timoney Bog	1853	Ts/Tn
25	Carn Park Bog	676	Wh
26	Ballynagrenia Bog	674	Wh
27	Ballinderry Bog	674	Wh
28	Moneybeg Bog	987	Wh/Mh
29	Clareisland Bog	987	Wh



1995

SITE NAME	COUNTY	NHA No.
Addergoole	Galway	223
All Saint's Bog	Offaly	566
Ballyduff	Tipperary	641
Ballykenny	Longford	1439
Ballynafagh	Kildare	391
Barroughter	Galway	231
Bellanagare	Roscommon	592
Blackcastle	Offaly	570
Brown Bog	Longford	442
Callow	Roscommon	595
Camderry	Galway	240
Carrowbehy	Roscommon	597
Carrownagappul	Galway	1242
Clara	Offaly	572
Clonfinane	Tipperary	641
Cloonchambers	Roscommon	600
Cloonoullaun	Galway	245
Cloonfelliv	Rosc./Galway	217
Cloonmoylan	Galway	248
Cloonshanville	Roscommon	614
Corbo	Roscommon	602
Corliskea	Galway/Rosc.	219
Crosswood	Westmeath	678
Curraghlehanagh	Galway	256
Derrinea	Roscommon	604
Derrynabrock	Mayo/Rosc.	457
Ferbane	Offaly	575
Firville	Tipperary	645
Fisherstown	Longford	1447
Flughany	Mayo/Sligo	497
Garriskil	Westmeath	679
Kilcarren	Tipperary	647
Killeallagh	Galway	285
Killyconny	Cavan/Meath	6
Knockacoller	Laois	419
Lisnageeragh	Galway	296
Lough Lurgeen	Galway	301
Moanveanlagh	Kerry	374
Mongan	Offaly	580
Monivea	Galway	311
Moyclare	Offaly	581
Raheenmore	Offaly	582
Redwood	Tipperary	654
Shankill West	Galway	326
Sharavogue	Offaly	585
Sheheree	Kerry	382
Tawnaghbeg	Mayo	547
Trien	Roscommon	616

FIGURE 2.1: Location of Raised Bog Sites alongside 1995 Raised Bog Sites

TABLE 2.1 Sites Selected for Visits (*Daingean is a low priority site).

	SITES	Grid reference	NHA Code	Co.	6" Map	1/2" Map	Discovery Map no.	Area(ha)
1	**Monmore Bog**	Q950625	70	Ce	CE 46	17	63	21.4
2	**Cloonloummore Bog**	R565825		Ce	CE 35	17	58	56.9
3	**Cloonmore/Cloonfelley Bog**	M560630	247	Gy	GY 17+18	11	39	176.4
4	**Aughrim Bog**	M780565	1227	Gy	GY 33	12	40	158.9
5	**Eskerboy Bog**	M790170	1264	Gy	GY 107	15	53	93.3
6	**Ballygar Bog**	M780530	229	Gy	GY 33	12	40	106.3
7	**Killeragh Bog**	M970170	284	Gy	GY 109	15	53	118
8	**Mouds Bog**	N780180	395	Ke	KE 18	16	55	286.8
9	**Coolrain Bog**	S260910	415	Ls	LS 16	15	54	60.1
10	**Cloonshinagh Bog**	N300750	2069	Ld	LD 15	12	41	
11	**Clooneen Bog**	N070840	445	Ld	LD 4+8	12	33	94.8
12	**Gowlaun Bog**	G563045	502	Mo	MO52, 63+64	7	32	193.6
13	**Derrykinlough Bog**	G595055	1899	Mo	MO 52	7	32	71.2
14	**Kilgarriff Bog**	G572032	510	Mo	MO 63+64	7	32	50.8
15	**Mount Heavy Bog**	N630480	1584	Mh	MH40+41, WH27+28	13	49	200
16	**Girley Bog**	N700700	1580	Mh	MH 23	13	42	68.4
17	Daingean Bog*	N446260	2033	Oy	O 18	15	48	89.1
18	**Clonydonnin Bog**	N122335	565	Oy/Wh	OY6+7, WH36	15	48	116.6
19	**Derrycanan Bog**	M905725	605	Rn	RN 36	12	40	174.3
20	**Ballynamona Bog**	M940430	590	Rn	RN 48+51	12	47	61
21	**Tullaghanrock Bog**	M650960	2013	Rn	RN 8	12	32	67.4
22	**Cloongoonagh Bog**	G445070	1657	So	SO 37+42	7	32	164
23	**Scohaboy Bog**	R960920	937	Tn	TY 10+11	15	53	214.2
24	**Timoney Bog**	S180870	1853	Ts/Tn	TY 17+18	15+18	60	95.3
25	**Carn Park Bog**	N115420	676	Wh	WH 29+30	12+15	47	156.4
26	**Ballynagrenia Bog**	N210410	674	Wh	WH 30+31	12	48	130.4
27	**Ballinderry Bog**	N210410	674	Wh	WH 30+31	12	48	43.7
28	**Moneybeg Bog**	N452815	987	Wh/Mh	MH 8, WH1	12	34	74.4
29	**Clareisland Bog**	N425815	987	Wh	WH 1	12	34	69

TABLE 2.2: List of Low Priority sites, i.e. sites deemed worthy of a field survey if time allowed.

	SITES	Grid reference	NHA Code	Cross 1990	Ha	Co.	Aerial P (1995)	Other Reports	Comments
i	Ardgraigue	M830140	1224	A	80	Gy	40a(2400)	C.D.&E.M. (1984)	Deep drain, APC80%, *Sphagnum pulchrum*
ii	Bracklagh	M650705	235	Bi	60	Gy	32(8078)	C.D.&H.G. (1985)	Small, NHA unsurveyed, v. wet in 1985
iii	Keeloges Bog	M685625	281	Bii*	184	Gy	34(7531)		Extensive quaking mires, disturbed
iv	Raford River Bog	M620290	321	Bii	194	Gy	37a(2493)	C.D.&M.D. (1995)	Disturbed but interesting pools & callows
v	Aghnamona	N060870	422	Bii	275	Lm/Ld	30(8270)	C.D.&H.G. (1986)	Drained , cut by railway & roads in NE
vi	Ballyvorheen Bog	R754538	1849	\	55	Lk	50b(6075)		Afforested & *Rhododendron ponticum*
vii	Jamestown	N780660	1324	\	180	Mh	33(7966)		Dry & cutaway, afforested
viii	Daingean Bog*	N446260	2033		89	Oy	39b(6679)		Dry, drained & cutaway
ix	Arraghmore	M980 020	640	Bi	280	Tn	43a(2344)	C.OC.&E.M. (1984)	Pig slurry dumped on surface
x	Killeen	N020030	648	Bii	141	Tn	43a(2347)	C.OC.&E.M. (1984)	NHA unsurveyed

*Daingean was the only low priority site visited.

TABLE 2.3 **Sites researched through aerial photographs and previous reports, but not visited**

	SITES	Grid reference	NHA Code	Cross 1990	Ha	Co.	Aerial P (1995)	Other Reports	Comments
1	Ayle Lower Bog	R543830	993	Biii	28	Ce			Small & degraded
2	Loughanilloon Bog	R565825	1020	Biii	25	Ce			Small & degraded
3	Lough Tee Bog	M590360	307	Bii	329	Gy	37a(2493)		Much fragmented & cutaway
4	Killaclogher (G)	M550410	1280	Biii	210	Gy	36(7342)		Divided by roads, NHA unsurveyed
5	Tiaquin Bog	M570350	1709	\	150	Gy	37a(2492)		Near Monivea, degraded & afforested
6	Funshin Bog	M715600	267	Bii	130	Gy	34(7532)		Dry, *Betula* wood on cutaway
7	Meneen Bog	M900120	310	Bii	126	Gy	42(6576)	C.D.&E.M. (1984)	Drainage & active cutting
8	Crit Island West	M750350	254	Bii	102	Gy	37a(2498)		Drained & afforested but wet remnant
9	Killure Castle Bog	M820330	1283	Biii	100	Gy	38(7270)		Wet & quaking, *Betula* flush, afforested
10	Kilmore Bog	M740550	283	Bi*	90	Gy	35(7446)	C.D.&H.G. (1985)	Dry but good *Betula* wood
11	Castlefrench East	M770460	1244	Bii*	80	Gy			Small, drying
12	Castlefrench West	M760450	280	\	72	Gy			
13	Keave		2031	Bii*	72	Gy			
14	Derrinlough Bog	M640370	1254	Biii	69	Gy			
15	Moorfield Bog	M645740	1303	Bi	69	Gy/Rn	32(8078)	C.D.&E.M. (1984)	Drained & cutaway
16	Leaha	M716585	292	Bii*	65	Gy			
17	Cloonoolish Bog	M830150	249	Bii	64	Gy	40a(2400)		Dry & cutaway
18	Lismanny (Kylemore)	M898234	222	\	60	Gy			Industrial cutaway
19	Capira/Derrew Bog	M850100	1240	Biii	52	Gy	42(6577)		Extensive cutaway
20	Derrynagran Bog & Esker	M578520	1255	Bii	43	Gy	35(7451)		Small, cutaway & scrub intrusion
21	Drumbulcaun Bog	M510570	263	\	30	Gy	34(7527)		Small & scrub intrusion
22	Gabbets	R035405	1352	Biii	80	Ky	52(5829)		Small & cutaway
23	Annaghmore	R020055	333	Bii	36	Ky	57(5309)	C.D.&H.G. (1986)	Small, cutaway & burnt
24	Carbury Bog	N680360	1388	\	224	Ke	37b(6731)		Industrially cutaway
25	Ballina	N700420	390	Bii	140	Ke	37b(6731)	C.D. (1984)	Drained but relatively intact
26	Hodgestown	N800300	1393	Biii	90	Ke	38(7243)	C.O'C.&EM (1984)	NHA unsurveyed, cutaway
27	Ardkill Bog	N695350	1388	\	49	Ke	37b(6731)	I.P.C.C.	Small but good, well managed by owners
28	Red Bog Dungarvan	S610490	846	\	15	Kk	51(5914)		Small fen
29	Kilkeasy	S540300	839	\	10	Kk	54(5034)		Small fen

TABLE 2.3 cont.

	SITES	Grid reference	NHA Code	Cross 1990	Ha	Co.	Aerial P (1995)	Other Reports	Comments
30	Monaincha	S190880	652	\	250	Ls/Tn	45(6422)		Drained, cutaway & afforested
31	Rossagad	N440040	879	\	150	Ls	43(1)0710		De-designated in 1997
32	Knockaroe	S290870	868	\	50	Ls	45(6419)		Small & cutaway
33	Corracrump Bog		1420	Biii	120	Lm			APC, burnt, drained
34	Cashel Bog	N087900	1405	Biii	55	Lm	29(8489)		Small, quaking, W is cut & grazed
35	Derrymore Bog	N155722	447	Bii	107	Ld	32(8092)		Drains, APC & *Rhododendron ponticum*
36	Mount Jessop Bog	N127700	1450	Bii	90	Ld	30(8090)		Afforested & cutaway
37	Annaghcooleen		691	Biii	85	Ld		C.D. (1993)	Poor site
38	Forthill Bog		1448	Biii	78	Ld			
39	Lerick Bog	N670470	1582	\	60	Mh	36(7353)		Drained & cutaway
40	Thomastown Bog	O010690	1593	\	35	Mh	33(7959)		Dry bog surrounded by wet woodland
41	Doolystown Bog	N750510	1577	\	20	Mh	35(7418)		Small & dry
42	Lislannan	H549303	1840	\	2	Mn	24b(8606)		NHA unsurveyed, small by Cam Lough
43	Barnaboy Bog	N430290		Bi**	400	Oy	38(7253)	I.P.C.C.	Completely cutaway, no vegetation
44	Woodfield	N265355	586	Bi	150	Oy	37b(6742)	I.P.C.C.	Commercial moss peat extraction
45	Cloghan Demesne/Wood	M970120	1613	Bi	100	Oy	42(6574)		Hummock/hollow & hand-cutting
46	Clonlyon Bog	N090280	893	Bii**	100	Oy	38(7262)	C.O'C.&EM (1984)	Delisted, BnaM drains,. over 75% of bog
47	Cangort Bog	S030930	890	Biii	84	Oy	45(6424)		De-designated
48	Screggan Bog		921	Biii	54	Oy			Small
49	Lough Boora	N160180	1365	\	14	Oy			Small
50	Carricknaghtan	N030370	1623	Biii	603	Rn	37a(2505)	C.D.&E.M. (1986)	Extensively cutaway
51	Clooncraff/Cloonlarge	M955630	599	Bii*	220	Rn	33(7988)	E.M. (1984)	*Pinus* & *Betula* flush
52	Drumalough Bog	M620830	1632	Biii	207	Rn	30(8257)		Small, beside lake, good pools
53	Lough Namucka	M615730	220	Bi	180	Rn	32(8076	C.D.&H.G. (1985)	Extensively drained
54	Bella Bridge	M755935	591	Bii	166	Rn	29(8497)		Drained, cut & burnt
55	Ballyforan	M830460	222	Biii	80	Rn	36(7349)		Small, drained & cut
56	Cornaveagh Bog	M750950	603	Bii	76	Rn	29(8498)		Small & drained
57	Lisnanarriagh Bog		2072	\	59	Rn			Small
58	Tullaghan	M780960		Biii	50	Rn	29(8497)		Burnt & drained
59	Ballymacegan	M920110	642	Bii	80	Tn	42(6575)	C.OC.&E.M. (1984)	Pools but drained & burnt
60	Lorrha	M930050	1684	\	25	Tn	43a(2344)	C.OC.&E.M. (1984)	Small & cutaway

TABLE 2.3 cont.

	SITES	Grid refernce	NHA Code	Cross 1990	Ha	Co.	Aerial P (1995)	Other Reports	Comments
61	Rathowen Bog	N330670	1812	\	200	Wh	33(7978)		Afforested, re-vegetating cutaway
62	Wooddown Bog	N480542	694	Bii	140	Wh	35(7426)		Dry, drained & burnt
63	Cloncrow/New Forest	N398385	677	Bii*	124	Wh	37b(6739)	C.OC.&E.M. (1984)	Drained & afforested
64	Nure Bog	N365445	1725	Biii	68	Wh	36(7365)	I.P.C.C.	Commercial moss peat extraction on 70a

C.D. = Catriona Douglas; H.G. = Helen Grogan; C.O'C. = Catherine O'Connell; E.M. = Enda Mooney; I.P.C.C. = Irish Peatland Conservation Council.

TABLE 2.4: Descriptive list of photographs of sites (R = Roll; P = Print).

	Site	Date	Print no.	Description
1	**Monmore**	1/12/1999	R2,P6	View north with large pool;
		"	R2,P7	*Sphagnum cuspidatum* carpet beside pool.
2	**Cloonloummore**	2/12/1999	R2,P9	View north across bog;
		"	R2,P10	View west across bog;
		"	R2,P11	View south across bog;
		"	R2,P12	View south-east across bog;
		"	R2,P13	Lough Gara in middle-ground.
3	**Cloonmore/Cloonfelley**	/	/	/
4	**Aughrim**	/	/	/
5	**Eskerboy**	/	/	/
6	**Ballygar**	24/1/2000	R4,P19	*Betula/Myrica* flush (F1).
7	**Killeragh**	23/11/1999	R2,P1	Old peat bank in south-eastern end.
8	**Mouds**	9/11/1999	R1,P1	Station on central ridge;
		"	R1,P2	*Myrica* flush (F2) in the east;
		"	R1,P3	Peat stacks on the eastern cutaway;
		"	R1,P4	View of bog from the Hill of Allen;
		"	R1,P5	Bog and cutaway from the Hill of Allen;
		10/11/1999	R1,P6	Lichen-encrusted *Calluna vulgaris*;
		"	R1,P7	*Betula pubescens* in central soak.
9	**Coolrain**	24/11/1999	R2,P2	View north to the Slieve Blooms.
10	**Cloonshannagh**	8/12/1999	R2,P18	Complex 7/9 + *Cladonia*;
		8/12/1999	R2,P19	Fire-break in south-west of bog.
11	**Clooneen**	7/12/1999	R2,P14	Complex 2 at the northern end;
		"	R2,P15	View of the northern cutaway;
		"	R2,P16	Lichen-encrusted *Betula pubescens* in the soak;
		"	R2,P17	View of *B. pubescens* soak from the northern cutaway.
12	**Gowlaun**	/	/	/
13	**Derrykinlough**	/	/	/
14	**Kilgarriff**	/	/	/
15	**Mount Hevey**	15/12/1999	R2,P21	View west over old cutaway;
		"	R2,P20	View south-west over old cutaway;
		"	R2,P21	View west over old cutaway;
		"	R2,P22	Old peat-cutting banks in north;
		17/12/1999	R2,P23	North-west section, view south-east across in-filled cutaway towards the high bog;
		6/1/2000	R3,P1	Revegetated cutaway margin in west;
		"	R3,P2	Revegetated cutaway margin in north-east;
		"	R3,P3	Revegetated cutaway in the north-east;
		"	R3,P4	Train crossing the western section;
		"	R3,P5	Train crossing the western section;
		"	R5,P3	In-filled Lough Cloncrave in west;
		"	R5,P4	High bog sloping into in-filled lake;
		"	R5,P5	In-filled Lough Cloncrave.
16	**Girley**	10/1/2000	R3,P6	Complex 2 in the south-east section;
		"	R3,P7	Old in-filling drain (D10);
		"	R3,P8	*Pinus* colonization of high bog.
17	**Daingean**	12/11/1999	R1,P8	Drain d1 on the southern cutaway.

TABLE 2.4 cont.

	Site	Date	Print no.	Description
18	**Clonydonnin**	20/1/2000	R4,P15	Complex 3a, recently burnt area;
		"	R4,P16	Burnt area with unburnt area in background;
		"	R4,P17	Tear pools on the high bog facing west.
19	**Derrycanan**	/	/	/
20	**Ballynamona**	18/1/2000	R4,P2	Southern cutaway with high bog in background;
		"	R4,P3	Lichen encrusted shrubs;
		"	R4,P4	Interior of *Betula pubescens* soak.
21	**Tullaghanrock**	/	/	/
22	**Cloongoonagh**	15/11/1999	R1,P9	In-filling cutaway;
		"	R1,P10	In-filling cutaway;
		"	R1,P11	*Typha latifolia* in cutaway;
		"	R1,P12	*Myrica gale* patch with northern flush in background.
23	**Scohaboy**	29/11/1999	R2,P3	*Pinus sylvestris* and algal pool;
		30/11/1999	R2,P4	Drain D10 facing west-north-west;
		"	R2,P5	Drain D10 facing east-south-east.
24	**Timoney**	13/1/2000	R3,P9	Cutaway in north-east;
		"	R3,P10	Cutaway in north-east with high bog in background;
		"	R3,P11	Outflow from drain D1 into d1;
		"	R3,P12	Drain d1 on north-east margin;
		"	R3,P13	Cutaway on north-west margin;
		"	R3,P14	*Pinus* flush on the high bog;
		"	R3,P15	Interior of *Pinus* flush (F2);
		"	R3,P16	Bog fraction north of main bog;
		"	R3,P17	Bog fraction north of main bog.
25	**Carn Park**	/	/	/
26	**Ballynagrenia**	19/1/2000	R4,P5	Drain D4 and spoil, facing south-south-west;
		"	R4,P6	Drain D4 and spoil, facing east-south-east;
		"	R4,P7	Further up drain D4, facing west;
		"	R4,P8	Further up drain D4, facing east;
		"	R4,P9	Spoil heaps of new drains in south;
		"	R4,P10	One of the group of new drains;
		"	R4,P11	Spoil heaps of the new drains;
		"	R4,P12	Spoil heaps of new drains, facing south;
		"	R4,P13	Same position as R4,P13, facing north;
		"	R4,P14	*Pteridium aquilinum* flush (F2).
27	**Ballinderry**	20/1/2000	R4,P18	High bog with the higher Ballynagrenia bog on the horizon.
28	**Moneybeg**	12/1/2000	R5,P1	Mound/Motte on the high bog;
		"	R5,P2	Mound/Motte on high bog;
		14/1/2000	R3,P18	View of mound from lakeshore road;
		"	R4,P1	View of bog from lakeshore road.
29	**Clareisland**	14/1/2000	R3,P19	Eastern end with L. Sheelin in background;
		"	R3,P20	Difco cutting at eastern end of high bog;
		"	R3,P21	Natural face-bank *Calluna* at lake margin.

3. REPORTS AND MAPS

3.1 REPORTS

A detailed report was written for each site based on the notes taken in the field and any other information gathered about the site (Rainfall, Geology and Original Extent of the Bog). Each report was divided as follows.

1. *Summary of Site Details*

This contains information on:

- NHA number;
- Grid Reference;
- Map Numbers for 1/2"(1:126,720), 6"(1:10,560) and Discovery Series (1:50,000);
- Area (ha): Area of high bog measured with a digital planimeter;
- Aerial Photo Numbers. Photographs used in this survey (1995) and aerial photographs used in previous surveys (1975);
- Date of Visit;
- Townlands.

Table 3.1 summarises this information for each site visited.

2. *Introduction*

This section is a short summary of any information that was available for the site prior to this survey. It also includes a description of the site location and details of access points.

3. *Meteorology*

This section contains information on Rainfall (P), Actual Evapotranspiration (AE), Effective rainfall (ER), Raindays and Wetdays for each site. Rainfall data was obtained from The Meteorological Office (Climatological Note No. 10) with the data from the nearest rainfall station used as an estimate of the rainfall for each site. Evapotranspiration and wet day data was obtained for the nearest Synoptic stations to the sites. This data was also obtained from the Meterological Office (Rohan 1986).

The use of data from a limited number of Synoptic Stations, reduces the usefulness of this data. As discussed in the previous 1995 report, actual evapotranspiration for a wetland can be difficult to calculate and the Synoptic Stations can be quite a distance from the sites. The only independent variable that could be used to classify the bogs under study was rainfall.

4. *Geomorphology*

This section describes the topography of the high bog, the cutaway and the surrounding land. Using the 1840s maps as a reference and the field visit, a geohydrological overview was written for each site. This detailed the original extent of the bog and factors affecting drainage such as streams and slopes. A comparison of the 1840 map with conditions today illustrates the changes to the site over the past 150 years such as cutaway and drainage.

5. *Hydrological System*

This section describes the physical system of the bog, detailing the high bog and bog margin hydrology, geology and geohydrology of the bog system (outlining the relationships between the drainage patterns and the surrounding topography).

6. *Vegetation*

This gives a vegetation summary of the high bog and the bog margins. A detailed account of the vegetation complexes on the high bog is given and these are divided into ecotope types.

TABLE 3.1 **Summary of Site Information, Area, Maps and Aerial Photographs of Sites Surveyed (bolded Site names are high priority sites)**

	SITES	Grid reference	NHA Code	Co.	Area (ha)	6" Map	1/2" Map	Discovery Map no.	Aerial P. (1995)	Other photos	Date of visit
1	**Monmore Bog**	Q950625	70	Ce	21.4	CE 46	17	63	49(6116)	Q(60&62)	1/12/1999
2	**Cloonloummore Bog**	R565825		Ce	56.9	CE 35	17	58	47(6242)	/	2/12/1999
3	**Cloonmore/Cloonfelley Bog**	M560630	247	Gy	176.4	GY 17+18	11	39	33(7999)	M133	25/1/2000
4	**Aughrim Bog**	M780565	1227	Gy	158.9	GY 33	12	40	34(7534)	M216	26/1/2000
5	**Eskerboy Bog**	M790170	1264	Gy	93.3	GY 107	15	53	40a(2401)	M398	24/11/1999
6	**Ballygar Bog**	M780530	229	Gy	106.3	GY 33	12	40	35(7445)	M215	24/1/2000
7	**Killeragh Bog**	M970170	284	Gy	118	GY 109	15	53	40a(2396)	M392	23/11/1999
8	**Mouds Bog**	N780180	395	Ke	286.8	KE 18	16	55	40b(8324)	M(373&424)	9-10/11/1999
9	**Coolrain Bog**	S260910	415	Ls	60.1	LS 16	15	54	45(6420)	S829	25/11/1999
10	**Cloonshannagh Bog**	N300750	2069	Ld	55.9	LD 15	12	41	32(8096)	N249	8/12/1999
11	**Clooneen Bog**	N070840	445	Ld	94.8	LD 4+8	12	33	38(8270)	N716	7/12/1999
12	**Gowlaun Bog**	G563045	502	Mo	193.6	MO52, 63+64	7	32	27(7816)	G171	16/11/1999
13	**Derrykinlough Bog**	G595055	1899	Mo	71.2	MO 52	7	32	27(7816)	G171	17/11/1999
14	**Kilgarriff Bog**	G572032	510	Mo	50.8	MO 63+64	7	32	27(7816)	G171	17/11/1999
15	**Mount Heavy Bog**	N630480	1584	Mh	200	MH40+41, WH27+28	13	49	36(7371)	N308	15,17/12/1999& 6/1/2000
16	**Girley Bog**	N700700	1580	Mh	68.4	MH 23	13	42	32(8107)	N289	10/1/2000
17	Daingean Bog	N446260	2033	Oy	89.1	O 18	15	48	39b(6679)	N542	12/11/1999
18	**Clonydonnin Bog**	N122335	565	Oy/Wh	116.6	OY6+7, WH36	15	48	37b(6747)	N561	20/1/2000
19	**Derrycanan Bog**	M905725	605	Rn	174.3	RN 36	12	40	32(8085)	/	27/1/2000
20	**Ballynamona Bog**	M940430	590	Rn	61	RN 48+51	12	47	36(7353)	M394	18/1/2000
21	**Tullaghanrock Bog**	M650960	2013	Rn	67.4	RN 8	12	32	29(8501)	/	18/11/1999
22	**Cloongoonagh Bog**	G445070	1657	So	164	SO 37+42	7	32	27(7819)	G177	15/11/1999
23	**Scohaboy Bog**	R960920	937	Tn	214.2	TY 10+11	15	53	45(6426)	R(122&124)	29,30/11/1999
24	**Timoney Bog**	S180870	1853	Ts/Tn	95.3	TY 17+18	15+18	60	46(6323)	/	13/1/2000
25	**Carn Park Bog**	N115420	676	Wh	156.4	WH 29+30	12+15	47	37b(6747)	N323	17/1/2000
26	**Ballynagrenia Bog**	N210410	674	Wh	130.4	WH 30+31	12	48	36(7360)	N576	19/1/2000
27	**Ballinderry Bog**	N210410	674	Wh	43.7	WH 30+31	12	48	36(7360)	N576	20/1/2000
28	**Moneybeg Bog**	N452815	987	Wh/Mh	74.4	MH 8, WH1	12	34	31(8149)	N37	12/1/2000
29	**Clareisland Bog**	N425815	987	Wh	69	WH 1	12	34	31(8149)	N37	14/1/2000

7. *Bog Type*
This section defines the type of bog, which is determined with reference to the original bog geomorphology.

8. *Human Impact*
This details any human activities occurring on the site, including peat cutting, drainage, forestry, burning, dumping and reclamation.

9. *Inter-relationships*
This details the relationships between the physical and the biological features on the bog.

A report for each site surveyed is contained in Part 2 of this report.

3.2 MAPS

A series of maps were prepared for each site visited. The 1995 aerial photographs were enlarged by 400% and were used as a base. Each map was drawn on tracing paper over these aerial photographs enabling it to be overlain by other maps. The scale of these enlarged photographs is approximately 95% of the 6" 1910 Ordnance Survey map (scale of 1:10,560). This was the nearest approximation of the 6" scale obtainable by enlarging the photographs. To obtain accurate areas, the measurements from these maps which corresponded to the 95% scale were multiplied up to 100%. These maps are detailed below.

1. *Vegetation Complex Map*: This shows the vegetation complex boundaries and types found on each site surveyed.

2. *Ecotope Map*: This shows the ecotopes into which the vegetation complexes have been grouped.

3. *Drainage Map*: This shows the drains on the high bog (D) and the surrounding cutaway (d). Adjacent rivers, streams or lakes are also indicated.

4. *Slope Map*: This shows the direction of slopes on the high bog and on the surrounding cutaway.

5. *Landuse Map*: This shows details of active peat cutting (APC), abandoned peat cutting (OPC), the vegetation of the cutaway, forestry plantations and the landuse of the surrounding agricultural land.

These maps are discussed in each site account. Paper copies enlarged to the 6" scale are included with the detailed report for each site in Part 2 of the report. The original maps along with the relevant aerial photograph are contained in Appendix 1.

4. SITE SUMMARY TABLES

Summary Tables were produced for each site outlining all the information gathered during the survey. These contained details of the Physical System and the Vegetation for each site.

4.1 PHYSICAL SYSTEM

The physical information detailed for each site, discussed in Section 3.1 formed the basis for site assessment. The following information was used to give the physical parameters for each site summary table.

* Site Name;
* Status (after Cross 1990);
* Area of High Bog (ha)
  1. Present Day
  2. 1840s
  3. Length of Perimeter of cut-face (km);
* Altitude (m);
* Climate
  1. Precipitation
  2. Actual Evapotranspiration
  3. Effective Rainfall
  4. Raindays;
* Geology
  1. Bedrock
  2. Soil.

4.2 VEGETATION

The vegetation information detailed for each site, discussed in Section 3.1 formed the basis for site assessment. The following information was used to give the vegetation parameters for each site summary table.

4.2.1 *Vegetation Complexes*

Vegetation complexes were mapped for each site. These were identified by the dominance of one to three plant species; acrotelm; *Sphagnum* cover and the presence of pools. Vegetation complexes noted are outlined in Table 4.1.

TABLE 4.1 Vegetation Complex numbers used in this report

Complex number	Vegetation type
1	*Calluna vulgaris* (face-bank)
2	*Trichophorum caespitosum* dominated
3	*Carex panicea* dominated
4	*Rhynchospora alba* dominated
6	*Narthecium ossifragum* dominated
7	*Calluna vulgaris* dominated
7a	*C. vulgaris* & *Eriophorum angustifolium* complex
9	*Eriophorum vaginatum* dominated
10	*Sphagnum* dominated
14	Hummock/hollow frequent pool complex
15	Hummock/hollow scattered pool complex

4.2.2 *Ecotopes*

Using the vegetation complex maps as a guide, the vegetation cover of each high bog was divided into four Ecotope types. An ecotope is the abiotic environment or habitat of a particular biotic system (Kulcher 1967; Whittaker *et al.* 1973). The division into the four types was based on the work carried out by Kelly (1993) on Clara and Raheenmore raised bogs. The system used by Kelly was simplified for use on other bogs. This was the system used by Kelly, Doak and Dromey (1995) which is the precursor to the present study. The four ecotope types used are as follows:

1. Marginal Ecotope

This type includes vegetation complexes dominated by *Trichophorum caespitosum*, *Carex panicea*, and *Rhynchospora alba*. Indications of disturbance are very often evident. On some sites there are algal tear pools due to the stresses caused by drainage. The water table is low in these complexes and there is usually no acrotelm. This type also includes face bank edges dominated by *Calluna vulgaris*. Subsidence and cracks occur near the face-bank and there are usually steep slopes associated with this ecotope.

2. Sub-Marginal Ecotope

The complexes of this ecotope are often dominated by *Narthecium ossifragum*. They are intermediate between marginal and sub-central ecotopes. Water-tables are generally below the surface, but some permanent pools can occur. Tear pools can be frequent and can contain *Sphagnum cuspidatum*. Patches of *Sphagnum* can occur and disturbance is less than in marginal ecotopes.

3. Sub-Central Ecotope

This ecotope is made up of transitional complexes which are possibly dried-out versions of central complexes. *Sphagnum* cover is usually moderate to high but permanent pools are infrequent. An acrotelm is usually present. *Calluna vulgaris, Narthecium ossifragum*, *Erica tetralix*, *Eriophorum vaginatum* and *Eriophorum angustifolium* frequently dominate in this ecotope.

4. Central Ecotope

This includes the wettest vegetation complexes of the high bog. They have well developed permanent pool systems (at least 10% cover). There is a deep acrotelm and abundant *Sphagnum* cover. The pools have *Sphagnum cuspidatum*, *Drosera anglica* and *Menyanthes trifoliata* with *Rhynchospora alba* and *Eriophorum angustifolium* in-filling from the margins. *Calluna vulgaris* and *Erica tetralix* are abundant and *Narthecium ossifragum* hollows can occur.

On western sites the pools have more open water and are often inter-locking. Islands of *Racomitrium lanuginosum* are common and *Carex panicea* can be common.

The area and the % cover in relation to the total area of the high bog was calculated for each ecotope on the high bog.

4.2.3 *Primary and Secondary Vegetation Complexes*

The vegetation cover was also divided into primary and secondary types as outlined in the 1995 report. Primary vegetation is taken as undisturbed high bog vegetation that occurs naturally on the high bog. This includes central ecotope on the high bog which has been undisturbed by human impacts such as drainage and peat-cutting. It also includes marginal ecotopes that occur on natural internal slopes and ridges and also those associated with the natural margins of the bog, such as stream margins.

Secondary vegetation consists of all the vegetation affected by human impacts. This includes the marginal, sub-marginal and sub-central ecotopes affected by drainage and cutaway. It also can include central ecotopes, where these have been created in wet hollows associated with subsidence, caused by human activity.

4.2.4 *Flushes*

Types and total area (ha) and % of site. These include, wooded and treeless flushes and swallow-holes.

4.2.5 *Indicator Species*

These include species which indicate geographical location and disturbance as described below. These species are listed with an indication of frequency.

1. Geographical location

Pleurozia purpurea (West);
Racomitrium lanuginosum (West & North);
Carex panicea (West);
Campylopus atrovirens (West);
Sphagnum magellanicum (Midland);
Andromeda polifolia (Midland);
Vaccinium oxycoccus (Midland).

2. Disturbance

Carex panicea;
Campylopus introflexus.

4.3 HUMAN IMPACT

1. Peat-cutting
   - Original dome remaining intact
   - Length of perimeter actively cut

2. Drainage effects
   - Areas affected by drains (all secondary ecotopes)
   - Length of functional drains (high bog)
   - Length of functional drains (cutover bog)
   - Threat to central/sub-central by marginal drains (old/new)
   - Threat to central/sub-central by surface drains (old/new)

3. Invasive Species and Forestry (Table 4.2 outlines forestry details for each site).

4. Ownership Details.

4.4 SPECIAL FEATURES

This highlights any particular points of interest on the site, such as:

1. Adjacent Habitats i.e.: Is the site part of a larger NHA complex? Does it act as a support system for another habitat?
2. Presence of intact or semi-intact margins.
3. Occurrence of rare species.
4. Primary central/sub-central complexes occurring close to the face-bank.
5. High percentage of original dome remaining intact (>60%).
6. Natural internal slopes.
7. Low frequency of drains.
8. Low frequency of active peat cutting.

Summary Tables for each site appears in Section 5 (Results).

TABLE 4.2 Forestry on high bog and/or adjacent cutaway.

Sites	NHA Code	Location	Trees	Ownership	Grant-aided	Felling date
Co. Clare						
Monmore	70	None				
Cloonloum more	/	S	*P. s.*	Coillte		2029
Co. Galway						
Cloonmore/Cloonfelley	247	None				
Aughrim	1227	SE	*P. s.* & *P. c.*	Coillte		2006
		NE	Unknown	Private	unknown	unknown
		S	*P. s.*	Coillte		2006 & 2009
		N		Coillte		2019
		NW		Coillte		2031
Eskerboy	1264	None				
Ballygar	229	W	*P. c.*	Coillte		2010
		NW	*P. s.*	Coillte		2039
Killeragh	284	SE	Unknown	Private	yes	
		NE	Mixed	Private	no	
		S	Mixed	Private	no	
Co. Kildare						
Mouds	395	N	Not yet planted	Private	Applying for grant	
		W	Mixed	Private	no	
		NW	Mixed	Private	no	
Co. Laois						
Coolrain	415	NE	*P. c.*	Coillte		2033
		E	*P. c.*	Coillte		2009
		NW	Unknown	Private	unknown	
Co. Longford						
Cloonshannagh	2069	SE	*P. a.* & *P. sy.*	Coillte		2000
		SW	*P. c.* & *P. a.*	Coillte		2045
		NW	*P. s.*, *P. c.* & *B. p.*	Coillte		2015
Clooneen	445	None				
Co. Mayo						
Gowlaun	502	None				
Derrykinlough	1899	N	Unknown	Private	yes	
Kilgarriff	510	NE	Unknown	Private	yes	
		SW	Unknown	Private	yes	

TABLE 4.2 cont.

Co Meath						
Mount Hevey	1584	E	*P. s., P. a., P. sy. & B. p.*	Coillte		2015, 2028 & 2036
		SE	*P. a.*	Coillte		2048
		NE	*P. s., P. a., P. c. & B. p.*	Coillte		2005 & 2013
		S	*P. a. & P. s.*	Coillte		2001, 2015 & 2024
Girley	1580	SW	*P. s., B. p. & P. c.*	Coillte		2015
		NW	*P. s.*	Coillte		2016
		NW	*P. c.*	Coillte		2001
Co. Offaly						
Daingean	2033	None				
Clonydonnin	565	S	Unknown	Private	No	
		N	*B. p.*	Private	No	
Co. Roscommon						
Derrycanan	605	N	Broadleaf	Private	No	
		SE	Unknown	Private	Yes	
Ballynamona	590	SE	Unknown	Private	Yes	
Tullaghan Rock	2013	E	Unknown	Private	Yes	
		W	Unknown	Private	Yes	
		N	Unknown	Private	Yes	
Co. Sligo						
Cloongoonagh	1657	E	Unknown	Private	Yes	
Co. Tipperary						
Scohaboy	937	NE	*P. c.*	Coillte		2026
		S	*P. s.*	Coillte		2025
Timoney	1853	N	Unknown	Private	Yes	
Co. Westmeath						
Carn Park	676	NE	*P. a. & P. c.*	Coillte		2048
		E	*P. c.*	Coillte		2020
		W	*P. c.*	Coillte		2011
Ballynagrenia	674	None				
Ballinderry	674	None				
Moneybeg	987	W	*P. s.*	Coillte		2002 & 2007
Clareisland	987	SE	*P. a. & P. c.*	Coillte		2013
		S	*P. c.*	Coillte		2004

P. a. = *Picea abies*
P. s. = *Picea sitchensis*
P. sy. = *Pinus sylvestris*
P. c. = *Pinus contorta*
B. p. = *Betula pubescens*

5. RESULTS

5.1 SUMMARY TABLES

Summary Tables for each site, listed by county are presented below.

5.2 DISTRIBUTION OF ECOTOPES

The information on area and percentage of the four ecotopes at each site has been graphed for ease of inter-site comparison. These graphs are outlined in Figs 5.1 - 5.10.

5.2.1 Central Ecotope

Figures 5.1 and 5.2 show the information for central ecotope distribution. In total nine sites have a central ecotope present. There are four sites with >4ha: Mouds; Cloonshannagh; Mount Hevey and Moneybeg. Two sites have central ecotope forming >10% of their total areas.

5.2.2 Sub-Central Ecotope

Figures 5.3 and 5.4 show the information for sub-central ecotope distribution. This ecotope is absent from six sites, none of which have central ecotope, this is probably related to disturbance. Ten sites have greater than 25% of their areas covered by sub-central and/or central ecotopes: Monmore; Killeragh; Mouds; Coolrain; Kilgarriff; Derrykinlough; Clonydonnin; Ballynagrenia; Ballinderry and Clareisland.

5.2.3 Sub-Marginal Ecotope

Figures 5.5 and 5.6 show the information for sub-marginal ecotope distribution. This ecotope is present on all sites.

5.2.4 Marginal Ecotope

Figures 5.7 and 5.8 show the information for marginal ecotope distribution. This ecotope is present on all sites and covers more than 50% on six sites: Cloonloum more; Cloonmore/Cloonfelley; Clooneen; Derrycanan; Cloongoonagh and Timoney. All of these sites showed significant disturbance.

Graphs combining marginal and sub-marginal ecotopes (poor quality raised bog) and sub-central and central ecotopes (high quality raised bog) were prepared. These graphs are presented in Figures 5.9 and 5.10. Eleven sites have greater than 25% of their surface covered by a combination of central and sub-central ecotopes. These are: Monmore; Killeragh; Mouds; Coolrain; Cloonshannagh; Kilgarriff; Mount Hevey; Clonydonnin; Ballynagrenia; Moneybeg and Clareisland. Two sites have figures very close to this 25% cut-off point. Carn Park has 24.3% and Ballinderry has 23.6% central and sub-central areas.

Marginal and sub-marginal ecotopes cover greater than 50% of the surface on 27 of the 29 sites. The two sites with less than 50% are Monmore and Coolrain.

Fig. 5.1: % Central Ecotope on each raised bog visited

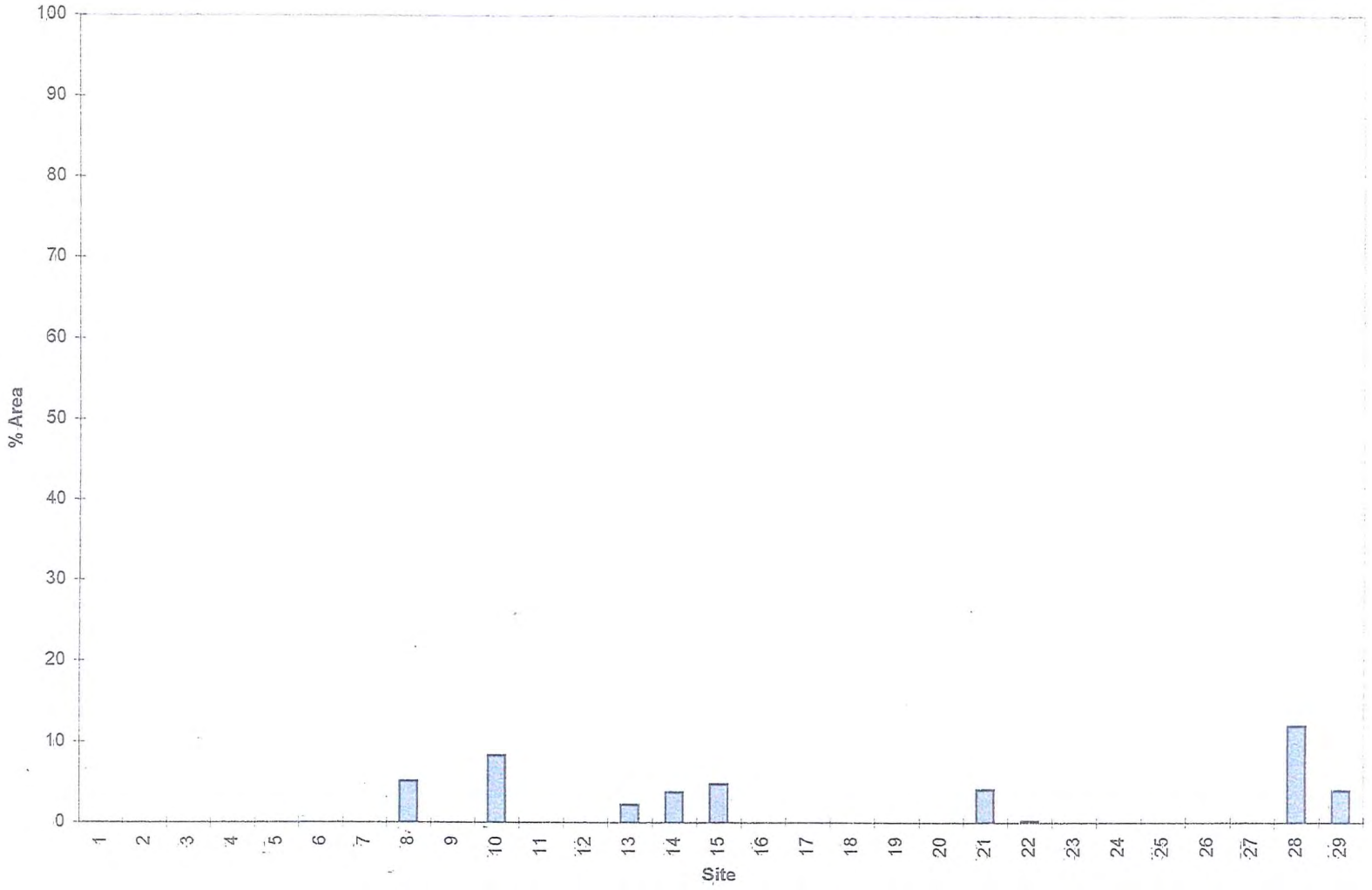


Fig. 5.2: Area of Central Ecotope on each raised bog visited

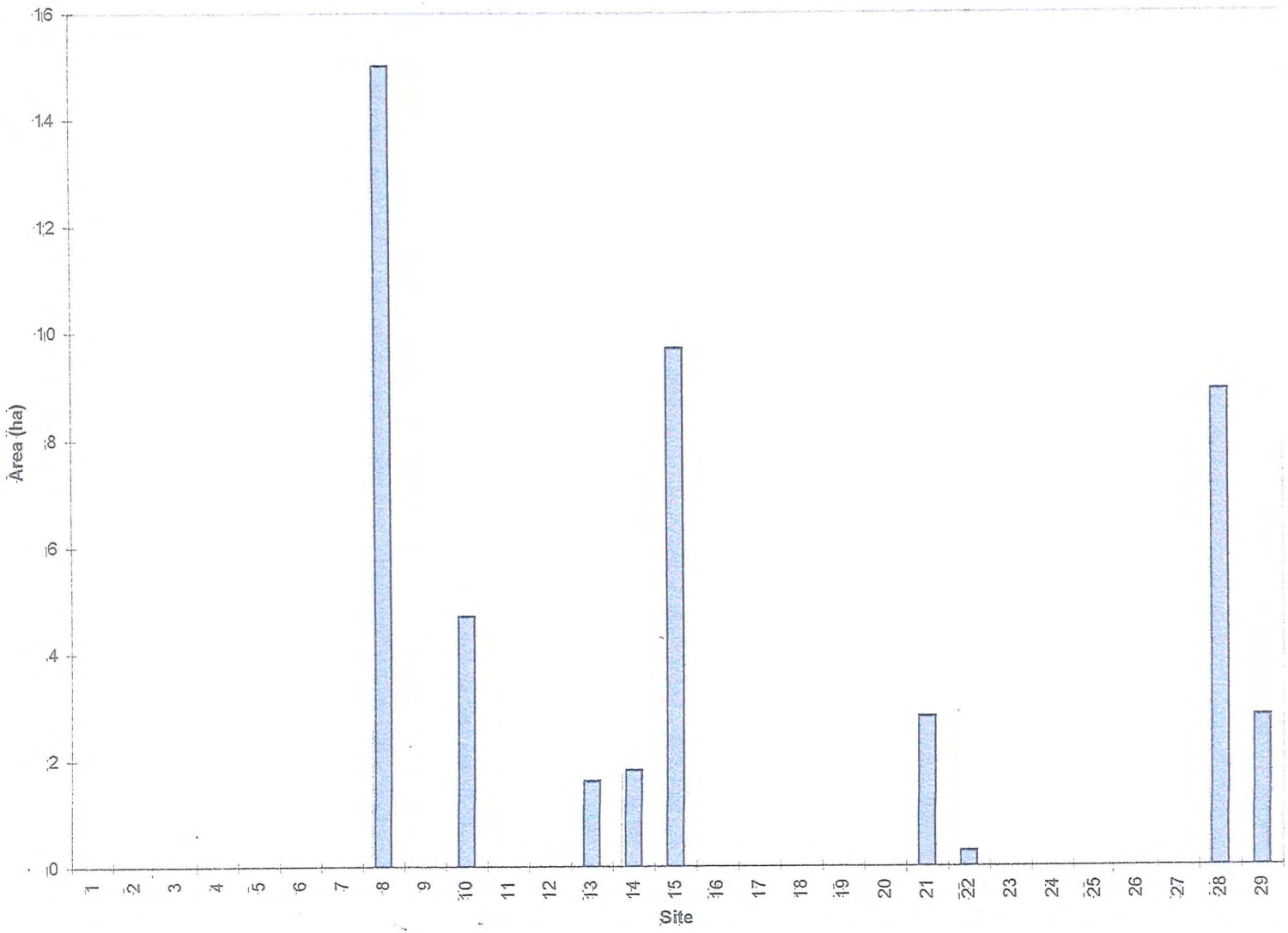


Fig. 5.3: % Sub-central Ecotope on each raised bog visited

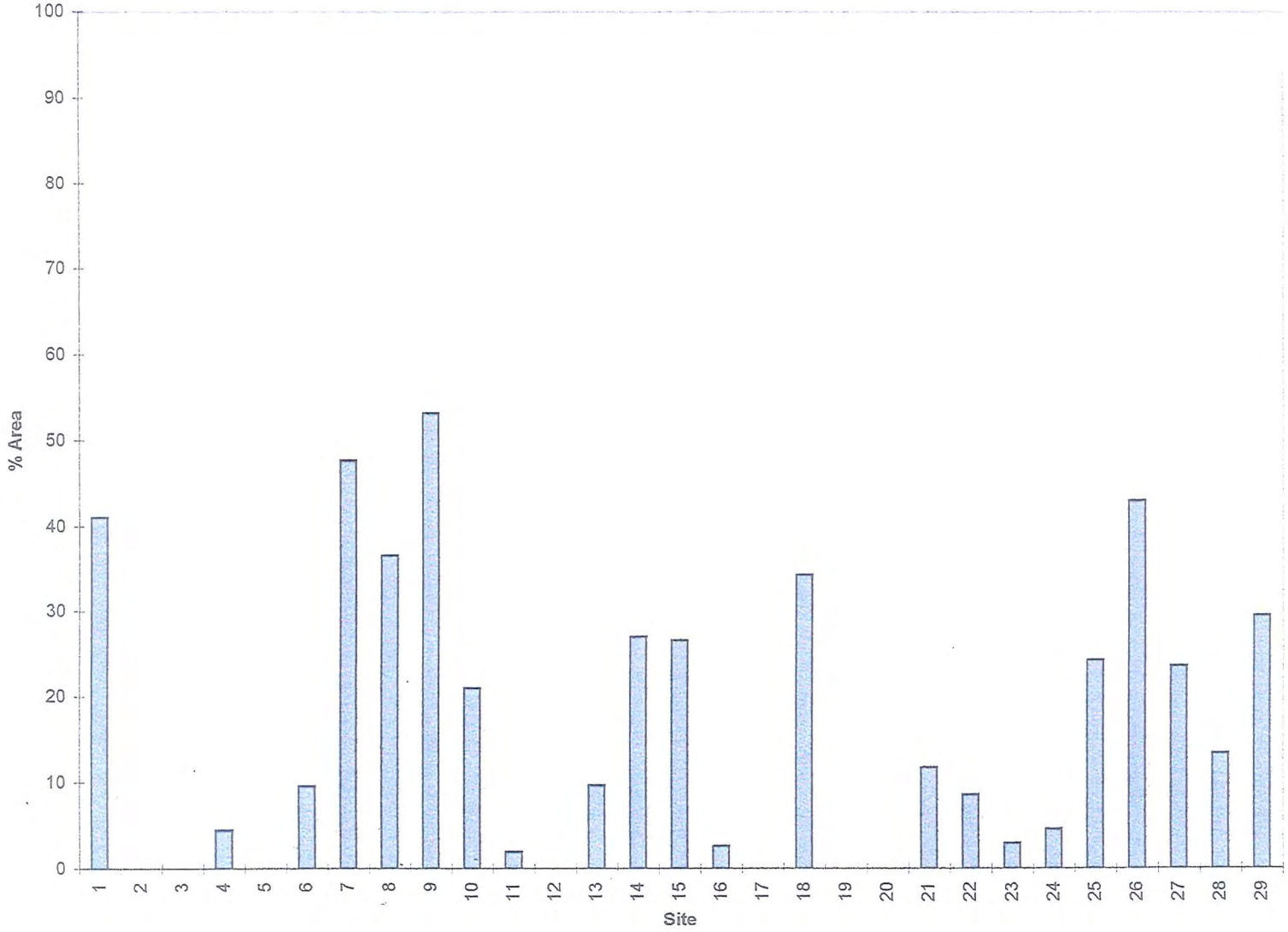


Fig. 5.4: Area of Sub-central on each raised bog visited

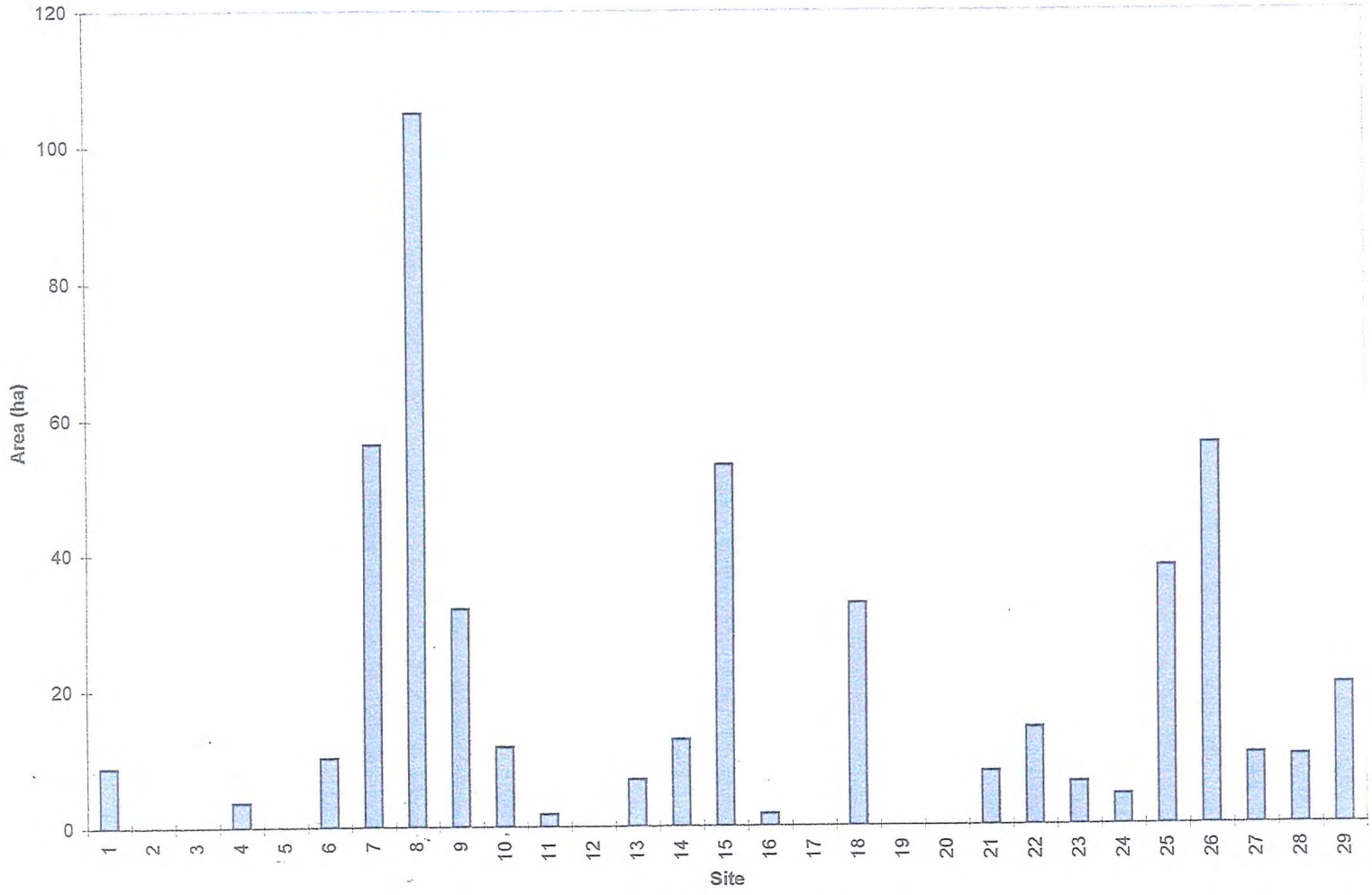


Fig. 5.5: % Sub-marginal Ecotope on each raised bog visited

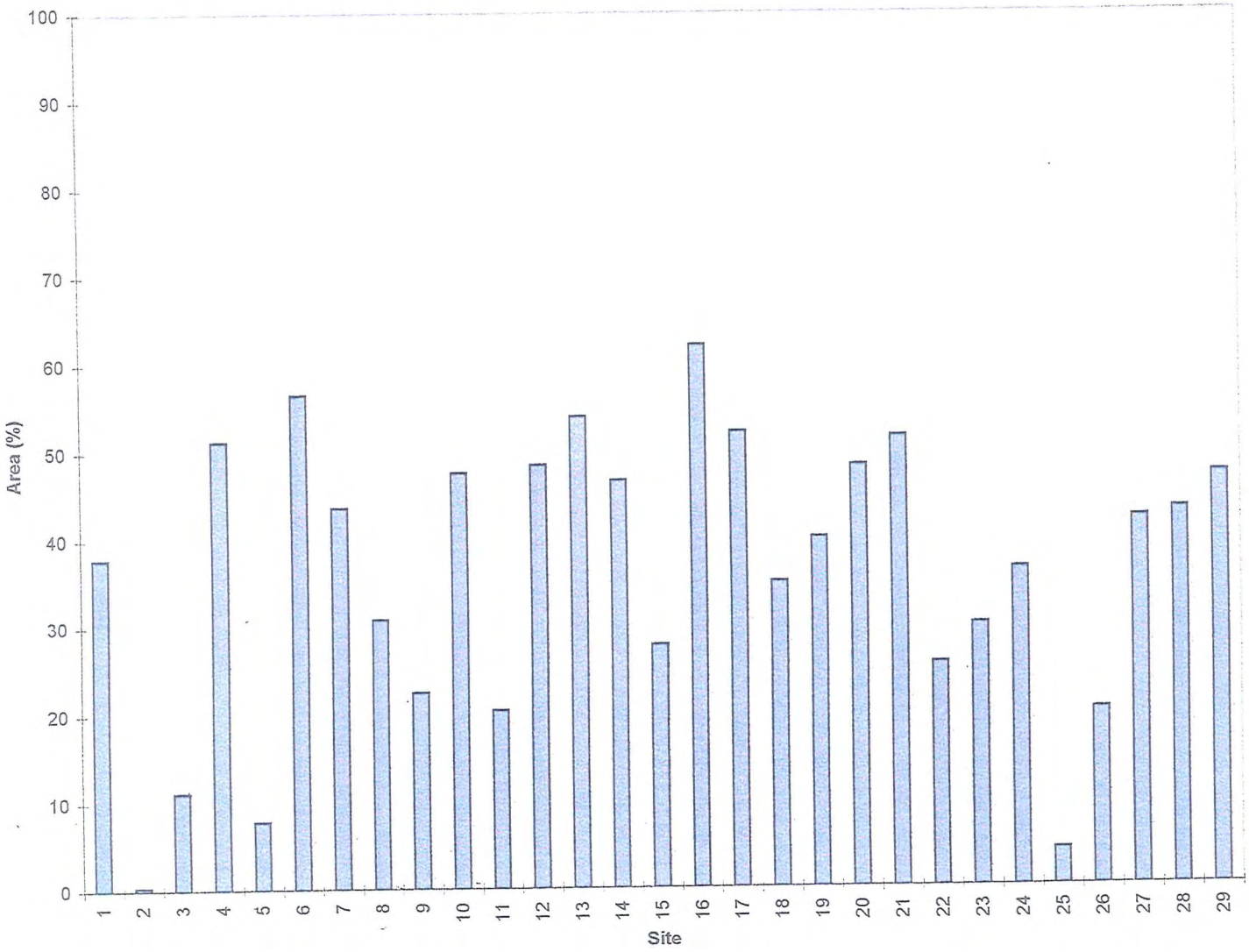


Fig. 5.6: Area of Sub-marginal Ecotope on each raised bog visited

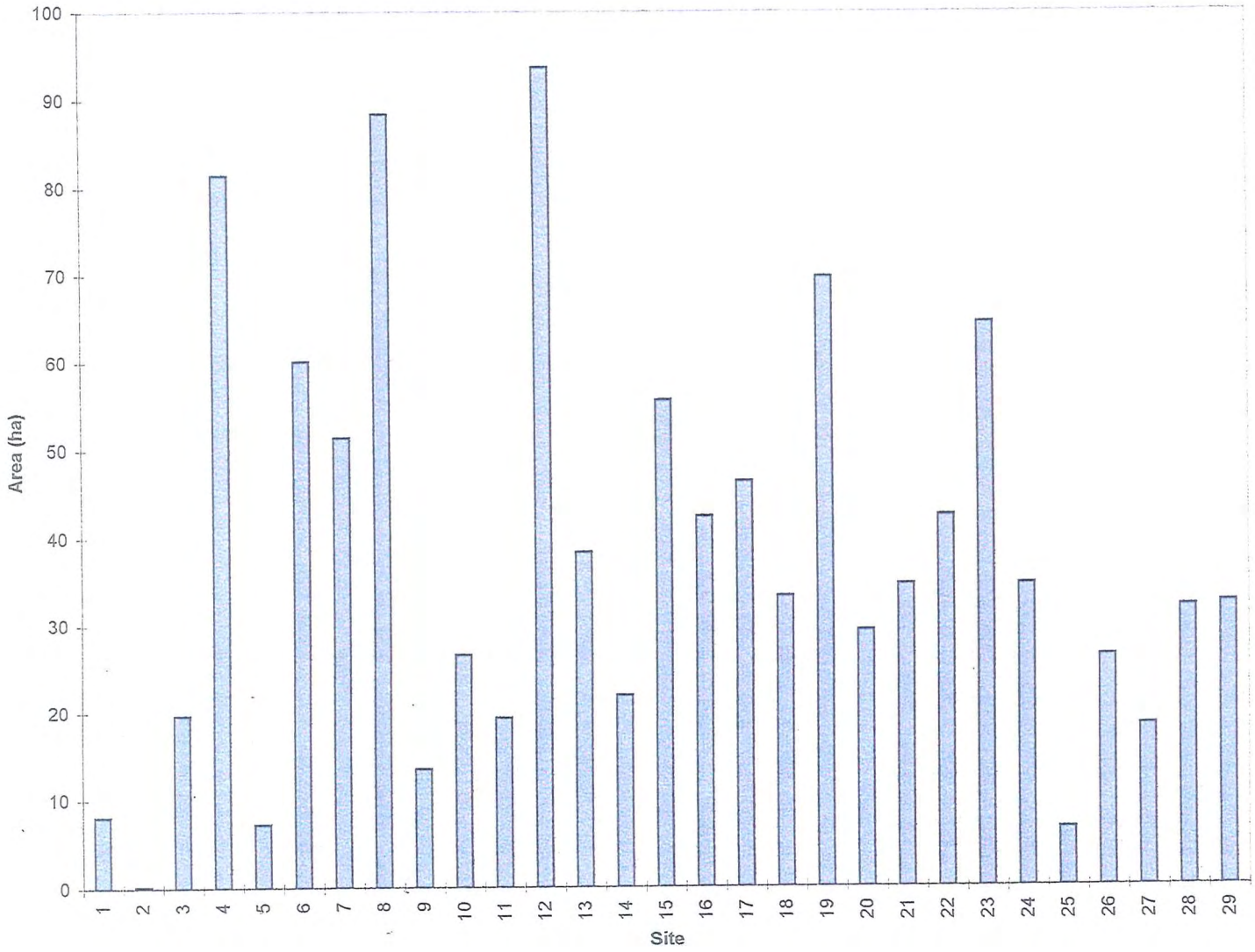


Fig. 5.7: % Marginal Ecotope on each raised bog visited

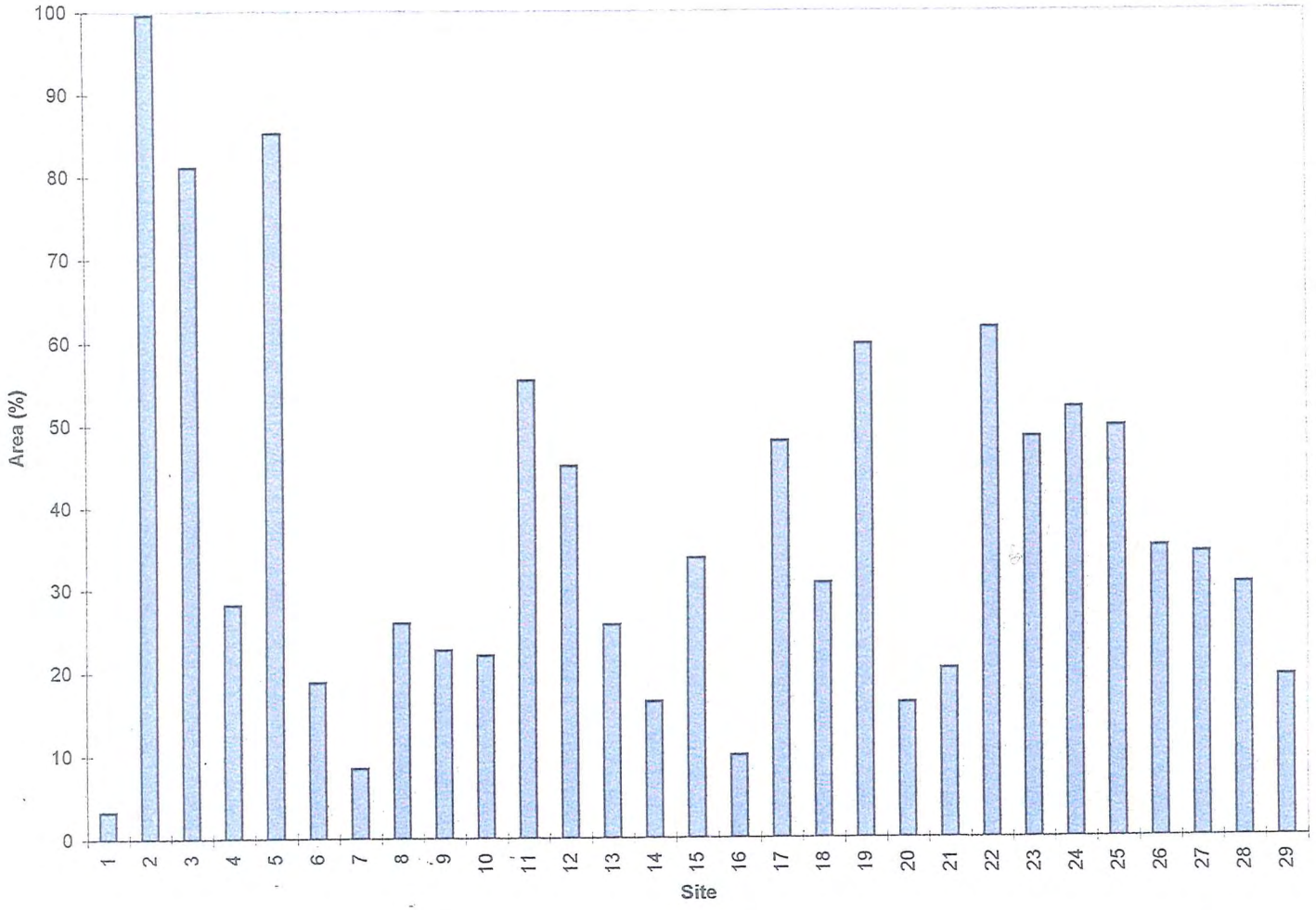


Fig. 5.8: Area of Marginal Ecotope on each raised bog visited

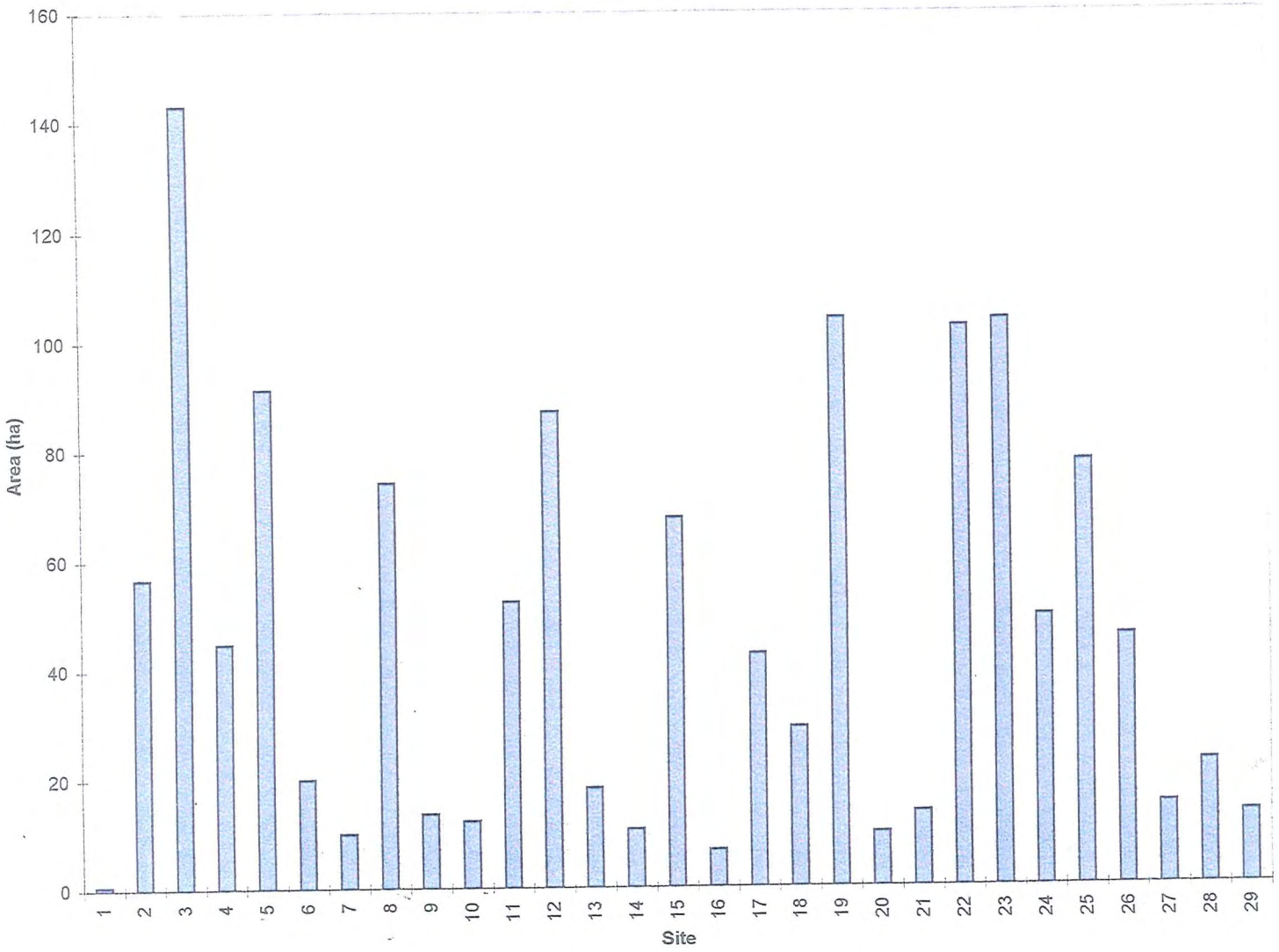


Fig. 5.9: % Sub-central and Central Ecotope areas

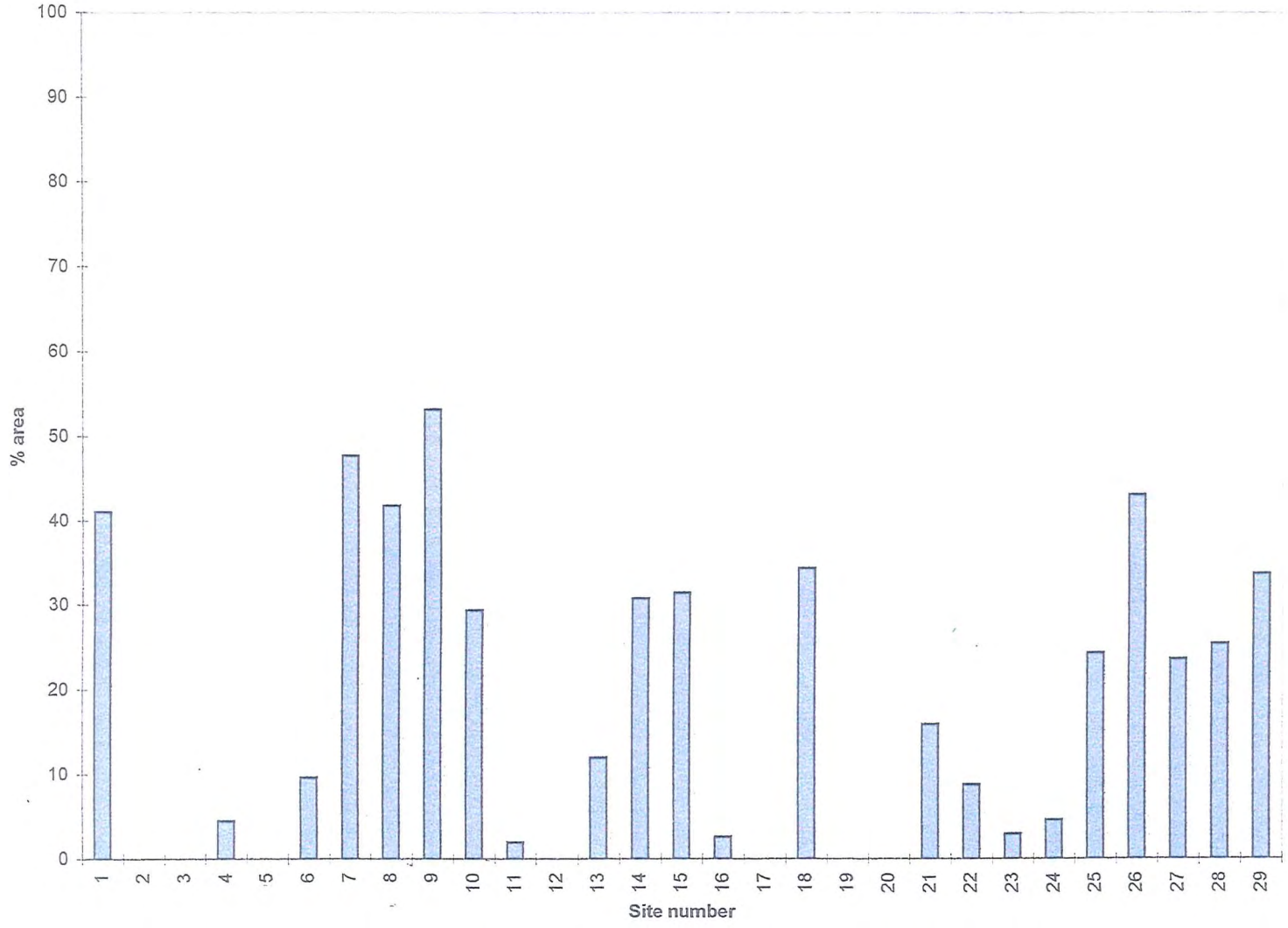
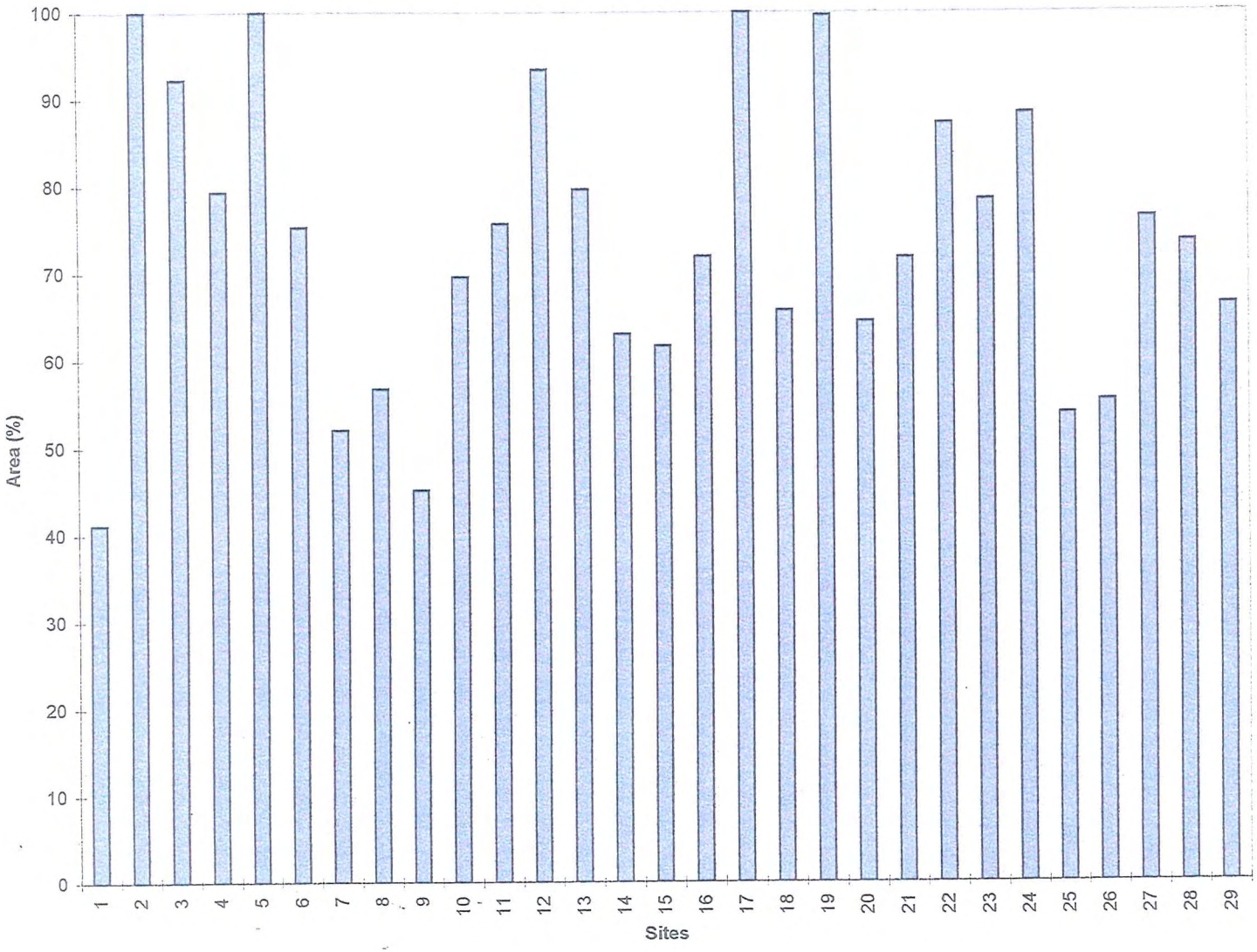


Fig. 5.10: % Marginal and Sub-marginal Ecotopes



1. MONMORE BOG, CO. CLARE						
Grid reference	Q953 633					
Status (Cross 1990)	Bii					
Area:	Recent	1840s	Perimeter			
	21.4ha	1324.0ha	1.9km			
Altitude (m OD):	Minimum	Maximum	Mean			
	15.5	15.5	15.5			
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays		
	1049.0mm	539.0mm	510.0mm	160		
Geology	Grey siltstone and sandstone (Gull Island formation)					
Sub-soil	/					
Peat type	Trans-type					
ECOLOGY						
Ecotopes			**Area (ha)**	**% area** H.I.	P	
Marginal	7/3/2		0.7	3.3	0.0	
Sub-marginal	7/9+*M.*; 7/9+*M.* + P.; 7/6; 7/4/10.		8.1	37.9	0.0	
Sub-central	10/7/9; 10/7/9B.		8.8	41.1	0.0	
Central	None		0.0	0.0	0.0	
Flushes						
Wooded			0.0	0.0		
Open water			0.0	0.0		
Swallow-holes			0.0	0.0		
Molinia	There are four *Molinia* dominated flushes.		3.8	17.8		
Other			0.0	0.0		
Indicator species (+ = infrequent; ++ = frequent)						
East-west:	*Sphagnum auriculatum, Potentilla erecta, S. magellanicum* (SM+, SC+), *Pedicularis sylvatica* (SM+,SC+), *Vaccinium oxycoccus* (SM+, SC+).					
Disturbance:	*Carex panicea* (M++, SM+).					
HUMAN IMPACT						
Peat cutting						
Original Dome (1848) remaining intact:		1.6%				
Margin actively cut (approx.):		0.0%				
Drainage effects						
Area affected by drains:		100.0%				
Length of functional drains (km), (high bog):		1.7				
Length of functional drains (km), (cutover bog):		6.9				
Threat to central/Sub-central by marginal drains:		None				
Threat to central/Sub-central by surface drains:		Sub-central (old)				
Invasive species and forestry:		None				
Ownership:		Private				
Special features:		Mineral ridge on the northern boundary of the site.				

2. CLOONLOUMMORE BOG, CO. CLARE

Grid reference	R565 825			
Status (Cross 1990)	\			
Area :	Recent	1840s	Perimeter	
	56.9ha	234.8ha	5.3km	
Altitude (m OD):	Minimum	Maximum	Mean	
	43	43	43	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1085.0mm	539.0mm	546.0mm	160
Geology	Waulsortian limestone			
Sub-soils	/			
Peat type	Man-modified			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 3a/7/2 B.	56.7	99.7	0.0
Sub-marginal	7/9 + A.P., B.	0.2	0.4	0.0
Sub-central		0.0	0.0	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				
Indicator species (+ = infrequent; ++ = frequent)				
East-west:				
Disturbance:	*Carex panicea* (D1+, M++, SM+).			

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	24.2%
Margin actively cut (approx.):	7.6%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	2.9km
Length of functional drains (cutover bog):	5.9km
Threat to central/Sub-central by marginal drains:	None
Threat to central/Sub-central by surface drains:	None
Invasive species and forestry on the high bog:	None
Ownership:	Private
Special features:	Close to Doonbeg coastal NHA (200)

3. CLOONMORE/CLOONFELLEY BOG, CO. GALWAY

Grid reference	M560 630			
Status (Cross 1990)	Bii			
Area :	Recent	1840s	Perimeter	
	176.4ha	361.2ha	7.6km	
Altitude (m OD):	Minimum	Maximum	Mean	
	70	70	70	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1098.0mm	415.0mm	683mm	177
Geology	Limestone drift			
Sub-soil	/			
Peat type	Transitional/man-modified			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 7/9/3 + *Cl*; Complex 7/6 + *Cl;* Complex 9/6 + *Cl* + *E.a.*; Complex 3/7; Complex 7/2; Complex 7 + *E.a.;* Complex 2/3 + *Cl;* Complex 2/3; Complex 7/9/6; Complex 7/6 + *Cl* + T.P.; Complex *E.t.*/2 + *Cl*	143.1	81.1	0.0
Sub-marginal	Complex 9/2/7 + *Cl;* Complex 7/9; Complex 7a + *Cl* + T.P.	19.7	11.2	0.0
Sub-central		0.0	0.0	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded		0.0	0.0	
Open water		0.0	0.0	
Swallow-holes	Two series of swallow-holes with vegetation dominated by *Molinia* and *Calluna*.	13.6	7.7	
Molinia		0.0	0.0	
Other		0.0	0.0	

Indicator species (+ = infrequent; ++ = frequent)

East-west:	*Racomitrium lanuginosum* (M+, SM+), *Campylopus atrovirens* (M+,SM+), *Sphagnum auriculatum* (D12+), *Pedicularis sylvatica* (M+), *S. magellanicum* (M+), *Vaccinium oxycoccus* (SM+), *Pleurozia purpurea* (SM+).
Disturbance:	*Carex panicea* (M++, SM+), *Rhynchospora fusca* (M+), *Campylopus introflexus* (M+).

HUMAN IMPACT

Peat cutting	
Original Dome (1848) Cutaway:	51.2%
Margin actively cut (approx.):	29.1%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	22.0km
Length of functional drains (cutover bog):	8.6km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	
Invasive species and forestry:	*Phragmites australis*
Ownership:	Private
Special features:	Two sinuous flushes featuring several swallow-holes.

4. AUGHRIM/AGHRANE BOG, CO. GALWAY

Grid reference	M780 565			
Status (Cross 1990)	Biii*			
Area :	Recent	1840s	Perimeter	
	158.9ha	283.2ha	6.9km	
Altitude (m OD):	Minimum	Maximum	Mean	
	50	55	52.5	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1026mm	415mm	611mm	177
Geology	Limestone drift			
Sub-soil	/			
Peat type	Man-modified			

ECOLOGY

Ecotopes		Area (ha)	% area H.I.	P.
Marginal	Complex 1; Complex 3 + *Cl.*; Complex 3/2; Complex 3/7 + *Cl.* + *Myrica*; Complex *Cl.* + *E.a.*/7; Complex 3/7 + *Cl.* + T.P.; Complex 7/3 + *Cl.*; Complex 7/3/2; Complex 7/3/2 + T.P.; Complex 7/9 + *Cl.*	44.8	28.2	0.0
Sub-marginal	Complex 7/9/10 + *Cl.*; Complex 7/3 + *Cl.* + T.P.; Complex 7/9/3 + T.P.;Complex 7/10 + *E.a.* + *Cl.* + T.P.	81.4	51.2	0.0
Sub-central	Complex 10/7/9 + T.P.; Complex 10/7/9 + *Cl.* + T.P.	3.7	4.5	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+ = infrequent; ++ = frequent)

East-west:	*Sphagnum magellanicum* (SM+, SC+); *S. auriculatum* (D16, M+, SM+); *Campylopus atrovirens* (SC+); *Racomitrium lanuginosum* (M+, SC+); *Pleurozia purpurea* (M+, SM+,SC+).
Disturbance:	*Carex panicea* (M++, SM++); *Campylopus introflexus* (M+); *Rhynchospora fusca* (SC++).

HUMAN IMPACT

Peat cutting	
Original Dome (1848) Cutaway:	43.9%
Margin actively cut (approx.):	8.9%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	16.7km
Length of functional drains (cutover bog):	0.1km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry:	*Picea sitchensis* and *Pinus contorta* (Coillte and private)
Ownership:	Coillte and private
Special features:	Close to Ballygar (229)

5. ESKERBOY BOG, CO. GALWAY				
Grid reference	M790 170			
Status (Cross 1990)	Biii			
Area:	Recent	1840s	Perimeter	
	93.3ha	249.4ha	5.0km	
Altitude (m OD):	Minimum	Maximum	Mean	
	60m	70m	65m	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1170.0mm	454.0mm	716.0mm	150
Geology	CPU dark laminated basinal limestones			
Sub-soil	/			
Peat type	True midland			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1; Complex *E.a.* + 7; Complex 2/7/6 R.B. + *Myr.* R.B.; Complex 2/7/6 R.B.; Complex 2+*E.a.* RB.	85.2	91.4	0.0
Sub-marginal	Complex 7/9/10	7.3	7.8	0.0
Sub-central		0.0	0.0	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				
Indicator species (+ = infrequent; ++ = frequent)				
East-west:	*Sphagnum magellanicum* (M+, SM+).			
Disturbance:	*Campylopus introflexus* (M+); *Carex panicea* (M+, SM+).			

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) Cutaway:	62.6%
Margin actively cut (approx.):	6.7%
Drainage effects	
Area affected by drains:	100%
Length of functional drains (high bog):	4.7km
Length of functional drains (cutover bog):	1.0km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry:	None
Ownership:	Private
Special features:	The bog is bordered to the north and south by two eskers.

6. BALLYGAR BOG, CO. ROSCOMMON				
Grid reference	M780 530			
Status (Cross 1990)	Bii			
Area:	Recent	1840s	Perimeter	
	106.3ha	195.0ha	4.6km	
Altitude (m OD):	Minimum	Maximum	Mean	
	62	62	62	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1026mm	415mm	611mm	177
Geology	Limestone drift			
Sub-soils	/			
Peat type	Man-modified			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 7; Complex 9/7 + *Cl.*; Complex 3/7/4; Complex 7/2; Complex 7/3 + *Cl.*	20.0	18.8	0.0
Sub-marginal	Complex 7/9/3; Complex 7/3/4; Complex 7/3 + *Cl.*; Complex 9 + *Cl.*; Complex 3/7/4 + T.P.; Complex 2/6/3 + T.P.; Complex 7/4/2 + T.P; Complex 7/3/2.	60.1	56.5	0.0
Sub-central	Complex 7/3/4 + T.P.; Complex 7/10/9 + T.P.	10.2	9.6	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded	Both a long, narrow *Betula* flush and a circular *Betula* flush.	2.3	2.2	
Open water				
Swallow-holes				
Molinia	A small *Molinia* dominated central flush.	0.4	0.3	
Other				
Indicator species (+ = infrequent; ++ = frequent)				
East-west:	*Sphagnum magellanicum* (SM+); *S. auriculatum* (F1,F2); *Pleurozia purpurea* (SM+, SC+).			
Disturbance:	*Carex panicea* (D2, D3, D16, M++, SM+,SC+).			

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	54.5%
Margin actively cut (approx.):	1.2%
Drainage effects	
Area affected by drains:	100%
Length of functional drains (high bog):	6.7km
Length of functional drains (cutover bog):	1.3km
Threat to central/Sub-central by marginal drains:	None
Threat to central/Sub-central by surface drains:	None
Invasive species and forestry on high bog:	Pinus sylvatica in flushes and Coillte forest on western high bog of *Picea sitchensis* and *Pinus sylvatica.*
Ownership:	Coillte and private
Special features:	Close to Aughrim bog (1227)

7. KILLERAGH BOG, CO. GALWAY

Grid reference	M970 170			
Status (Cross 1990)	\			
Area:	Recent	1840s	Perimeter	
	118.0ha	222.8ha	5.8km	
Altitude (m OD):	Minimum	Maximum	Mean	
	49m	49m	49m	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	962mm	454mm	508mm	150
Geology	Black limestone drift			
Sub-soil	/			
Peat type	True Midland type			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1; Complex 7/6; Complex 7/6 + T.P.	10.0	8.5	0.0
Sub-marginal	Complex 10/7/9; Complex 10/7 with degraded pools; Complex 7+T.P.	51.4	43.6	0.0
Sub-central	Complex 10/7/9	56.3	47.7	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other	A small *Calluna vulgaris* dominated flush in the bog centre.	0.2	0.2	0.0

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Sphagnum magellanicum* (SM+, SC+).
Disturbance:	*Carex panicea* (SM+, SC+).

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) Cutaway:	47.1%
Margin actively cut (approx.):	15.3%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	0.9km
Length of functional drains (cutover bog):	2.2km
Threat to central/Sub-central by marginal drains:	None
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry on high bog:	*Pinus sylvatica* growing on bog-burst in the south and also scattered over much of the southern half of the bog.
Ownership:	Private
Special features:	Large, old bog-burst at southern margin. Close to the river Shannon.

8. MOUDS BOG, CO. KILDARE

Grid reference	N780 180			
Status (Cross 1990)	Bii			
Area:	Recent	1840s	Perimeter	
	286.8ha	1605.3ha	11.5km	
Altitude (m OD):	Minimum	Maximum	Mean	
	92	92	92	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	831mm	455mm	376mm	159
Geology	BN Boston Hill formation and WA Waulsortian Limestone			
Sub-soil	/			
Peat type	Man-modified			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P
Marginal	Complex 7; (Complex 7; Complex 7 R.B. - Primary)	74.2	20.6	5.3
Sub-marginal	Complex 4/10; Complex 7.	88.4	30.8	0.0
Sub-central	Complex 7/10; Complex 10/7, R.B.;.	105.0	36.6	0.0
Central	Eastern Complex 10; Western Complex 10.	15.0	0.0	5.2
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia	*Molinia* and *Myrica* dominated flush.	4.2	1.5	0.0
Other				
Indicator species (+ = infrequent; ++ = frequent)				
East-west:	*Sphagnum magellanicum* (SM+, SC+, C++, F1+, F2+), *Vaccinium oxycoccus* (C+, F1+, F3+, S1).			
Disturbance:	*Campylopus introflexus* (M+).			

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	17.9%
Margin actively cut (approx.):	34.2%
Drainage effects	
Area affected by drains:	94.7%
Length of functional drains (high bog):	4.9km
Length of functional drains (cutover bog):	24.2km
Threat to central/Sub-central by marginal drains:	None
Threat to central/Sub-central by surface drains:	Sub-central and central (old)
Invasive species and forestry:	*Sarracenia purpurea*
Ownership:	Private
Special features:	Naturally marginal ridge located in the centre of the bog.

9. COOLRAIN BOG, CO. LAOIS

Grid reference	S260 910			
Status (Cross 1990)	Bii			
Area:	Recent	1840s	Perimeter	
	60.1ha	251.8ha	4.7km	
Altitude (m OD):	Minimum	Maximum	Mean	
	110	110	110	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	937mm	454mm	483mm	150
Geology	Old Red Sandstone			
Sub-soil	\			
Peat type	True Midland/Man modified			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1; Complex 2.	13.6	22.7	0.0
Sub-marginal	Complex 7/6; Complex 6/4/7.	13.5	22.5	0.0
Sub-central	Complex 10/7/9; Complex 7/9/10.	31.9	53.1	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded	Four *Pinus* dominated flushes	1.1	1.8	0.0
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Sphagnum magellanicum* (SM++, SC++); *Racomitrium lanuginosum* (SM+), *Vaccinium oxycoccus* (F+).
Disturbance:	

HUMAN IMPACT

Peat cutting	
Original Dome (1848) Cutaway:	76.1%
Margin actively cut (approx.):	35.2%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	0.0km
Length of functional drains (cutover bog):	2.4km
Threat to central/Sub-central by marginal drains:	Sub-central (new)
Threat to central/Sub-central by surface drains:	No surface drains
Invasive species and forestry:	*Pinus sylvatica* and P. *contorta*
Ownership:	Coillte and Private
Special features:	Several *Pinus* flushes also rich in *Sphagnum* cover.

10. CLOONSHANNAGH BOG (ARDAGULLION), CO. LONGFORD						
Grid reference	N300 750					
Status (Cross 1990)	\					
Area:	Recent	1840s	Perimeter			
	55.9ha	678.8ha	4.5km			
Altitude (m OD):	Minimum	Maximum	Mean			
	100	100	100			
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays		
	990mm	455mm	535m	159		
Geology	CPU Basinal limestone					
Sub-soil	/					
Peat type	Man-modified					
ECOLOGY						
Ecotopes			**Area (ha)**	**% area** H.I.	P.	
Marginal	Complex 1; Complex 7 + *Cl.*; Complex 7/2 + *Cl.*; Complex 2/3 B.		12.3	22.0	0.0	
Sub-marginal	Complex 7/6/2 B.; Complex 4/7/2; Complex 7/9/6 + *Cl.*		26.6	47.6	0.0	
Sub-central	Complex 7/2/6 + P.; Complex 7/9 + *Cl.*; Complex 10/9.		11.7	21.0	0.0	
Central	Complex 10/14.		4.7	0.0	8.4	
Flushes						
Wooded						
Open water						
Swallow-holes						
Molinia						
Other	*Sphagnum cuspidatum* in-filled old pool		0.1	0.2		
Indicator species (+ = infrequent; ++ = frequent)						
East-west:	*Sphagnum magellanicum (D4, M+, SM+, SC++, C+), Vaccinium oxycoccus (SM+).*					
Disturbance:	*Carex panicea (M+, SM+).*					
HUMAN IMPACT						
Peat cutting						
Original Dome (1848) remaining intact:		8.2%				
Margin actively cut (approx.):		16.4%				
Drainage effects						
Area affected by drains:		91.6%				
Length of functional drains (high bog):		3.0km				
Length of functional drains (cutover bog):		2.1km				
Threat to central/Sub-central by marginal drains:						
Threat to central/Sub-central by surface drains:		Sub-central (new)				
Invasive species and forestry on high bog:		None				
Ownership:		All forestry around the bog is Coillte owned but the high bog is privately owned.				
Special features:		Large proportion of central ecotope.				

11. CLOONEEN BOG, CO. LONGFORD

Grid reference	N070 840			
Status (Cross 1990)	Bii			
Area:	Recent	1840s	Perimeter	
	94.8ha	238.4ha	6.5km	
Altitude (m OD):	Minimum	Maximum	Mean	
	40	40	40	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	924mm	455mm	487mm	159
Geology	ABL Argillaceous bioclastic limestones			
Sub-soil	/			
Peat type	True Midland			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1; Complex 2, R.B.; Complex 6/2.	52.4	55.3	0.0
Sub-marginal	Complex 2/7/9, R.B.; Complex 4/7/2 B.; Complex 4/7, B.; Complex 4/7 + T.P, B.	19.4	20.4	0.0
Sub-central	Complex 7/10 + P.	1.9	2.0	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded	A species rich *Betula* dominated flush	9.6	0.0	10.1
Open water				
Swallow-holes				
Molinia	A *Molinia* dominated flush	11.6	12.2	0.0
Other				

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Sphagnum magellanicum* (SM+, SC+); *Racomitrium lanuginosum* (SM+); *Vaccinium oxycoccus* (F1++, F2+).
Disturbance:	*Carex panicea* (M+, SM+); *Campylopus introflexus* (M+); *Rhynchospora fusca* (SC+).

HUMAN IMPACT

Peat cutting	
Original Dome (1848) remaining intact:	39.8%
Margin actively cut (approx.):	1.6%
Drainage effects	
Area affected by drains:	90.4%
Length of functional drains (high bog):	0.4km
Length of functional drains (cutover bog):	0.6km
Threat to central/Sub-central by marginal drains:	None
Threat to central/Sub-central by surface drains:	None
Invasive species and forestry on the high bog:	
Ownership:	Private
Special features:	Large wooded flush and close to the river Shannon.

12. GOWLAUN BOG, CO. MAYO

Grid reference	G563 045			
Status (Cross 1990)	Bii			
Area:	Recent	1840s	Perimeter	
	193.6ha	270.9ha	11.1km	
Altitude (m OD):	Minimum	Maximum	Mean	
	75	80	77.5	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1159mm	415mm	744mm	177
Geology	LG Lisgorman Shale formation, MO Moy sandstone, BK Bricklieve limestone.			
Sub-soil	/			
Peat type	Man-modified			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 2 R.B.; Complex 7 + *M.*	87.1	45.0	0.0
Sub-marginal	Complex 7/2 R.B.	93.7	48.4	0.0
Sub-central		0.0	0.0	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia		12.8	6.6	0.0
Other				

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Pedicularis sylvatica* (M++), *Racomitrium lanuginosum* (SM+).
Disturbance:	*Carex panicea* (SM++).
HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	71.5%
Margin actively cut (approx.):	3.0%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	4.9km
Length of functional drains (cutover bog):	10.3km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	
Invasive species and forestry:	*Rhododendron ponticum*
Ownership:	Private
Special features:	Adjoins Derranabrock (457) & Kilgarriff (510) & close to Derrykinlough (1899)

13. DERRYKINLOUGH BOG, CO. MAYO

Grid reference	G595 055			
Status (Cross 1990)	Biii			
Area:	Recent	1840s	Perimeter	
	71.2ha	117.6ha	4.5km	
Altitude (m OD):	Minimum	Maximum	Mean	
	94	94	94	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1159mm	415mm	744mm	177
Geology	LG Lisgorman Shale formation			
Sub-soils	/			
Peat type	Man-modified			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 2 recently burnt Complex 7 + Molinia	18.3	25.7	0.0
Sub-marginal	Complex 7/2 recently burnt	38.4	53.9	0.0
Sub-central		6.9	9.7	0.0
Central	Complex 14	1.6	0.0	2.3
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia	Two *Molinia* dominated flushes	4.4	6.2	0.0
Other				

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Pedicularis sylvatica* (SM+, F1+); *Racomitrium lanuginosum* (SC+, C+); *Pleurozia purpurea* (C+), *Campylopus atrovirens* (C+).
Disturbance:	*Carex panicea* (SM++).

HUMAN IMPACT

Peat cutting	
Original Dome (1848) remaining intact:	60.5%
Margin actively cut (approx.):	0.0%
Drainage effects	
Area affected by drains:	97.7%
Length of functional drains (high bog):	4.9km
Length of functional drains (cutover bog):	10.3km
Threat to central/Sub-central by marginal drains:	Sub-central (old)
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry on high bog:	
Ownership:	Private
Special features:	Close to Derranabrock (457), Gowlaun (502) & Kilgarriff (510).

14. KILGARRIFF BOG, CO. MAYO

Grid reference	G572 032			
Status (Cross 1990)	Bii			
Area:	Recent (ha)	1840s (ha)	Perimeter (km)	
	47.0	118.8	4.34	
Altitude (m OD):	Minimum	Maximum	Mean	
	80	80	80	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1159mm	415mm	744mm	177
Geology	LG Lisgorman Shale formation			
Sub-soils	/			
Peat type	Man-modified			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1.	10.7	16.4	6.4
Sub-marginal	Complex 7/21; Complex 7a.	21.9	46.6	0.0
Sub-central	Complex 15.	12.7	27.0	0.0
Central	Complex 14.	1.8	3.8	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Racomitrium lanuginosum* (SM+); *Campylopus atrovirens* (C+); *Sphagnum magellanicum* (C+).
Disturbance:	*Carex panicea (SM+).*

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	39.6%
Margin actively cut (approx.):	7.7%
Drainage effects	
Area affected by drains:	93.6%
Length of functional drains (high bog):	4.9km
Length of functional drains (cutover bog):	10.3km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	
Invasive species and forestry on the high bog:	
Ownership:	Private
Special features:	Natural marginal areas sloping down to stream on the northern side. Close to Derranabrock (457), Gowlaun (502) & Derrykinlough (1899).

15. MOUNT HEVEY BOG, COS. MEATH & WESTMEATH

Grid reference	N630 480			
Status (Cross 1990)	\			
Area:	Recent	1840s	Perimeter	
	200.0ha	541.8ha	15.1km	
Altitude (m OD):	Minimum	Maximum	Mean	
	80	82	81	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	868mm	455mm	413mm	159
Geology	CPL Basinal limestone			
Sub-soils	/			
Peat type	Man-modified			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1; Complex 7; Complex 7/2; Complex 7 + Pines; Complex 7/6/2; Complex 9/2/7; Complex 2/7; Complex 2; Complex 2 B; Complex 2/7/6; Complex 7/6/2 B.; Complex 6/4/2 R.B.; Complex 7/6/4/2; Complex 7/6; Complex 4; Complex 7/9/2.	67.6	33.8	0.0
Sub-marginal	Complex 10/4/7 + A.P.; Complex 7/10/9 B.; Complex 7/9 + *Cl.*; Complex 7/10/6; Complex 7/9/10.	55.6	27.8	0.0
Sub-central	Complex 9/7; Complex 10/4/7; Complex 7/10/9 + *Cl.*; Complex 7/10/9 + P.; Complex 14/7/9; Complex 10/7/9.	53.2	26.6	0.0
Central	Complex 14/10/7.	9.7	0.0	4.9
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other	In-filled lake with *Calluna*, *Sphagnum* and *Betula*.	1.0	0.5	

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Vaccinium oxycoccus* (M+); *Sphagnum magellanicum* (M+, SM++, SC++, C++).
Disturbance:	*Campylopus introflexus* (M++, SM+, SC+, C+); *Carex panicea* (M+).

HUMAN IMPACT	
Peat cutting	
% of Original Dome (1848) remaining intact:	36.9%
% of Margin actively cut (approx.):	8.1%
Drainage effects	
Area affected by drains:	95.1%
Length of functional drains (high bog):	2.6km
Length of functional drains (cutover bog):	12.0km
Threat to central/Sub-central by marginal drains:	Sub-central (old)
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry on high bog:	*Picea sitchensis, Pinus contorta, Betula pubescens* and *Pinus sylvestris*.
Ownership:	Coillte and private.
Special features:	The in-filled Cloncrave Lough and the 150 year old abandoned cutaway on northern border. Close to the Royal Canal (2103).

16. GIRLEY BOG, CO. MEATH						
Grid reference	N700 700					
Status	\					
Area:	Recent	1840s	Perimeter			
	68.4ha	188.9ha	5.1km			
Altitude (m OD):	Minimum	Maximum	Mean			
	80	80	80			
Climate:	Precipitation	Evapotranspiration	Effective rainfall		Raindays	
	831mm	455mm	376mm		159	
Geology	CPU Basinal limestones					
Sub-soil	True Midland/Man-modified					
ECOLOGY						
Ecotopes			**Area (ha)**	**% area** H.I.	P.	
Marginal	Complex 1; Complex 2; Complex 7; Complex 7/2; Complex 7/2/6 B.; Complex 7/6 + *Cl.* + T.P.		6.8	10.0	0.0	
Sub-marginal	Complex 7 + *Cl.*; Complex 7 + *Cl.* + Pines; Complex 7/10/9 B; Complex 7/10/9 + Pines.		42.4	62.0	0.0	
Sub-central	Complex 10/7/9 + P.		1.8	2.6	0.0	
Central			0.0	0.0	0.0	
Flushes						
Wooded						
Open water						
Swallow-holes						
Molinia						
Other						
Indicator species (+ = infrequent; ++ = frequent)						
East-west:	*Sphagnum magellanicum* (D6, D10, D22, M++, SM++, SC++); *Vaccinium oxycoccus* (SM+).					
Disturbance:	*Campylopus introflexus* (M+).					
HUMAN IMPACT						
Peat cutting						
Original Dome (1848) remaining intact:		36.2%				
Margin actively cut (approx.):		10.9%				
Drainage effects						
Area affected by drains:		100.0%				
Length of functional drains (high bog):		8.8km				
Length of functional drains (cutover bog):		0.8km				
Threat to central/Sub-central by marginal drains:						
Threat to central/Sub-central by surface drains:		Sub-central (old)				
Invasive species and forestry:		*Pinus sylvestris* and *P. contorta*				
Ownership:		An Taisce				
Special features:						

17. DAINGEAN BOG, CO. OFFALY

Grid reference	N446 260			
Status	\			
Area:	Recent	1840s	Perimeter	
	89.1ha	189.0ha	4.5km	
Altitude (m OD):	Minimum	Maximum	Mean	
	88	90	89	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	838.0mm	455.0mm	383.0mm	159
Geology	CPU/CPL Basinal limestones			
Sub-soils	/			
Peat type	Man-modified/True Midland types			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 7.	42.7	47.9	0.0
Sub-marginal	Complex 4/7.	46.4	52.1	0.0
Sub-central		0.0	0.0	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Sphagnum magellanicum* (SM+); *Vaccinium oxycoccus* (SM+).
Disturbance:	*Campylopus introflexus* (SM++).

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	47.1%
Margin actively cut (approx.):	0.0%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	0.4km
Length of functional drains (cutover bog):	1.6km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	
Invasive species and forestry:	*Rhododendron ponticum* and *Pinus sylvestris.*
Ownership:	Private
Special features:	Close to the Grand Canal (2104).

18. CLONYDONNIN BOG, COS. WESTMEATH & OFFALY

Grid reference	N122 335			
Status (Cross 1990)	Bii			
Area:	Recent	1840s	Perimeter	
	95.1ha	164.1ha	5.2ha	
Altitude (m OD):	Minimum	Maximum	Mean	
	50	63	56.5	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	939.0mm	454.0mm	485.0mm	150
Geology	ABL Argillaceous Bioclastic Limestones			
Sub-soil	/			
Peat type	Man-modified			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1; Complex 2; Complex 7; Complex 7/3.	29.2	30.7	0.0
Sub-marginal	Complex 7/3/10; Complex 7/3a/9 B; Tear Pools.	33.3	35.0	0.0
Sub-central	Complex 7/10/9 + *Cl.*; Complex 10/9/7; Complex 7/9/10 + *Cl.*; Complex 14/7/9 + *Cl.*	32.6	34.3	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+=infrequent; ++=frequent)	
East-west:	*Sphagnum magellanicum* (SM+).
Disturbance:	*Campylopus introflexus* (D5, M+, SM+); *Carex panicea* (M++, SM+, SC+).
HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	58.0%
Margin actively cut (approx.):	6.4%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	8.0km
Length of functional drains (cutover bog):	1.2km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Sub-central (new)
Invasive species and forestry:	*Pinus sylvestris*
Ownership:	Bórd na Mona and Private
Special features:	Secondary re-wetting from flooded drains.

19. DERRYCANAN BOG,CO. ROSCOMMON				
Grid reference	M905 725			
Status (Cross 1990)	Bii			
Area:	Recent	1840s	Perimeter	
	174.3ha	516.1ha	15.1km	
Altitude (m OD):	Minimum	Maximum	Mean	
	55	55	55	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1022mm	415mm	607mm	177
Geology	Greenshale limestone drift			
Sub-soil	/			
Peat type	Man-modified			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1; Complex 2/3; Complex 3/7; Complex 2/7 + *Cl.;* Complex 3/6/7; Complex 3/6/7 + TP; Complex 4/7; Complex 7; Complex 7/2.	104.0	59.7	0.0
Sub-marginal	Complex 3/7/10 + TP; Complex 7/10; Complex 7/9/10 + *Cl.* + TP; Complex 10/2; Complex 3/7/10.	69.7	40.0	0.0
Sub-central		0.0	0.0	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes	A small flush consisting of a series of swallow-holes.			
Molinia	A big *Molinia* dominated flush.	3.6	2.1	0.0
Other				
Indicator species (+ = infrequent; ++ = frequent)				
East-west:	*Sphagnum magellanicum* (D11, M+, SM+); *Pleurozia purpurea* (M+); *Racomitrium lanuginosum* (M+); *S. auriculatum* (M+).			
Disturbance:	*Carex panicea* (M++, SM++); *Campylopus introflexus* (M+).			

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	33.8%
Margin actively cut (approx.):	10.3%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	3.3km
Length of functional drains (cutover bog):	4.5km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	
Invasive species and forestry:	
Ownership:	Private
Special features:	

20. BALLYNAMONA BOG, CO. ROSCOMMON				
Grid reference	M940 430			
Status (Cross 1990)	Bii			
Area:	Recent	1840s	Perimeter	
	61.0ha	284.6ha	3.7km	
Altitude (m OD):	Minimum	Maximum	Mean	
	60	60	60	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	1008.0mm	415.0mm	593.0mm	159
Geology	Grey limestone			
Sub-soil	/			
Peat type	Man modified			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1; Complex 3; Complex 7/3/6; Complex 2/7; Complex 7/3 + *E.a*; Complex 7/3.	9.9	16.2	0.0
Sub-marginal	Complex 7/3/6 + P - B.; Complex 7/3/6 + P.	29.4	48.2	0.0
Sub-central		0.0	0.0	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded	A large *Betula* dominated flush surrounded by a *Sphagnum*-rich dominated flush.	21.7	0.0	35.6
Open water				
Swallow-holes				
Molinia				
Other				
Indicator species (+ = infrequent; ++ = frequent)				
East-west:	*Vaccinium oxycoccus* (M+, F1+); *Sphagnum magellanicum* (M+, SM+, F1++).			
Disturbance:	*Carex panicea* (M++, SM++, F1+); *Campylopus introflexus* (F1+).			

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	21.4%
Margin actively cut (approx.):	12.0%
Drainage effects	
Area affected by drains:	64.4%
Length of functional drains (high bog):	1.3km
Length of functional drains (cutover bog):	4.4km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	
Invasive species and forestry:	
Ownership:	Private
Special features:	Large wooded and treeless flush.

21. TULLAGHANROCK BOG, CO. ROSCOMMON

Grid reference	M650 960				
Status (Cross 1990)	\				
Area:	Recent (ha)	1840s (ha)	Perimeter (km)		
	67.40	101.40	3.61		
Altitude (m OD):	Minimum	Maximum	Mean		
	69	69	69		
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays	
	1159.0mm	415.0mm	744.0mm	177	
Geology	Yellow-grey carboniferous sandstone & boulder clay drift.				
Sub-soil	/				
Peat type	Transitional/Man-modified.				

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 7.	13.7	20.3	0.0
Sub-marginal	Complex 2/7.	34.7	51.5	0.0
Sub-central	Complex 10/15.	7.9	11.7	0.0
Central	Complex 10/14.	2.8	4.2	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other	Two small *Calluna* and *Molinia* dominated flushes.	4.8	7.1	0.0
Indicator species (+ = infrequent; ++ = frequent)				
East-west:	*Sphagnum magellanicum* (SM++, SC++, C++); *Pedicularis sylvatica* (SM++, C+).			
Disturbance:	*Carex panicea* (SM++).			

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	33.5%
Margin actively cut (approx.):	0.0%
Drainage effects	
Area affected by drains:	%
Length of functional drains (high bog):	2.2km
Length of functional drains (cutover bog):	4.3km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry:	
Ownership:	Private
Special features:	Semi-natural margins down to the Lung river along the southern edge. Close to Lough Gara complex (587).

22. CLOONGOONAGH BOG, CO. SLIGO

Grid reference	G445 070				
Status (Cross 1990)	Biii				
Area:	Recent	1840s	Perimeter		
	166.1ha	522.1ha	6.78km		
Altitude (m OD):	Minimum	Maximum	Mean		
	57	57	57		
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays	
	1632.0mm	415.0mm	1217.0mm	177	
Geology	LG Lisgorman shale and OK Oakpark limestone				
Sub-soil	/				
Peat type	Man-modified				

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 7.	102.4	61.6	0.0
Sub-marginal	Complex 2; Complex 2/3 + *Cl.* + TP.	42.5	25.6	0.0
Sub-central	Complex 7/9 + *Cl.;* Complex 7/9 + *Cl.* - RB.	14.3	8.6	0.0
Central	Complex 10/7/15.	0.3	0.2	0.0
Flushes				
Wooded				
Open water				
Swallow-holes	*Myrica* dominated vegetation over a series of swallow-holes.	6.6	0.0	4.0
Molinia				
Other				
Indicator species (+ = infrequent; ++ = frequent)				
East-west:	*Pedicularis sylvatica* (SM+); *Campylopus atrovirens* (SM+); *Sphagnum magellanicum* (SM+, SC+, C++); *Racomitrium lanuginosum* (SM+); *Pleurozia purpurea* (SM+).			
Disturbance:	*Carex panicea* (SM++, SC++); *Rhynchospora fusca* (SM+).			

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	31.8%
Margin actively cut (approx.):	4.10%
Drainage effects	
Area affected by drains:	96.0%
Length of functional drains (high bog):	2.1km
Length of functional drains (cutover bog):	5.3km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry on high bog:	*Rhododendron ponticum*
Ownership:	Private
Special features:	Wet, regenerating old cutaway along the eastern margins.

23. SCOHABOY BOG, CO. TIPPERARY

Grid reference	R960 920			
Status (Cross 1990)	Bi			
Area:	Recent	1840s	Perimeter	
	214.2ha	400.0ha	7.9km	
Altitude (m OD):	Minimum	Maximum	Mean	
	79	79	79	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	881.0mm	454.0mm	427.0mm	150
Geology	AW Allenwood formation, WA Waulsortian limestone formation			
Sub-soil	/			
Peat type	Man-modified			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 7; Complex 2; Complex 4/2; Complex 6 R.B.; Complex 6/3; Complex 6/7; Complex 6/7/9; Complex 7; Complex 7/3; Complex 7/6 + Cl.; Complex 7/6/2.	103.7	48.4	0.0
Sub-marginal	Complex 4/3 + A.P.; Complex 4/7; Complex 7/6; Complex 7/9; Complex 7/9/2 + T.P.; Complex 7/9/6 + Cl.; Complex 7/9/6 + Cl. + T.P.; Complex 9/7; Complex 9/7 + P.	64.5	30.1	0.0
Sub-central	Complex 7/6 + A.P.	6.3	2.9	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+=infrequent; ++=frequent)	
East-west:	*Racomitrium lanuginosum* (M+); *Vaccinium oxycoccus* (SM+); *Sphagnum magellanicum* (SM+).
Disturbance:	*Carex panicea* (M++, SM++).
HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	53.5%
Margin actively cut (approx.):	1.4%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	1.9km
Length of functional drains (cutover bog):	1.9km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Sub-central (old and new)
Invasive species and forestry on high bog:	*Pinus contorta*
Ownership:	Coillte and private
Special features:	

24. TIMONEY BOG, CO. TIPPERARY

Grid reference	S180 870			
Status (Cross 1990)	\			
Area:	Recent	1840s	Perimeter	
	95.3ha	465.0ha	4.2km	
Altitude (m OD):	Minimum	Maximum	Mean	
	110	110	110	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	882.0mm	454.0mm	428.0mm	150
Geology	Old Red sandstone and ABL Argillaceous bioclastic limestone			
Sub-soil	Man-modifed			

ECOLOGY

Ecotopes		Area (ha)	% area H.I.	P.
Marginal	Complex 6/4/7 - B.; Complex 7/6/3 - B.; Complex 7/6 - B.	49.5	51.9	0.0
Sub-marginal	Complex 6/7/9 - B.; Complex 9 + *E.t.* + *E.a.* - B.	34.7	36.4	0.0
Sub-central	Complex 10/9/7.	4.4	4.6	0.0
Central		0.0	0.0	
Flushes				
Wooded	Two Pine dominated flushes.	4.8	0.0	5.0
Open water				
Swallow-holes				
Molinia				
Other	A small *Myrica* dominated flush.			

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Sphagnum magellanicum* (SC+); *Vaccinium oxycoccus* (SC+, F1+).
Disturbance:	*Campylopus introflexus* (M+); *Carex panicea* (M+, SM+).

HUMAN IMPACT

Peat cutting	
Original Dome (1848) remaining intact:	20.5%
Margin actively cut (approx.):	3.7%
Drainage effects	
Area affected by drains:	95.0%
Length of functional drains (high bog):	8.3km
Length of functional drains (cutover bog):	4.2km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry on high bog:	
Ownership:	Private
Special features:	Two large *Pinus* flushes.

25. CARN PARK BOG, CO. WESTMEATH

Grid reference	N115 420			
Status (Cross 1990)	Bii			
Area:	Recent	1840s	Perimeter	
	156.4ha	358.4ha	8.1km	
Altitude (m OD):	Minimum	Maximum	Mean	
	60	60	60	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	925.0mm	455.0mm	470.0mm	159
Geology	CPL Basinal limestone			
Sub-soil	/			
Peat type	Man-modified/True Midland			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 3/7 + *Cl.*; Complex 3/7 + *Myrica*; Complex 3/7 + *Myrica*; Complex 7/3 + *Cl.*; Complex 7/3 + Pines.	77.6	49.6	0.0
Sub-marginal	Complex 7 + *Cl.* + *E.a.* + Pines; Complex 10/9/7 + *Cl.*	6.6	4.2	0.0
Sub-central	Complex 10/9/7 + Cl. + Pools.	38.0	24.3	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Sphagnum magellanicum* (D7, M+, SM+, SC++); *Pleurozia purpurea* (M+).
Disturbance:	*Carex panicea* (M++, SM+, SC+); *Campylopus introflexus* (M+, SM+).
HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	43.6%
Margin actively cut (approx.):	9.7%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	4.8km
Length of functional drains (cutover bog):	3.2km
Threat to central/Sub-central by marginal drains:	Sub-central (new)
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry on high bog:	*Pinus contorta* plantations
Ownership:	Coillte and private
Special features:	An abundance of *Sphagnum pulchrum*

26. BALLYNAGRENIA BOG, CO. WESTMEATH

Grid reference	N210 410			
Status	\			
Area:	Recent	1840s*	Perimeter	
	130.4ha	500.0ha	5.78km	
Altitude (m OD):	Minimum	Maximum	Mean	
	80	80	80	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	946.0mm	455.0mm	491.0mm	159
Geology	APL Argillaceous bioclastic limestones			
Sub-soils	/			
Peat type	Man-modified			

ECOLOGY				
Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 1; Complex 2; Complex 2/7; Complex 2/7 - B; Complex 3/7/2; Complex 7 - B; Complex 7/6 - B.	45.8	35.1	0.0
Sub-marginal	Complex 10/7/3 - B.	26.4	20.2	0.0
Sub-central	Complex 10/7/9 - B (1); Complex 10/7/9; Complex 10/7/9; Complex 10/14 - B.	56.1	43.2	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other	Two *Calluna* dominated flushes and one small *Pteridium* dominated flush.	2.1	1.6	0.0
Indicator species (+ = infrequent; ++ = frequent)				
East-west:	*Sphagnum magellanicum* (D1+, D13+, M++, SM+, SC++).			
Disturbance:	*Carex panicea* (M++, SM+, SC++); *Campylopus introflexus* (M+, SM+, F2++).			

HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	34.8%*
Margin actively cut (approx.):	12.5%
Drainage effects	
% area affected by drains:	100.0%
Length of functional drains (high bog):	6.2km
Length of functional drains (cutover bog):	1.5km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Sub-central (old and new)
Invasive species and forestry:	
Ownership:	Private
Special features:	Circular outcrop of *Calluna vulgaris* in centre of bog.

* Ballynagrenia and Ballinderry were originally one bog

27. BALLINDERRY BOG, CO. WESTMEATH

Grid reference	N210 410			
Status (Cross 1990)	Bii			
Area:	Recent (ha)	1840s (ha)*	Perimeter (km)	
	43.7	500.0	2.89	
Altitude (m OD):	Minimum	Maximum	Mean	
	75	75	75	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	946.0mm	455.0mm	491.0mm	159
Geology	ABL Argillaceous bioclastic limestone			
Sub-soil	/			
Peat type	Man-modified/True Midland			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 7; Complex 7/6 - B. + *Myrica*; Complex 7/6; Complex 2.	15.0	34.3	0.0
Sub-marginal	Complex 7/6/2 - B.	18.4	42.1	0.0
Sub-central	Complex 7/9/10 - B; Complex 10/7/9/2 - B; Complex 14/7/9.	10.3	23.6	0.0
Central		0.0	0.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Sphagnum magellanicum* (SC++); *Vaccinium oxycoccus* (SC+).
Disturbance:	*Campylopus introflexus* (M+, SM+, SC+); *Carex panicea* (M+, SM+, SC+).

HUMAN IMPACT

Peat cutting	
Original Dome (1848) remaining intact:	34.8%*
Margin actively cut (approx.):	73.1%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	0.7km
Length of functional drains (cutover bog):	2.2km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Sub-central (old)
Invasive species and forestry:	*Rhododendron ponticum*
Ownership:	Private
Special features:	

* Ballinderry and Ballynagrenia were once the same bog

28. MONEYBEG BOG, COS. MEATH & WESTMEATH

Grid reference	N452 815			
Status (Cross 1990)	Biii			
Area:	Recent	1840s	Perimeter	
	74.4ha	298.3ha	4.7km	
Altitude (m OD):	Minimum	Maximum	Mean	
	80	80	80	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	931.0mm	455.0mm	476.0mm	159
Geology	CPU Basinal limestone and SHU Shallow water limestone			
Sub-soils	/			
Peat type	True Midland/Man-modified			

ECOLOGY

Ecotopes		**Area (ha)**	**% area** H.I.	P.
Marginal	Complex 7; Complex 7/6/3; Complex 7/2+ Pines; Complex 7/2; Complex 4/2 B.	22.7	30.5	0.0
Sub-marginal	Complex 7/10; Complex 7/9 + *Cl.* + TP.	32.1	43.1	0.0
Sub-central	Complex 9/7 + *Cl.* + TP; Complex 10/7/4 B.	10.0	13.4	0.0
Central	Complex 14/7.	8.9	12.0	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+ = infrequent; ++ = frequent)	
East-west:	*Sphagnum magellanicum* (D2, D3, D7, M+, SM+, C++); *Vaccinium oxycoccus* (M+).
Disturbance:	*Carex panicea* (M++, SM+), *Campylopus introflexus* (M++, SC+).

HUMAN IMPACT

Peat cutting	
Original Dome (1848) remaining intact:	24.9%
Margin actively cut (approx.):	41.5%
Drainage effects	
Area affected by drains:	100.0%
Length of functional drains (high bog):	3.8km
Length of functional drains (cutover bog):	1.0km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Central and Sub-central (old)
Invasive species and forestry:	
Ownership:	Private
Special features:	A mineral soil mound (0.70ha, 0.94%). Part of the Lough Sheelin NHA complex.

29. CLAREISLAND BOG, CO. WESTMEATH

Grid reference	N425 815			
Status (Cross 1990)	Biii			
Area:	Recent	1840s	Perimeter	
	69.0ha	178.5ha	4.7km	
Altitude (m OD):	Minimum	Maximum	Mean	
	70	70	70	
Climate:	Precipitation	Evapotranspiration	Effective rainfall	Wetdays
	931.0mm	455.0mm	476.0mm	159
Geology	CPU Basinal limestone			
Sub-soil	/			
Peat type	True Midland			

ECOLOGY

Ecotopes		Area (ha)	% area H.I.	P.
Marginal	Complex 1; Complex 2; Complex 4 + *E.a.* + *E.t.*	13.3	10.5	8.8
Sub-marginal	Complex 7 +Cl.; Complex 7/6 + *E.t.*; Complex 7/6/10.	32.5	47.1	0.0
Sub-central	Complex 7/9/10; Complex 15/7/9.	20.4	29.6	0.0
Central	Complex 14/7/9.	2.8	4.1	0.0
Flushes				
Wooded				
Open water				
Swallow-holes				
Molinia				
Other				

Indicator species (+=infrequent; ++=frequent)	
East-west:	*Sphagnum magellanicum* (D8+, SM+, SC+, C++); *Vaccinium oxycoccus* (C+).
Disturbance:	*Campylopus introflexus* (M+).
HUMAN IMPACT	
Peat cutting	
Original Dome (1848) remaining intact:	38.7%
Margin actively cut (approx.):	15.3%
Drainage effects	
Area affected by drains:	91.2%
Length of functional drains (high bog):	3.6km
Length of functional drains (cutover bog):	1.7km
Threat to central/Sub-central by marginal drains:	
Threat to central/Sub-central by surface drains:	Central and sub-central (old)
Invasive species and forestry:	
Ownership:	Private
Special features:	Natural margins down to Lough Sheelin.

6. SITE SELECTION FOR CONSERVATION/RESTORATION AND DESIGNATION AS SITES OF COMMUNITY IMPORTANCE (POTENTIAL SPECIAL AREAS OF CONSERVATION)

The aim of this project is the conservation and restoration of sites which are considered to represent the range of Raised bogs remaining in the country in addition to the 48 sites proposed in the 1995 report by Kelly, Doak and Dromey. In 1992 the European Community issued Council Directive 92/43/EEC (otherwise known as the Habitats Directive) which requires each member state to designate Sites of Community Importance (SCIs) or proposed Special Areas of Conservation (SACs) which contain the habitats listed in Annex I and the species listed in Annex II. The aim is to form a coherent ecological network to help maintain biodiversity with the European Community. This designation of sites is taking place under the general heading of NATURA 2000.

The habitats listed in Annex I of the Habitats Directive which were encountered during this survey are as follows:

- 7110 Active Raised Bog (priority)
- 7120 Degraded Raised Bog
- 91D0 Bog Woodland (priority)
- 4030 Dry Heath

The sites assessed during this project were examined and selected for conservation/restoration and for designation as proposed active or degraded SACs (most of these sites would be for degraded SACs).

6.1 SITE SELECTION

6.1.1 Representativity

A number of criteria were considered important in the selection of sites.

VEGETATION

- Primary Central complexes
- Secondary Central complexes
- Flushes, fens and laggs
- East/West and North/South indicator species
- Adjacent NHA or NHA complex sites

PHYSICAL SYSTEM

- Geomorphic classification
- Climate
- Altitude
- General site condition
- Restoration possibilities

6.1.1.1 *Vegetation*

Primary Central complexes and Secondary Central complexes

The variation in different central vegetation types must be covered in order to ensure an adequate representivity of the wet central core of Raised Bogs. Primary Central complexes are considered to be the most important as they represent the type of vegetation cover that one would expect to see covering a large proportion of an undisturbed Raised Bog. Secondary Central complexes are also of importance but have a lower priority as the bog will have gone through a period of drying.

Sites with Central complexes (primary and secondary) and the vegetation complexes present in each are shown in Table 6.1. A Central ecotope is termed primary when there is an absence of human-induced disturbance and secondary when there is evidence of human-induced disturbance.

TABLE 6.1 Presence of Central Ecotopes on Sites

Sites	Primary Complexes	Secondary Complexes	Area (ha)
Mouds	10		15.0
Cloonshannagh	10/14		4.7
Derrykinlough	14		1.6
Kilgarriff		14	1.8
Mount Hevey	14/10/7		9.7
Tullaghan Rock		10/14	2.8
Cloongoonagh		10/7/15	0.3
Moneybeg		14/7	8.9
Clareisland		14/7/9	2.8

Four sites, Mouds, Cloonshannagh, Derrykinlough and Mount Hevey, were selected on the basis of their primary Central complexes. Of these sites, Mouds, Cloonshannagh and Mount Hevey have already been selected along with Monbeybeg on the basis of the area (>4ha) of their central complex. A further site, Clareisland, was selected on the basis of its secondary Central complex as this complex was not represented in the primary list.

Flushes, fens and laggs

The areas of flush vegetation which were recorded on the vegetation survey were divided into four different types: Wooded; Open water; Swallow-holes; *Molinia* and Other. The sites in which these flushes occur are listed in Table 6.2.

TABLE 6.2 Flush Vegetation on surveyed Sites.

Sites	Wooded	Open-water	Swallow-holes	Molinia	Other
Monmore		*		*	
Cloonmore/Cloonfelley			*		
Eskerboy				*	* (*My.*)
Ballygar	* (*B.*)			*	* (*My.*)
Killeragh					* (*C.*)
Mouds				*	* (*My.*)
Coolrain	* (*P.*)				
Cloonshannagh					* (*S.*)
Clooneen	* (*B.*)			*	
Derrykinlough				*	
Gowlaun				*	
Mount Hevey					* (I.L.)
Daingean				*	
Derrycanan			*	*	
Ballynamona	* (*B.*)			*	* (*S.*)
Tullaghan Rock					* (C. & M.)
Cloongoonagh			*		
Timoney	*(*P.*)			*	
Ballynagrenia					* (*C.* & *Pt.*)

B. = *Betula pubescens*; *P.* = *Pinus sylvestris*; *My.* = *Myrica gale*; *S.* = *Sphagnum* species; *C.* = *Calluna vulgaris*; *M.* = *Molinia caerulea*; *Pt.* = *Pteridium aquilinum*; I.L. = In-filled lake.

Some flush types represent habitats listed in Annex I of the Council Directive 94/33/EEC. Bog Woodland (91D0) is a priority habitat. Ballynamona and Clooneen were selected due to the presence of large *Betula*-dominated flushes. *Pinus*-dominated flushes are not as important as *Betula*-dominated flushes and only one site, Coolrain, was selected for this as it had several good examples of wet *Pinus* flushes.

East/West and North/South indicator species
Raised bogs are divided into Midland and Western sub-types and this division is based on the relationship between climate and phytosociology. The presence or absence of the species listed below provides an indication of the sub-type of Raised bog. The significance of these indicator species is described in Kelly, Doak and Dromey (1995).

In reality there is no clear division between the midland and western sub-types but a continuation east to west across the country. Indicator species were used to ensure that this full continuum of bogs was covered in this report.

Pleurozia purpurea (West);
Racomitrium lanuginosum (West & North);
Campylopus atrovirens (West);
Carex panicea (West);
Pedicularis sylvatica (West);
Sphagnum magellanicum (Midland);
Andromeda polifolia (Midland);
Vaccinium oxycoccus (Midland).

The presence or absence of these species in the Central ecotope vegetation complexes was noted at each site. Results are shown in Table 6.3. The indicator species found on this survey divide the sites into three classes:

- An eastern group with no western indicators
- A western group with eastern indicators at low frequencies
- A western group with all western indicators.

The spread of sites already selected for the three previous criteria was checked to ensure that representatives had been chosen from each of the groupings. The only grouping not covered was the western group with eastern indicators at low frequency. One site, Kilgarriff, was selected for this group, this site has already been selected for having >25% central and sub-central ecotopes present.

Adjacent NHA or NHA complex sites
From a nature conservation point of view, sites which closely adjoin other important sites can act as support systems. Using the proposed NHA maps, each site was examined to see if it was part of a larger system or close (<1km away) to other proposed NHA sites. Sites in this survey adjoining other NHAs are as follows:

- Clare
  Monmore Bog (70) is 1km inland from Doonbeg sand-dunes (200).

- Galway
  Killeragh (284) is close to the river Shannon (2059).
  Aughrim (1227) is close to Ballygar and the river Suck Callows.
  Ballygar (229) is close to Aughrim and the river Suck Callows.

- Kildare
  Mouds Bog is close to the river Liffey near Newbridge town.

- Laois
  Coolrain bog is close to the river Nore

Longford
Clooneen (445) adjoins the river Shannon and Lough Forbes (1918).

- Mayo
  Gowlaun (502) and Kilgarriff (510) adjoin Derrynabrock (457) and are close to Tawnaghbeg (547).

- Offaly
  Daingean bog is beside the Grand Canal (2104).

- Roscommon
  Ballynamona is just east of Corkip turlough (1628).
  Tullaghan Rock bog (2013) is close to Lough Gara complex (587).

- Tipperary
  Timoney bog is beside the river Nore and Monaincha bog (583) is less than 1km away to the north.

- Westmeath
  Ballynagrenia and Ballinderry are included in the same NHA (674) and NHA (1713) is just south-west.
  Carn Park bog is 1km north-east of NHA (678).
  Mount Hevey is beside the Royal Canal (2103).
  Moneybeg and Clareisland are both included in the Lough Sheelin NHA (987).

Only two sites, Gowlaun and Ballinderry, which had not previously been selected were picked for their proximity to other NHAs, both being part of larger complexes.

6.1.1.2 *Physical System*

Geomorphic classification
Using the 1995 report as a guide, the sites surveyed were grouped into five geomorphic categories based on information obtained in the field and from the 1840s geology maps. These five categories are:

- Broad floodplain
- Ridge river (A, B, & C)
- Basin
- Ridge Basin
- Blanket

Tullaghan Rock was selected as a very good example of a ridge river bog type with semi-intact margins. Underlying geology and geographic location were also used as selection criteria. Two sites Monmore and Coolrain which have previously been selected had unique geologies in the list. Also Monmore's extreme westerly location was an important selection criterion.

Climate
Rainfall and altitude data were collected for each site and used to plot two graphs (Figs 6.2 & 6.3). These were used to ensure that a wide range of climatological conditions were represented in this survey. Cloongoonagh, having the highest rainfall was selected.

Figure 6.1 Graph of Rainfall range for the Bogs Under Study

Figure 6.1 Graph of Rainfall range for the Bogs Under Study

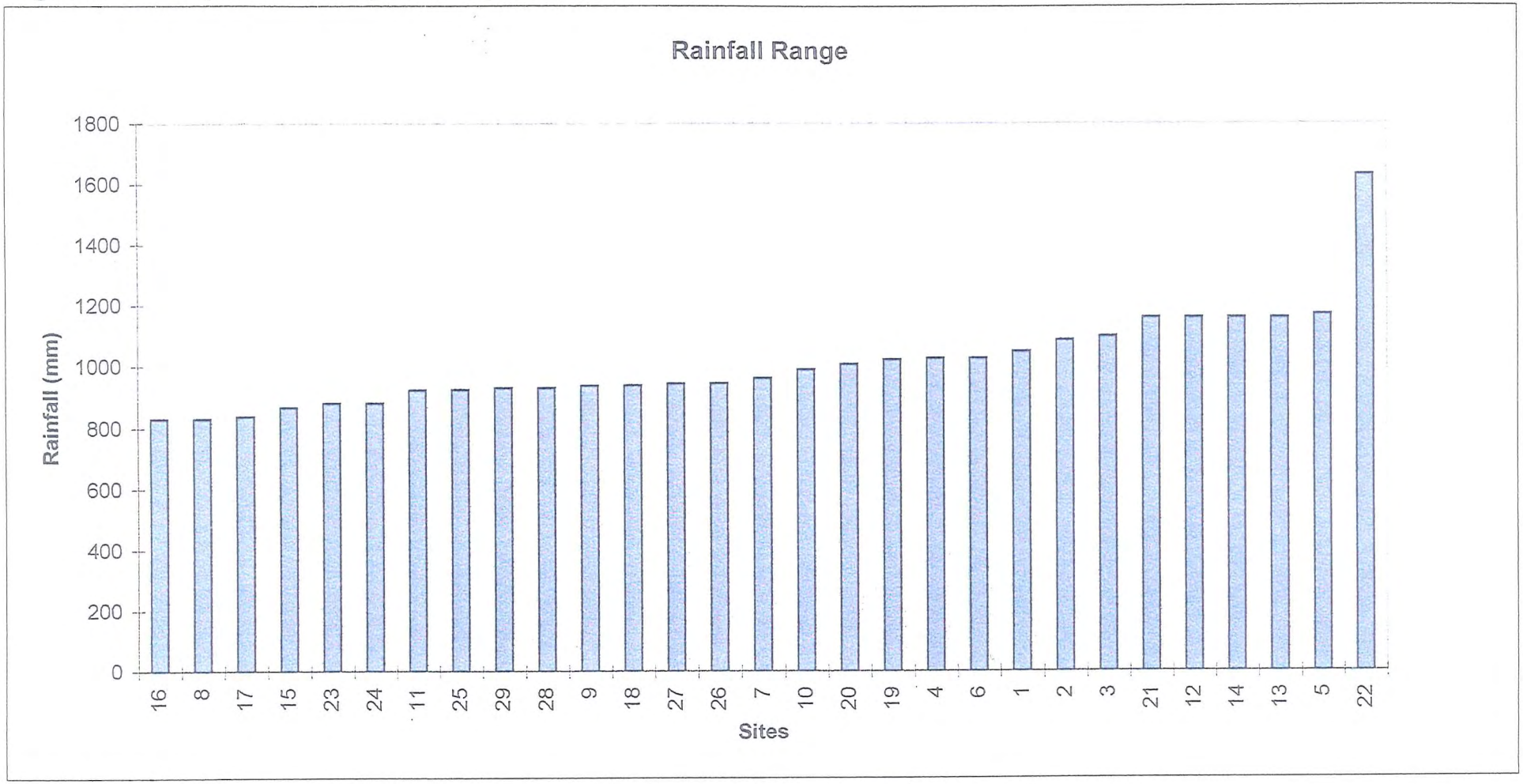
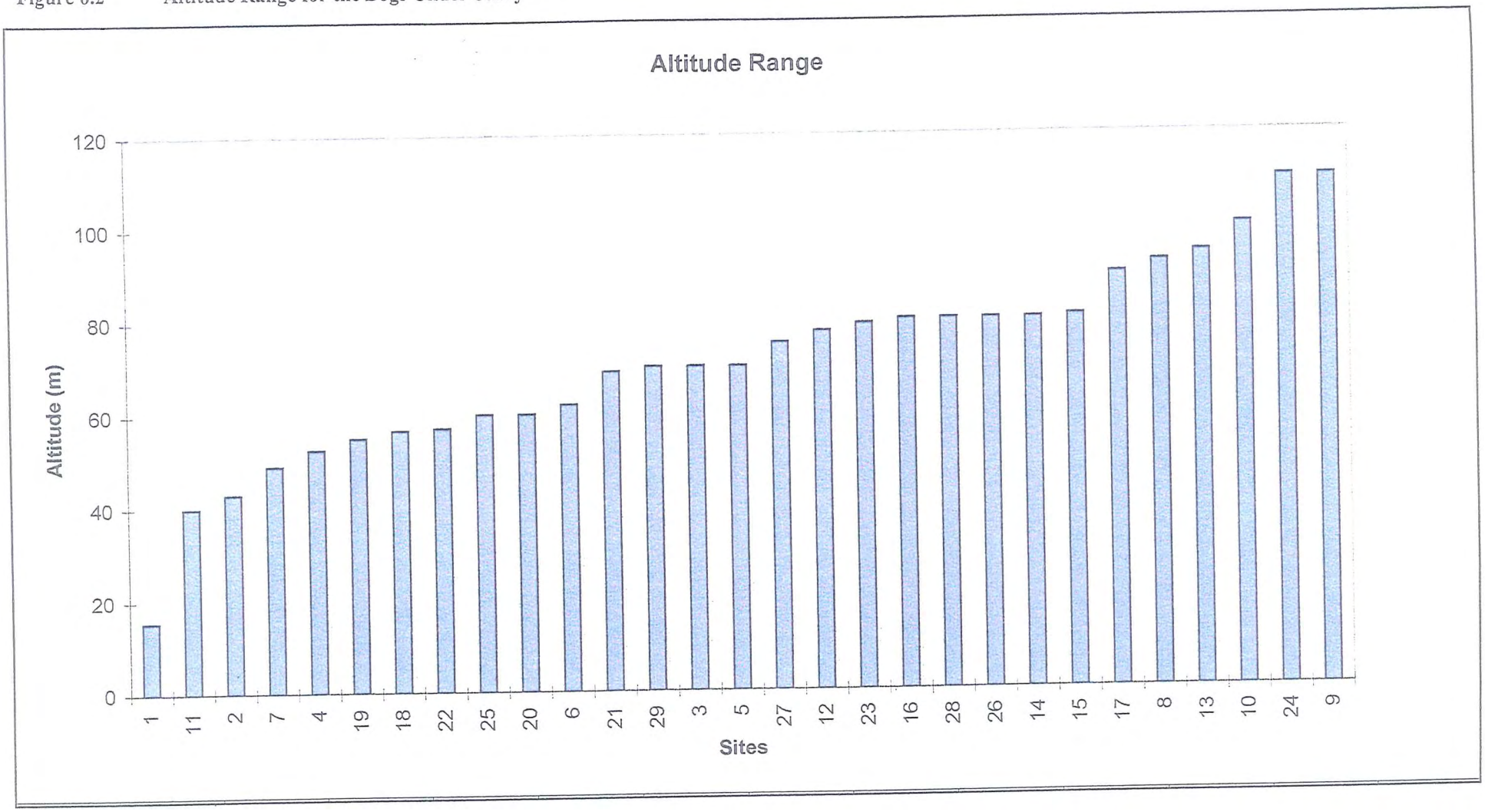


Figure 6.2 **Altitude Range for the Bogs Under Study**

Figure 6.2 Altitude Range for the Bogs Under Study



6.2 SELECTED SITES

All sites selected are shown in Table 6.8 with selection criteria indicated. A more detailed table showing the feature or features for which the site was selected is shown in Table 6.9.

Vegetation
Six sites were selected to represent the variation of central complexes in this survey. Four of these have primary central complexes (Table 6.1) and four have >4ha of central ecotope (active raised bog).

Geomorphic Setting
One site was selected for its underlying geology and far-western occurrence (Monmore). Another site Tullaghan Rock was selected for its northerly location and its geomorphic classification as a ridge-river classed bog with semi-intact margins.

Climate
One site was selected to represent rainfall range (Cloongoonagh) and none were selected for altitude range.

Restoration Potential
The remaining seven sites were selected on their restoration potential, this could be divided into high bog restoration and bog margin restoration. Selection depended on the presence of slopes and drains suitable for restoration work. The restoration potential of each site is outlined in Section 6.3.

General site condition

All sites were ranked according to their general site condition as described below. This was used to compare the quality of sites to each other.

Structure Index
The most important vegetation complex of the site is the primary central complex. Flushed areas and any primary sub-central, sub-marginal and marginal ecotopes are also of importance. The present extent of these complexes gives an indication of how much human influence the site has suffered. To give an indication of the amount of interference all the secondary complexes and the area of bog which has been cutaway is calculated (based on the 1840s maps). A measure of the degree of conservation of structure can be estimated using the following formula.

$$\frac{\text{All primary complexes (including flushes)}}{\text{All secondary complexes and area of cutaway}} \times 100$$

The results of this analysis are shown in Table 6.4 where the sites are ranked according to their score. The sites are divided into three groups depending on their score:

I Good structure
II Medium structure
III Poor structure

Ten sites attain Rank II, medium structure index (Table 6.4).

Conservation of function index

An index was developed to give some indication of whether the remaining high bog was still drying-out or if it was re-wetting i.e. were trends favourable or unfavourable for conservation. This index on the high bog was based on the ratio of all primary vegetation complexes (undisturbed raised bog) plus the secondary central complexes (which indicate that the bog is recovering following a drying episode) to all other secondary vegetation complexes. An evaluation of whether the site is deteriorating or if it is re-wetting may be made using the following formula.

$$\frac{\text{All central (primary \& secondary) and all other primary complexes}}{\text{All secondary complexes}} \times 100$$

Secondary central means that the site is probably re-wetting, especially if it is located in a subsidence area. The site would have gone through a period of drying-out and now due to subsidence, water collects and re-wetting can occur. Secondary sub-central means that it is difficult to tell if the site is drying-out or re-wetting. Large areas of secondary marginal and sub-marginal mean that the site is in decline.

The results of this analysis are shown in Table 6.5 where the sites are ranked according to their score. The sites are divided into three groups depending on their score.

I	Good conservation of function
II	Medium conservation of function
III	Poor conservation of function

Two sites attain Rank II medium conservation of function (Table 6.5).

TABLE 6.4 Ranked Structure Index of Raised Bog Sites

Site	Primary Complexes(ha)	Flushes (ha)	Positive Structure	Secondary Sub-central	Secondary Sub-marginal	Secondary Marginal	Cutaway	Negative Structure	Structure Index	Ranking
Cloonloummore	0	0	0	0	0.2	56.7	177.9	234.6	0	III
Aughrim	0	0	0	3.7	81.4	44.8	124.3	254.2	0	III
Eskerboy	0	0	0	7.3	44	41.2	156.1	248.6	0	III
Kilgarriff	0	0	0	12.7	21.9	10.7	71.8	117.1	0	III
Girley	0	0	0	1.8	42.4	6.8	120.5	171.5	0	III
Daingean	0	0	0	0	46.4	42.7	99.9	189	0	III
Clonnydonnin	0	0	0	32.6	33.3	29.2	69	164.1	0	III
Scohaboy	0	0	0	6.3	64.4	103.7	185.8	360.2	0	III
Carn Park	0	0	0	38	6.6	77.6	202	324.2	0	III
Ballinderry	0	0	0	10.3	18.4	15	456.3	500	0	III
Moneybeg	0	0	0	10	32.1	22.7	223.9	288.7	0	III
Clare Island	0	0	0	20.4	32.5	13.3	109.5	175.7	0	III
Killeragh	0	0.2	0.2	56.3	51.4	10	104.8	219.8	0.01	III
Monmore	0	3.8	3.8	8.8	8.1	0.7	1302.6	1320.2	0.28	III
Ballynagrenia	0	2.1	2.1	56.1	26.4	45.8	369.6	497.9	0.42	III
Coolrain	0	1.1	1.1	31.9	13.5	13.6	191.7	250.7	0.44	III
Derrycanan	0	3.6	3.6	0	69.7	104	341.8	515.5	0.7	III
Cloonshinnagh	4.7	0.1	4.8	11.7	26.6	12.3	622.9	673.5	0.71	III
Timoney	0	4.8	4.8	4.4	34.7	49.5	369.7	458.3	0.99	III
Mouds	15	4.2	19.2	105	88.4	74.2	1318.5	1585.6	1.21	II
Cloongoonagh	0	6.6	6.6	14.3	42.5	102.4	356	515.2	1.28	II
Ballygar	0	2.7	2.7	10.2	60.1	20	88.7	179	1.51	II
Mount Hevey	9.7	1	10.7	53.2	55.6	67.6	341.8	518.2	2.06	II
Gowlaun	0	12.8	12.8	0	93.7	87.1	77.3	258.1	4.96	II
Cloonmore/Cloonfelly	0	13.6	13.6	0	19.7	143.1	84.8	247.6	5.5	II
Derrykinlough	1.6	4.4	6	6.9	38.4	18.3	46.4	110	5.6	II
Ballynamona	0	21.7	21.7	0	29.4	9.9	223.6	262.9	8.25	II
Tullaghan Rock	2.8	4.8	7.6	7.9	34.7	13.7	34	90.4	8.4	II
Clooneen	0	21.2	21.2	1.9	19.4	52.4	143.6	217.3	9.76	II

TABLE 6.5 Ranked Conservation of Function Index of Raised Bog Sites

Site	Primary Complexes	Secondary Central (ha)	Flushes (Ha)	Positive Function	All Secondary	Negative Function	Function Index	Ranking
Cloonloummore	0	0	0	0	56.9	56.9	0	III
Aughrim	0	0	0	0	129.9	129.9	0	III
Eskerboy	0	0	0	0	92.5	92.5	0	III
Girley	0	0	0	0	51	51	0	III
Daingean	0	0	0	0	89.1	89.1	0	III
Clonnydonnin	0	0	0	0	95.1	95.1	0	III
Scohaboy	0	0	0	0	174.5	174.5	0	III
Carn Park	0	0	0	0	122.2	122.2	0	III
Ballinderry	0	0	0	0	43.7	43.7	0	III
Killeragh	0	0	0.2	0.2	117.7	117.7	0.2	III
Ballynagrenia	0	0	2.1	2.1	128.3	128.3	1.6	III
Coolrain	0	0	1.1	1.1	59	59	1.9	III
Derrycanan	0	0	3.6	3.6	173.7	173.7	2.1	III
Mouds	15	0	4.2	19.2	89.5	89.5	2.1	III
Ballygar	0	0	2.7	2.7	90.3	90.3	3	III
Kilgarriff	0	1.8	0	1.8	45.3	45.3	3.97	III
Clareisland	0	2.8	0	2.8	66.2	66.2	4.2	III
Cloongoonagh	0	0.3	6.6	6.9	159.2	159.2	4.3	III
Timoney	0	0	4.8	4.8	88.6	88.6	5.4	III
Mount Hevey	9.7	0	1	10.7	177.4	177.4	6.03	III
Derrykinlough	1.6	0	4.4	6	63.6	63.6	6.9	III
Gowlaun	0	0	12.8	0	180.8	180.8	7.1	III
Cloonmore/Cloonfelly	0	0	13.6	0	162.8	162.8	8.4	III
Cloonshinnagh	4.7	0	0.1	4.8	50.7	50.7	9.5	III
Tullaghan Rock	0	2.8	4.8	7.6	56.3	56.3	13.5	III
Moneybeg	0	8.9	0	8.9	64.8	64.8	13.7	III
Monmore	0	0	3.8	3.8	17.6	17.6	21.6	III
Clooneen	0	0	21.2	21.2	71.8	71.8	29.5	II
Ballynamona	0	0	21.7	21.7	39.3	39.3	55.2	II

6.3 CONDITION OF SITE AND CONSERVATION/RESTORATION POSSIBILITIES

6.3.1 General comments on conservation/restoration

Conservation of a site is taken to mean that the main section of the bog or the feature for which it has been selected can be preserved in its present condition.

Restoration means that the site or part of the site can be restored to a condition which existed in the past.

A number of general points can be made about conservation and restoration at bog sites, these are outlined in more detail in Kelly, Doak and Dromey (1995).

1. Peat cutting

All active peat cutting must be halted as soon as possible. Peat cutting is incompatible with conservation because where peat cutting continues, water-logging and subsidence will also continue. This will result in a deterioration of vegetation cover. Also restoration work cannot be carried out where there is active peat cutting.

2. Acquisition

It is essential to gain full management control of a site, so that further damage cannot occur and restoration work can proceed. This can be achieved by management agreements but acquisition of a site gives complete control.

3. Blocking of Drains

To prevent further loss of water from the bog surface, drains need to be blocked. This may lead to a re-wetting of the bog surface and encourage regrowth of the acrotelm. Cutaway drains should be blocked to encourage re-flooding at the cut-face and the creation of a buffer zone where slopes are suitable.

4. Restoration of cutaway and lagg areas

Wherever possible flooding of the cutaway areas is recommended, especially where regional ground-water levels can reach above the surface and permanently re-wet the area.

5. Removal of forestry

Forestry can be damaging to bogs in a number of ways including water loss from the bog, shading and compression of the peat surface. All forestry on high bog should be removed and the forestry drains blocked to encourage restoration of the bog surface.

6.3.2 Specific conservation and restoration measures suggested for each site

This details the present condition of the site and conservation/restoration, measures which should be taken.

MONMORE, Co. Clare (70)
This site has been selected for conservation primarily for its westerly location. The bog is a small relict of the former bog but nonetheless it is very wet with good *Sphagnum* cover.

Condition: Poor. No primary or central habitats occur.

Active peat cutting: There is limited peat-cutting on old cutaway to the west of the site. There is no active peat-cutting along the high bog margins.

High bog remaining since the 1840s: 1.6% remains, this bog is the remnant of a once extensive bogland, that stretched from Doonbeg south to Tullaher Lough. Tullaher Lough to the south is now separated from the bog by cutaway and *Betula* scrub. There is extensive cutaway associated with this bog, with large areas of level abandoned hand cutaway to the west and north. These areas have numerous peat banks and hollows and are bordered by roadside drains which could be used for restoration work.

Forestry: There is no coniferous forestry but there is some *Betula pubescens* scrub on old cutaway to the south of the site.

Fire History: There is evidence of burning in the east of the site. This burning was not recent and there was good regeneration after the burn.

Dumping: There is no dumping at the site.

Grazing: There is evidence of cattle grazing in the north of the site.

Surface Drains: There are 1.7km of drains on the high bog and 6.9km of drains on the surrounding cutaway. All drainage on the high bog is old and represents little threat to the present vegetation. Blocking of all drains is required to conserve the high bog.

Marginal areas: There are 6.9km of drains on the surrounding cutaway. Blocking of drains and creation of dams is required for restoration work on this cutaway.

Agriculture: The eastern margins of the bog have been reclaimed for agriculture right up to the face-bank. There is extensive old, abandoned cutaway, however, to the north, west and south of the site which would be suitable for restoration. This area is level and below the height of the adjoining roads.

Conclusion: This site has potential for re-wetting of cutaway.

CLOONLOUM MORE, Co. Clare
Currently this site has no protection and is being proposed as an NHA primarily for its westerly location. It is, however, very dry with poor vegetative diversity.

Condition: Poor, with 99.7% marginal and 0.3% sub-marginal areas.

Active Peat Cutting: Low, with just 7.6% of the margin actively cut. There is some limited Difco peat cutting in the north and south-east of the site. This must be halted before the site is completely dried-out.

High bog remaining since the 1840s: 24.2% remains, peat cutting has occurred on all sides.

Forestry: There is a Coillte conifer plantation to the south of the bog on a cutaway area beside Lough Garr.

Fire History: The bog has been extensively burnt in the past.

Dumping: There is dumping at the end of the bog track and on an old cutaway area in the south of the bog.

Surface drains: There are 2.9km of functional drains on the high bog. Old drainage has resulted in a deterioration of the bog with very little *Sphagnum* cover present.

Marginal areas: There are 5.9km of functional drains on the cutaway areas. Most of the cutaway is abandoned but there is some active Difco peat-cutting on the high bog.

Conclusion: This bog is not a suitable candidate for SAC status, but with the scarcity of this habitat in the region, we recommend that it be afforded NHA status.

CLOONMORE/CLOONFELLEY, Co. Galway (247)
This site has been selected for conservation because of its restoration potential, both on the degraded high bog and on the cutaway.

Condition: Medium, no primary vegetation, central or sub-central ecotopes occur. There are two extensive swallow-hole systems.

Active peat cutting: There is active peat cutting in the north and western margins with approximately 29.1% of the margin being actively cut.

High bog remaining since the 1840s: 51.2% remains, most of the cutting has taken place in the north, west and south-west of the site. The Sinking river flowing along the southern margins of the site has always provided a boundary to the bog.

Forestry: There is no forestry on either the high bog or cutaway.

Fire History: There is no evidence of burning activity on the bog.

Dumping: There is dumping associated with peat cutting in the northern cutaway.

Agriculture: There is some agricultural reclamation to the north on old cutaway. By the stream there is a transition from the high bog to the stream-bank. This is grazed and a small area by the stream-bank has been reclaimed.

Surface drains: There are 22km of drains on the high bog. The whole site has been damaged by drains and both flushes are within the drain systems. There is a semi-natural transition to the stream in the south-east and extensive areas of cutaway. There are many internal slopes on this bog and the blocking of drains may lead to some re-wetting of the surface. With the blockage of drains the natural flush systems may be restored.

Marginal areas: There are 8.6km of drains in the surrounding cutaway. The cutaway to the north-east is level and the cutaway to the north is gently sloping to the cut-face. These would be suitable for restoration work. The cutaway to the west slopes away and is unsuitable for restoration.

Conclusion: This site is a degraded raised bog and blocking of drains is suggested to re-wet the bog surface. Cutaway restoration would also be possible to the north of this site.

AUGHRIM, Co. Galway (1227)
This site has been selected for conservation because of its restoration potential, particularly on the degraded high bog.

Condition: Poor, no primary vegetation or central ecotope occurs. An old track runs through the centre of the bog.

Active peat cutting: There is some active peat cutting in the north-west affecting 8.9% of the margins.

High bog remaining since the 1840s: 43.9% remains with much of the original bog now afforested.

Forestry: There is extensive forestry in the south and east with some forestry to the north. Most of this forestry along with most of the high bog is Coillte owned.

Fire History: There is no sign of recent burning.

Dumping: At the start of the bog track there is some dumping.

Surface drains: There are 16.7km drains associated with the central trackway but these drains, if blocked, would aid restoration.

Marginal areas: There are 0.1km of drains on some level cutaway to the north of the site which would be suitable for re-wetting but the remaining cutaway margins are narrow and unsuitable for restoration.

Conclusions: The survey confirmed that there was damage resulting from the trackway but the bog had settled and the tear pools resulting from this damage were in good condition. Also the internal slopes would make bog restoration feasible with the blockage of drains resulting in re-wetting of the bog.

ESKERBOY, Co. Galway (1264)
This site has not been selected for conservation.

Condition: Poor, this bog has no primary habitat and no central or sub-central ecotopes occur. There is a *Betula* dominated trackway jutting out into the centre of the bog.

Active peat cutting: There is limited active peat cutting in the east with only 6.7% of the bog margins affected. The rest of the bog margins feature old peat cutting.

High bog remaining since the 1840s: 62.6% remains with the cutting having taken place around all the margins.

Forestry: There was no forestry associated with this bog.

Fire History: There has been extensive burning of this bog, with only the central area escaping.

Dumping: There was no evidence of dumping on this bog.

Surface drains: Although the 4.7km of drains on this bog are old and in-filling, they are still impacting upon the surrounding vegetation.

Marginal areas: There are 1km of drains in the cutaway and due to the natural situation of the bog located between two eskers, there is little potential for extensive re-flooding of this bog.

Conclusion: The bog was found to have been extensively drained and burned with only a small area of sub-central vegetation remaining. There were no permanent pools or well-developed *Sphagnum* areas. Despite the situation of the bog between two eskers, no lagg zone of interest was found between the bog and these surrounding eskers.

BALLYGAR, Co. Galway (229)
This site has not been selected for conservation.

Condition: Medium, this bog has no primary habitat or central ecotope present. There are three *Betula* flushes, a *Molinia* flush and several rings of *Myrica* but all are thought to be secondary habitats.

Active peat cutting: There was limited active peat cutting to the south of this bog with just 1.2% of the bog margins affected.

High bog remaining since the 1840s: 54.5% remains, a large area in the south-east cutaway and other areas have been afforested, reclaimed for agriculture and a road from Ballygar also crosses the former bog.

Forestry: There was a plantation to the north-west which extended onto the high bog.

Fire History: There was no evidence of burning on the bog.

Dumping: There was no dumping at this bog.

Agriculture: To the south-west and south, the thin margin of cutaway has been reclaimed for agriculture. There is also a small area of cutaway under cultivation in the east with a small allotment of vegetables by the access path to the bog.

Surface drains: There are 6.7km of drains on the high bog, all are old and in-filling and provide little potential for re-wetting on the high bog apart from the extreme easterly margin.

Marginal areas: The only area of extensive level cutaway occurs in the south-east where it is active, backed by sloping agricultural land. There are 1.3km of drains in these cutaway areas. This area and the wet woodland along the eastern margin, by the road are the most suitable areas for re-wetting. The remaining cutaway is reclaimed for agriculture or under coniferous plantations.

Conclusion: Although a lot of the bog was undisturbed, the area of the bog was very small with no central ecotope found. To the south and west there has been limited peat cutting with the sloping mineral land coming close to the high bog. There may be some potential to create a lagg zone here with run-off from the mineral slopes and the high bog. Wet woodland also occurs along the thin margin between the road and the high bog. Compared to other sites the restoration potential of this site is limited and despite relatively little active drainage, the bog is very dry.

KILLERAGH, Co. Galway (284)
This site has been selected for conservation as it has a large (47.7%) cover of wet, sub-central ecotope.

Condition: Poor, a large area of sub-central but no central or primary habitat occur.

Active peat cutting: There is active peat cutting along the western margin of this bog, mainly hopper peat cutting with 15.3% of the bog margin affected. There is abandoned cutaway to the north and east of the bog.

High bog remaining since the 1840s: 52.9% remains, most cutting took place in the south-east much of which has now been afforested. To the north, there has been limited cutting alongside the mineral slopes. There is some level abandoned cutaway in the east, but some of the cutaway has been reclaimed for agriculture in the north-west.

Forestry: There is coniferous forestry to the south-east and south of this site, at the cutaway margin and there is a mature *Betula* woodland both to the south and north of the site.

Fire History: There was no evidence of burning on the site.

Dumping: At the end of the trackway to the north of the bog, there is some localised dumping.

Surface drains: There are 0.9km of old drains. Although the site is not being actively drained, there is desiccation resulting from the large bog-burst in the south.

Marginal areas: There are 2.2km of drains in the cutaway. There is very little potential for restoration of the bog margins of this site. There is a limited area of abandoned cutaway in the east and along with the bog burst area in the south which provides the best region for restoration work. Also the plantation areas have some potential along with western margin provided that active peat cutting has ceased and the forestry felled.

Conclusions: Despite peat cutting, old drainage and the bog burst in the south, a large area of the bog is very wet with good *Sphagnum* cover. To conserve this wet area, all cutting must be halted and wherever possible re-wetting of the margins should be carried out.

MOUDS, Co. Kildare (395)
This site has been selected for conservation as it has a large area of central ecotope and primary habitat made up of both marginal and central complexes. Also this bog is both the largest and the most easterly site.

Condition: Medium, with a large area of central ecotope and primary habitat.

Active peat cutting: 34.2% of the bog margin is actively cut. There is extensive active peat cutting in the western part of the bog. This is an industrial moss peat harvesting operation. Otherwise there is some small active peat cutting along the north and south-west margins. The remaining margins have extensive areas of abandoned cutaway.

High bog remaining since the 1840s: 17.9% of the bog remains, it formerly stretched northwards and all this section has been cutaway. The western part of the bog is currently being extensively cut and the bog has also been cut to the south and east.

Forestry: There is only one small coniferous plantation actually adjoining the high bog margin to the east. There are several other plantations to the north and east but these are well away from the cut face of the bog.

Fire History: This bog has been burnt in the recent past as is evident from the aerial photograph.

Dumping: Minor dumping to the north of the bog on the cutaway.

Surface drains: There are 4.9km of old drains on the high bog. Apart from the western cutaway margin, this bog is not being actively drained and is very wet quite close to the cutaway.

Marginal areas: There are 24.2km of functional drains in the marginal areas. The south and north-east sections of cutaway have good potential for regeneration. These are extensive abandoned cutaway which are quite level and below adjoining tracks, roads and farmland. The northern cutaway has some agricultural use and some active peat cutting, but it is level and has good regeneration potential.

Conclusions: This site is very important both for its large size and its easterly location in relatively close proximity to Ireland's largest concentration of population. Although it is apparent that extensive cutting is taking place, there is still a large area of high bog remaining intact. There are two areas of wet, active raised bog habitat separated by a ridge and apparently unaffected by the cutting. This would appear to be as a result of the fortuitous slope direction away from the damaged area. Also much of the cutaway area is level and suitable for restoration work.

COOLRAIN, Co. Laois (415)
This site has been selected for conservation as it has a large area of sub-central ecotope rich in *Sphagnum* growth. There are several species-rich *Pinus*-dominated flushes. These flushes are thought to be secondary habitats due to the apparent subsidence of the bog.

Condition: Poor, a large area of sub-central ecotope but no primary habitat occurs.

Active peat cutting: There is active peat cutting on the south-east and south-west of the bog affecting 35.2% of the margin.

High bog remaining since the 1840s: 23.9% remains, there has been extensive peat cutting in the west and east which has been afforested. To the north there is a young conifer plantation on old cutaway. At the south-east and south-west margins there is active peat cutting on sloping ground.

Forestry: There are coniferous plantations to the east and north of the bog on old cutaway with the northern plantation coming right up to the cut-face.

Fire History: There was no evidence of recent burning on the bog although there were signs of old burns from which the bog had recovered well.

Dumping: There was no evidence of dumping.

Surface drains: There are no drains on the high bog and so the subsidence on this bog is caused by the extensive cutaway.

Marginal areas: There are 2.4km of drains associated with cutaway. Some cutaway has been reclaimed for forestry but there are extensive areas remaining which would be suitable for restoration work.

Conclusions: This bog is the most southern Midland Raised Bog (Cross 1990). The bog is being encroached on all sides by *Pinus contorta* and *P. silvestris*, these trees occur in dense groves in four different flushes on the bog centre. The bog, however, has extensive *Sphagnum* cover and although there are no permanent pools it has well developed *Sphagnum* hummocks and a good acrotelm. All cutting needs to be halted and with the felling of forestry, much restoration work would be possible.

CLOONSHANNAGH (ARDAGULLION), Co. Longford (2069)
This site has been selected for conservation as it has a good area of primary central ecotope. This area is very wet and quaking with frequent pools and good *Sphagnum* cover.

Condition: Poor, a primary central ecotope occurs.

Active peat cutting: There is some active peat cutting (hopper turf) in the north, east and south-east along 16.4% of the bog margin.

High bog remaining since the 1840s: 8.2% remains, there has been extensive cutaway with only the north-eastern lobe remaining intact. This is isolated from the rest of the original bog which has been cutaway and afforested.

Forestry: Forestry (owned by Coillte) dominates the southern and western cutaway of this bog. Some of this forestry has been recently felled and more is due for felling this year.

Fire History: There is evidence of burning on the bog although none of it appears to have been due to recent activity. This burning evidence is only found in the north of the bog as abundant *Cladonia portentosa* to the south indicated an absence of burning.

Dumping: No evidence of dumping at this site.

Agricultural reclamation: A section of cutaway in the north-east has been reclaimed for agriculture.

Surface drains: There are 3.0km of drains on the high bog are restricted to the bog margins except for drains D2 and D3 which are actively draining into the centre of the bog. The blockage of these drains would be a necessary part of any restoration work on this site. There are numerous drains associated with the face-bank of this bog. Only one drain system cuts into the bog in the east. These drains have an out-flow in the south-east and blocking this would re-wet the high bog.

Marginal areas: There are 2.1km of drains on the cutaway areas. Most of the remaining cutaway has been abandoned. However, due to the slopes of the surrounding agricultural land, the only cutaway suitable for re-wetting on this bog is in the east and south-east where the slopes would prevent flooding of neighbouring land. There is level cutaway to the north, but there are reclaimed fields between the cutaway and the mineral slope. To the east and south-east, however, there is cutaway which slopes down from the surrounding mineral soil and also slopes away from the high bog. This area would collect run-off from the bog and mineral slope and a lagg zone could be created if drains were blocked.

Conclusion: This bog has a good central ecotope vegetation with an extensive pool system which is active despite the small size of the bog. There are extensive Coillte forestry plantations to the west and south of the intact high bog. Some of these plantations are currently being felled, further felling along with re-wetting of suitable cutaway are necessary for the conservation of this site.

CLOONEEN, Co. Longford (445)
This site has been selected for conservation because it has a large species-rich *Betula* bog wood at its northern end.

Condition: Medium, no central and a very small area of sub-central ecotope present. Its species rich *Betula* flush is primary habitat.

Active peat cutting: There is limited peat cutting in the north, mainly hopper peat cutting.

High bog remaining since the 1840s: 39.8% remains, this bog originally bordered the eastern bank of the Shannon and at its southern tip it adjoined Lough Forbes. There has been limited peat cutting by the mineral outcrop between the bog and the river Shannon, but an extensive area has been cutaway in the south-west. There has been extensive cutaway in the south with *Molinia* dominated cutaway sloping to the lake.

Forestry: There is some forestry to the east of the site consisting of small conifer plantations.

Fire History: The bog has been burnt several times in the past.

Dumping: There is some dumping of vegetative garden waste to the north by the track and an old car is dumped at the south-western cutaway.

Agriculture: Some of the old cutaway in the north and east has been reclaimed for agriculture.

Surface drains: There are 0.4km of drains on the high bog, this is just one in-filled drain across the centre of the high bog and there are no drains at the cut-face. The only drying effects are from the cutaway. There are tear pools along the margins in the narrow central region of the bog.

Marginal areas: There are 0.6km of drains in the cutaway. There is some active regeneration in the northern cutaway and this is the most suitable area for restoration work, being closest to the wooded flush.

Conclusion: Conservation of this bog is of botanical importance as its species-rich *Betula* bog wood is a rare habitat. The cutaway area closest to this bog is in the north and is already regenerating in some parts. Conservation of the bog wood and some restoration of the bog itself appear feasible.

GOWLAUN, Co. Mayo (502)
This bog has been selected for conservation due to its proximity to two other important sites: Derrykinlough and Kilgarriff.

Condition: Medium, no central or sub-central ecotopes or primary habitat present.

Active peat cutting: Overall the cutaway around Gowlaun Bog has been abandoned. There is some peat-cutting between Gowlaun and Derrykinlough bogs. This cutting, however, is very limited and is probably hand-cutting.

High bog remaining since the 1840s: 71.5% remains, there has been extensive cutaway to the south and west of Gowlaun bog. Some of this has been afforested and some has been reclaimed for agriculture. It slopes down to the Owenlobnaglaur river and would not be suitable for restoration work. There is also extensive cutaway to the north which slopes to a tributary stream. Along the north-eastern margin, there

is coniferous forestry and reclaimed fields. The small eastern lobe of Gowlaun bog has coniferous forestry to the west and watercourses to the north and south.

Forestry: There is some cutaway reclaimed for agriculture and forestry on the eastern margin of Gowlaun.

Fire History: This bog has been extensively burnt in the past.

Dumping: There were no notable instances of dumping seen.

Agriculture: To the east some cutaway areas have been reclaimed for agriculture and are being used for cattle grazing.

Surface drains: Although little drainage occurred on Gowlaun bog itself, the natural drain by streams on the cutaway would restrict restoration work.

Marginal areas: The cutaway adjoining all three sites has slopes unsuitable for restoration work.

Conclusions: This bog together with the neighbouring Derrykinlough and Kilgarriff sites represents an extensive area of raised bog habitat in the extreme north-western end of their range. Gowlaun has poor quality vegetation but its conservation as a support site is important.

DERRYKINLOUGH, Co. Mayo (1899)
This site has been selected for conservation because it has a good example of primary, wet, quaking central ecotope.

Condition: Medium, primary central ecotope present.

Active peat cutting: There is some peat cutting and cattle grazing, between Gowlaun and Derrykinlough.

High bog remaining since the 1840s: 60.5% remains, there is coniferous forestry on the north and western cutaway and on the high bog. On the southern margin there is reclaimed grassland on the banks of the stream. There is limited cutaway to the east by mineral soil.

Forestry: There is extensive forestry to the west and north of Derrykinlough. Some of this forestry is on the high bog.

Fire History: There is no evidence of burning on this bog.

Dumping: There is no evidence of dumping on the bog.

Agriculture: There is some agriculture to the west, south-west and east of the bog.

Surface drains: The only active drainage occurs in the north-west lobe and is associated with forestry.

Marginal areas: There is little possibility for bog restoration work due to drainage by these streams.

Conclusions: Conservation of this site is important because its extensive active pool system despite proximity to bog margins. The only possibility of restoration work apart from felling of the nearby private forestry is the blocking of some fast-flowing drains in the west of the site.

KILGARRIFF, Co. Mayo (510)
This site has been selected for conservation because of its species complement which includes both eastern and western raised bog indicator species. This site also has a good area of primary marginal ecotope which runs along the Owenlognaglaur stream in the north of the site. The site has also been selected for having >25% central and sub-central ecotopes present.

Condition: Poor, this site has all four ecotopes present, with part of the marginal ecotope area being primary.

Active peat cutting: There is active peat cutting along the track south of Kilgarriff and limited cutting in the east where most of the cutaway has been abandoned.

High bog remaining since the 1840s: 39.6% remains, Kilgarriff Bog was separated from Gowlaun and Derrynabrock bogs by separate arms of the Owenlobnaglaur river which flow to the north and south of this bog. The original bog to the east is cutaway.

Forestry: There is extensive forestry along the stream bank to the south of Kilgarriff.

Fire History: There is no evidence of burning on this bog.

Dumping: There was no evidence of dumping on the bog.

Agriculture: There is some reclamation for agriculture to the south of the bog.

Surface drains: There is no active drainage on the high bog.

Marginal areas: There is little possibility for bog restoration work due to drainage by streams.

Conclusions: This site has an active pool system and primary habitat sloping down to the Owenlobnaglaur river in the north. All peat cutting must be stopped but there is little possibility of restoration work on this site due to drainage by streams

MOUNT HEVEY, Co Meath/Westmeath (1584)
This site has been selected for conservation as it has a good example of a primary, wet and quaking central ecotope which together with the sub-central ecotope represents 31.5% of the total area.

Condition: Medium, a good central ecotope and a large area of wet, sub-central ecotope.

Active peat cutting: Most of the cutaway is abandoned and some of it is very old and regenerating. There is some active peat cutting in the south-east and also in the small north-east section affecting 8.1% of the bog margin.

High bog remaining since the 1840s: 36.9% remains, the bog is currently cut into three pieces by the Dublin-Mullingar railway line which was built in 1848. The small north-eastern section has level cutaway along its northern margin, but it adjoins level fields. To the east there is level cutaway backed by mature forestry. The south-eastern section has extensive coniferous forestry along its southern margin and on the eastern high bog. There is also extensive level cutaway in the south backed by forestry and sloping agricultural land. Along the northern margin there is very old regenerating cutaway. This has probably been abandoned since the construction of the rail-line and has good restoration potential. The small north-western lobe has level cutaway around its margins, but there has been some agricultural reclamation. There is extensive cutaway around the south-western lobe. To the north there is more very old regenerating cutaway. The southern cutaway is extensive and level. There is some reclamation for agriculture, but extensive areas of cutaway still exist which is suitable for restoration work. The western margin has very limited cutaway

Forestry: Coillte plantations are present to the east of the site (known as Allen Forest) with some of the plantation on the high bog. There are also extensive Coillte plantations on cutaway to the south of the eastern lobe.

Fire History: There are indicators of burns in the past but none are recent. A small fire was noted on abandoned cutaway during the site visit. This was controlled and may just have been a burning of rubbish.

Dumping: There is some dumping of old cars and household appliances by the trackway into the north-western lobe of the bog. Some of this rubbish has been stacked into a bonfire and burned. There is some rubbish noted in the cutaway to the south-east.

Agriculture: Some of the cutaway around the narrow middle section has been reclaimed for agriculture and extensive areas have been reclaimed to the south of the western cutaway.

Surface drains: There was no active drainage on the high bog or bog margins. There had been drainage in the past, however, with 2.6km of old drains mostly associated with the rail-line and these are still having an effect.

Marginal areas: There are 12.0km of drains in the marginal areas. There is very old abandoned cutaway along the rail-line and this is now regenerating. There was also good regenerating cutaway to the south-east and this would be suitable for restoration work.

Conclusions: Conservation of this bog is important because apart from Mouds Bog, this was the largest raised bog in the east on the site-list. The site was found to have a diversity of vegetation types as a result of its large, narrow size and the effects of the rail-way line. Much of the surrounding forestry needs to be felled and all peat cutting must be stopped. Despite the disturbance to the site over the past two centuries much of it is still very wet and worthy of both conservation and restoration. Several areas show good potential for restoration work, the old regenerating cutaway north of the main section of bog, along the rail-line there are some very wet areas with *Betula* scrub, the southern cutaway is extensive and level. There is some reclamation for agriculture, but extensive areas of cutaway still exist. Also the western margin has very limited cutaway, but it is backed by sloping land and there is a possibility of lagg zone creation. Cloncrave Lough to the west of the site has been in-filled and supports a small *Betula* flush.

GIRLEY, Co Meath (1580)
This site has not been selected for conservation.

Condition: Poor, there is no central ecotope or primary habitat present. There is a small (1.8ha) area of wet sub-central ecotope which has been secondarily re-wetted through flooding of drains.

Active peat cutting: There is limited peat-cutting to the south-east of the bog with a very small area of cutting to the north-west, this is mainly Hopper peat cutting. This cutting affects 10.9% of the bog margin.

High bog remaining since the 1840s: 36.2% remains, much has been afforested by Coillte. There has been extensive cutaway to the north-west and south-west which has been planted with coniferous forestry. Some of this forestry is on the high bog in the south-west section. There is level cutaway in the south-east, backed by sloping land, which is suitable for restoration work.

Forestry: There are extensive coniferous plantations in the west of the bog margin with some of the plantation encroaching onto the high bog.

Fire History: The bog has been burnt in the past with evidence of a recent burn in the north-west as seen on the aerial photograph.

Dumping: There is a small amount of dumping on the old cutaway to the south.

Agriculture: Some of the old cutaway in the north-east has been reclaimed for agricultural grassland.

Surface drains: This bog has been extensively drained in the past with 8.8km of old drains, but there is no active drainage at present. There was re-wetting of the bog surface at the junction of a number of drains in the centre of the bog. This indicates potential for restoration.

Marginal areas: There are 0.8km of drains on the marginal areas. Due to the cutaway sloping away from the high bog, there is little potential for restoration work on the bog margins. The only area of potential restoration work will be on the high bog once the forestry has been cleared.

Conclusions: The vegetation of this bog was poor with only a small area of wet sub-central and *Pinus sylvestris* and *P. contorta* are growing all over the high bog surface. The 1911 6" map shows the coniferous plantation on the high bog and the spreading individual *Pinus* trees on the bog surface indicating a long history of coniferous colonization of the high bog. This site has little potential for restoration on the cutaway areas. On the high bog, however, with the felling of forestry there is a definite possibility of re-wetting which has already begun in the small sub-central ecotope area.

DAINGEAN, Co. Offaly (2033)
This site has not been selected for conservation.

Condition: Poor, no primary habitat, central or sub-central ecotopes present.

Active peat cutting: There is no active peat cutting on this bog with most of the old cutaway reclaimed for agriculture.

High bog remaining since the 1840s: 47.1% remains, this bog originally consisted of two lobes, joined by a thin central margin. The southern section has been cutaway and a road now divides this section from the northern section. A road also runs along the northern margin separating the site from the canal. There has been extensive cutaway on the east and south-eastern margin of the intact northern section. This has been reclaimed for agriculture. There is also reclaimed cutaway at the northern margin. There is very limited cutaway to the west with mineral soil coming close to the high bog.

Forestry: A small coniferous plantation of *Picea sitchensis* is located at the south-easterly margin of the bog.

Fire History: No signs of recent burning were found.

Dumping: No signs of dumping.

Surface drains: There are 0.4km of drains on the high bog. There are large, recently excavated drains across the narrow middle section of the bog. The site is being actively drained at its margins and is drying out.

Marginal areas: There are 1.6km of drains in the marginal areas. A deep recently excavated drain runs along the eastern margin beside reclaimed fields. The margins of the bog have been reclaimed for agriculture with very little cutaway remaining.

Conclusions: The bog is in a basin with the surrounding land higher than the high bog thus making restoration procedures difficult. The site is very dry and there are no typical central raised bog communities, with no permanent pools or well-developed *Sphagnum* hummocks. Therefore, conservation/restoration of this site is not recommended.

CLONYDONNIN, Co. Offaly (565)
This site has been selected for conservation because of its good restoration possibilities through blocking of shallow, surface drains. The site also has a large area of wet, sub-central ecotope with some re-wetting already taking place.

Condition: Poor, no central ecotope or primary habitat is present but there is a large area of sub-central ecotope.

Active peat cutting: Active peat cutting occurs in the north-east and also in the south affecting 6.4% of the bog margin.

High bog remaining since the 1840s: 58.0% remains, this bog was originally contained within a small basin, with mineral soil on all sides. To the south there was a steeply sloping mineral ridge. There was an outflow to the east. There has been extensive cutaway to the east with a road running along the present day eastern margin. There is level cutaway between the road and the high bog, but some of this has been reclaimed for agriculture. To the west there has been a bog-burst with tear pools occurring on steeply sloping high bog. This borders an area of *Molinia caerulea* dominated cutaway and with run-off from the high bog, there is some potential for restoration work.

Forestry: There was no coniferous forestry near this bog.

Fire History: There was extensive burning over the bog with two areas recently burnt, one of which was still charred.

Dumping: No dumping was recorded at this bog.

Agriculture: There is agricultural reclamation to the north-east and south-west of this bog.

Surface drains: There was extensive drainage on the high bog (8.0km) which would be suitable for restoration work. This would lead to re-wetting of the centre of the bog.

Marginal areas: There are 1.2km of drains in marginal areas. The cutaway to the north-east is the only extensive area of cutaway. It is level and below the height of the road and so is suitable for restoration work. However, it adjoins reclaimed fields which may need to be re-wetted.

Conclusions: This bog is worthy of conservation as despite burning and drainage, the site has good restoration possibilities. The extensive drainage on the bog was found to be shallow with some re-wetting already occurring on the bog where these drains are flooding. Also the cutaway to the north-east is the only extensive area of cutaway. It is level and below the height of the road and so suitable for restoration work. However, it adjoins reclaimed fields which may need to be re-wetted. To the south-east there is a very thin margin between the high bog and the sloping mineral soil. This margin is dominated by *Juncus effusus* and *Molinia caerulea* and could have potential as a lagg zone. To the west there has been a bog-burst with tear pools occurring on steeply sloping high bog. This borders an area of *Molinia caerulea* dominated cutaway and with run-off from the high bog, there is some potential for restoration work. The northern cutaway is mostly dominated by *Betula pubescens* wood. To the north-east there is an area of level cutaway backed by sloping agricultural land. This cutaway is dominated by *Molinia caerulea* and *Ulex europaeus*. This would have some potential for restoration work.

DERRYCANAN, Co. Roscommon (605)
This bog has been selected for conservation because it has good potential for restoration.

Condition: Poor, with no primary habitat, central or sub-central ecotope present.

Active peat cutting: There is active peat cutting in the east and at the junction of the trackway and the road affecting 10.3% of the bog margin.

High bog remaining since the 1840s: 33.8% remains, this large bog was originally bordered by streams to the north, east and south, with mineral outcrops to the west. There was a marshy area by the stream to the east and south. A large mineral island was present in the northern section of the bog indicating that the peat was quite shallow here. The high bog at present is divided into three sections by tracks and drains. The mineral outcrop is now in cutaway to the north of the intact high bog. The southern section of high bog has very limited cutaway between the face-bank and a track, with its eastern cutaway reclaimed for agriculture.

Forestry: There is some coniferous forestry to the south-east of the site.

Fire History: There is no evidence of burning.

Dumping: There is no dumping at this site.

Agriculture: There has been extensive reclamation to agricultural grassland in the east

Surface drains: This bog is extensively drained by 3.3km of drains mainly associated with the road and the trackway. A significant outflow from the drains was noted in the north of the site.

Marginal areas: There are 4.5km of drains in the marginal areas. The central cutaway has level slopes and is suitable for restoration work as it is already flooded in places. The cutaway along the east-west track and the cutaway in the east between the cut-face and d2 are level and suitable for restoration work.

Conclusions: The conservation of this site is recommended for its good restoration potential. With no primary habitat, central or sub-central ecotopes present, the vegetation of the bog is poor but re-wetting of the bog will improve this. All peat cutting must be halted to ensure the success of any restoration work. The main drainage outflow off the high bog occurs in the north and blocking this drain may lead to some localised flooding. To the east there is level cutaway between the high bog and the channelled drain. This area is dominated by *Molinia caerulea* and *Juncus effusus* and would be suitable for restoration work. To the west the old cutaway is dominated by *Molinia caerulea* and slopes away from the high bog. The face-bank is very fragmented here with numerous old turf banks. There is some potential for localised restoration work by damming these. There is some good regenerating cutaway in the centre of the bog along the trackways. There are wet regenerating areas with *Sphagnum cuspidatum* and *Typha latifolia* is also present. This area has the best potential for restoration work.

BALLYNAMONA, Co. Roscommon (590)
This site has been selected for conservation because it has a large species-rich *Betula* dominated primary flush.

Condition: Medium, there are no central or sub-central ecotopes present, but there is a large area of primary bog-wood on the bog centre.

Active peat cutting: There is limited peat cutting to the north-east and south-west of this bog affecting 12.0% of the bog margin. Most of the cut-face has been abandoned.

High bog remaining since the 1840s: 21.4% remains, this was originally part of a much larger bog complex. There has been extensive cutaway to the north-east of the site. This is level and dominated by *Molinia caerulea* and *Betula* scrub. There is a trackway running near the cut-face. There is level cutaway between the track and the cut-face, dominated by *Calluna vulgaris* and *Eriophorum angustifolium*. To the north there is extensive cutaway which slopes away from the high bog. Some of this has been reclaimed for agriculture. To the north-west there is cutaway with a slight slope towards the cutaway.

Forestry: There is some coniferous forestry to the east of this site.

Fire History: There is evidence of burning over most of the bog apart from the *Betula pubescens* groves.

Dumping: There is a traveller encampment on the southern track and there is some dumping around this area.

Agriculture: There is reclamation of cutaway to agricultural grassland to the south and south-east of this site.

Surface drains: There is no active drainage on the high bog, although there are 1.3km of old drains on the high bog.

Marginal areas: There are 4.4km of drains in the marginal areas. There are extensive areas of suitable cutaway for restoration work on this bog. Esker ridges slope steeply down to the cutaway in the west, south-west, north-west with a narrow margin of cutaway between the ridges and the high bog. The

cutaway to the north, slopes away towards the adjoining turlough and there is extensive level cutaway to the north-east. All these areas would be suitable for restoration.

Conclusion: This site is very important because of the large wooded and treeless flush on the bog. Also the presence of a turlough (Corkip Lough) to the north of the bog adds interest to the site. There are extensive areas of cutaway suitable for restoration work on this bog: the extensive cutaway to the north-east, the level cutaway between the track and the cut-face, dominated by *Calluna vulgaris* and *Eriophorum angustifolium*. Also to the north-west there is cutaway with a slight slope towards the bog, it is dominated by *Calluna vulgaris* and *Molinia caerulea* and has good regeneration potential.

TULLAGHAN ROCK, Co. Roscommon (2013)
This site has been selected for conservation as it represents an unusual geomorphic setting being a very good example of a ridge river bog type with semi-intact margins.

Condition: Medium, with all four ecotope types but no primary habitat.

Active peat cutting: There is no active peat cutting. The cutaway area is limited due to the river Lung's proximity. Some cutaway in the west has been reclaimed for agriculture.

High bog remaining since the 1840s: 33.5% remains, this was always a small bog, between sloping mineral land to the north and west and the Lung river to the south and east. There has been very little cutaway to this bog. To the south and east there is a semi-natural margin between the high bog and the Lung river. This consists of grazed semi-improved grassland on the slope to the river. There is some coniferous forestry in the east , most of which is on the high bog. To the north-west an old dismantled railway line runs across the cutaway. Between this and the cut-face, the cutaway has been reclaimed for agriculture, with some coniferous forestry.

Forestry: There is a small coniferous plantation on the eastern section of the bog. There is also a small coniferous plantation to the west.

Fire History: No sign of recent burning.

Dumping: No obvious dumping was noted.

Surface drains: There is very little active drainage of the site apart from the forestry and the natural camber of the bog towards the river resulting in 2.2km of drains on the high bog.

Marginal areas: There are 4.3km of drains in the marginal areas. There is very little cutaway around the bog due to the proximity of the river. To the west some cutaway has been reclaimed for agriculture. There is some active regeneration of cutaway in the south-west with extensive *Sphagnum cuspidatum* and *Eriophorum angustifolium*. Cutaway regeneration is restricted to the area between the cut-face and the river bank.

Conclusion: This site is worthy of conservation because it is one of the most westerly, intact raised bog sites which remains an intact unit with drainage restricted to the margins. There is a wet pool system in the centre and a nice gradation of ecotopes out towards the margins. The forestry on the high bog needs to be felled. At present cutaway regeneration is restricted to the area between the cut-face and the river bank.

CLOONGOONAGH, Co. Sligo (1657)
This site has been selected for conservation as it has the highest rainfall of all the sites surveyed along with good restoration potential for its marginal areas.

Condition: Medium, This bog has all four ecotopes and an area of primary habitat which is *Myrica* dominated vegetation covering a series of swallow-holes.

Active peat cutting: Most of the cutaway has been abandoned. There is some active peat cutting in the west affecting 4.1% of the bog margin and there are extensive old peat cuttings to the east and south of the bog.

High bog remaining since the 1840s: 31.8% remains, this large bog was originally formed at the confluence of the Rivers Moy and Owengarve. The Owengarve flows into the Moy to the north-east of the bog and these two rivers formed the north and western boundary to the original high bog. To the north there is a narrow band of old cutaway, which slopes down to the Owengarve river. To the north-west, most of the old cutaway has been reclaimed for agriculture and slopes down to the Moy river. There has been extensive cutaway to the south, east and west. To the west the cutaway slopes away from the high bog. An island of mineral soil, which originally occurred on the high bog, is now in old cutaway. To the south of this outcrop there is coniferous forestry.

Forestry: There is no forestry on this bog.

Fire History: There is some evidence of burning in the centre of the bog.

Dumping: There is some dumping alongside the track in the eastern cutaway.

Agriculture: There is some cutaway in the north-west has been reclaimed for agriculture. This slopes down to the Moy river.

Surface drains: There are 5.3km of drains on the high bog. Active drainage to the south is having serious impacts on the tear pool system in the south of the bog. There is also natural drainage to the river systems in the north and south.

Marginal areas: Most of the cutaway slopes to river systems and would be unsuitable for bog restoration. The extensive cutaway in the east is very wet and there is active regeneration and would be suitable for bog restoration work. To the north there is a narrow band of old cutaway, dominated by *Molinia caerulea* and *Ulex europaeus* scrub. This slopes down to the Owengarve river. It is dominated by *M. caerulea* with *U. europaeus* scrub at the bog margin and *Betula* scrub by the river. To the north-west, most of the old cutaway has been reclaimed for agriculture and slopes down to the Moy river.

Conclusions: The importance of this site lies in the high rainfall of the area and the good restoration potential of the site. The site is also the most north-westerly site visited. To the south-west an extensive tear-pool system occurs on the high bog marginal slope. This system, however, is being actively drained and these drains need to be blocked. The extensive cutaway to the east is level and would be suitable for restoration work. There is a section of old cutaway stretching into the bog from the east. This is flooded in places with *Typha latifolia* and has very good regeneration potential.

SCOHABOY, Co. Tipperary (937)
This bog has been selected for conservation because of its restoration potential on the high bog with many surface drains which can be blocked.

Conditon: Poor, there is no central ecotope or primary habitat present.

Active peat cutting: There is extensive, active peat cutting to the north of the site. The remaining cutaway is abandoned old peat cutting with some limited peat cutting in the east. Altogether 1.4% of the margin is being actively cut.

High bog remaining since the 1840s: 53.5% remains, this large bog was originally bordered by mineral soil on all sides. A narrow arm stretched off to the north-west and a sloping ridge bordered the bog to the north. A large mineral outcrop stretched into the bog from this ridge. Most of the north-west arm has been cutaway and is dominated by *Molinia caerulea*. The bog around the mineral outcrop has been cutaway and reclaimed for agriculture. The mineral slope to the north has been afforested and the forestry stretches onto the high bog. There is a *Betula* wood on the cutaway to the north-east and there is some agricultural reclamation. To the east and south-east there has been extensive cutaway. In the

south-east only a narrow section of high bog remains with the cutaway dominated by *Betula* scrub. Some cutaway has been reclaimed for agriculture.

Forestry: There is coniferous forestry to the north and south of this site, the most extensive of which is in the north where some of the plantation is on the high bog itself. The extensive drainage of the high bog in the south-west is probably for further forestry plantation but is now abandoned.

Fire History: There has been recent burning in the west of the site and there is evidence of regular burning throughout this area.

Dumping: There is limited dumping of old cars on the eastern cutaway.

Agriculture: To the north there has been reclamation of cutaway for agricultural purposes.

Surface drains: There is extensive drainage on this bog with 1.9km of drains on the high bog. There is active drainage in the south-west of the site with a lot of run-off. However, extensive new drainage on the high bog indicated that intensive peat extraction is planned for here. To the north there are old in-filled drains associated with forestry. To the south-west, new drains associated with peat cutting are present. There is a fast out-flow of water from these drains and blocking the drains would cause re-wetting of the high bog.

Marginal areas: Some of the bog margins have been reclaimed for agriculture, but extensive areas of abandoned cutaway remain with 1.9km of drains. In general, the cutaway slopes are level with the surrounding agricultural land sloping down to the cutaway. To the east, there is an extensive area of level cutaway backed by sloping agricultural land. This area would have good potential for regeneration. The southern cutaway also has some potential. To the north-west however the reclamation of cutaway and the low-lying agricultural land would make regeneration difficult.

Conclusions: This site is one of the largest, most southerly raised bog sites remaining in Ireland. There has, however been extensive damage due to drainage of the south-western section of the bog since the 1995 aerial photograph was taken. There is a fast out-flow of water from these drains and blocking the drains would cause re-wetting of the high bog. There were only algal tear pools and *Sphagnum* cover was generally low. The site, however, was wet along the old drains and therefore this leaves the possibility of re-wetting. Some areas of cutaway show good potential for re-wetting: in the east there is an extensive area of level cutaway backed by sloping agricultural land, the southern cutaway also has some potential. To the north-west however the reclamation of cutaway and the low-lying agricultural land would make regeneration difficult.

TIMONEY, Co. Tipperary (1853)
This site has not been selected for conservation.

Condition: Poor, no central ecotope is present but there is primary habitat in the form of two *Pinus*-dominated flushes.

Active peat cutting: There is intensive industrial peat cutting to the east and north-west of this site. There are numerous drains extending into the bog and extensive areas of cutaway. The activity has recently increased as the drains now extend into the south-eastern lobe of the high bog where none are visible on the 1995 aerial photo.

High bog remaining since the 1840s: 20.5% remains, the River Nore originally flowed from the north-east to the south-west along the margin of this bog. The southern margin was bordered by mineral soil and a wooded ridge bordered the eastern margin. A road now runs across the eastern section of the bog isolating a small section of high bog from the remainder. Extensive active peat cutting occurs between the road and the intact high bog. There is also intensive peat cutting to the north-east and north-west.

Forestry: There is a small *Picea sitchensis* plantation to the north-east.

Fire History: This bog has been extensively and repeatedly burnt over its entire surface in the past. This is having a marked, debilitating effect on the vegetation.

Dumping: No dumping occurs on this site.

Agriculture: Some agricultural reclamation has occurred in the south-west.

Surface drains: There are 8.3km of old and new drains on the high bog. There is no active drainage on the high bog apart from the marginal drainage associated with peat cutting.

Marginal areas: There are extensive areas of flat cutaway associated with the industrial peat cutting. The cutaway in the east is lower than the adjoining road (2-3m). This has good potential for re-flooding once peat-cutting has stopped. There are 4.3km of drains in the marginal areas.

Conclusions: In general this site is dry with just a small area of wet, sub-central ecotope. Also the whole bog surface has been damaged by fire. The most important features of the site are the two *Pinus*-dominated flushes. Neither of these flushes are species-rich and the examples seen on Coolrain Bog to the north-east are much better. There are extensive areas of flat cutaway associated with the industrial peat cutting. The cutaway in the east is lower than the adjoining road (2-3m) and this has good potential for re-flooding, once peat cutting has stopped.

CARN PARK, Co. Westmeath (676)
This site has been selected for conservation due to the large area of sub-central ecotope present.

Condition: Poor, no central ecotope or primary habitat present but 24.3% of the total area is central ecotope.

Active peat cutting: There is active peat-cutting to the west and north-west of this site affecting 9.7% of the bog margin.

High bog remaining since the 1840s: 43.6% remains, this bog was originally much larger and bordered on all sides by mineral soil. There was a large mineral outcrop stretching into the bog in the north-east. There has also been peat cutting around the mineral outcrop. This has been afforested, but most of the plantation has been recently felled. There has been limited peat cutting to the south of this bog. To the south-east and south-west there are forestry plantations which extend onto the high bog. To the east there is *Betula* woodland on the cutaway, with a new conifer plantation on the high bog margin.

Forestry: Forestry is the main land-use on the cutaway with coniferous forestry plantations to the north, south, east and south-west. Most of the high bog as well as the forestry is owned by Coillte.

Fire History: There is no evidence of burning on this bog.

Dumping: There is some domestic dumping on the bog road to the west.

Agriculture: There is some agricultural grazing to the south and north-west.

Surface drains: There are 4.8km of drains on the high bog. Apart from forestry drainage, the bog has little active drainage. If the forestry was cleared there may be some potential for re-wetting these areas.

Marginal areas: There are 3.2km of drains in these marginal areas. There is a small margin of level cutaway to the south and west of this bog which is backed by sloping, agricultural land. Also between the mineral ridge in the north and the cut-face, there is an area of level cutaway which has recently been cleared of forestry. These areas provide a limited area for bog margin restoration.

Conclusions: The conservation of this site is important for its large area of wet, sub-central vegetation and also the unusually high frequency of *Sphagnum pulchrum*. There is a lot of forestry on the high bog but if this forestry was cleared there may be some potential for re-wetting these areas. Apart from forestry drainage, the bog has little active drainage. Between the mineral ridge in the north and the cut-

face, there is an area of level cutaway which has recently been cleared of forestry. These areas provide a limited area for bog margin restoration. The level cutaway between the high bog and the mineral outcrop may be suitable for the creation of a lagg zone, using runoff from the bog and the slope.

BALLYNAGRENIA, Co. Westmeath (674)
This bog has been selected for conservation because of its large area of sub-central ecotope.

Condition: Poor, no central ecotope or primary habitat present although 43.0% of the high bog is sub-central ecotope.

Active peat cutting: 12.5% of the bog margin is actively cut. There is active peat cutting to the north-west and east of the bog and the extensive drainage along with a new track to the south indicates that further peat extraction is planned.

High bog remaining since the 1840s: Both Ballynagrenia and Ballinderry were originally part of one large complex. They were bordered by mineral soil and numerous mineral ridges. The two bogs were linked by a narrow section between two esker ridges and the peat was probably shallow here. The bogs are now separated by a narrow section of completely cutaway bog with mineral ridges and *Betula* scrub.

Forestry: There is no forestry associated with this bog.

Fire History: Most of the bog has been extensively burnt a number of times in the recent past.

Dumping: There is some dumping noted along tracks to the west and east of the bog.

Agriculture: There has been agricultural reclamation of cutaway to the west and north of the bog for grazing.

Surface drains: There are 6.2km of drains on the high bog. New drainage had been very recently excavated in the southern region of the bog indicating planned peat extraction.

Marginal areas: Most of the cutaway that has not been reclaimed for agriculture is small in area and has slopes unsuitable for restoration work. There are two areas of extensive cutaway to the north-east and north-west of the bog which have suitable slopes for restoration work and are backed by higher agricultural land. There is a mineral ridge separating this bog form Ballinderry bog. The fact that a ridge is present between the two bogs indicates that these two bogs were always separated in the past.

Conclusions: A large area of this site is unaffected by drainage but it has been extensively burnt. The new drainage excavated in the south-west of the site is a threat and these drains must be blocked immediately. Any active peat cutting must be halted. Several areas in the margins are suitable for restoration work and the wetness of the site indicates restoration is possible.

BALLINDERRY, Co. Westmeath (674)
This bog has been selected for conservation as a companion site due to its proximity to Ballynagrenia bog.

Condition: Poor, no primary habitat or central ecotope, although there is 23.6% cover by sub-central ecotope which is just below the crucial 25% level of sub-central and/or central ecotope.

Active peat cutting: There is extensive peat cutting along the north, east and southern margins to Ballinderry Bog affecting 73.1% of the bog margin.

High bog remaining since the 1840s: 34.8% remains, this figure reflects the fact that Ballinderry and Ballynagrenia were originally the one bog and 34.8% is the area of present day Ballinderry and Ballynagrenia bogs. The two bogs were bordered by mineral soil and numerous mineral ridges. They were linked by a narrow section between two esker ridges and the peat was probably shallow here. The

bogs are now separated by a narrow section of completely cutaway bog with mineral ridges and *Betula* scrub. Ballinderry bog is much lower than Ballynagrenia with the cutaway sloping towards Ballinderry. There has been extensive peat cutting on Ballinderry bog, with large areas to the south cutaway. Most of this cutaway has been reclaimed for agriculture, but a section of active cutaway occurs to the south-east between the reclaimed fields and the high bog.

Forestry: There is no forestry associated with this bog.

Fire History: There is evidence of recent burning over much of the bog.

Dumping: There is domestic waste dumped on the south-eastern cutaway.

Agriculture: Extensive areas to the east of the bog have been reclaimed for agricultural grassland.

Surface drains: There are 0.7km of drains on the high bog, there was no active drainage with only one in-filled townland boundary drain.

Marginal areas: There are 2.2km of drains in the marginal areas. The cutaway to the north of this bog slopes down from the esker ridge and would be unsuitable for restoration work. The active cutaway to the east slopes towards reclaimed agricultural land. The only area of cutaway suitable for restoration work would be the thin margin in the southern, active cutaway and the abandoned cutaway to the west.

Conclusion: The visit found the bog to be extensively damaged by burning with *Myrica gale* patches occurring on areas that may be flushed due to subsidence. The cutaway to the north of this bog slopes down from the esker ridge and would be unsuitable for restoration work. The active cutaway to the east slopes towards reclaimed agricultural land. The only area of cutaway suitable for restoration work would be the thin margin in the southern, active cutaway and the abandoned cutaway to the west. Ballinderry bog is much lower than Ballynagrenia with the cutaway sloping towards Ballinderry. There could be some potential of utilising drainage outflow from Ballynagrenia to re-flood this region.

MONEYBEG, Co. Westmeath/Meath (987)
This bog has been selected for conservation as it has 25.4% of central and sub-central ecotope present.

Condition: Poor, no primary habitat present but a large area of central and sub-central ecotope is present.

Active peat cutting: There is active peat cutting to the west and east of the bog, mostly hopper peat cutting with 41.5% of the margin affected.

High bog remaining since the 1840s: 24.9% remains, this bog originally occurred as a small basin bordering Lough Sheelin. To the north it had a natural margin with the lake and it was bordered by sloping mineral soil to the east and south. To the west a narrow ridge separated this bog from Clare Island bog. A road from Ross to Finnea now separates the intact high bog from the lake. Between the road and the lake there is old cutaway dominated by *Molinia caerulea* with *Betula pubescens* scrub at the lake shore. There is a small area of *M. caerulea* dominated cutaway, sloping towards the road. The road margin is lined with *Ulex europaeus* scrub. There is extensive level cutaway to the east, which is dominated by *C. vulgaris* and *U. europaeus* scrub. To the south-east there is also an area of level cutaway. This is dominated by *M. caerulea* and *U. europaeus* scrub *B. pubescens* woodland occurs at the base of the mineral slope. To the west there are extensive areas of cutaway, which slope away from the high bog, but also slope down from the surrounding land.

Forestry: There is some coniferous forestry to the west of the site.

Fire History: There are signs of recent burns over most of the bog.

Dumping: There is some dumping off a trackway down by the shoreline.

Surface drains: There are 3.8km of drains on the high bog. There is no active drainage on the site which is bisected by an old north-south drain system. The only other drainage was associated with the roadway.

Marginal areas: There are 1.0km of drains in the marginal areas. There is good transition from old cutaway to the lakeshore and the extensive areas of cutaway to the east and west have good potential for restoration work.

Conclusion: Along with Clare Island Bog it is one of the most north-easterly sites with an unusual lakeside location. The survey found an extensive central and sub-central area was found along with an unusual mound feature of possible archaeological value. There is no active drainage on the site, also there is good transition from old cutaway to the lake-shore and the extensive areas of cutaway to the east and west have good potential for restoration work. The main drainage on the bog flows out by the road and blocking this could help re-wet the high bog. There is extensive level cutaway to the east, which is dominated by *Calluna vulgaris* and *Ulex europaeus* scrub. *Betula pubescens* scrub borders the trackway at the base of the mineral slope. This area has some restoration potential. To the south-east there is also an area of level cutaway. This is dominated by *Molinia caerulea* and *U. europaeus* scrub, *B. pubescens* woodland occurs at the base of the mineral slope. To the south a small margin of cutaway slopes away from the high-bog. This is backed by *B. pubescens* wood and sloping agricultural land. There is a drainage outflow here and the high bog slopes steeply towards the cutaway. There is some potential to reflood this area with run-off from the bog and mineral slopes. To the west there are extensive areas of cutaway, which slope away from the high bog, but also slope down from the surrounding land. These areas would be suitable for re-wetting. On the high-bog margin beside this cutaway there is a wooded mound which appears to be of man-made origin and may have some archaeological interest.

CLAREISLAND, Co. Westmeath (987)
This bog has been selected for conservation due to its natural lake margins and high cover by central and sub-central ecotopes (33.7%).

Condition: Poor, all four ecotopes are represented with 8.8% of primary habitat along the lake margins.

Active peat cutting: There is active peat cutting to the west and north-west of the site. This Hopper peat cutting is restricted to the margins of the north-western lobe of the bog. Altogether 15.3% of the bog margin is affected.

High bog remaining since the 1840s: 38.7% remains, this bog occurred along a thin margin between mineral slopes and the lake shore of Lough Sheelin. It had an extensive natural margin to the lake from the River Inny in the west to Derrymacegan headland in the east. This headland separated this bog from Moneybeg bog. A road between Finnea and Ross now runs across the southern margin of the bog. This separates the southern margin from the intact high-bog. This southern margin has been afforested and also has scrub encroachment of *Betula pubescens* and *Ulex europaeus*. To the north-west there is some cutaway by the lake shore. This slopes from a track towards the bog and is backed by *B. pubescens* scrub at the shore-line. There is cutaway to the west, between the high bog and sloping mineral soil.

Forestry: There is coniferous forestry to the south of the bog across the road.

Fire History: There is no evidence of burning.

Dumping: There is no dumping at the site.

Surface drains: There are 3.6km of drains on the high bog. There is a large, old drain bisecting the site with numerous drains running from this to the lake-shore, these are all in-filled and are having little effect on the vegetation.

Marginal areas: There are 1.7km of drains in the marginal areas. A small area of cutaway in the west would be suitable for restoration work, however, the natural margin with the lakeshore makes this bog very interesting.

Conclusions: The importance of this site lies mainly in its lakeside situation and the natural margins it has sloping down to the lake. The bog also has a large area of wet high bog vegetation despite old drainage. There is cutaway to the west, between the high bog and sloping mineral soil. This is level in places and may be suitable for restoration work, with the run-off from the mineral slopes creating a lagg zone. The drainage system on this bog is associated with the lake and blockage of these drains will aid re-wetting of the high bog also all cutting must be halted.

TABLE 6.8 Details on Selection criteria for Selected Sites (* = designated due to proximity to other sites)

Sites	Central complexes	Sub-central complexes	>25% central & sub-central complexes	Flushes, fens & laggs	East/west indicator spp	Geomorphic setting	Climate	Restoration potential
Monmore			*			*		
Cloonloum more								
Cloonmore/Cloonfelle y								Marginal/surface
Aughrim								Surface
Eskerboy								
Ballygar								
Killeragh		10/7/9	*					
Mouds	10							
Coolrain				*Pinus* flush		*		Marginal
Cloonshannagh	10/14							
Clooneen				*Betula* bog-wood				
Gowlaun*								
Derrykinlough	14							
Kilgarriff			*		*			
Mount Hevey	14/10/7							
Girley								
Daingean								
Clonydonnin			*					Surface
Derrycanan								Marginal
Ballynamona				*Betula* bog-wood				
Tullaghan Rock						*		
Cloongoonagh							*	Marginal
Scohaboy								Surface
Timoney								
Carn Park		10/7/9+*Cl*+Pools 10/7/9+*Cl*						
Ballynagrenia		10/7/9B; 10/7/9						
Ballinderry*								
Moneybeg	14/7							
Clareisland	14/7/9							

TABLE 6.10 Summary of Restoration/Conservation Measures Required at sites visited during the Raised Bog Project 1999/2000.

Site	Block Drains		NHA boundary changes	Forestry removal	Invasive species removal	Lagg work	Management agreement	Conservation Possibilities	Restoration Possibilities
	Surface	Marginal							
Monmore	+	+	+					+	+
Cloonloummore	+	+	+				+	+	+
Cloonmore/Cloonfelley	+	+					+	+	+
Aughrim	+	+	+				+	+	+
Eskerboy	+			+		+	+	+	+/-
Ballygar	+	+		+		+	+	+/-	+/-
Killeragh	+	+			+		+	+	+
Mouds	+	+			+		+	+	+
Coolrain		+		+	+		+	+	+
Cloonshannagh	+	+	+	+		+	+	+	+
Clooneen		+					+	+	+/-
Gowlaun	+		+		+			+/-	+/-
Derrykinlough	+	+	+	+			+	+	+
Kilgarriff							+	+/-	+/-
Mount Hevey	+	+		+			+	+	+
Girley	+			+	+			+	+
Daingean	+	+					+	+/-	+/-
Clonydonnin	+	+			+		+	+	+
Derrycanan	+	+	+				+	+	+
Ballynamona	+	+			+		+	+	+
Tullaghan Rock	+	+		+			+	+	+
Cloongoonagh	+	+	+		+		+	+	+
Scohaboy	+	+	+	+	+		+	+	+
Timoney	+	+					+	+	+
Carn Park	+	+		+	+	+	+	+	+
Ballynagrenia	+	+					+	+	+
Ballinderry		+			+		+	+	+/-
Moneybeg	+	+					+	+	+
Clareisland		+					+	+	+

TABLE 6.11 List of 23 Proposed SAC Raised Bogs

	Sites	County	NHA Code	Area (ha)	Central Ecotope (ha)	% of National area	Degraded (D)/Active (A)
1	**Monmore**	Ce	70	21.4	0	0.1	D
2	**Cloonmore/Cloonfelley**	Gy	247	176.4	0	0.9	D
3	**Aughrim**	Gy	1227	158.9	0	0.8	D
4	**Killeragh**	Gy	284	118	0	0.6	D
5	**Mouds**	Ke	395	286.8	15	1.4	A
6	**Coolrain**	Ls	415	60.1	0	0.3	D
7	**Cloonshannagh**	Ld	2069	55.9	4.7	0.3	A
8	**Clooneen**	Ld	445	94.8	10.1	0.5	A
9	**Gowlaun**	Mo	502	193.6	0	1.0	D
10	**Derrykinlough**	Mo	1899	71.2	1.6	0.4	A
11	**Kilgarriff**	Mo	510	50.8	1.8	0.3	D
12	**Mount Hevey**	Mh	1584	200	9.7	1.0	A
13	**Clonydonnin**	Oy/Wh	565	116.6	0	0.6	D
14	**Derrycanan**	Rn	605	174.3	0	0.9	D
15	**Ballynamona**	Rn	590	61	0	0.3	A
16	**Tullaghan Rock**	Rn	2013	67.4	2.8	0.3	D
17	**Cloongoonagh**	So	1657	164	0.3	0.8	D
18	**Scohaboy**	Tn	937	214.2	0	1.1	D
19	**Carn Park**	Wh	676	156.4	0	0.8	D
20	**Ballynagrenia**	Wh	674	130.4	0	0.7	D
21	**Ballinderry**	Wh	674	43.7	0	0.2	D
22	**Moneybeg**	Wh/Mh	987	74.4	8.9	0.4	D
23	**Clareisland**	Wh	987	69	2.8	0.3	D
	TOTAL			2759	57.7	13.8	

TABLE 6.12 Summary of Changes to NHA Boundaries for proposed SAC sites

Site	Changes necessary
Monmore	Needs to be expanded to include the cutaway to the west and north.
Cloonmore/Cloonfelley	No change.
Aughrim	Needs to be expanded to include the high bog in the south-west and the cutaway under forestry to the south.
Killeragh	No change.
Mouds	No change.
Coolrain	No change.
Cloonshannagh	The NHA boundary needs to be extended to include the forestry on the cutaway in the south-east.
Clooneen	No change.
Gowlaun	The boundary needs to be extended to the stream in the north to include high bog and cutaway.
Derrykinlough	This bog does not appear to have an NHA boundary.
Kilgarriff	No change.
Mount Hevey	No NHA Map
Clonydonnin	No change.
Derrycanan	The NHA boundary needs to be extended to include the cutaway in the south and the north-west.
Ballynamona	No change.
Tullaghan Rock	No change.
Cloongoonagh	The NHA boundary needs to be expanded to include the cutaway in the south-east and south-west.
Scohaboy	The NHA boundary for this site needs to be extended to include the coniferous plantation on the high bog in the north.
Carn Park	No change.
Ballynagrenia	No change.
Ballinderry	No change.
Moneybeg	No change.
Clareisland	No change.

7. CONCLUSIONS

1. 23 sites out of the 102 considered represented the range in variation of the various criteria dealt with, namely geomorphology, hydrogeology, vegetation, climate and restoration potential.

2. Six of the 23 sites are proposed as active raised bog Special Areas of Conservation as they contain either primary central ecotope or primary bog wood habitat.

3. The other seventeen sites are proposed as degraded raised bog SACs as it is felt that all of these have the potential to increase their active areas and reverse the impacts of desiccation through restoration work.

4. In total 2759ha of raised bog have been proposed as SACs, of these 769.7ha are proposed as active raised bog SACs and 1989.3ha are proposed as degraded SACs.

5. In total these proposed sites represent 13.8% of the national area of raised bogs. The proposed Active SACs represent 3.9% and the proposed degraded SACs represent 9.9% of the national area.

6. Ten extra sites were proposed as SACs by Jim Ryan. These sites were surveyed as part of the 1995 survey but were not included in that original list of proposed SACs. The details of these sites are outlined in Table 7.1.

7. The final total of sites proposed as both degraded and active raised bog SACs is now 65. There are 10,831ha of high bog which represent 54.2% of the national area.

Table 7.1 **Ten sites surveyed in 1995 and now proposed as SACs by Jim Ryan.**

Site	N.H.A.	1° Central (ha)	2° Central (ha)	Flushes (ha)	1° Complexes	Structure rating	Conservation function rating	High bog (ha)
Crosswood	678	23.4		6.1	23.4	I	I	110.0
Corbo	602		11.6	1.9		III	II	121.0
Brown Bog	442		8.7	2.2		II	I	51
Camderry	240		8.0	7.9		II	III	197.0
Callow	587			15.0		II	III	163
Redwood	654		26.8	8.0		II	II	182
Moanveanlagh	374			12.0		II	III	130
Curraghlehanagh	256	11.0	1.6	10.3	11.9	II	II	155
Monivea	311	1.1		22.2	22.1	I	I	156
Knockcolla	419		4.9			III	III	54
Total		35.5	61.6	85.6	57.4			1319

8. REFERENCES FOR PARTS 1 AND 2 OF THE REPORT

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