RAISED BOG RESTORATION PROJECT

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

PART 5
SITE REPORTS
MONEYBEG- TULLAGHAN ROCK

A REPORT TO DÚCHAS, THE HERITAGE SERVICE, DUBLIN.

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Fiona Mac Gowan

March 2000

MONEYBEG BOG, COS MEATH & WESTMEATH

1. SUMMARY OF SITE DETAILS

NHA no.:	987	6" Sheet:	MH8 & WH1
Grid Ref.:	N452 815	1:126,000 Sheet:	12
O.S. Aerial Photo:	31 (8149)	1:50,000 Sheet:	34
Other Photo:	N37	High bog area (ha):	74.4
Date(s) of Visit:	12/1/2000		

Townlands: Moneybeg, Ross, Tullystown, Ballnascarry and Money

2. INTRODUCTION

2.1 BACKGROUND

This site was visited as it is in the extreme north-east of the range of raised bogs. It origionally bordered Lough Sheelin and a large area of high bog remains intact with no active drainage.

This site has been unsurveyed in the past and so required a field visit.

2.2 LOCATION AND ACCESS

A small bog on the Meath/Westmeath border and the shores of Lough Sheelin. It is located 3km south-west of Ross. It can be accessed from the local road between Finnea and Ross which runs through the northern section of the bog.

3. METEOROLOGY

No meteorological measurements have been made on this bog. Rainfall data from the nearby Multyfarnham weather station for the years 1960-93, indicates that the area recieves appproximately 931mm of rainfall annually (R). The nearest synoptic station at Mullingar indicates that the site has up to 159 wet days annually. (Wet day is defined as a day when > 1mm of rainfall recieved).

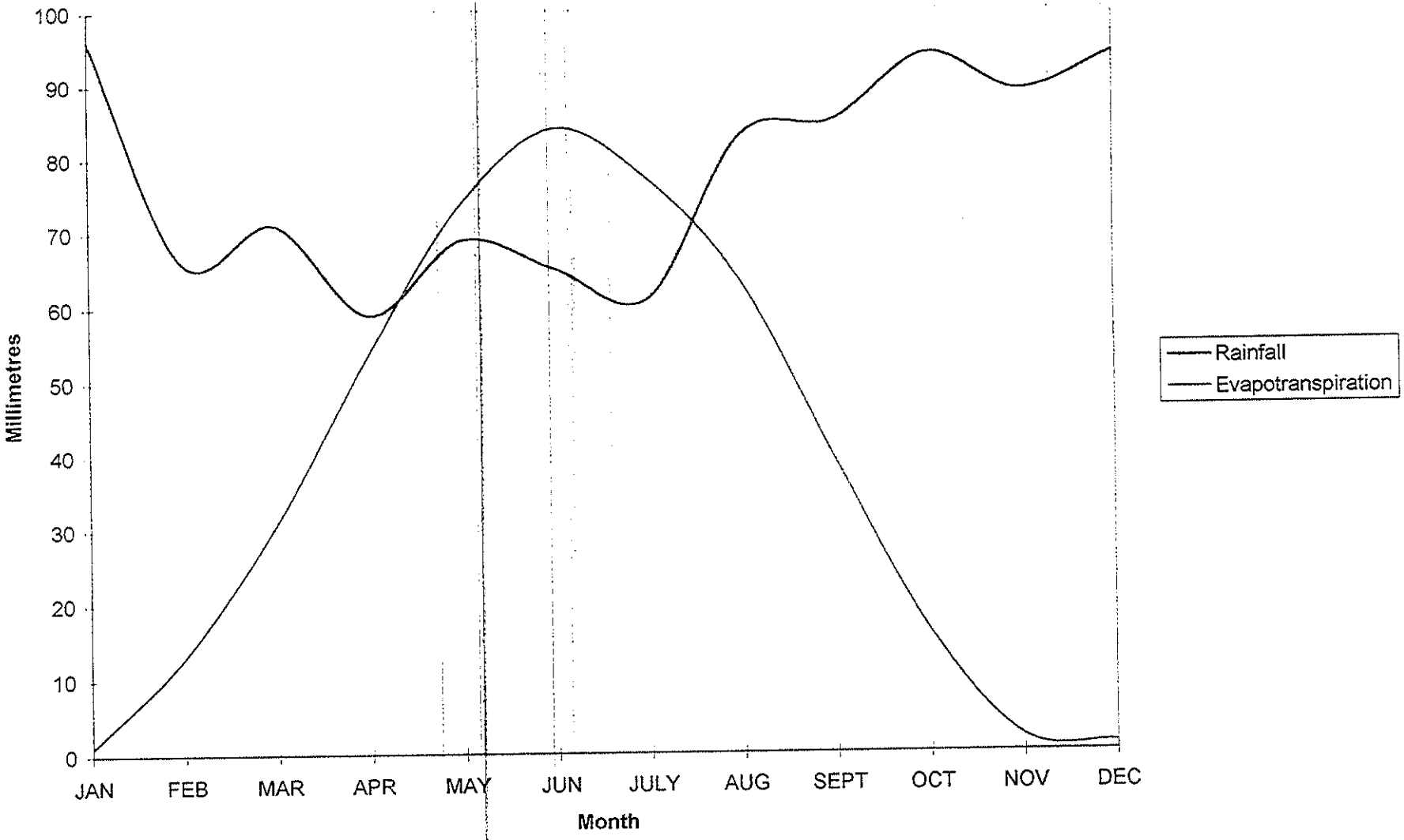
Evapotranspiration measurements are only available for synoptic stations. With the large exposed areas on high bogs, actual evapotranspiration rates would probably be higher than at the nearest synoptic station. The effective rainfall (ER) rate for a site is the annual rainfall (R), less the actual evapotranspiration (AE). With only the potential evapotranspiration (PE) rate available for Mullingar of 455 the effective rainfall for the site is calculated as less than (R - PE) i.e. ER< 931 - 455 = 476mm. (See Fig. 1)

4. GEOMORPHOLOGY

4.1 TOPOGRAPHY OF THE HIGH BOG

Overall the bog is flat with just a gradual slope associated with the southern margins. The isolated northern section slopes down to the lake. A peculiar feature of this bog is a mound of about 20m in diameter 4m high located in the north-west of the bog. This mound's regular shape and different geology to the surrounding bog indicate a man-made origin.

MONEYBEG CLIMATE DATA



4.1.1 Slopes of the High Bog

Slope 1 = A series of short slopes associated with the north-eastern corner and southern margins (0.5m/50m).

Slope 2= A series of marginal slopes associated with cutaway in the east (2m/50m).

Slope 3 = A series of internal, gradual slopes towards the southern cutaway (0.5m/100m).

Slope 4 = A series of marginal slopes associated with cutaway in the west (0.5m/100m).

Slope 5 = A series of internal slopes towards the lakeshore (0.5m/100m).

4.2 TOPOGRAPHY OF THE BOG MARGINS

This bog is surrounded by agricultural land which slopes steeply down to the bog (R4, P1). The only area of land sloping away from the bog is down to the lake shore on the opposite side of the road. There is extensive cutaway to the west and east, both with slopes suitable for restoration work. The eastern cutaway is the most promising as it is level and below the adjoining agricultural land. It is backed by a steeply sloping hill, thus making flooding of the cutaway feasable.

5. HYDROLOGICAL SYSTEM

5.1 GEOLOGY/HYDROLOGY

5.1.1 Bedrock

This bog is underlain by basinal limestones (CPU) and shallow water limestones (SHU) as described by the GSI/ Chevron Series maps..

5.1.2 Subsoils

No data on subsoils was available for this site.

5.1.3 Peat

The peat for this site was classified by Hammond as True midland and Man-Modified types.

5.2 HYDROLOGY

5.2.1 High Bog Hydrology (see Drains map)

This bog is divided by a north-south drain system, otherwise drainage is restricted to the north beside the roadway. None of this drainage is active.

Drain D1: An old drain running south-west from the road to old cutaway. This is lined by a small (20cm high) ridge of *Calluna vulgaris* alongside this in-filled drain. The drain is 0.5m wide and completely in-filled with *C. vulgaris*, *Narthecium ossifragum*, *Rhynchospora alba* and *Eriophorum angustifolium*. There is some *Sphagnum cuspidatum* and *S. capillifolium* in the wetter areas and some *Drosera anglica* is present.

Drain D2: A water-filled drain, 0.5m wide, with *Calluna vulgaris*, *Sphagnum magellanicum* and *Narthecium ossifragum* encroaching in from the edges. It is almost completely in-filled at its north-western end.

Drain D3: Running parallel to D2 about 5m apart, this drain is 0.5m wide and completely in-filled with *Calluna vulgaris*, *Eriophorum angustifolium* and *Narthecium ossifragum*. There are some wet areas of *Sphagnum cuspidatum* with *S. capillifolium* and *S. magellanicum* encroaching from the margins.

Drain D4: A 0.5m wide drain, 0.5m deep with 10cm of water. This is flowing to the south. It is in-filling with *Calluna vulgaris*, *Sphagnum capillifolium* and *Narthecium ossifragum* with some *S. cuspidatum* in the water. There are ridges of *C. vulgaris* on either side. This drain corresponds to a drain on the 6" map, but the central area is completely in-filled and so the northern section is now described as D8.

Drain D5: An old drain by the western cutaway. It is 0.5m wide, less than 20cm deep and completely in-filled with *Calluna vulgaris* and *Eriophorum vaginatum*.

Drain D6: A series of old deep drains running from the roadside into the bog about 20m. These are either associated with abandoned peat cutting or with the road construction. They are 1m wide and 1.5m deep with about 10cm of water. There is a slight flow north towards the road. The sides are unvegetated, but the top of the drains are lined with *Calluna vulgaris* and there are old spoil-heaps present.

Drain D7: An old, completely in-filled drain running from the road across the bog in a south-westerly direction. It corresponds to a drain on the 6" map, but the southern section is not visible on the bog. It is 0.5m wide and less than 20cm deep and in-filled with *Calluna vulgaris*, *Eriophorum vaginatum*, *Sphagnum capillifolium* and *S. magellanicum* with some *S. cuspidatum*.

Drain D8: This is the northern drain that corresponds to D4 in the south. It is 0.5m wide and 0.5m deep, water-filled and fast-flowing to the north, in the opposite direction to D4. It is also lined with *Calluna vulgaris*.

5.2.2 Bog Margin Hydrology

The only drain of note is by the road.

Drain d1: Drain along roadside. It is 1m wide, water-filled with little flow. It is lined with *Ulex europaeus* and *Betula pubescens*.

5.3 GEOHYDROLOGICAL OVERVIEW

Description of the bog in the 19th century
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. Drainage on the high bog was probably towards the lake.

Description of the present-day 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 are some *Calluna vulgaris* dominated high bog remnants and these along with the cutaway slope towards the lake.

The road runs very close to the intact high bog and the roadside margin is very dry with numerous drains. There is a small area of *M. caerulea* dominated cutaway, sloping towards the road. The road margin is lined with *Ulex europaeus* scrub. 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 *C. vulgaris* and *U. europaeus* scrub. *B. 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 *M. 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.

6. VEGETATION

6.1 VEGETATION SUMMARY

There is no central ecotope vegetation found on this bog. There is a quite large area of sub-central vegetation and a large marginal area associated with the lake-shore. The mound in the west of the bog supports a different type of vegetation described below in Section 10.

6.2 DETAILED VEGETATION OF HIGH BOG

6.2.1 Complexes

Marginal Complexes

Complex 7

This complex is found on the northern side of the road by the lake. It is also found on an area beside the road evenly punctuated by deep (1m), wide (1m) drains, running north-south. The spoil heaps at their sides are covered in tall *Calluna vulgaris* with any bare ground covered in a carpet of *Campylopus introflexus*. In between the drains, the vegetation is dominated by *Calluna vulgaris* (70%) and *Cladonia portentosa* (40%). There are patches of bare ground but also *Sphagnum* patches - mostly *S. capillifolium*. Some *Hypnum jutlandicum* is also present. The *Sphagnum* growth is not robust and much of it is dead. There is a prominent algal cover on the bare peat. There are occasional *Eriophorum vaginatum* (5%) tussocks and *Narthecium ossifragum* (<5%), *Rhynchospora alba* (<5%) and *Trichophorum caespitosum*(<5%) occur in notable patches. This vegetation complex also occurs on the face-bank.

Complex 7/6/3

The vegetation is co-dominated by *Calluna vulgaris* (30%)/ *Narthecium ossifragum* (30%)/ *Carex panicea* (30%). There is plenty of *Cladonia portentosa* (5%) and the odd *Trichophorum caespitosum* (5%) tussock. *Erica tetralix* (5%) is prominent and there are occasional, small *Molinia caerulea* (+) tussocks. The acrotelm is variable (0-2cm) with a few *Sphagnum* species (5%) such as *S. capillifolium*, *S. magellanicum* and *S. papillosum* noted. This *Sphagnum* cover improves moving inwards towards Complex 7/10. *Vaccinium oxycoccus* (+) occurs occasionally and there is no sign of fire with plenty of lichen epiphytes on the mature *C. vulgaris* bushes. Caterpillar machine marks are noted through the vegetation. There are occasional pools of standing water especially in the holes made by the machine tracks. *Eriophorum angustifolium* is associated with these pools.

Complex 7/2+ Pines
There is a pronounced slope in this area (Slope 1) and the previously scattered *Pinus sylvestris* trees become more frequent. The *Calluna vulgaris* (40%) gets bushier in places but the acrotelm is gone and there are a lot of *Narthecium ossifragum* hollows with prominent *Trichophorum caespitosum* (10%) tussocks. *Cladonia portentosa* (10%) is plentiful along with *Eriophorum angustifolium* (20%). There are some *Sphagnum* (10%) patches - *S. capillifolium* and *S. papillosum*. *Eriophorum vaginatum* occurs occasionally.

Complex 7/2
This vegetation is similar to that described for Complex 7/2 + Pines above but there is no *Pinus sylvestris* in this area. This vegetation complex occurs in the north-west of the bog.

Complex 4/2 (burnt)
A marginal area on a slope dominated by *Rhynchospora alba* and *Trichophorum caespitosum* with some *Calluna vulgaris*. There is an absence of *Cladonia portentosa* and this complex grades into Complex 10/7/4 (burnt).

Sub-Marginal Complexes

Complex 7/10
The vegetation composition is similar to Complex 7/6/3 but the *Calluna vulgaris* (50%) and *Sphagnum* species (50%) are more lush and robust. *Eriophorum angustifolium* (15%) is more prominent and *Trichophorum caespitosum* (5%) occurs in tussocks. There are occasional scattered, large tear pools which contain algae, *E. angustifolium* and *S. cuspidatum* with *S. magellanicum* and *S. papillosum* at their edges. *Narthecium ossifragum* (10%) is prominent and *Carex panicea* (<5%) noticeable. Some of the pools have completely filled in with *E. angustifolium*. *Erica tetralix* (5%) is prominent with *Cladonia portentosa* (+) in small patches. There is occasional *Andromeda polifolia* (+) and *Polytrichum juniperinum* (+) growing through the *Sphagnum*. This quite good vegetation is interspersed with patches of hard and sometimes bare ground dominated by *N. ossifragum* and features *Cladonia floerkeana*, *Cladonia gracilis* and *Hypnum jutlandicum*. These patches increase in frequency approaching the large drain. Pools occur to within 20m of the cut-face of the eastern margin but they get increasingly dried out with *N. ossifragum* all around the edges and in-filling the dry basins. Even during this wet month it is clear that the water level is lower in some pools with the leaf bases of *Eriophorum angustifolium* exposed. A lot of *Sphagnum imbricatum* is present.

Complex 7/9 + Cl + TP
The vegetation is co-dominated by robust *Calluna vulgaris* (40%)/ *Eriophorum vaginatum* (30%)/ *Cladonia portentosa* (30%). There are scattered pools in-filling with *Sphagnum* and *Rhynchospora alba*. There is plenty of *Drosera anglica*, *Sphagnum magellanicum* and *S. capillifolium* at the edges and *S. cuspidatum* in water. There are occasional *Trichophorum caespitosum* (5%) tussocks and these are scattered through the vegetation. There is good *Erica tetralix* (5%) cover with occasional *Pinus sylvestris* trees. The acrotelm (0-5cm) is patchy with some areas of bare peat. The *Sphagnum* (20%) cover is good with *S. capillifolium*, *S. papillosum* and *S. magellanicum*. *Cladonia portentosa* (80%) is very plentiful in some parts. *Andromeda polifolia* (+) is noted and *Cladonia pyxidata* occur on bare ground.

Sub-Central Complexes

Complex 10/7/4 (burnt)
This area opens out suddenly in a *Rhynchospora alba* (30%) dominated lawn. The vegetation is co-dominated by *Sphagnum* species (50%) and *Calluna vulgaris* (50%). There are prominent *Trichophorum caespitosum* (10%) tussocks and it is also scattered through the vegetation. *Narthecium ossifragum* (10%) and *Erica tetralix* (10%) are prominent with *Eriophorum vaginatum* (10%) also scattered through the vegetation. *Drosera rotundifolia* (+) and liverworts are noted growing through *Sphagnum*. Only tiny clumps of *Cladonia portentosa* (+) and generally young *C. vulgaris* growth indicates a past burn.

Despite the burn the *Sphagnum* carpets are thick and there are occasional lichen-epiphyte covered mature *C. vulgaris* bushes. *N. ossifragum* seems to be confined to areas in between the *Sphagnum* carpets. The acrotelm is patchy (0-5cm) and the main *Sphagnum* species are *S. capillifolium* with *S. papillosum* and *S. tenellum*. The occasional patches of bare ground are colonized by *Cladonia floerkeana, Cladonia coccifera, Cladonia pyxidata, Cladonia gracilis* and *Campylopus introflexus*.

Complex 9/7 + Cl + TP
This vegetation is co-dominated by *Eriophorum vaginatum* (50%) and *Calluna vulgaris* (50%) with *Cladonia portentosa* (20%). The vegetation is similar to Complex 7/9 + Cl + TP but the vegetation is in different proportions with less *Cladonia*. The acrotelm is variable (0-10cm) and the ground is very wet underfoot with occasional patches of dry, hard ground. *Sphagnum* (30%) cover is mostly *S. capillifolium*. There are occasional small pools which are filled with *Narthecium ossifragum* (5%), *Drosera anglica* (+), *Trichophorum caespitosum* (<5%) and *Eriophorum angustifolium* (5%). *Hypnum jutlandicum* (+) and *Andromeda polifolia* (+) are also noted along with *Erica tetralix* (5%).

Central Complexes

Complex 14/7
An area of good vegetation with frequent, large pools all lined by *Sphagnum magellanicum, S. capillifolium* and *S. papillosum* and occasional *S. fuscum*. *Drosera anglica* is plentiful along with *Eriophorum angustifolium* and occasionally *Rhynchospora alba* in the pools. The pools are long and sinuous and all contain *S. cuspidatum*. There s a good acrotelm of 5-10cm. The vegetation in between the pools is dominated by *Calluna vulgaris* (50%) and *Sphagnum* (50%) with prominent *Eriophorum vaginatum* (20%) and *E. angustifolium* (20%). *Hypnum jutlandicum* (+) is associated with *C. vulgaris*. *Narthecium ossifragum* (5%), *Erica tetralix* (5%) and *Cladonia portentosa* (5%) occur along with occasional *Andromeda polifolia* (+). A few of the pools have completely filled in with *Sphagnum* and *Eriophorum angustifolium*. There are occasional *Trichophorum caespitosum* (+) tussocks. Slope 2 in the east affects the vegetation, which reverts to Complex 7/10 with drier *N. ossifragum* areas.

6.2.2 Flushes and Soaks

There were no flushes or soaks found on this bog.

6.3 DETAILED VEGETATION OF THE HIGH BOG MARGINS

The active cutaway is mainly bare peat with some *Eriophorum angustifolium* and *Juncus effusus*. The abandoned cutaway has *Calluna vulgaris, Molinia caerulea* and *Ulex europaeus* scrub. The cutaway is backed by *Betula pubescens* scrub and woodland. The slope down to the lake is interesting with old cutaway dominated by *M. caerulea* and a nice transition to *B. pubescens* scrub at the shoreline.

7. BOG TYPE

This is probably a broad floodplain type bog associated with Lough Sheelin.

8. HUMAN IMPACT

8.1 RECENT HUMAN IMPACT (see Landuse map)

8.1.1 Peat Cutting

There is active peat cutting to the west and east of the bog, mostly hopper peat cutting.

8.1.2 Forestry

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

8.1.3 Fire History

There are signs of recent burns over most of the bog.

8.1.4 Dumping

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

8.2 NHA BOUNDARY CHANGES

No change to the NHA boundary is needed.

9. INTER-RELATIONSHIPS OF VEGETATION, HYDROLOGY, TOPOGRAPHY AND LOCATION

1. This site was surveyed because along with Clare Island Bog it is one of the most north-easterly sites with an unusual lakeside location.

2. The survey found an extensive central and sub-central area along with an unusual mound feature described below.

3. 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.

4.There is good transition form old cutaway to the lakeshore and the extensive areas of cutaway to the east and west have good potential for restoration work. Also blocking of drains on the high bog will help conserve this site.

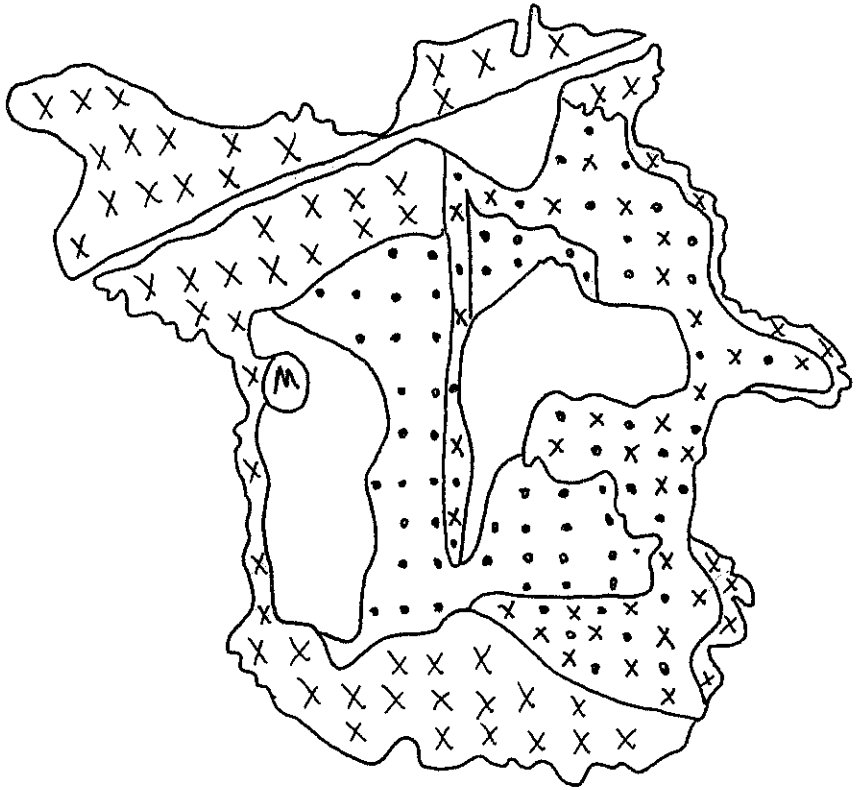
10 OTHER FEATURES

10.1 VEGETATIVE DESCRIPTION OF THE MOUND/MOTTE

The active cutaway lies less than 10m west of the mound. This is a perfect ring surrounded by vegetation Complex 7 *Calluna vulgaris* with lots of *Sphagnum capillifolium* (R3, P18; R5, P1 & P2). This vegetation then turns into tall *Vaccinium myrtillus* and *Pteridium aquilinum* for 1m which then opens out into an area like a dry moat with leaf litter and *Rubus fruticosus* on it. Occasional *Betula pubescens* are growing amongst *Vaccinium myrtillus* ring. There is a steep slope up to a mature oak (*Quercus petraea*) which must be about 500 years old with a circumference at breast height of 3m. It looks to be in very good health with *Hedera helix* on some of the branches and lichen epiphytes on all of them. *Polypodium vulgare* fern epiphytes were also noted. A younger Oak grows beside it - this has split in half with one half growing upright and the other with half its length on the ground - probably broken off a very long time ago. Both halves have circumferences of 1-1.5m. The understorey consists of a few *Crataegus monogyna*, *Ligustrum vulgare* and a few young *Fagus sylvatica*. *Hedera helix* is everywhere with many clumps of *Luzula sylvatica*. There are some remains of fungi with Jews Ears on broken branches the only identifiable ones.

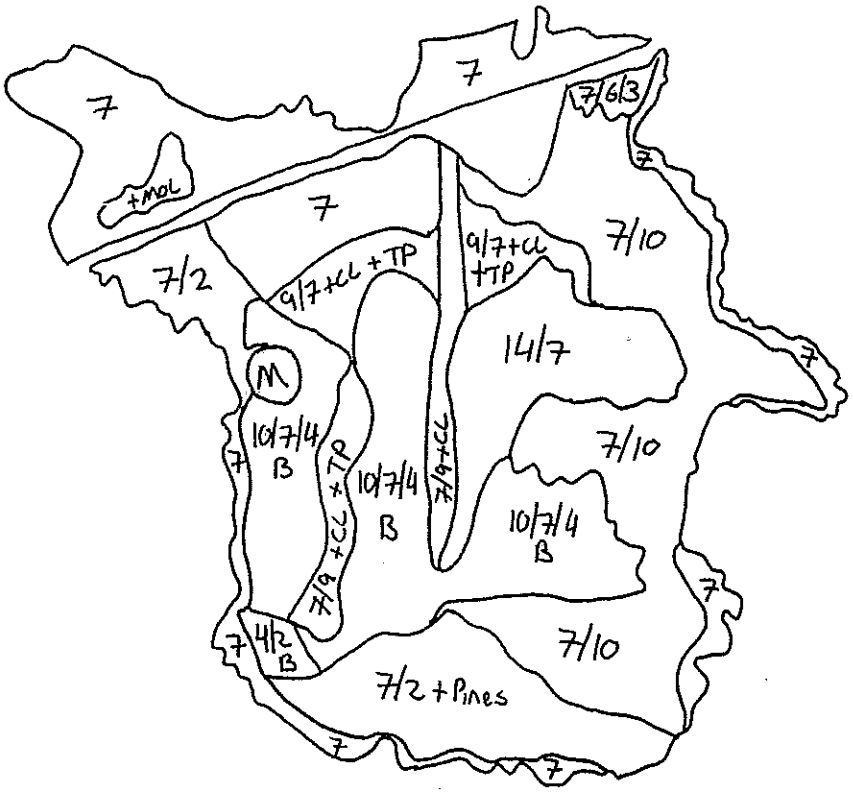
Moneybeg bog
Co. Westmeath
Ecotopes

N

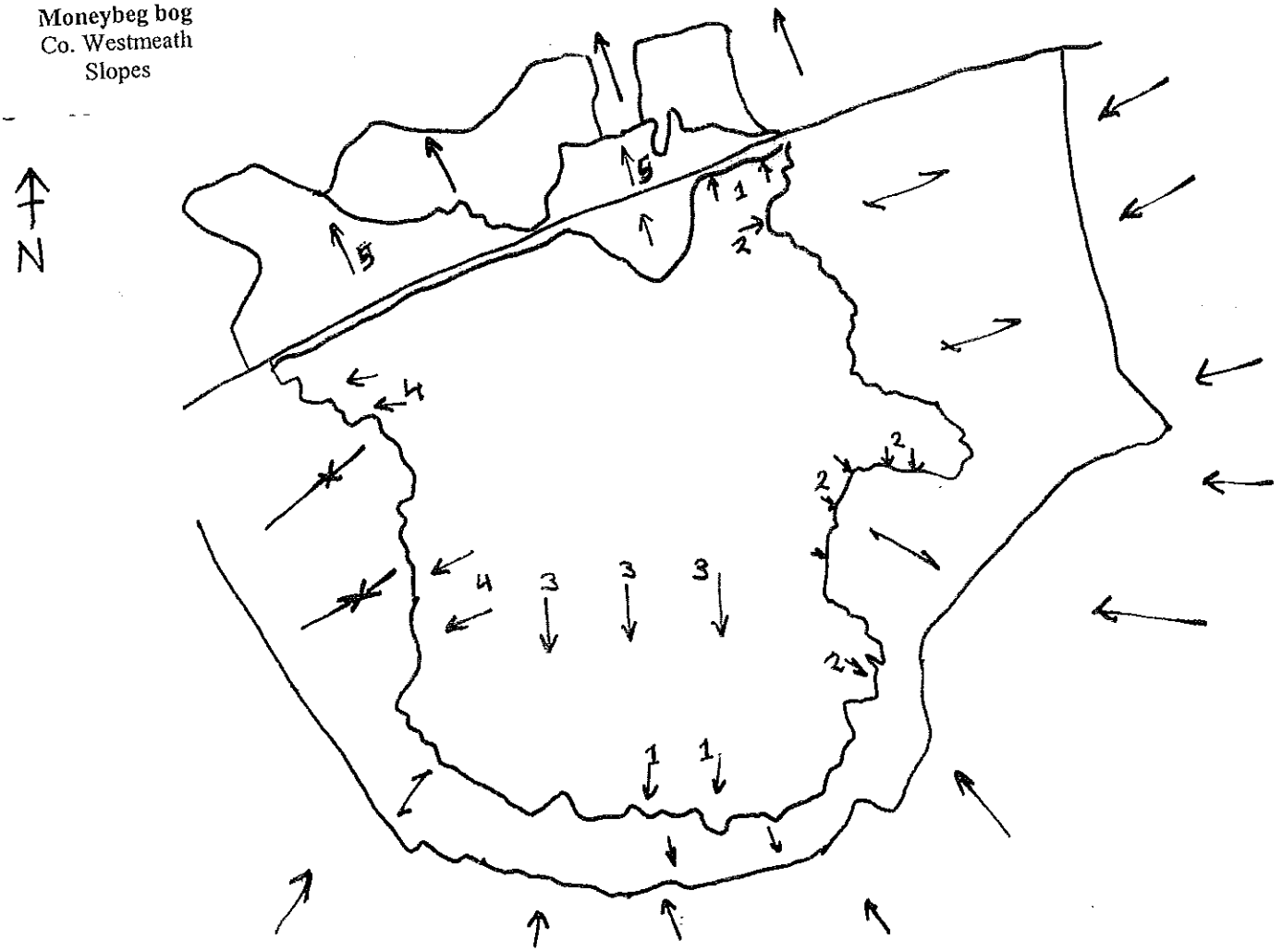


Moneybeg bog
Co. Westmeath
Vegetation complexes

N

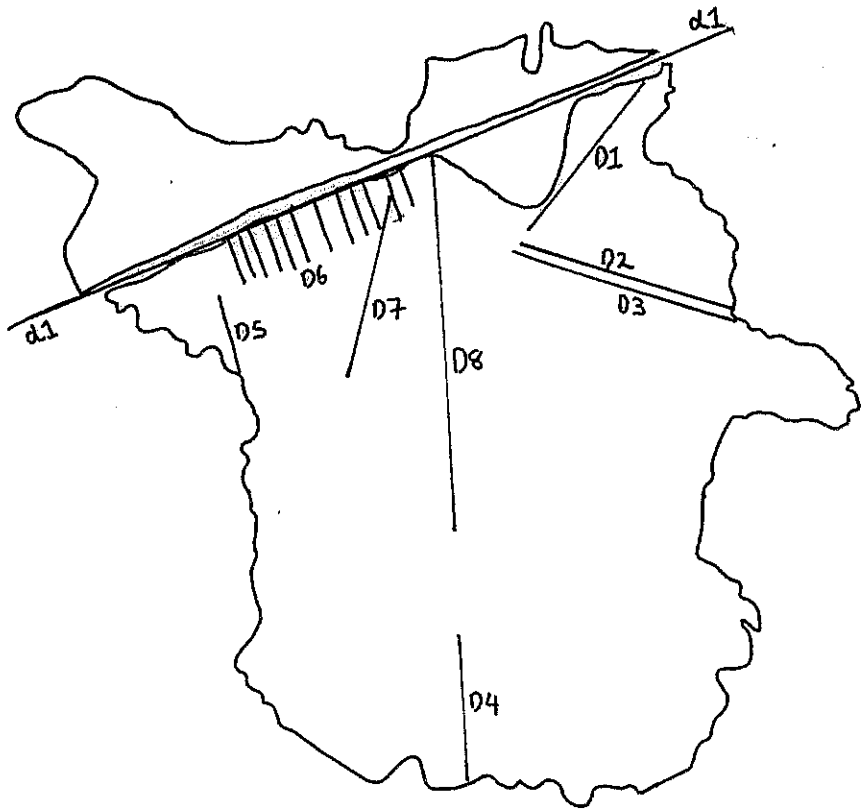


Moneybeg bog
Co. Westmeath
Slopes

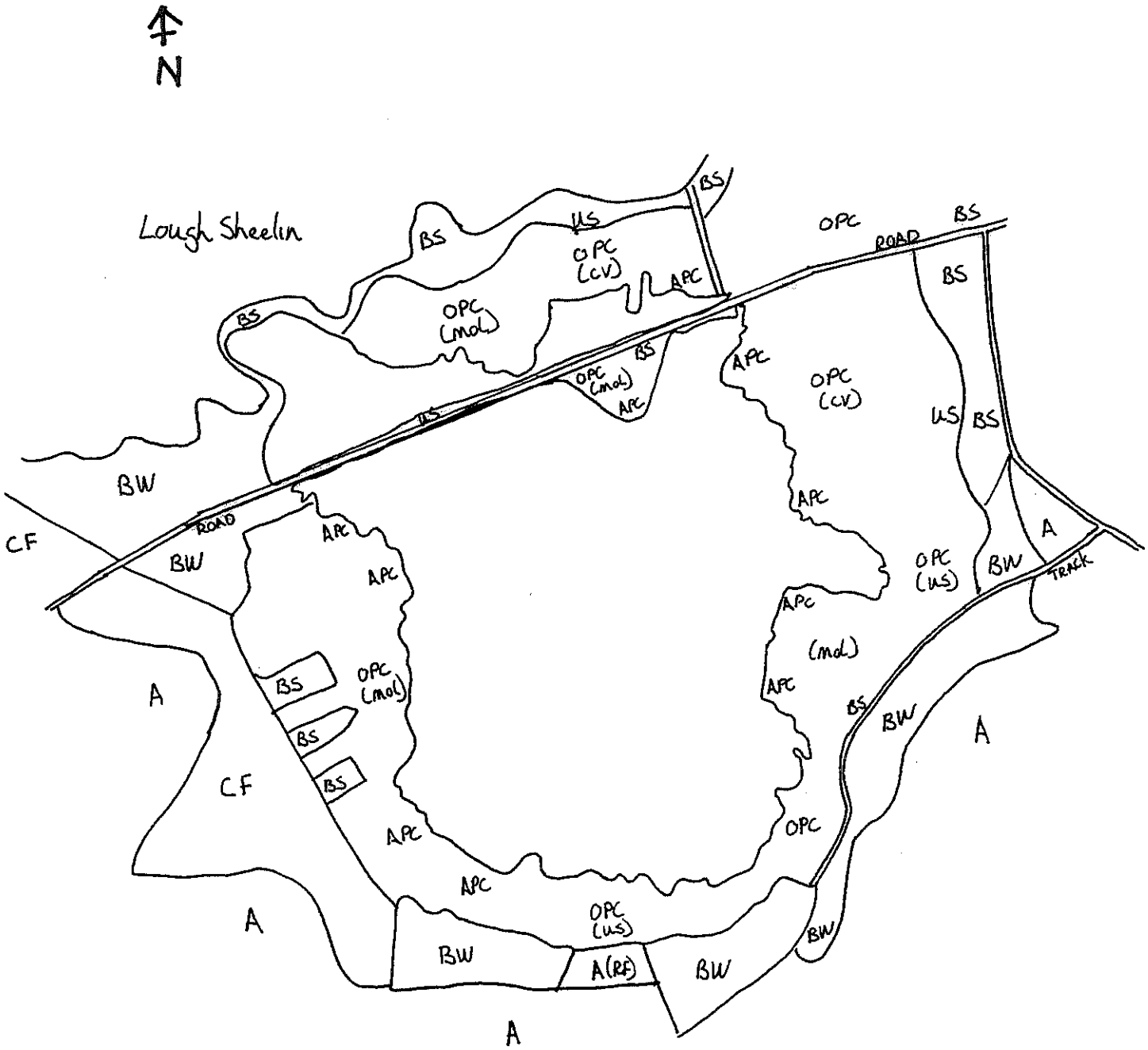


Moneybeg bog
Co. Westmeath
Drainage

N



Moneybeg bog
Co. Westmeath
Landuse



MONMORE BOG, CO. CLARE

1. SUMMARY OF SITE DETAILS

NHA no.:	70	6" Sheet:	CE46
Grid Ref.:	Q953 633	1:126,000 Sheet	17
O.S. Aerial Photo ('95):	49 (6116)	1:50,000 Sheet:	63
Other Photo:	Q (60 & 62)	High bog area (ha):	21.4
Date(s) of Visit:	1/12/1999		

Townland: Carrowmore south

2. INTRODUCTION

2.1 BACKGROUND

This site was selected for a visit as it is the most westerly site of the survey. It also has a unique underlying geology compared to the rest of the sites. It is probably the most intact raised bog in Co. Clare and would extend the range covered by SAC's.

This site has a long history of field surveys. Praeger surveyed this site and it is described in his book (The Botanist in Ireland). Bellamy also visited this bog in 1986 as part of his PhD.

The site was surveyed in 1986 as part of the bog survey and describes wet, spongy *Sphagnum* lawns which are quaking in places. The 1994 NHA survey states this is the only bog of conservation interest in Co. Clare.

2.2 LOCATION AND ACCESS

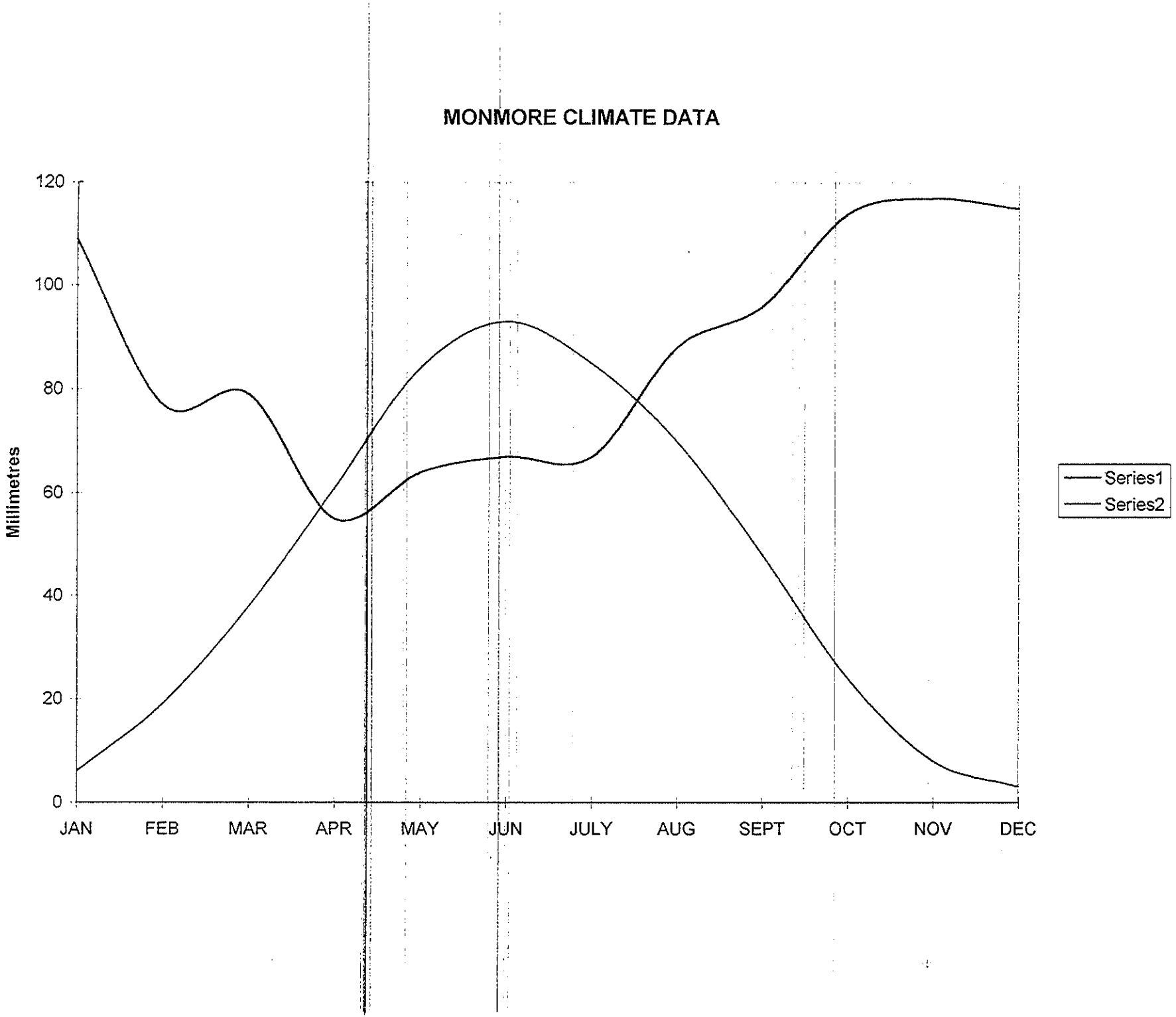
A small raised bog with extensive cutaway, situated 4km south-east of Doonbeg in western County Clare. The site, just north of Tullaher Lough, may be accessed from the local road from Doonbeg to Moyasta,

3. METEOROLOGY

No meteorological measurements have been made on this bog. Rainfall data from the nearby Doonbeg weather station for the years 1960-84, indicates that the area recieves appproximately 1049mm of rainfall annually (R). The nearest synoptic station at Shannon Airport indicates that the site has up to 160 wet days annually. (Wet day is defined as a day when > 1mm of rainfall recieved).

Evapotranspiration measurements are only available for synoptic stations. With the large exposed areas on high bogs, actual evapotranspiration rates would probably be higher than at the nearest synoptic station. The effective rainfall (ER) rate for a site is the annual rainfall (R), less the actual evapotranspiration (AE). With only the potential evapotranspiration (PE) rate available for Shannon Airport of 539mm the effective rainfall for the site is calculated as less than (R - PE) i.e. ER< 1049 - 539 = 510mm.
(See Fig. 1)

Fig. 1: Meteorology for Monmore


MONMORE CLIMATE DATA
Millimetres
120
100
80
60
40
20
0
JAN
FEB
MAR
APR
MAY
JUN
JULY
AUG
SEPT
OCT
NOV
DEC
Series1
Series2

4. GEOMORPHOLOGY

4.1 TOPOGRAPHY OF THE HIGH BOG

The bog is mainly flat with a gradual slope towards the south-east and short, marginal slopes to the south west associated with drainage.

4.1.1 Slopes of the high bog

Slopes 1: A series of marginal slopes into drain d1 (25cm/100m).

Slope 2: A gradual slope south-east across the centre of the bog associated with the old drainage system (25cm/100m).

4.2 TOPOGRAPHY OF THE BOG MARGINS

The extensive cutaway to the north and west was level and below the adjoining trackways. A mineral ridge slopes down to the northern high bog margin and mineral soil slopes down to the southern margins of the bog. Some area e.g.: the extensive cutaway to the north, west and south are suited to restoration measures.

5. HYDROLOGICAL SYSTEM

5.1 GEOLOGY/HYDROLOGY

5.1.1 Bedrock

Gull Island formation, grey siltstone and sandstone according to the GSI/ Chevron series of maps. This bog is the only one to occur on this rock type in this survey.

5.1.2 Subsoils

No data available.

5.1.3 Peat

The peat at this site was classified by Hammond as Transitional type.

5.2 HYDROLOGY

5.2.1 High Bog Hydrology (see Drains map)

Seven drains were found on the high bog. All were old and in-filled.

Drain D1: A very old drain system with *Molinia caerulea* tussocks, *Juncus effusus* and tall *Myrica gale* along the drain edges. The drain is deep but in-filling, <0.5m wide. There is a flush associated with this drain.

Drain D2: A very narrow, completely in-filled drain running along the top of D1 towards old cutaway.

Drain D3: An old drain in-filled with *Calluna vulgaris*, running at right angles from the southern end of D2.

Drain D4: An old drain running from the northern end of D2 to the south-east cutaway. The drain is in-filled with *C. vulgaris* and *M. caerulea* at its southern end.

Drain D5: An old drain, 0.5m wide and 0.5m deep, containing 10cm of still water. The drain is in-filling with *Eriophorum angustifolium* in places. This drain connects D1 and D4.

Drain D6: A series of old in-filled drain running parallel to the cutaway margin in the north-west. They are in-filling with *C. vulgaris* and are having little effect on the surrounding vegetation.

Drain D7: An old in-filling drain beside the eastern cutaway. The drain is in-filling with *M. caerulea* and *C. vulgaris*.

5.2.2 Bog Margin Hydrology

Several deep drains were noted in the margins of the high bog. These are associated with roads, tracks and cutaway reclaimed for agriculture.

Drain d1: A flowing drain at the south-western cut-face. This is an old drain featured on the 6" map, indicating that this cutaway has been abandoned for a long time.

Drain d2: A free-flowing drain bordered by dense *Molinia caerulea* and *Rubus fruticosus* with scattered *Betula pubescens*. The drain is 1m wide and filled with water. Agricultural fields sloped down to this drain on its eastern side.

Drain d3: A small drain with water flowing from agricultural fields into d2.

Drain d4: A deep, 1m wide drain with flowing water between cutaway margin and reclaimed fields. This drain flows into d2.

Drain d5: A small drain running through agricultural fields flowing into d4.

Drain d6: An extensive, wide drain running along the northern and eastern margins of the high bog separating this from reclaimed fields. The drain is water-filled but there is very little flow. Tall *Molinia caerulea* and *Myrica gale* along drain banks, some *Typha latifolia* was also present. In the north-east corner, the drain has been recently excavated with a spoil-bank on the high bog.

Drains d7, d8 and d9: A series of drains in reclaimed, agricultural land, flowing into d6 at the bog face in the north-east.

Drains d10, d11, d12 and d14: These deep drains are associated with roads and trackways, running through cutaway. The drains are lined with *Betula pubescens* and *Ulex europaeus* scrub.

5.3 GEOHYDROLOGICAL OVERVIEW

Description of the bog in the 19th Century
This bog is the remnant of a once extensive bogland, which stretched from Doonbeg south to Tullaher Lough. The original bog was bordered by mineral soil to the west and the Doonbeg river to the east. Monmore Lough was located to the south-east of the bog and separated from it by streams. There were numerous mineral outcrops within this bog indicating that the peat was quite shallow. The drainage pattern on the 1840's map indicates that the drainage from the bog was towards the Doonbeg river.

Description of present-day bog
One of the mineral outcrops now adjoins the northern margin of the intact bog remnant and there is mineral soil to the east. Tullagher Lough to the south is now separated from the bog by cutaway and *Betula* scrub. The active drains at the bog margins all flow into drain d2 which flows in a north-easterly direction, probably towards the Doonbeg river as indicated on the 1840's map.

There is extensive cutaway associated with this bog, with extensive areas of level abandoned hand cutaway to the west and north. These areas have numerous turf banks and hollows and are bordered by roadside drains which could be used for restoration work.

There are numerous in-filled drains on the high bog. These are dominated by *Molinia caerulea* and there are areas of wet regenerating bog by these. There are also some large pools on the high bog which have some mineral influence.

6. VEGETATION

6.1 VEGETATION SUMMARY

The vegetation of the bog has a good mix of microhabitats with the margins and flushes dominated by *Molinia caerulea,* with relatively extensive areas of *Sphagnum* in the centre.

6.2 DETAILED VEGETATION OF HIGH BOG

The vegetation is divided into six complexes described according to the community types they contained. The distribution of the community complexes is shown on the vegetation map. These community complexes are also divided into ecotope types (see Ecotope map).

6.2.1 Complexes

Marginal Complexes

Complex 7/3/2

On either side of drain D5, the vegetation is co-dominated by *Calluna vulgaris*, *Carex panicea* and *Trichophorum caespitosum* with some *Eriophorum vaginatum* and *Narthecium ossifragum*. The *Sphagnum* species cover is very poor. The bog surface is hard and dry due to drains.

Sub-Marginal Complexes

Complex 7/9 + Molinia

Away from the slopes, the sub-marginal vegetation is dominated by *Eriophorum vaginatum* (60%) with *Calluna vulgaris* (40%) and *Molinia caerulea* (40%). *Erica tetralix* (20%) and *Myrica gale* (20%) are also prominent. Moss (50%) cover is more obvious here with *Sphagnum capillifolium* (20%) and *S. papillosum*. *Pleurozium schreberi* and *Breutelia chrysocoma* occur in obvious hummocks. *Vaccinium oxycoccus* (5%), *Narthecium ossifragum* (+) and *Pedicularis sylvatica* (+) are also present.

Complex 7/9 + Molinia + Pools

This is a continuation of vegetation type Complex 7/9 + *Molinia* co-dominated by *Molinia caerulea* (40%)/*Calluna vulgaris* (40%)/ *Eriophorum vaginatum* (60%). However, there are also a number of in-filled pools. One of these is very big but it is in-filled with *Sphagnum cuspidatum, S. auriculatum, S. capillifolium, Narthecium ossifragum* and *Rhynchospora alba*. The pool is bordered on much of its margins with *Calluna vulgaris*. *Myrica gale* is also growing in the *Sphagnum* which has in-filled the pool. *Molinia caerulea* is growing sparsely at the edges and over the *Sphagnum* although it is dominant on the vegetation between the pools. Parts of this area are very spongy underfoot and hummocks of occasional *Sphagnum magellanicum* are seen with occasional occurrences of *Vaccinium oxycoccus* and *Potentilla erecta*.

Complex 7/6

North-east of the large central drain system, *Eriophorum angustifolium* gives way in dominance to *Narthecium ossifragum*. The area is co-dominated by *Narthecium ossifragum* (50%) and *Calluna vulgaris* (50%). *Erica tetralix* (10%) is prominent and there is some *Eriophorum vaginatum* and *Eriophorum angustifolium*. The ground is still spongy underfoot and the acrotelm varied from 0-5cm. The *Sphagnum* species are mainly *Sphagnum capillifolium* (15%) and *S. papillosum* (+). Some *Hypnum jutlandicum* (+)and *Myrica gale* are also present. *Carex panicea* (<5%) has a low cover.

Complex 7/4/10
To the north-east the vegetation changes slightly with *Rhynchospora alba* coming in and *Sphagnum* (60%) cover dominating with the ground quite wet underfoot. Some *Trichophorum caespitosum* tussocks and a few clumps of *Cladonia portentosa* are present, otherwise the vegetation is the same as Complex 7/6 described above. Two parallel drains border the area to the north-west but these are old and in-filled. Several in-filled pools contain carpets of *Sphagnum cuspidatum* with *Myrica gale*.

Sub-Central Complexes

Complex 10/7/9
The bog centre is a flat area co-dominated by *Sphagnum* species (85%), young depauperate *Calluna vulgaris* (50%) and *Eriophorum angustifolium* (30%). Amongst these are small clumps of *Cladonia portentosa* (+), *Cladonia uncialis* (+), and *Hypnum jutlandicum* (+). The area is quite wet and spongy underfoot with an acrotelm of around 5cm everywhere. *Rhynchospora alba* (5%) is dispersed sparingly through the vegetation and *Trichophorum caespitosum* occurs in a few small tussocks near the central pool. *Narthecium ossifragum* (+)and *Erica tetralix* (+) are also present. *Sphagnum* species are mostly *S. capillifolium* (60%), with some *S. cuspidatum* (5%) in wetter hollows and also *S. papillosum* (20%). Occasional occurrences of *Sphagnum magellanicum* and *Pedicularis sylvatica* are present. In the south-west of this area there is a large pool (R2, P6) with obvious mineral input which contained *Nymphaea alba, Carex rostrata* and *Potentilla palustris*. There is a *Sphagnum* carpet at the north-western and south-eastern ends of this pool (R2, P7). Also a dense *Sphagnum cuspidatum* carpet bordering one side of the pool is quaking and too dangerous to walk on. The other margins are *Molinia caerulea* with *Calluna vulgaris* and *Myrica gale* through it. *Vaccinium oxycoccus* and *Eriophorum angustifolium* growing through the *Sphagnum cuspidatum*.

Complex 10/7/9 - burnt
This vegetation complex is similar to that described above but has been burnt in the past. Several burnt hummocks were noted and these have the beginnings of bare peat-colonizing lichens on them. *Eriophorum angustifolium* (10%) is notably not so dominant on this burnt area. *Erica tetralix* (20%) is doing well. Some small patches of *Sphagnum capillifolium* (10%) are returning. Some *Vaccinium oxycoccus* (+), *Breutelia chrysocoma* and *Hypnum jutlandicum* (+) are present.

Central Complexes

No central complexes are present on this bog.

6.2.2 Flushes and Soaks

All the margins of this small bog are dominated by *Molinia caerulea*. The more sloped areas also have *Myrica gale* and the more level areas have *Calluna vulgaris*. These margins are quite hard underfoot although small patches of *Sphagnum capillifolium* and *S. papillosum* are hidden under the senescent *Molinia caerulea* leaves.

Flush 1: A small sloped area going down to the western drain/boundary. Dominated by *Myrica gale* (50%) and *Molinia caerulea* (50%) with some depauperate *Calluna vulgaris* (15%) at the top of the slope. *Eriophorum angustifolium* (5%) and *Erica tetralix* (5%) are present.

Flush 2: This flushed area has very similar vegetation to that described above in Flush 1. This area, however, has been poached and grazed by cattle.

Flush 3: A narrow band of *Molinia caerulea* dominated vegetation associated with Drain D1. The vegetation also featured large *Calluna vulgaris* and scattered *Myrica gale* bushes. The surrounding bog slopes into this drain.

Flush 4: A margin dominated by *Molinia caerulea* on spoil-heaps beside drains.

6.3:DETAILED VEGETATION OF THE HIGH BOG MARGINS

This bog is surrounded by roads on all sides. A mineral ridge with agricultural grassland runs along the northern margin of the high bog and separates this from old peat cuttings to the north. There are old peat cutting to the west and was mostly dominated by *Molinia caerulea*. To the east, cutaway has been reclaimed for agriculture and no cutaway remains.

7. BOG TYPE

This is a small, basin bog that is part of a larger complex, but is a distinct unit due to the ridge to the north and mineral soils to the south-east. With the numerous ridge outcrops associated with this bog it may be classified as a blanket type over undulating land.

8. HUMAN IMPACT

8.1 RECENT HUMAN IMPACT (see Landuse map)

8.1.1 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.

8.1.2 Forestry

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

8.1.3 Fire History

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

8.1.4 Dumping

There is no dumping at the site.

8.1.5 Grazing

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

8.2 NHA BOUNDARY CHANGES

The NHA boundary needs to be expanded to include the cutaway to the west and north.

9. INTER-RELATIONSHIPS OF VEGETATION, HYDROLOGY, TOPOGRAPHY AND LOCATION

1. This site was surveyed as it is located at the western extreme of raised bog distribution in Ireland. The bog is also the most westerly site on the list. The bog is small but previous surveys had remarked on the diversity of the vegetation and the good *Sphagnum* cover on the bog.

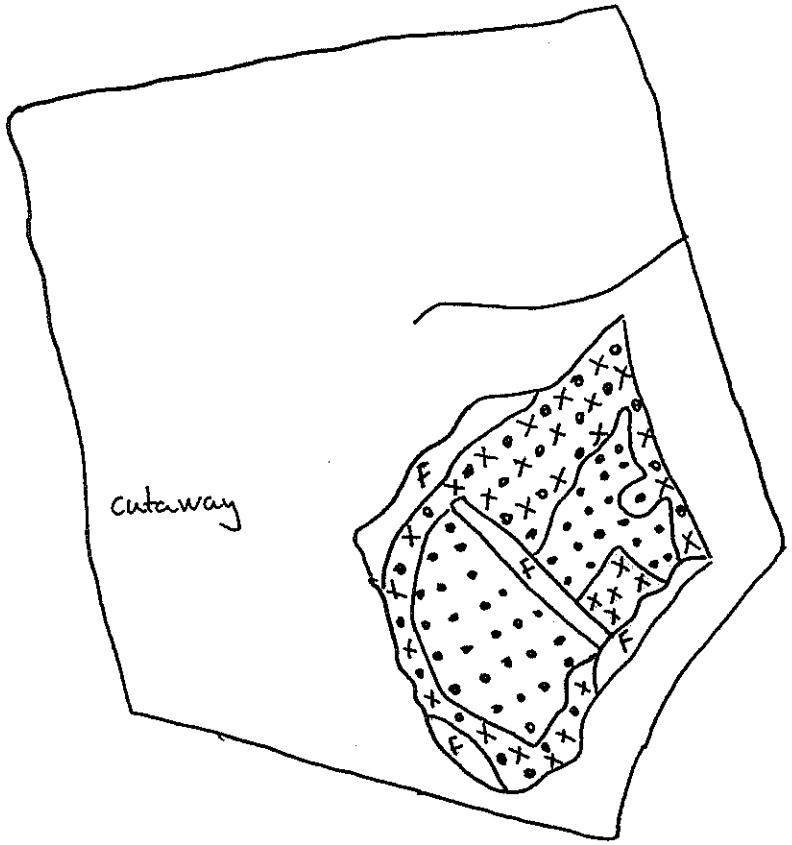
2. This visit confirmed the diverse vegetation and good *Sphagnum* cover on the site.

3. All drainage on the bog is old and has resulted in the drying out of this bog.

4. 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.

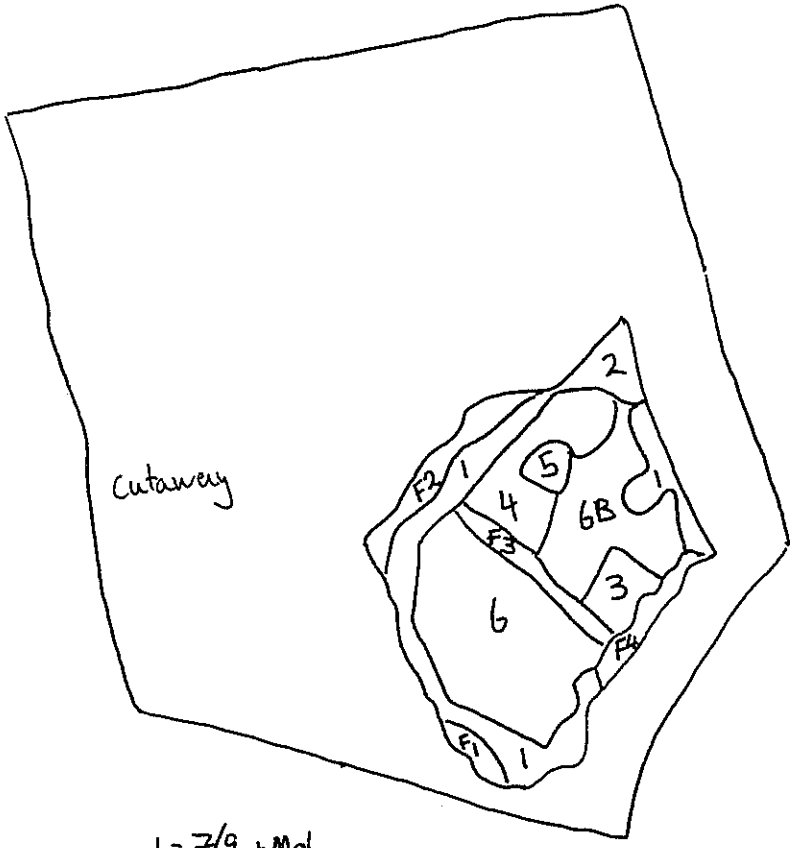
Monmore bog (70)
Co. Clare
Ecotopes

N



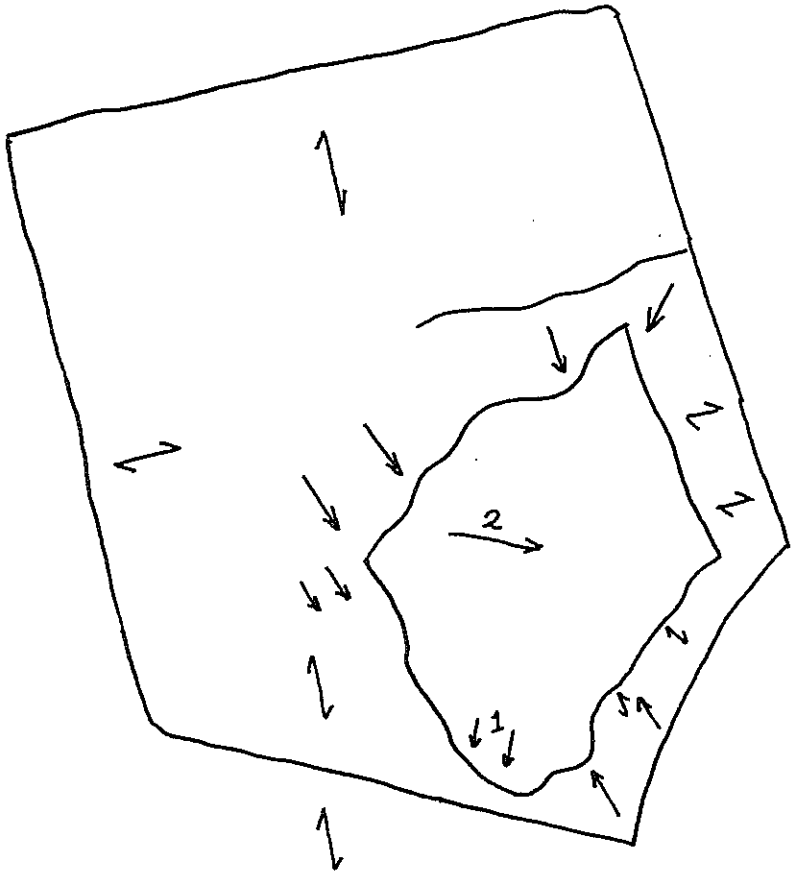
Monmore bog (70)
Co. Clare
Vegetation complexes

N



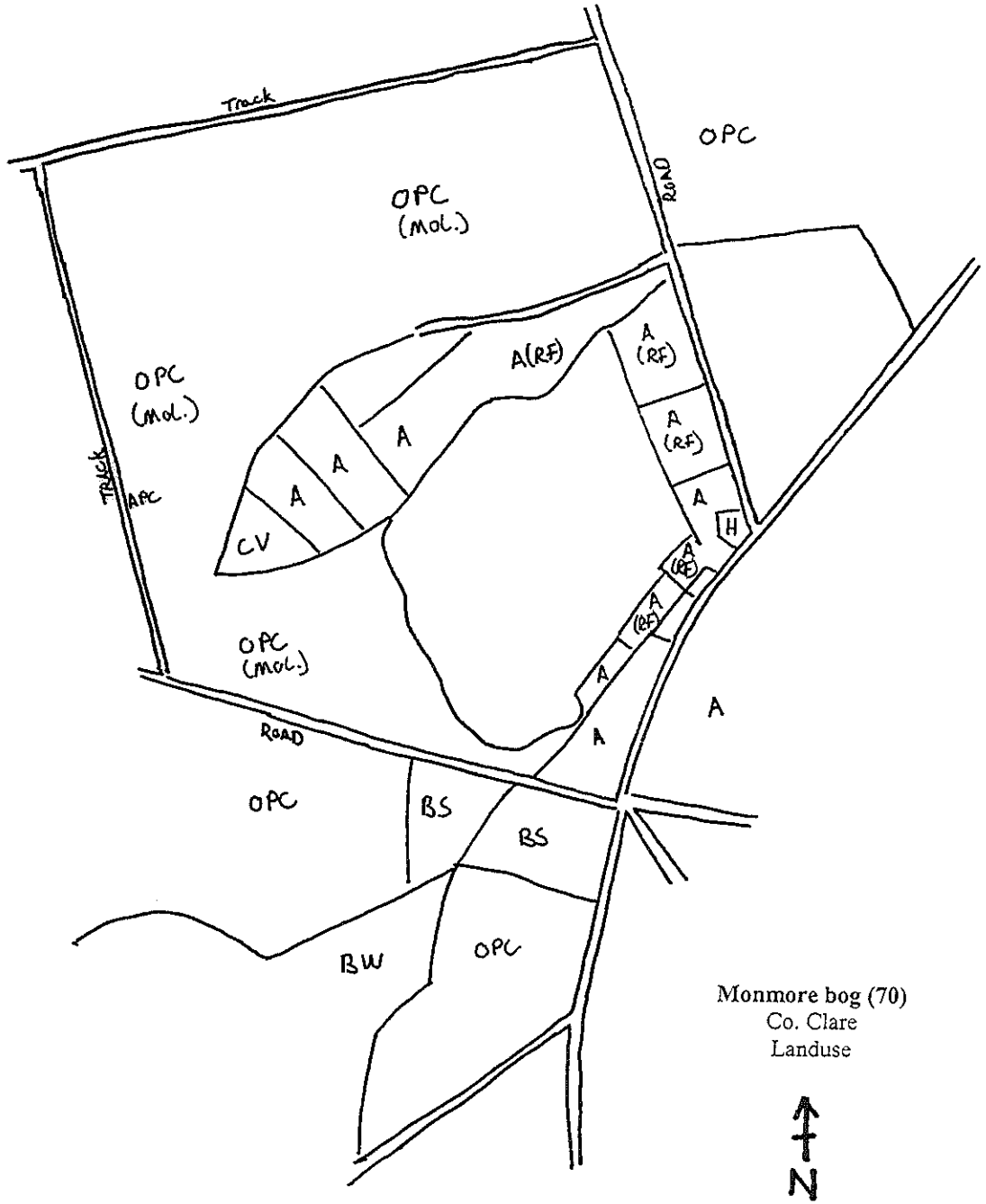
1 = 7/9 + Mol.
2 = 7/9 + Mol. + Pools
3 = 7/3/2
4 = 7/6
5 = 7/4/10
6 = 10/7/9
6B = 10/7/9 B

F1 - F4 = FLUSHES



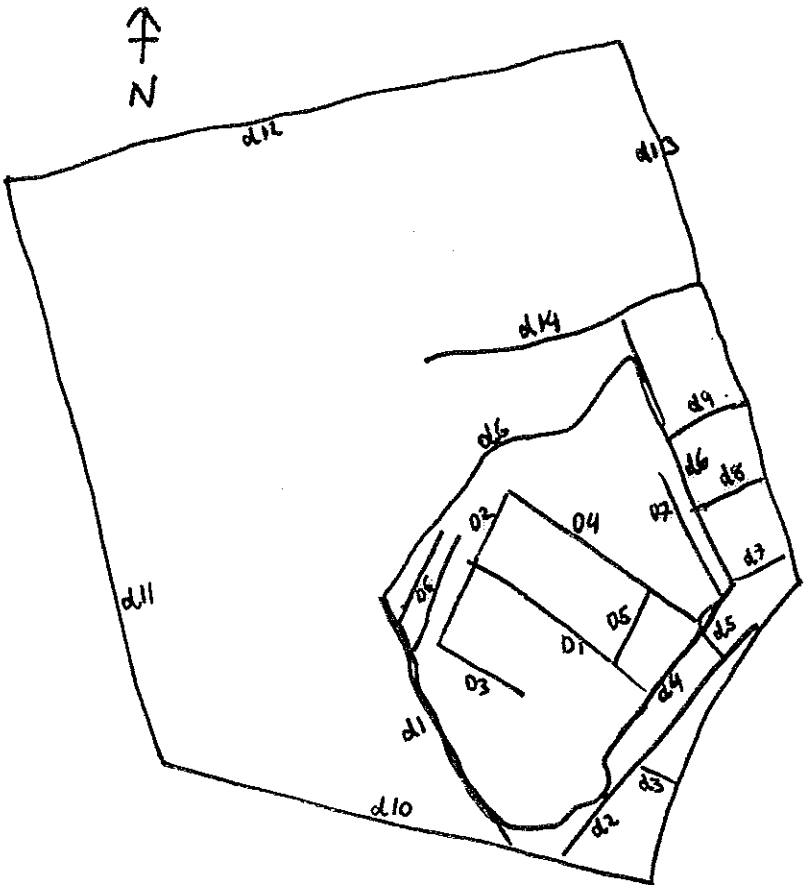
Monmore bog (70)
Co. Clare
Slopes

N



Monmore bog (70)
Co. Clare
Landuse

N



Monmore bog (70)
Co. Clare
Drainage

MOUDS BOG, CO. KILDARE

1. SUMMARY OF SITE DETAILS

NHA no.:	395	6" Sheet:	KE18
Grid Ref.:	N780 180	1:126,000Sheet:	16
G.S.I. Aerial Photo:	40B (8324)	1:50,000 Sheet:	55
Other Photo:	M373 & 424	High bog area (ha):	286.76
Date(s) of Visit:	9-10/11/1999		

Townlands: Baronstown East, Baronstown West, Tankardstown, Hawkfield etc.

2. INTRODUCTION

2.1 BACKGROUND

This site was selected as it is the most easterly raised bog site in the survey. It has a large area of intact dome, although there is extensive industrial peat cutting at the western margin. This large bog is close to urban areas and would increase the range of sites covered by SAC's.

This bog was surveyed in 1982 and in 1994 for the NHA survey. In each, the large size for such an easterly raised bog was noted as important.

2.2 LOCATION AND ACCESS

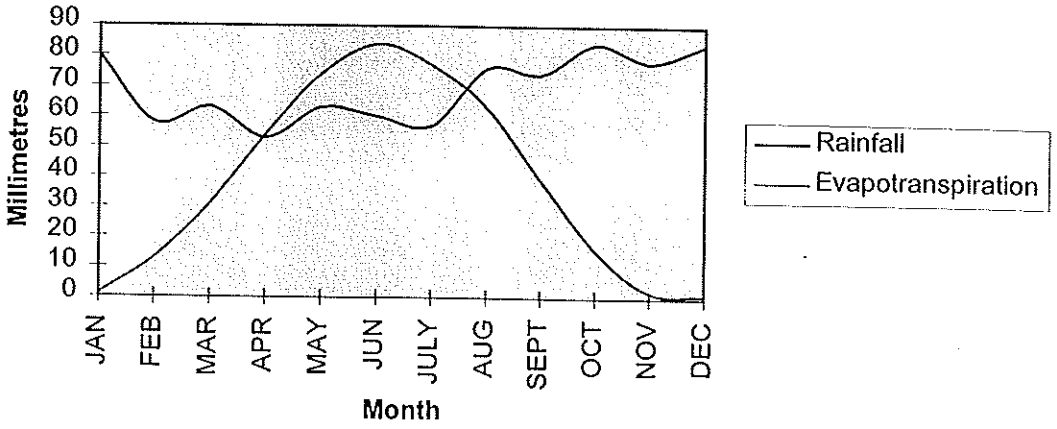
Large raised bog situated 4km northwest of Newbridge, Co. Kildare. The site may be accessed from the cutaway areas on the bog's southern margins, just off the Newbridge-Milltown road (R416).

3. METEOROLOGY

No meteorological measurements have been made on this bog. Rainfall data from the nearby Kildare weather station for the years 1960-92, indicates that the area recieves appproximately 831mm of rainfall annually (R). The nearest synoptic station at Mullingar indicates that the site has up to 159 wet days annually. (Wet day is defined as a day when > 1mm of rainfall recieved).

Evapotranspiration measurements are only available for synoptic stations. With the large exposed areas on high bogs, actual evapotranspiration rates would probably be higher than at the nearest synoptic station. The effective rainfall (ER) rate for a site is the annual rainfall (R), less the actual evapotranspiration (AE). With only the potential evapotranspiration (PE) rate available for Mullingar of 455 the effective rainfall for the site is calculated as less than (R - PE) i.e. ER< 831 - 455 = 376mm. (See Fig. 1)

FIG. 1: Meteorology for Mouds



4. GEOMORPHOLOGY

4.1 TOPOGRAPHY OF THE HIGH BOG

The centre of the bog is dominated by a central ridge with gradual slopes in most directions apart from a steep slope to the north-east. Otherwise the bog is flat with slopes at its margins.

4.2.1 Slopes of the High Bog

Slope 1: A series of slopes in all directions off a central plateau (25cm/100cm).

Slope 2: A steep slope to the north-east off the plateau (75cm/100m).

Slope 3: A gradual slope north-west off the plateau (50cm/200m).

Slope 4: A gradual slope from Flush F3 to the margin (25cm/100m).

Slope 5: A gradual slope from Flush F1 to the margin (25cm/100m).

Slope 6: A slight slope north-east (15cm/100m).

Slope 7: A series of steep marginal slopes, where the peat has cracked (75cm/100m).

4.2 TOPOGRAPHY OF THE BOG MARGINS

In general the surrounding cutaway was level and below the adjoining agricultural land. The south and north-east sections display good potential for restoration.

5. HYDROLOGICAL SYSTEM

5.1 GEOLOGY/HYDROLOGY

5.1.1 Bedrock

This bog, according to the GSI/ Chevron series maps, is underlain by Waulsortian limestones (WA) which are massive pale grey fossiliferous mudstones and also by the Boston hill formation (BN) which are nodular and muddy limestones.

5.1.2 Subsoils

No data on subsoils was available for this site.

5.1.3 Peat

The peatat this site was classified by Hammond as Man-Modified.

5.2 HYDROLOGY

5.2.1 High Bog Hydrology (see Drains map)

A number of drains are restricted to the western section of the bog, leaving the eastern end unaffected.

Drain D1: An old townland boundary drain completely in-filled with *Sphagnum cuspidatum* and *Molinia caerulea* runs through the centre of the bog may have had an effect in the past on the vegetation. The end of the drain in the centre of the bog is marked by a flush.

Drain D2: A short 0.5m wide drain in-filling with *Sphagnum cuspidatum*. This is a deep drain in which fast-flowing water was heard draining south into the southern margins of the bog.

Drain D3: A series of deep, narrow drains running from Drain D4 to cutaway. These are old and dried.

Drains D4 and D5: Wide (1m), deep (2m) drains along the margins of the areas harvested for moss peat. These mark townland boundaries and are actively being further excavated. There is some water at their bases but this is not free-flowing.

5.2.2 Bog Margin Hydrology

There are numerous drains in the cutaway area and of these just four are worth noting.

Drain d1: An old, free-flowing drain, 0.5m wide, running from the face-bank through cutaway to Drain d2.

Drain d2: A deep drain running more or less parallel to the southern face-bank. It is water-filled with *Juncus effusus* growing in it.

Drain d3: A wide drain running parallel to the eastern face-bank and similar to d2 this could be used as a cutaway flooding boundary.

Drains d4: A high bog drain system consisting of a series of abandoned, criss-crossing old drains. Due to the drying action of these drains, this area of high bog now equates to abandoned cutaway banks.

5.3 GEOHYDROLOGICAL OVERVIEW

Description of the bog in the 19th century
This was originally a much bigger bog, consisting of two large basins surrounded by mineral soil and connected at their western margins by a narrow section between two ridges. They were part of the Bog of Allen with the Hill of Allen to the north-west of the site. The river Liffey ran to the south-east and drainage was probably towards this.

Description of the present-day bog
The northern section has been completely cutaway and there is extensive active industrial peat moss production in the western section of the remaining high bog. There is extensive level cutaway to the north, south and east of the bog, but this adjoins reclaimed fields and would be difficult to re-wet.

There are internal slopes on the high bog, due to the ridge across the centre of the bog. These slopes ensure that there are wet areas on the high bog despite the extensive drainage in the west and so this bog is suitable for restoration work.

6. VEGETATION

6.1 VEGETATION SUMMARY

6.2 DETAILED VEGETATION OF HIGH BOG

6.2.1 Complexes

Marginal Complexes

Complex 1
The edges of the northern, southern and eastern ends of the bog are dominated by *Calluna vulgaris* which grew to heights of 80cm in places. There is lot of cracking as the peat dries out and some bare peat areas are typically colonized by *Cladonia floerkeana* and *Campylopus introflexus*.

The extensive marginal area at the western end of the bog adjoins the area of active industrial peat extraction. The extent of this vegetation type is caused by the drying action of the extensive drainage system associated with this operation.

Complex 7 (Primary Vegetation Complex)
This vegetation type occurs on the central ridge outside the burnt area. It is obviously demarcated by much higher heather (R1P1). *Calluna vulgaris* in the burnt area is ca. 20cm high growing right beside the unburnt area with *C. vulgaris* at ca 80cm high. *Eriophorum vaginatum* and *Erica tetralix* are also present although not dominant. Some of the *C. vulgaris* bushes have epiphytic lichens (Photo 2) and associated clumps of *Hypnum jutlandicum*. This is the highest point of the bog with a 300 foot contour running through it according to the 6" map of 1911. The ridge is naturally dry and this accounts for the poor *Sphagnum* growth in what is the centre of the bog.

Complex 7, recently burnt
This vegetation type covers the highest area on the bog with slopes down going outwards in all directions. *Calluna vulgaris* is dominant interspersed with *Eriophorum vaginatum, Erica tetralix* and *Narthecium ossifragum*. No live *Sphagnum* species are noted present although there are several dead hummocks. Plenty of *Campylopus introflexus* and bare peat loving *Cladonia* species with small patches of *Cladonia portentosa* returning. As seen in the aerial photograph this area has been burnt in the recent past.

Sub-Marginal Complexes

Complex 4/10 RB
This area of vegetation is located near the northern margin of the bog and is the most recently burnt area of the bog. It was judged, using the aerial photograph, that this area had been burnt since June 1995 when the photo was taken. The area is dominated by *Rhynchospora alba* with regenerating *Sphagnum magellanicum*. Due to burning, at the south-west *Calluna vulgaris* is not dominant although it is regenerating.

Complex 7
A *Calluna vulgaris* dominated area that is quite wet underfoot with regenerating *Sphagnum* species.

Sub-Central Complexes

Complex 7/10
Dominated by *Calluna vulgaris* with a strong *Erica tetralix, Eriophorum vaginatum* and *Eriophorum angustifolium* component. *Sphagnum* cover is about 50% overall, consisting of *Sphagnum magellanicum, S. papillosum* and *S. capillifolium* with an acrotelm of 0-5cm. *Cladonia portentosa* has a notable coverage indicating an absence of burning. *Rhynchospora alba, Narthecium ossifragum* and *Andromeda polifolia* are all noted present.

A small area of *Sarracenia purpurea* near the central southern margins of the bog. This population appears to be spreading inwards.

Complex 10/7, recently burnt
This vegetation type marks the area of the burn highlighted in the 1995 aerial photograph. Essentially it is the same vegetation as Complex 7/10 described above but the burning has reduced the dominance of *Calluna vulgaris*. It is noted, however, that *Sphagnum* is regenerating well. This regeneration is thought to be aided by the slope down from the central ridge onto this area ensuring the wetness needed for *Sphagnum* regeneration.

Central Complexes

Two areas of central vegetation were recorded. These are naturally separated by the central ridge.

Eastern Complex 10/14
A very wet, flat area with frequent small pools. *Sphagnum cuspidatum* and *Drosera anglica* noted in the pools. *S. magellanicum* dominates with *S. capillifolium* also prominent. The overall *Sphagnum* cover is 80% with an acrotelm of 10-20cm. The *Calluna vulgaris* plants are depauperate as would be expected in this very wet habitat. *Eriophorum vaginatum, Eriophorum angustifolium, Erica tetralix, Vaccinium oxycoccus* and *Andromeda polifolia* are also present.

Western Complex 10/14
A very wet, level area, quaking in places with a lot of *Sphagnum* growth and an acrotelm of 10-20cm. There are several small remnant pools which appear to be in-filling with *Eriophorum angustifolium* and *Sphagnum cuspidatum*. There is an overall *Sphagnum* cover of 80%, comprising of equal coverage by *S. magellanicum* and *S. capillifolium*. After the *Sphagnum* coverage, *Erica tetralix* is the most dominant plant with prominent *Calluna vulgaris* and *Eriophorum angustifolium*. *Trichophorum caespitosum* and *Andromeda polifolia* are present with some scattered *Sarracenia purpurea* encroaching from the margin. 100m south the bog slopes down to the marginal area. The whole area is very wet despite being close to an old townland boundary drain (D1) which has filled in well.

6.2.2 Flushes and Soaks

Flush 1: A slightly flushed area just south of the burnt area on the ridge. Despite very wet conditions, *Calluna vulgaris* is growing very tall (about 40cm)with many bushes covered in epiphytic lichens. *Calluna vulgaris* occurs in hummocks together with *Dicranum scoparium, Hypnum jutlandicum, Vaccinium oxycoccus* and *Empetrum nigrum*. The wet hollows between the hummocks feature *Sphagnum cuspidatum, S. magellanicum, S. capillifolium* with *Eriophorum vaginatum* and *Eriophorum angustifolium* growing throughout. *Erica tetralix* and *Cladonia portentosa* are also prominent and *Molinia caerulea* was present with tall flower-heads found throughout. As the flushed area slopes towards the cutaway *M. caerulea* becomes co-dominant with *Calluna vulgaris* and *Erica tetralix*. This part of the flush has been burnt in the past with soft hummocks of dead burnt *Sphagnum* now colonized by *Polytrichum alpestre* and *Vaccinium oxycoccus. Potentilla erecta* occurs occasionally. *Sphagnum* regeneration is poor here and this is thought to be due to the drying effects of the slope. Two mature *Betula pubescens* trees occur on this flush.

Flush 2: A flush co-dominated by *Myrica gale* and *Rhynchospora alba* with prominent *Erica tetralix* and *Calluna vulgaris* (R1P2). Of the mosses *Sphagnum magellanicum, S. capillifolium, S. tenellum* and *Dicranum scoparium* are prominent. A flat area spreading back towards the centre of the bog features *Cladonia portentosa, Eriophorum vaginatum* and *Eriophorum angustifolium* with some *Trichophorum caespitosum.*

Flush 3: Another flush area marked by several *Betula pubescens* trees. This area has similar vegetation to F1 although *Calluna vulgaris* is not as dominant and *Empetrum nigrum* and *Vaccinium oxycoccus* are abundant. Some *Pteridium aquilinum* and depauperate *Pinus contorta* have invaded. *Erica tetralix, Molinia caerulea* and *Eriophorum vaginatum* are common. Some hummocks of *Sphagnum capillifolium* are present in a slightly quaking area. A hummock of *Leucobryum glaucum* is also present.

Soak 1: A very wet, quaking area with large pools filling in with *Sphagnum cuspidatum* and tall *Eriophorum angustifolium*. Five small *Betula pubescens* (R1P7) trees are present with *Juncus effusus* surrounding the pools. Occasional dense clumps of *Narthecium ossifragum* with robust 20-30cm high *Calluna vulgaris* bushes skirt the area around the soak (R1P6). Several good hummocks of *Polytrichum alpestre* along with *Eriophorum vaginatum* and *Sphagnum magellanicum* are prominent around the margins.

6.3 DETAILED VEGETATION OF THE HIGH BOG MARGINS

At the southern and eastern (R1P3) margins, extensive areas of old cutaway occur. These areas are level with numerous parallel drains running from the face-bank. Larger drains run perpendicular to these and could act as boundaries for the regeneration of cutaway areas. *Molinia caerulea* and *Juncus effusus* dominate running into *Betula pubescens* scrub. These cutaway areas are lower than the surrounding land.

In the north-eastern quarter there is old cutaway with *J. effusus*, and *M. caerulea* and some encroaching *Ulex europaeus* scrub. There is limited grazing of the *M. caerulea* areas.

There is a small section of active peat-cutting in the north with old Difco turf-cutting evident. There is a mixed plantation to the rear of this.

Both the north-west and south-west parts of the bog have old drains criss-crossing the bog surface. These are abandoned peat-cutting works with some small areas of hand-cutting.

In the west an extensive section of cutaway is being actively harvested for moss peat. The high bog slopes away form this area and is wet quite close to this activity.

7. BOG TYPE

This bog consists of two basins separated by a ridge.

8. HUMAN IMPACT

8.1 RECENT HUMAN IMPACT (see Landuse map)

8.1.1 Peat Cutting

There is extensive active peat cutting in the western part of the bog (R1P5). 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.

8.1.2 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.

8.1.3 Fire History

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

8.1.4 Dumping

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

8.2 NHA BOUNDARY CHANGES

No NHA boundary changes are necessary at this site.

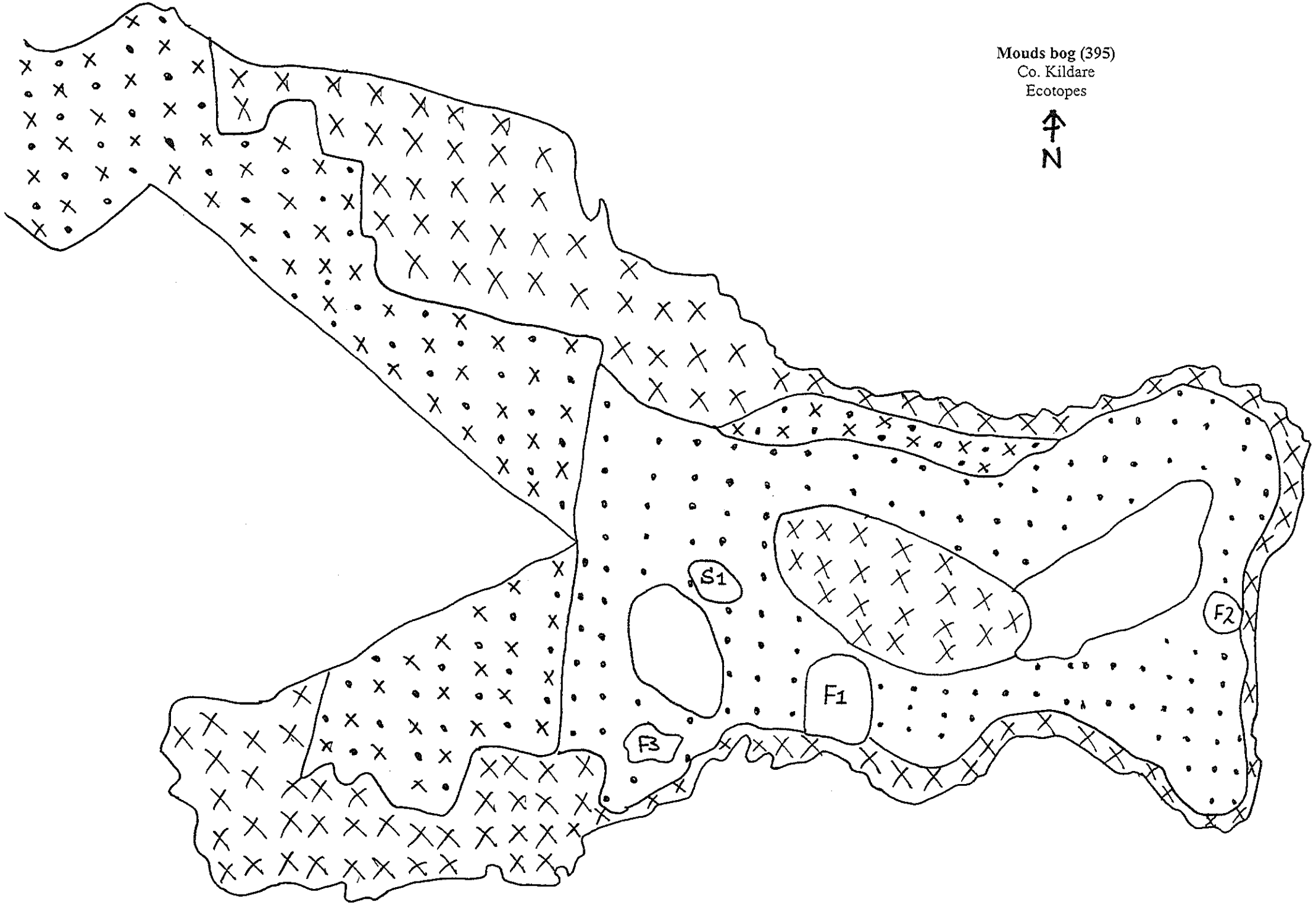
9. INTER-RELATIONSHIPS OF VEGETATION, HYDROLOGY, TOPOGRAPHY AND LOCATION

1. This site was surveyed as one of the most easterly raised bog sites remaining. Although it was apparent that extensive cutting was taking place, there was still a large area of high bog remaining intact.

2. This visit found 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.

3. Apart from the western cutaway margin, this bog is not being actively drained and is very wet quite close to the cutaway.

4. The south and north-east sections of cutaway have good potential for regeneration. These are extensive abandoned cutaway areas which are quite level and below adjoining tracks, roads and farmland. The northern cutaway has some agricultural use and some active peat cutting but is level and has good regeneration potential.


Mouds bog (395)
Co. Kildare
Ecotopes
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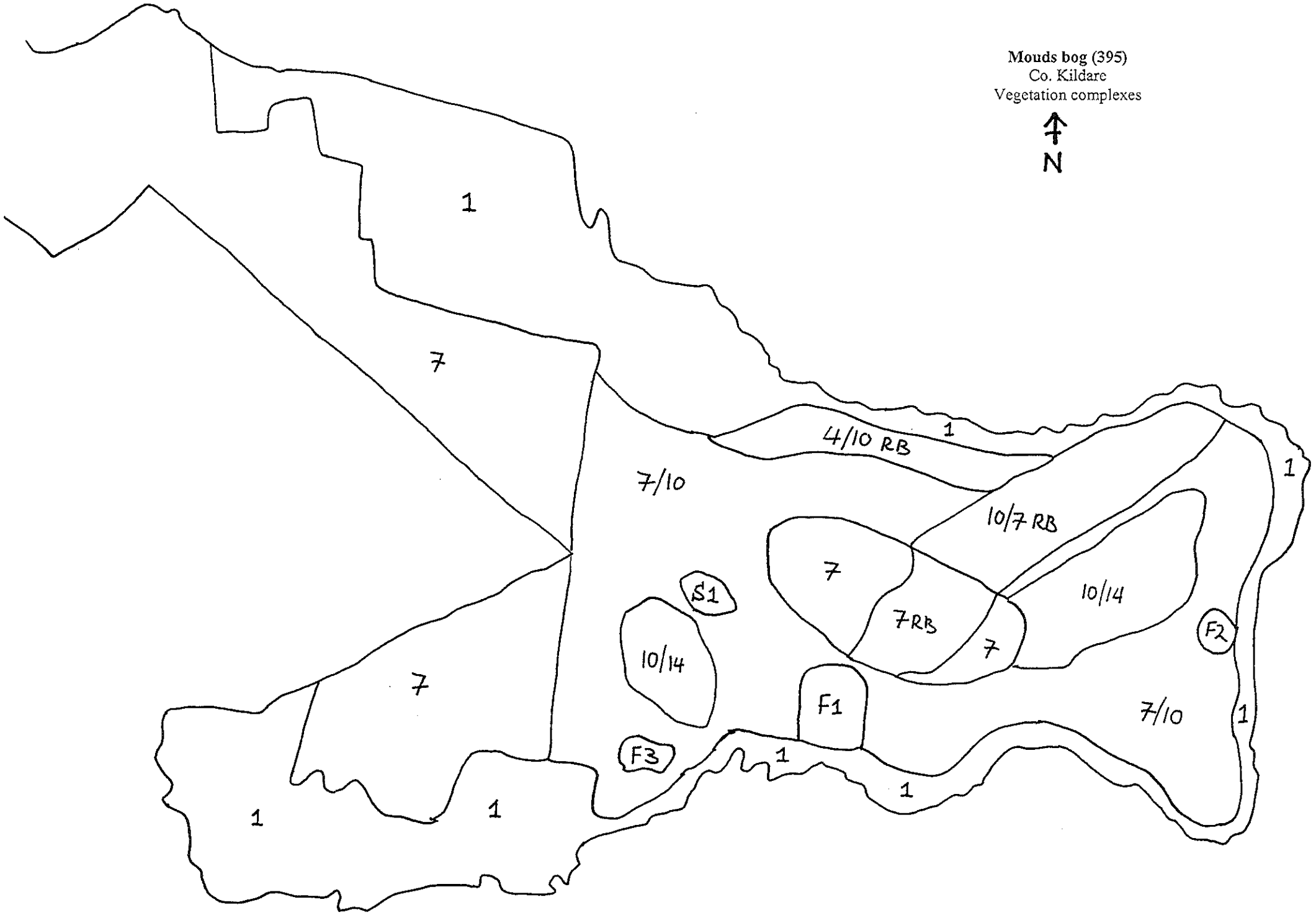
Mouds bog (395)
Co. Kildare
Vegetation complexes
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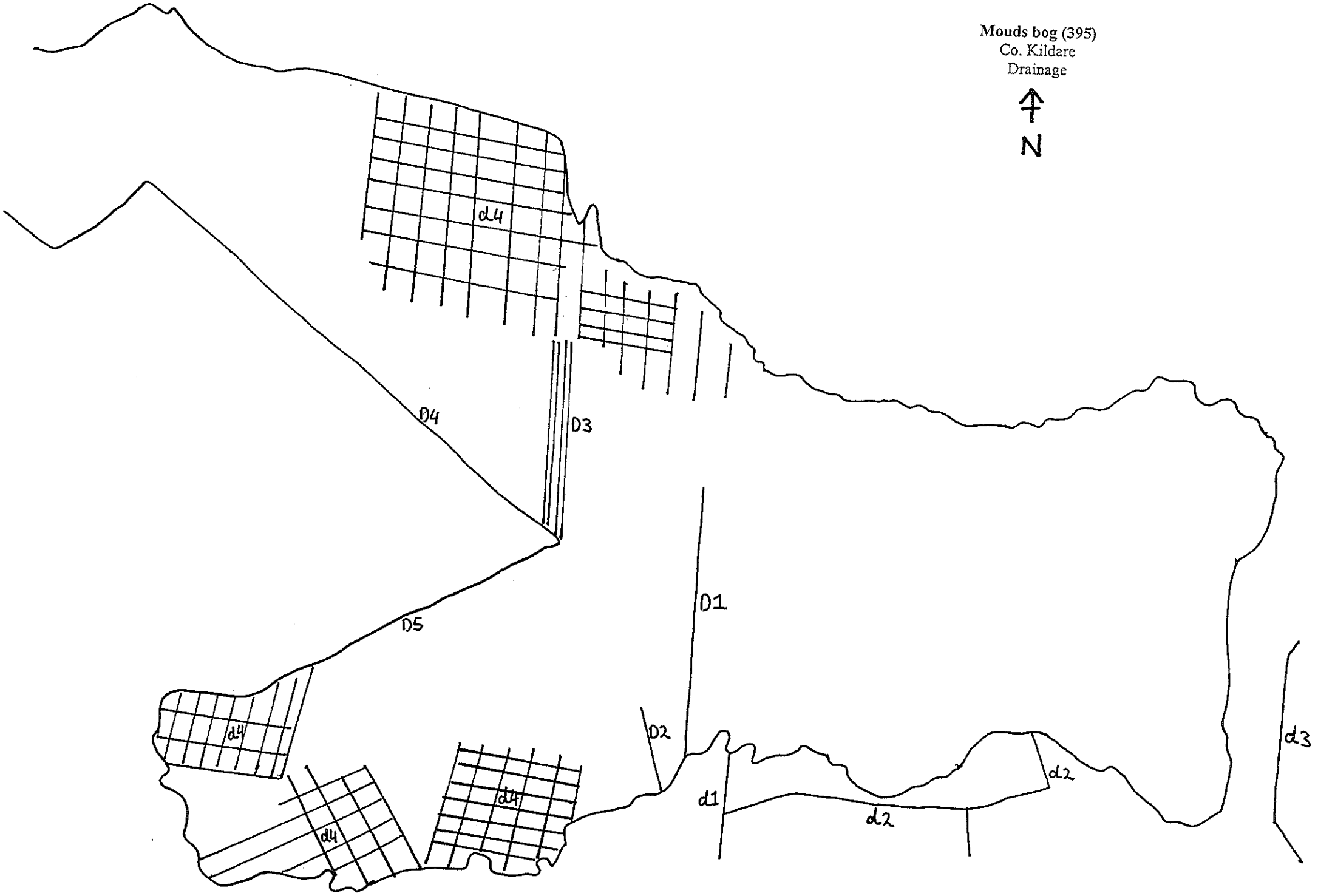
Mouds bog (395)
Co. Kildare
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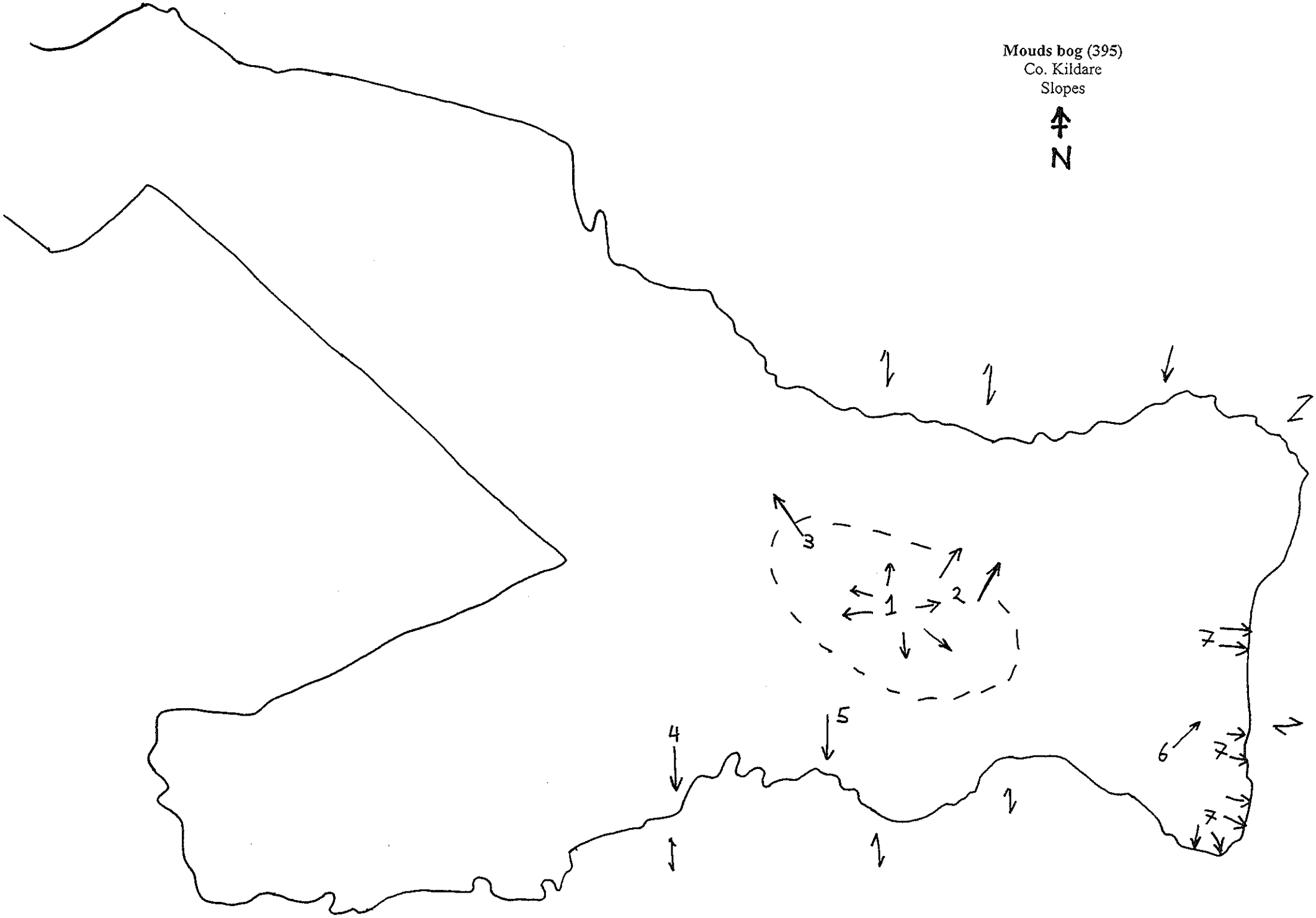
Mouds bog (395)
Co. Kildare
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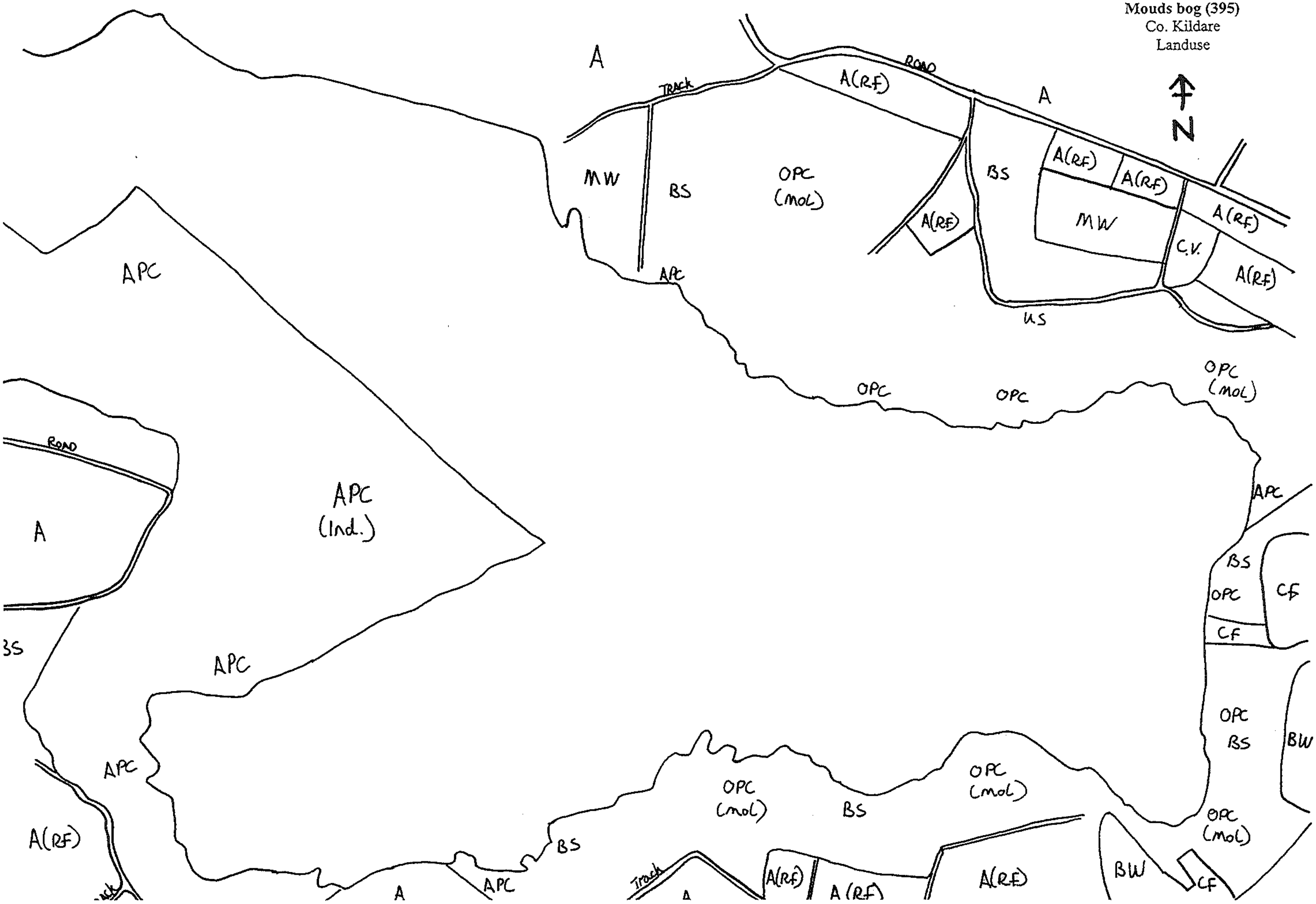
Mouds bog (395)
Co. Kildare
Landuse



MOUNT HEVEY, COS MEATH & WESTMEATH

1. SUMMARY OF SITE DETAILS

NHA no.:	1584	6" Sheet:	MH40,41,WH27 & 28
Grid Ref.:	N630 480	1:126,000 Sheet:	13
G.S.I. Aerial Photo:	36 (7371)	1:50,000 Sheet:	49
Other Photo:	N308	High bog area (ha):	200
Date(s) of Visit:	15, 17/12/1999, 6/1/2000.		

Townlands: Cloncrave, White Island, Aghamore, Kilwarden, Kilnagalliagh.

2. INTRODUCTION

2.1 BACKGROUND

This site was selected as it is a large easterly site with extensive areas of undisturbed high bog. Also extensive pool systems are evident on the aerial photograph. An infilled lake occurs at the western region. This site would be important in enlarging the range of raised bogs covered by SAC status. This site is also close to the Royal canal.

The 1993 NHA survey described this as a good example of a large raised bog.

2.2 LOCATION AND ACCESS

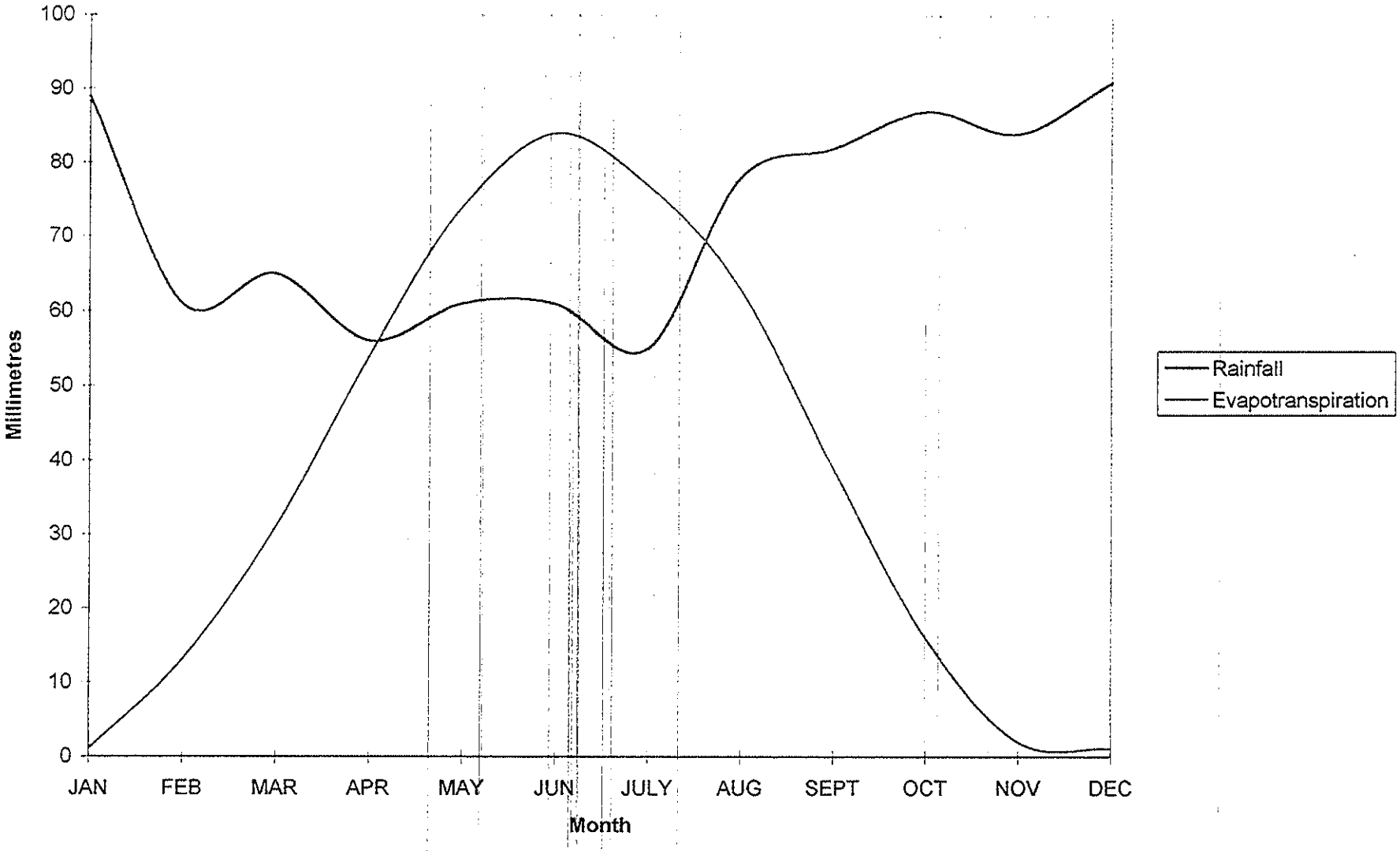
Located 3km north-east of Kinnegad, Co. Westmeath. The Meath-Westmeath County boundary runs through the centre of the bog. The Dublin-Sligo rail-line runs through the northern part of the bog isolating two northern lobes (R3, P4). These two northern lobes can be accessed off the Royal Canal Way. The main bog consists of two lobes joined by a narrow strip of bog. The eastern section can be accessed from a forestry track off the R161 (the road from Kinnegad to Hill of Down). The western section can be accessed from a local residential road off the local road leading northwards form Kinnegad.

3. METEOROLOGY

No meteorological measurements have been made on this bog. Rainfall data from the nearby Kinnegad weather station for the years 1960-93, indicates that the area recieves appproximately 868mm of rainfall annually (R). The nearest synoptic station at Mullingar indicates that the site has up to 159 wet days annually. (Wet day is defined as a day when > 1mm of rainfall recieved).

Evapotranspiration measurements are only available for synoptic stations. With the large exposed areas on high bogs, actual evapotranspiration rates would probably be higher than at the nearest synoptic station. The effective rainfall (ER) rate for a site is the annual rainfall (R), less the actual evapotranspiration (AE). With only the potential evapotranspiration (PE) rate available for Mullingar of 455 the effective rainfall for the site is calculated as less than (R - PE) i.e. ER< 868 - 455 = 413mm. (See Fig. 1)

MOUNT HEVEY CLIMATE DATA



4. GEOMORPHOLOGY

4.1 TOPOGRAPHY OF THE HIGH BOG

This bog is divided into four sections. The two small northern lobes have marginal slopes associated with cutaway and the rail-line. The large eastern lobe has gradual internal slopes associated with forestry to the east and steep slopes associated with the rail-line to the north. The large western lobe also features steep internal slopes associated with the rail-line and the in-filled lake (Lough Cloncrave) at its western margin.

4.1.1 Slopes of the High Bog

Slope 1: A steep marginal slope associated with active cutaway (100cm/50m).

Slope 2: A gradual slope eastwards towards forestry (50cm/100m).

Slope 3: Marginal slopes associated with old cutaway and the rail-line (100cm/50m).

Slope 4: A gradual slope northwards off high bog towards old cutaway (50cm/100m).

Slope 5: A gradual slope eastwards towards cutaway (100cm/100m).

Slope 6: A series of marginal slopes associated with the rail-line and active cutaway (100m/50cm).

Slope 7: A gradual slope associated with cutaway (100cm/100m).

Slope 8: A series of slopes off the high bog to the margins, associated with the rail-line and old cutaway (50cm/100m)

Slope 9: A series of marginal slopes to old cutaway (100cm/50m).

Slope 10: A long gradual slope northwards across the bog towards the rail track (50cm/100m).

Slope 11: A steep slope towards the in-filled Cloncrave lake (F1) (200cm/50m).

Slope 12: A series of gradual slopes towards the in-filled lake (100cm/100m).

Slope 13: A series of slopes down into a hollow caused by subsidence associated with the rail-line (50cm/100m).

Slope 14: A gradual slope off the high bog associated with drains off near old cutaway (50cm/50m).

Slope 15: A series of steep slopes down to old cutaway (100cm/50m).

5. HYDROLOGICAL SYSTEM

5.1 GEOLOGY/HYDROLOGY

5.1.1 Bedrock

This bog is underlain by basinal limestones (CPL and CPU on the map) according to the maps by Hitzman (Chevron/GSI, 1993).

5.1.2 Subsoils

No data on subsoils was available for this site.

5.1.3 Peat

The peat at this site was classified by Hammond as Man-Modified.

5.2 HYDROLOGY

5.2.1 High Bog Hydrology (see Drains map)

There is very little drainage on the high bog at this site. It is mainly restricted to the east where it is associated with forestry. The most significant area of drainage, however, is along the rail-line.

Drain D1: An old in-filled drain by forestry margin, completely in-filled with *Calluna vulgaris*, *Eriophorum angustifolium* and *Sphagnum cuspidatum*. The drain is very thin and almost closed over. There is very poor forestry to the east of this drain with many dead tree stumps.

Drain D2: An old drain, 10cm wide and in-filled with *Calluna vulgaris*, *Narthecium ossifragum* and *Sphagnum cuspidatum*.

Drain D3: Another old drain in-filled with *Calluna vulgaris* and *Sphagnum cuspidatum*.

Drain D4: A series of small drains running off the high bog to the rail-line. The whole area is dry and dominated by *Calluna vulgaris*, with some *Molinia caerulea*.

Drain D5: An old drain, 10m from the bog margin to forestry plantation It is filled with *Juncus effusus* with some *Betula pubescens*. It is possibly a small natural flush.

Drain D6: Two parallel old drains, running across the narrowest section of the bog. They are narrow (20cm wide) and are completely filled with *Calluna vulgaris*, and *Eriophorum angustifolium* with some *Juncus effusus*. There is evidence of old Difco cutting here with the cutting lines running into these drains.

Drain D7: An old in-filled drain, 50cm wide with tall *Calluna vulgaris* on this small section of high bog. The drain is filled with *C. vulgaris*, *Eriophorum angustifolium* and *Sphagnum cuspidatum*. This is possibly a townland boundary.

Drain D8: An old in-filled drain (present on 6" map). It is wide and shallow (1.5m wide,< 0.5m deep). It is completely in-filled with *Calluna vulgaris*, *Rhynchospora alba* and *Sphagnum cuspidatum*.

Drain D9: Two parallel old drains (present on 6" map) which now run to the cut-face. These are 0.5m wide and water-filled. These drains are in-filling with *Rhynchospora alba*, *Calluna vulgaris* and *Sphagnum cuspidatum*.

Drain D10: An old drain (present on 6"map) which runs from cut-face to the in-filled Cloncrave Lough. It is 0.5m wide, lined with tall *Calluna vulgaris* and completely in-filled with *Molinia caerulea*. The drain slopes into the lake 1/100m (Slope 12).

5.2.2 Bog Margin Hydrology

The main drainage in the cutaway is associated with the rail-line running, east-west through this bog, isolating two northern sections of the bog from the rest of the site. There is also some drainage associated with active peat cutting.

Drain d1: A large, deep drain (1.0m wide, 1.5m deep) which has been recently excavated in an area of active peat cutting. There is a depth of about 0.5m of water in this drain with *Juncus effusus* growing at the margins. There is some *Ulex europaeus* along the banks.

Drain d2: Another recently deepened drain in the same area of active peat cutting which joins up to d1 above. It is 1m wide and 1.5m deep with 0.5m of water. *Juncus effusus* is growing here along with *Betula pubescens* and *Ulex europaeus* scrub. There are no drains running from the cut-face, dividing the area into separate sections, which indicates that the peat cutting operation here is by one individual.

Drain d3: Deep drain 1m wide, running along a trackway in the southern cutaway. It is water-filled and lined with *Betula pubescens* and *Ulex europaeus*.

Drains d4: A series of narrow drains running from the cut-face to d3. *Juncus effusus* grows along these drains.

Drains d5: Two wide, deep drains running either side of the rail-line. On the southern side the drain is deep with sloping banks. It is 3m wide at the top and narrows to 1m in width at its base. It is 2m deep with water at its base. *Juncus effusus*, *Pteridium aquilinum* and *Rubus fruticosus* are growing in the drain with *Ulex europaeus* scrub and scattered *Betula pubescens* trees along the bank. On the northern side of the rail-line, the drain is narrower (1.5m wide), but completely water-filled. *B. pubescens*, *J. effusus* and *U. europaeus* grow along the drain. It is very wet here with water overflowing from the drain in places.

Drain d6: An old drain filled with *Calluna vulgaris*, the drain runs by the coniferous plantation.

Drain d7: A deep, 0.5m wide drain by track leading into cutaway. The drain is filled with water and *Betula pubescens* scrub grows along its banks with some dense *Pteridium aquilinum* in places.

Drain d8: An old drain, 0.5m wide and 0.5m deep. It contains water and is in-filling with *Sphagnum cuspidatum*, *Calluna vulgaris* and *Eriophorum vaginatum*.

Drain d9: A deep, 1m wide drain, in the southern cutaway with tall *Calluna vulgaris*, *Molinia caerulea*, *Pteridium aquilinum* and scattered *Betula pubescens* along its banks. It was over 1m deep and water was heard flowing at its base. This drain runs along the margin of a reclaimed field and flows into d10.

Drain d10: Deep wide drain (2x2m) running by a trackway which has been recently excavated with bare peat banks. There is water flowing in a north-west direction at the base of this drain.

Drain d11: On the opposite side of the track to d10, there is a smaller drain 1m wide and 2m deep. This runs alongside reclaimed fields and is dry.

5.3 GEOHYDROLOGICAL OVERVIEW

Description of the bog in the 19th century
This long bog originally bordered the Royal canal at its northern margin. To the south of the eastern section it is bordered by an abandoned section of the canal. Mineral soil slopes down to the bog in the south and a small lough occurs in the west (Cloncrave Lough) It was divided in the 1840's by the Midland Great Western Railway. (This is only shown on the Westmeath 1840's map). This divided the bog into four separate sections, two small sections between the canal and the rail-line and two large sections south of the rail-line.

Description of the present-day bog
The small north-eastern section has level cutaway along its northern margin, but 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 are also extensive level cutaway in the south backed by forestry and sloping agricultural land. There are some small esker ridges in this cutaway, but a lot of the gravel used for trackways. 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. Along the rail-line there is some very wet areas with *Betula* scrub, with some regeneration potential. 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, but 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.

6. VEGETATION

6.1 VEGETATION SUMMARY

This is a long narrow bog separated into four sections by the rail-line, two of these sections are very small with no central ecotope. Of the two larger sections, a central ecotope was only found in the eastern section. This is due in part to the narrow shape of the bog which ensures that drainage due to peat-cutting and the rail-line affects the central areas of the bog. This also resulted in the occurrence of numerous different vegetation types.

6.2 DETAILED VEGETATION OF HIGH BOG

6.2.1 Complexes

Marginal Complexes

Complex 1

Vegetation dominated by *Calluna vulgaris* associated with the slopes along the face-bank. A small area in the south-east of the main bog which jutted into the middle of the bog is covered with a face-bank type vegetation complex. It is dominated by 1m tall *C. vulgaris* bushes. The only explanations for this vegetation type would seem to be either (a) that this area is a natural ridge or (b) that this area was affected by an air-borne fertilizer treatment for the nearby forestry plantation. Wherever the light could permeate through the tall *C. vulgaris* bushes, carpets of *Sphagnum capillifolium* and *Cladonia portentosa* are present.

Complex 7

A typical marginal *Calluna vulgaris* (70%) dominated area. Bare peat is colonized by *Cladonia floerkeana* (10%) and *Campylopus introflexus* (25%) and there is no acrotelm. There are several cracks parallel to the bog margin. There are occasional tear pools with *Rhynchospora alba* and *Carex panicea* present. There is a marked slope down to the cutaway and a few young *Pinus contorta* trees (<5 years) occur here. On the narrow section of the bog linking the two southern sections the vegetation is characterized by this complex. The vegetation is heathy in type dominated by *Calluna vulgaris*.

Complex 7/2

50m in from the cut-face on the eastern lobe of the main bog, the vegetation changes. *Erica tetralix* becomes prominent (30%) along with low-growing *Calluna vulgaris* (30%). Several hummocks of *C. vulgaris* are also present. The vegetation is co-dominated by *Rhynchospora alba* (20%), *Trichophorum caespitosum* (20%) and *Eriophorum vaginatum* (20%). Hollows of *Narthecium ossifragum* (15%) are also present. *Eriophorum angustifolium* (10%) occurs through the vegetation along with occasional occurrences of *Andromeda polifolia* (+) and *Vaccinium oxycoccus* (+). Any bare peat on the *C. vulgaris* hummocks are colonized by *Cladonia floerkeana* and *Campylopus introflexus*. *Sphagnum* cover (10%) is noticeable with *S. magellanicum* and *S. capillifolium* and there is a variable acrotelm of 0-5cm. This vegetation complex also occurs in the east near the forestry plantations.

This vegetation complex also occurs in the far west of the main bog where slopes to the in-filled lake created suitable conditions. The vegetation is dominated by *Calluna vulgaris* (40%) with *Trichophorum caespitosum* (30%) and *Erica tetralix* (40%). *Eriophorum vaginatum* (5%), *Eriophorum angustifolium* (+) and *Narthecium ossifragum* (5%) are scattered through the vegetation. Small patches of *Sphagnum capillifolium* (5%), *Cladonia floerkeana* (+) and *Cladonia pyxidata* (+) are colonizing the bare ground. A few small patches of *Cladonia portentosa* (+), *Sphagnum papillosum* (+), *Campylopus introflexus* (+), *Hypnum jutlandicum* (+) and *Dicranum scoparium* (+) are also present.

Complex 7 + Pines

Tall *Calluna vulgaris* dominates this marginal area with some *Eriophorum vaginatum*. *Narthecium ossifragum* is present and there is also some scattered *Sphagnum capillifolium* hummocks but the acrotelm is patchy. The forestry plantation extends into this area but there is very poor growth with many dead stumps. Taller trees (10m tall) occur at the eastern margin to this area.

Complex 7/6/2

A marginal area by the slope towards the railway line. The vegetation is co-dominated by *Calluna vulgaris* (60%) and *Narthecium ossifragum* (40%) with *Eriophorum angustifolium* (15%) and *Erica tetralix* (20%) prominent through the vegetation. *Trichophorum caespitosum* (10%) tussocks become more plentiful nearer to the edge where it co-dominates. Any bare ground patches are covered by *Cladonia floerkeana* and *Campylopus introflexus*. Small clumps of *Cladonia portentosa* occur along with small hummocks of *Sphagnum capillifolium* (+). This vegetation complex grades into Complex 1 just 4m in from the gorse-lined railway line.

Complex 9/2/7

An area at the north west of the eastern lobe is noticeably poached and grazed by cattle. The vegetation is co-dominated by *Eriophorum vaginatum* (30%), *Trichophorum caespitosum* (30%) and *Erica tetralix* (30%). *Calluna vulgaris* (20%) and *Eriophorum angustifolium* (10%) are also prominent. There is no acrotelm. The frequent areas of bare peat are covered by *Campylopus introflexus*, *Cladonia coccifera* and *Cladonia pyxidata*. *Sphagnum* cover (5%) consisting of *S. capillifolium* and *S. papillosum* is patchy.

Complex 2/7

On the narrowest part of the bog, an area has been cut by a Difco machine approximately five years ago. The vegetation is now quite patchy with a lot of standing water. Vegetation is co-dominated by *Trichophorum caespitosum* (30%), *Calluna vulgaris* (30%) and *Erica tetralix* (30%). Both *Eriophorum angustifolium* and *Narthecium ossifragum* are prominent. This area is also grazed by cattle. The only noticeable bryophyte is *Campylopus introflexus*. An algal mat has colonized the old abandoned sausages of peat.

Complex 2 Burnt

This vegetation type occurs on slopes in the narrow centre of the main bog, by the in-filled lake in the far west and in the north-western lobe. The vegetation is dominated by tussocks of *Trichophorum caespitosum* (80%) with *Erica tetralix* (20%) in between. *Calluna vulgaris* (5%) and *Eriophorum angustifolium* (5%) are also present. Small patches of *Sphagnum capillifolium* and *Campylopus introflexus* are present. There are some regions showing indications of burning in the past.

Complex 2/7/6

This vegetation complex occurs on the southern margin of the western lobe of the main bog. It forms a narrow band just in from the marginal *Calluna vulgaris* face-bank community. The area is sloped due to its proximity to the bog margins (Slope 9) and *Trichophorum caespitosum* is dominant. Vigorous *Calluna vulgaris* bushes interspersed with *Narthecium ossifragum* also have high coverage.

Complex 7/6/2 burnt

In the south-west of the western lobe, there is a distinct boundary between this vegetation type and neighbouring complexes. The distinct boundary indicates a burn in the past although the vegetation cover is quite good. The ground is dry and hard with no acrotelm although there are some small patches of *Sphagnum* species.

Calluna vulgaris (60%) is dominant with prominent *Erica tetralix* (30%), *Narthecium ossifragum* (30%) and *Trichophorum caespitosum* (15%) tussocks. The *C. vulgaris* plants are markedly less robust than those of the neighbouring area (Complex 7/10/6). *C. vulgaris* grows to about 10cm here compared to 20-30cm in neighbouring areas, another indication of previous burning. There are occasional very small patches of *Cladonia portentosa* (+) and *Eriophorum angustifolium* (10%) grows through the vegetation. *Campylopus introflexus*, *Cladonia floerkeana* and *Cladonia pyxidata* are found on the occasional areas of bare ground. The occasional *Sphagnum* occurrences (10%) are *S. capillifolium* and *S. magellanicum*. There are scattered small pools which in many cases are indistinguishable from hollows of standing water (no *Sphagnum cuspidatum*). A few mature *C. vulgaris* bushes bearing lichen epiphytes indicate that the burn was not very fierce.

Complex 6/4/2 Recently burnt

This vegetation complex, found on the north-west lobe, is dominated by *Narthecium ossifragum* (60%), *Rhynchospora alba* (30%) and *Trichophorum caespitosum* (30%). *Erica tetralix* (30%) and *Calluna vulgaris* (20%) are present but all plants are very young indicating a recent burn. Several burnt, dead *C. vulgaris* branches are present. There is no acrotelm and *Sphagnum* cover is patchy and mostly composed of *S. capillifolium* and *S. papillosum*. There is a large area of bare ground resulting from the burn and this is colonized by *Cladonia floerkeana* and *Cladonia pyxidata*. There are occasional occurrences of *Andromeda polifolia* (+) and *Cladonia portentosa* (+) with *Drosera rotundifolia* occurring on wet patches. *Hypnum jutlandicum* (+) and *Campylopus introflexus* (+) are present. The infrequent pools are small and shallow and contain *Eriophorum angustifolium*. These may be relicts of former pools.

Complex 7/9/2

This vegetation complex occurs on the north-west lobe, on a narrow sloping margin by the rail-line. This vegetation is similar to the neighbouring sub-marginal complex 7/9/10. The main difference is the co-dominance of *Trichophorum caespitosum* and the reduction in *Sphagnum* cover. These differences are due to the conditions caused by the slope.

Complex 7/6/4/2

A dry and sloping area by the eastern cutaway of the north-east section. The vegetation is co-dominated by *Calluna vulgaris* (40%), *Rhynchospora alba* (20%), *Narthecium ossifragum* (20%) and *Trichophorum caespitosum* (20%). There are scattered hummocks of *Sphagnum capillifolium* and *S. magellanicum*. An old drain filled with *S. magellanicum* and tall *Calluna vulgaris* run through this area. *Erica tetralix* (20%) is prominent with *Eriophorum angustifolium* (10%). Large patches of *Cladonia portentosa* (+) and *Cladonia uncialis* occur. *Narthecium ossifragum* is concentrated in the hollows. Any bare ground is colonized with typical *Cladonia* species and *Campylopus introflexus*. Occasional small clumps of *Dicranum scoparium* (+) are noted. The acrotelm is patchy with depths of 0-5cm.

Complex 7/6

This vegetation occurs along the rest of the margins of the north-east lobe. The vegetation is similar to that described above but is just dominated by *Calluna vulgaris* and *Narthecium ossifragum*.

Complex 4

This vegetation complex occurs in the centre of the north-eastern lobe and is dominated by *Rhynchospora alba* with *Erica tetralix* on the southern margins with the rail-line.

Sub-Marginal Complexes

Complex 2/7/6 +Pools
This complex occurs in a small depression and has frequent pools. *Trichophorum caespitosum* dominates with 50% cover with *Calluna vulgaris*(30%) and *Narthecium ossifragum*(20%). The acrotelum is patchy with *Sphagnum magillanicum* (15%), *S. Capillifolum* (5%) and *S. Papillosum* (5%).

Complex 10/4/7 + Algal pools
This complex occurs on the southern margin of the eastern section of the main bog. The vegetation is similar to that described for 10/4/7 below except all the pools are algal filled. .

Complex 7/10/9 burnt
This vegetation complex occurs in the centre of the eastern section and is similar to the complex 7/10/9 + Cl described below. There are, however, indications of a burn in the past with some bare peat patches covered by *Cladonia floerkeana* and *C. pyxidata. Eriophorum angustifolium* is more obvious in these bare areas. *C. portentosa* is not as good here as in the neighbouring complex with its cover down to 15%. *Trichophorum caespitosum* is more obvious and *Rhynchospora alba* is also present. *Andromeda polifolia* occurs occasionally.

Complex 7/9 + Cladonia
This vegetation complex occurs towards the western section and is similar to the complex 7/10/9 + Cl described below. There are signs of poaching and grazing damage by cattle and this appears to result in a lower cover by *Sphagnum* species. This area grades into Complex 9/2/7 which shows more serious signs of damage.

Complex 7/10/6
This vegetation complex is the most extensive type in the western section of the main bog. It occurs only about 10m in from the southern and northern margins and it surrounds the wet sub-central complex. *Calluna vulgaris* (60%) dominates the vegetation with obvious *Sphagnum* (50%) cover underneath and prominent *Narthecium ossifragum* (30%). *Trichophorum caespitosum* (5%) is reduced to the odd tussock compared to its dominance on the marginal slopes. *Eriophorum angustifolium* (5%) is scattered through the vegetation. There are good *Cladonia portentosa* (5%) patches and *Hypnum jutlandicum* (+) also features. The main *Sphagnum* species are *S. capillifolium* (20%) *and S. magellanicum* (20%). *Erica tetralix* (20%) is common and the occasional patches of bare ground are colonized by *Cladonia floerkeana* (+) and *C. pyxidata* (+). In the centre of this complex the vegetation remains similar but scattered pools occur. All of the pools contain *Sphagnum cuspidatum* and none are algal. There are occasional occurrences of *Andromeda polifolia* (+).

Complex 7/9/10
This complex occurs over most of the north-western lobe. *Sphagnum* (50%) cover is good and co-dominates with *Calluna vulgaris* (60%) and *Eriophorum vaginatum* (40%). The *Sphagnum* species are *S. capillifolium* and *S. papillosum*. Some *Cladonia portentosa* (5%) clumps are present with *Eriophorum angustifolium* (5%) and *Erica tetralix* (10%) common through the vegetation. *Andromeda polifolia* (+) occurs occasionally. Several tussocks of dead graminoid leaf bases are present perhaps indicating desiccation. There are occasional small algal pools which also contain *Eriophorum angustifolium.*

Sub-Central Complexes

Complex 9/7
This vegetation type occurs between marginal complex 7/2 at the eastern margin and sub-central complex 10/4/7. *Eriophorum vaginatum* and *Calluna vulgaris* co-dominate and the *Sphagnum* cover improves as one moves towards the centre of the bog where it grades into Complex 10/4/7.

Complex 10/4/7

An area co-dominated by *Sphagnum* (70%), *Rhynchospora alba* (40%) and *Calluna vulgaris* (30%). *Erica tetralix* (20%) and *Eriophorum angustifolium* (15%) are also prominent. *Trichophorum caespitosum* (10%) grows through the vegetation. *Sphagnum* species occur in large carpets of *S. magellanicum, S. capillifolium* and *S. papillosum*. There are scattered small pools with *Sphagnum cuspidatum*. Most have *Rhynchospora alba* and *Eriophorum angustifolium* growing in them, but they are lined by *Sphagnum* species. *Cladonia floerkeana* is noticeable (<5%) - this area may have been burnt in the past. Small clumps of *Cladonia portentosa* (+) also occurred. There are occasional occurrences of *Andromeda polifolia* (+) and *Campylopus introflexus* (+) is also noticeable. The presence of *Calluna vulgaris* hummocks indicate that the burn was not a fierce one. There is a very slight slope from the centre towards the forestry in the east.

Complex 7/10/9 + *Cladonia*

A large area on the eastern lobe co-dominated by *Calluna vulgaris* (60%), *Eriophorum vaginatum* (40%), *Sphagnum* species (60%) and *Cladonia portentosa* (40%). The ground is wet underfoot with a good acrotelm of 5-10cm. The surface is level right up to the old cutaway bank. There is plenty of *Hypnum jutlandicum* associated with *Calluna vulgaris* bushes. *Trichophorum caespitosum* (+) grows occasionally through the vegetation and there are large clumps of *Cladonia uncialis* (+). *Erica tetralix* (5%) is present but not prominent. *Sphagnum capillifolium, S. magellanicum, S. papillosum* and occasional *S. imbricatum* are all present. *Narthecium ossifragum* (<5%) occurs in hollows. Many *Calluna vulgaris* bushes support lichen epiphytes. This vegetation occurs on both sides of the burnt central area Complex 7/10/9B.

Complex 7/10/9 + pools

This vegetation complex runs across the centre of the western large section. Frequent pools occur but most are small and all contain *Sphagnum cuspidatum* and some *Eriophorum angustifolium*. Some pools have *Calluna vulgaris* and *Erica tetralix* encroaching from the edges. There are occasional *Sphagnum* patches at the pool edges but not too many. The vegetation in between the pools is co-dominated by *Calluna vulgaris* (50%), *Eriophorum vaginatum* (30%) and *Sphagnum species* (50%). There are occasional *Trichophorum caespitosum* (10%) tussocks and *Rhynchospora alba* (5%) is scattered through the vegetation. *Narthecium ossifragum* (10%) is prominent. Occasional *Andromeda polifolia* (+) and *Drosera rotundifolia* (+) are growing through *Sphagnum* hummocks. There is very little *Cladonia portentosa* (+) with occasional patches of *Campylopus introflexus* (+) on the occasional bare peat patches. *Erica tetralix* is frequent. The *Sphagnum* species are *S. magellanicum* (30%) and *S. capillifolium* (20%) with the latter occurring in large carpets with vegetation growing up through it. This area must be subjected to edge effects as the bog has been cutaway to the south-west.

Complex 14/7/9

An area of frequent pools on the western lobe which contains *Sphagnum cuspidatum, Eriophorum angustifolium* and *Rhynchospora alba*. In between the pools, the vegetation is dominated by *Calluna vulgaris* (60%) and *Eriophorum vaginatum* (40%). There is a good acrotelm with a depth of 0-5cm with patches of *Sphagnum imbricatum* and *S. fuscum* in the centre of this complex and *S. capillifolium* and *S. magellanicum* occur throughout the complex. There are occasional tussocks of *Trichophorum caespitosum* (5%) and *Erica tetralix* (10%) is prominent. *Narthecium ossifragum* (+) and *Andromeda polifolia* (+) occur infrequently. *Cladonia portentosa* (5%) is notable.

Complex 10/7/9

This is a very small area in the most central, wettest part of the north-west section of the bog. The vegetation is co-dominated by *Sphagnum* species (80%), *Calluna vulgaris* (60%) and *Eriophorum vaginatum* (40%). There are frequent small pools with *Sphagnum cuspidatum, Eriophorum angustifolium* and *Sphagnum magellanicum* at the pools edges. There are large hummocks of *Sphagnum capillifolium* and the acrotelm of 5-10cm is good. There are occasional dry, dead, graminoid tussocks with algae growing over the dead leaf bases. Occasional *Trichophorum caespitosum* tussocks (5%) are noted. *Narthecium ossifragum* (10%) and *Erica tetralix* (10%) are prominent.

Central Complexes

Complex 14/10/7
This is the only central complex on Mount Hevey and it occurs in the eastern section of the bog. With an acrotelm of 0-10cm, the whole area was very wet and quaking. There are frequent pools and all contain *Sphagnum cuspidatum* and many have *Rhynchospora alba* and *Eriophorum angustifolium* growing through them. All the pools have a mix of *Sphagnum* species, *Calluna vulgaris, Rhynchospora alba* and *Eriophorum angustifolium* grow at their margins. In between the pools the vegetation is dominated by *C. vulgaris* (60%) and *Sphagnum* species (60%) (*S. capillifolium, S. magellanicum* and *S. papillosum*). *Eriophorum vaginatum* occurs in tussocks and through the vegetation (15%). *Erica tetralix* (10%) and *Rhynchospora alba* (10%) grow through the vegetation and there are occasional *Trichophorum caespitosum* tussocks (5%). *Narthecium ossifragum* occurs in hollows (5%) and there are several bare peat patches, especially on the old *C. vulgaris* hummocks. The bare peat is covered in *Cladonia floerkeana* and *Campylopus introflexus*. Only small clumps of *Cladonia portentosa* (+) are present.

6.2.2 Flushes and Soaks

Soak F1: The in-filled lake (Cloncrave Lough) has now become a *Molinia caerulea/ Myrica gale/ Betula pubescens* dominated soak (R5, P5). The *Betula pubescens* trees in the centre appear to be about 20-30 years old (R5, P3). Some *Myrica gale* bushes are about 1.5m in height. The edge of the former lake is clearly marked by robust face-bank type *Calluna vulgaris* (≤1m in height) (R5, P4). The original lake area is co-dominated by *Molinia caerulea* and *Myrica gale* and is very wet and quaking with good *Sphagnum palustre* and *S. papillosum* species cover. *Calluna vulgaris* is encroaching into the former lake area.

6.3 DETAILED VEGETATION OF THE BOG MARGIN

There is a lot of abandoned cutaway around this bog, especially around the western section. This is mostly dominated by *Calluna vulgaris*. Some of the abandoned cutaway is possibly over 100 years old as the building of the rail-line restricts access to these areas (R3, P2 & P3). These areas of cutaway along the southern boundary to the rail-line have a similar vegetation type to the high bog margins, with tall *Calluna vulgaris, Cladonia* species and some *Sphagnum* growth. Some wet and actively regenerating areas occur along the southern margins of the western lobe (R3, P1). Here *Calluna vulgaris* and *Eriophorum angustifolium* dominate with *Sphagnum cuspidatum* in the large pools which are present here.

There is some agricultural reclamation along the track that runs along the southern cutaway. There is also some reclamation around the narrow middle section of the bog.

The eastern section has a lot of *Calluna vulgaris*-dominated old cutaway also with some scattered *Betula pubescens* and *Ulex europaeus* scrub. Some of this cutaway near the rail-line is very old and regenerating (R2, P20; P21 & P22). There is active peat cutting in the south east, backed by coniferous plantations. There are the remains of a small esker here with *Betula pubescens, Ulex europaeus* and *Pteridium aquilinum* along the top of the esker. Some of the gravel has been removed from this and probably been used to build the bog track. There is an extensive coniferous plantation to the east some of which is on the high bog itself.

The two small northern lobes are separated from the rest of the bog by the rail-line. There is abandoned cutaway dominated by *Calluna vulgaris* around the north-western lobe (R2, P23), with some active regeneration by the rail-line. The north-eastern lobe has abandoned cutaway along its northern margin with *Molinia caerulea*, which is grazed by sheep. There is some forestry to the east of this lobe.

Along the rail-line margins there is a band of *Ulex europaeus* scrub with *Betula pubescens* trees.

7. BOG TYPE

This is probably two basins joined by a narrow region.

8. HUMAN IMPACT

8.1 RECENT HUMAN IMPACT (see Landuse map)

8.1.1 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 at its eastern margin.

8.1.2 Forestry

Forestry plantations are present to the east of the site with some of the plantation on the high bog. There is also extensive forestry plantations on cutaway to the south of the eastern lobe.

8.1.3 Fire History

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

8.1.4 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

8.1.5 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.

8.2 HISTORICAL HUMAN IMPACT

This bog is the remains of a formerly much larger bog. This bog's size and hydrology has been severely affected by the construction of the Royal Canal in the 18th century and the Dublin-Mullingar railway line in 1847-1848. There has also been some agricultural reclamation of the bog's margins in the past.

8.3 NHA BOUNDARY CHANGES

No NHA Map available

9. INTER-RELATIONSHIPS OF VEGETATION, HYDROLOGY, TOPOGRAPHY AND LOCATION

1. Apart from Mouds Bog, this was the largest raised bog in the east on the site-list.

2. 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.

3. There was no new drainage on the high bog. There had been drainage in the past, however, associated with the rail-line and this is still having an effect. There is some active drainage on the cutaway associated with peat cutting.

4. 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.

Mount Hevey (1584)
Cos Meath & Westmeath
Ecotopes

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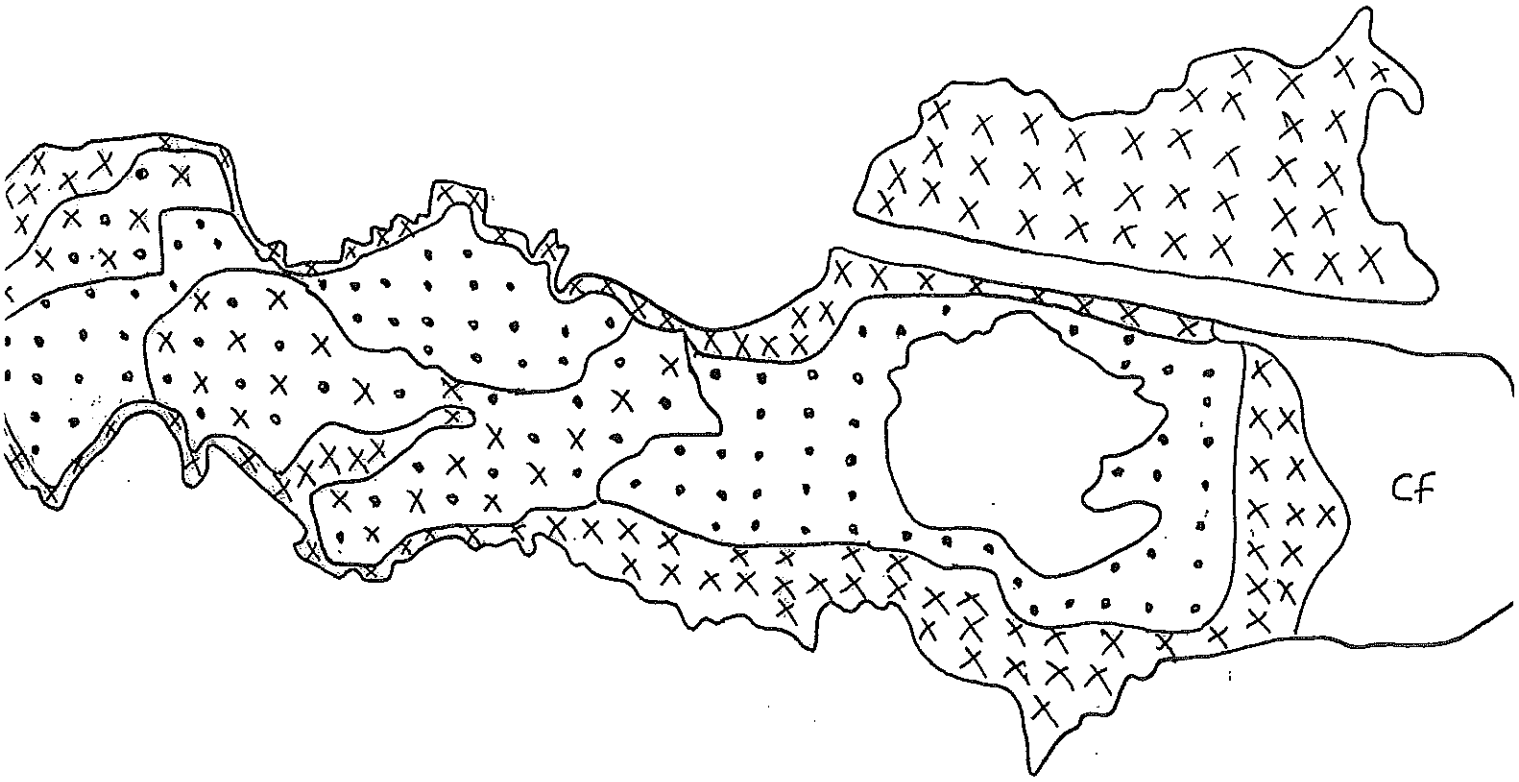

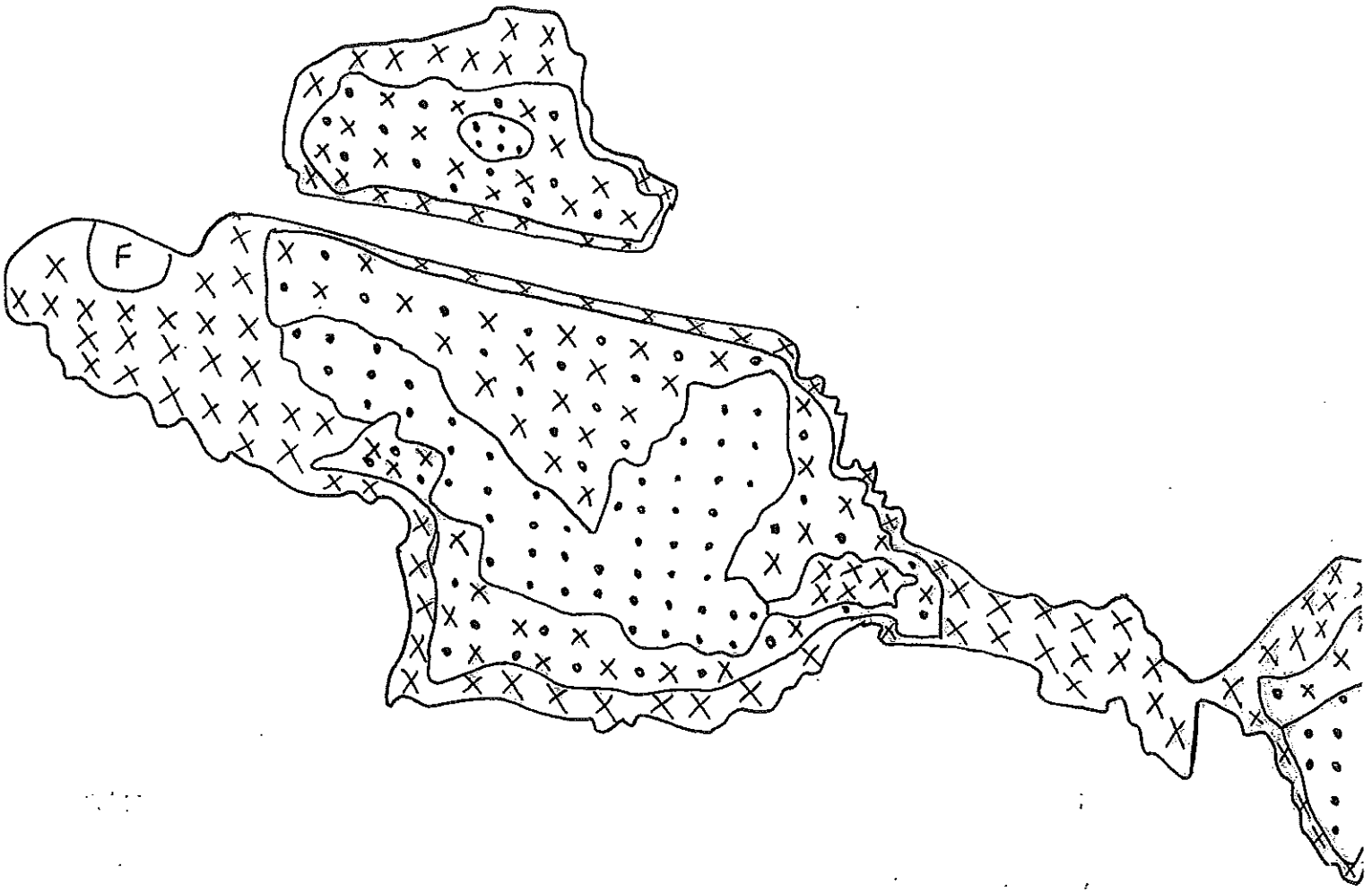
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Mount Hevey (1584)
Cos Meath & Westmeath
Vegetation complexes

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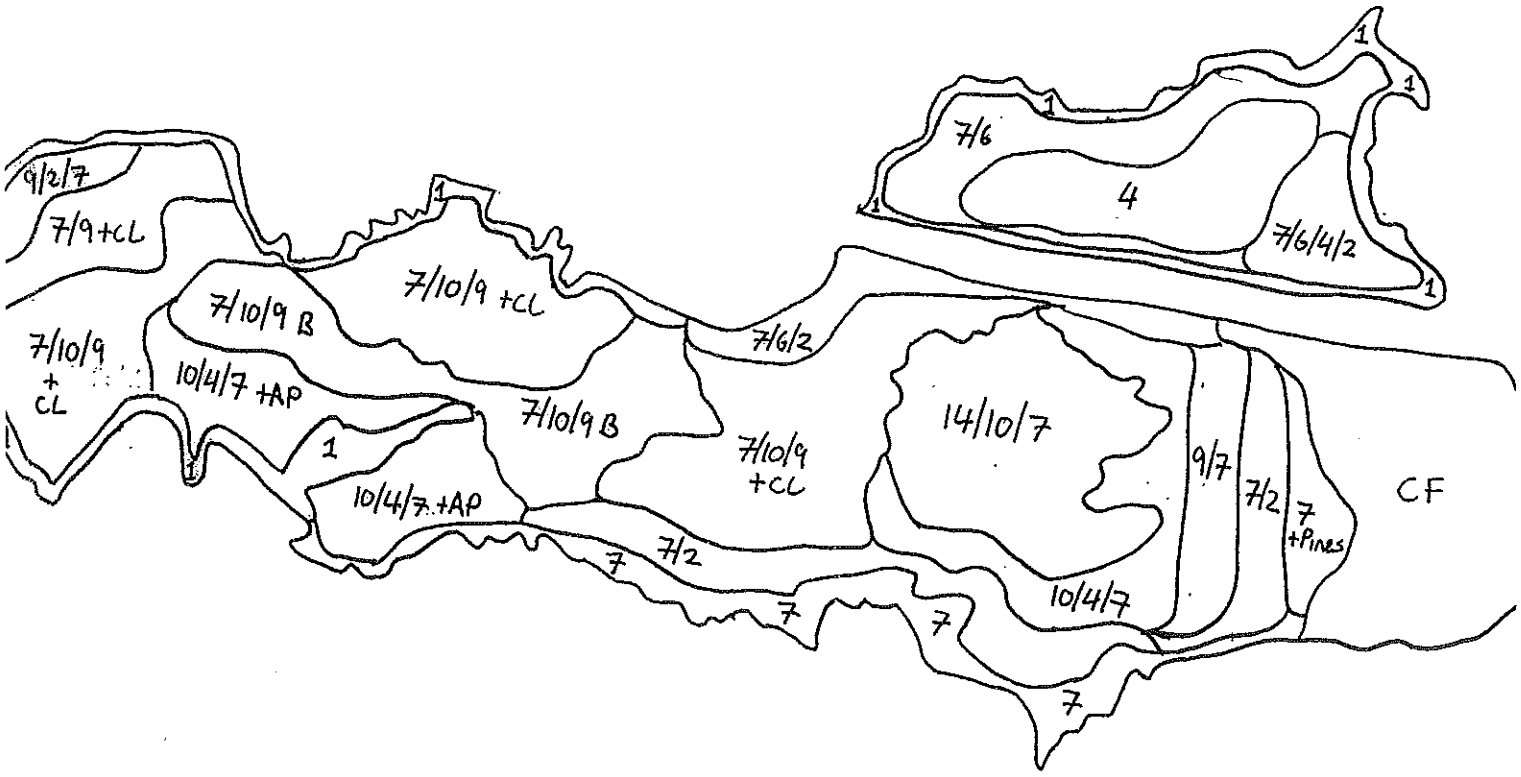

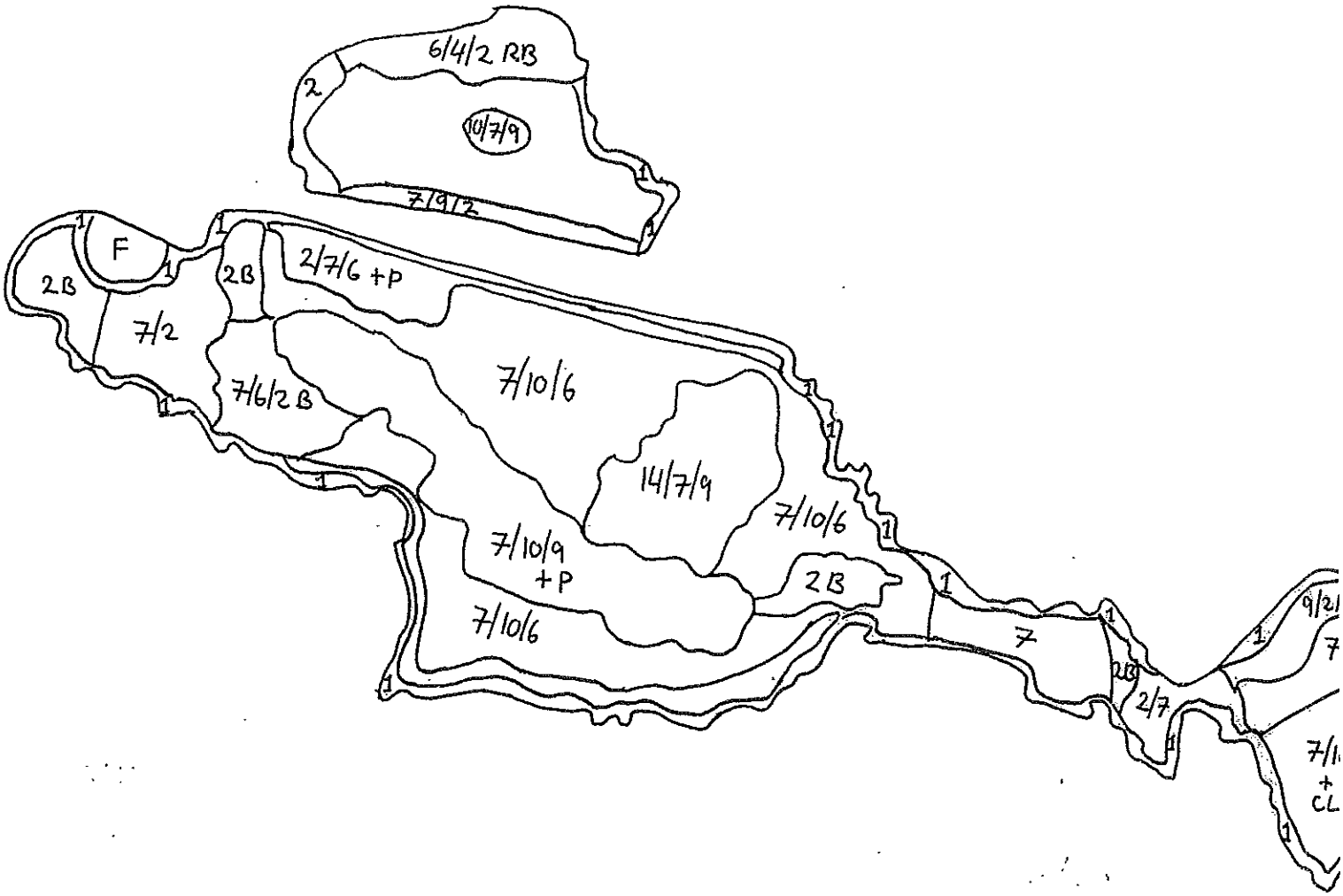
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Mount Hevey (1584)
Cos Meath & Westmeath
Slopes

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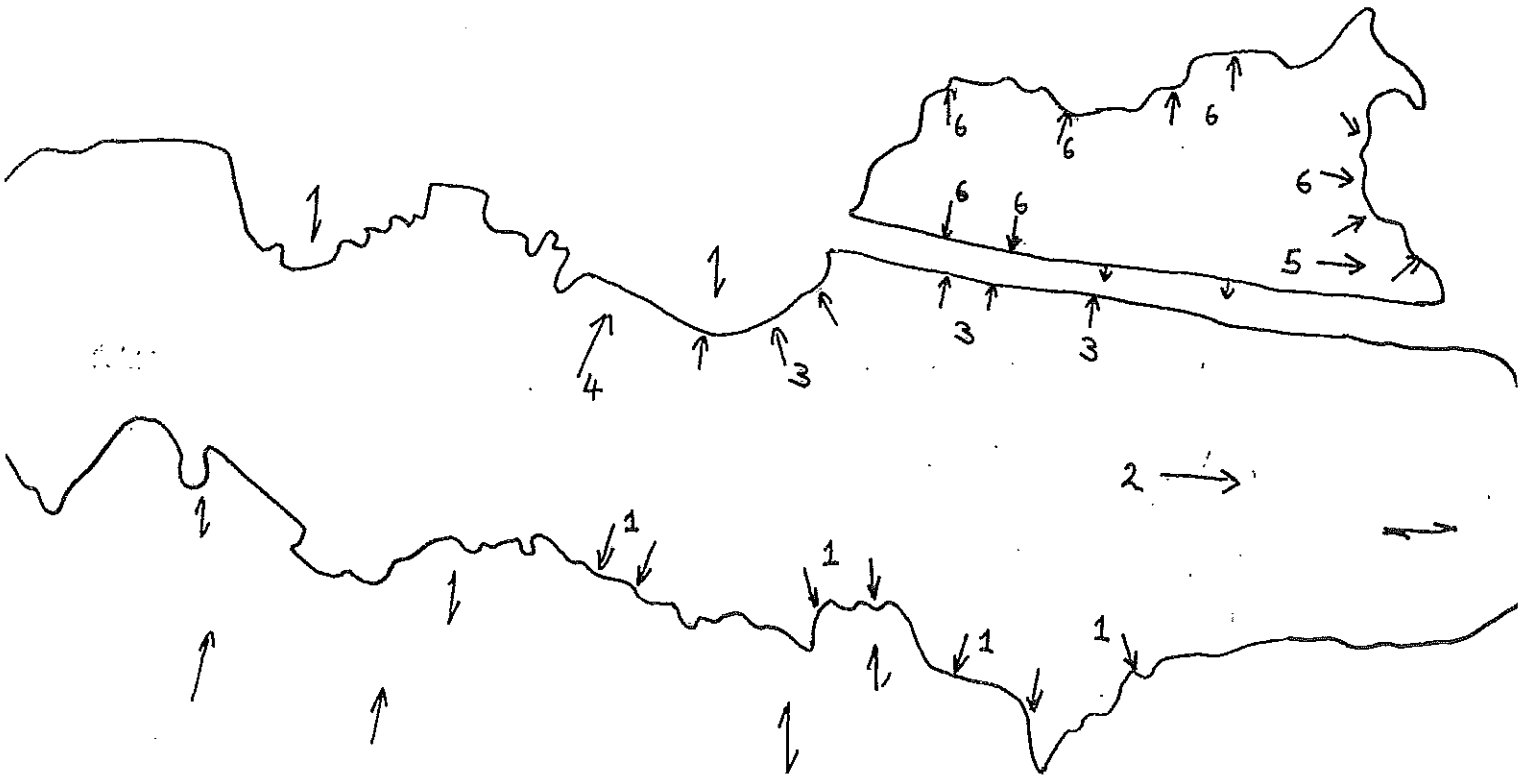

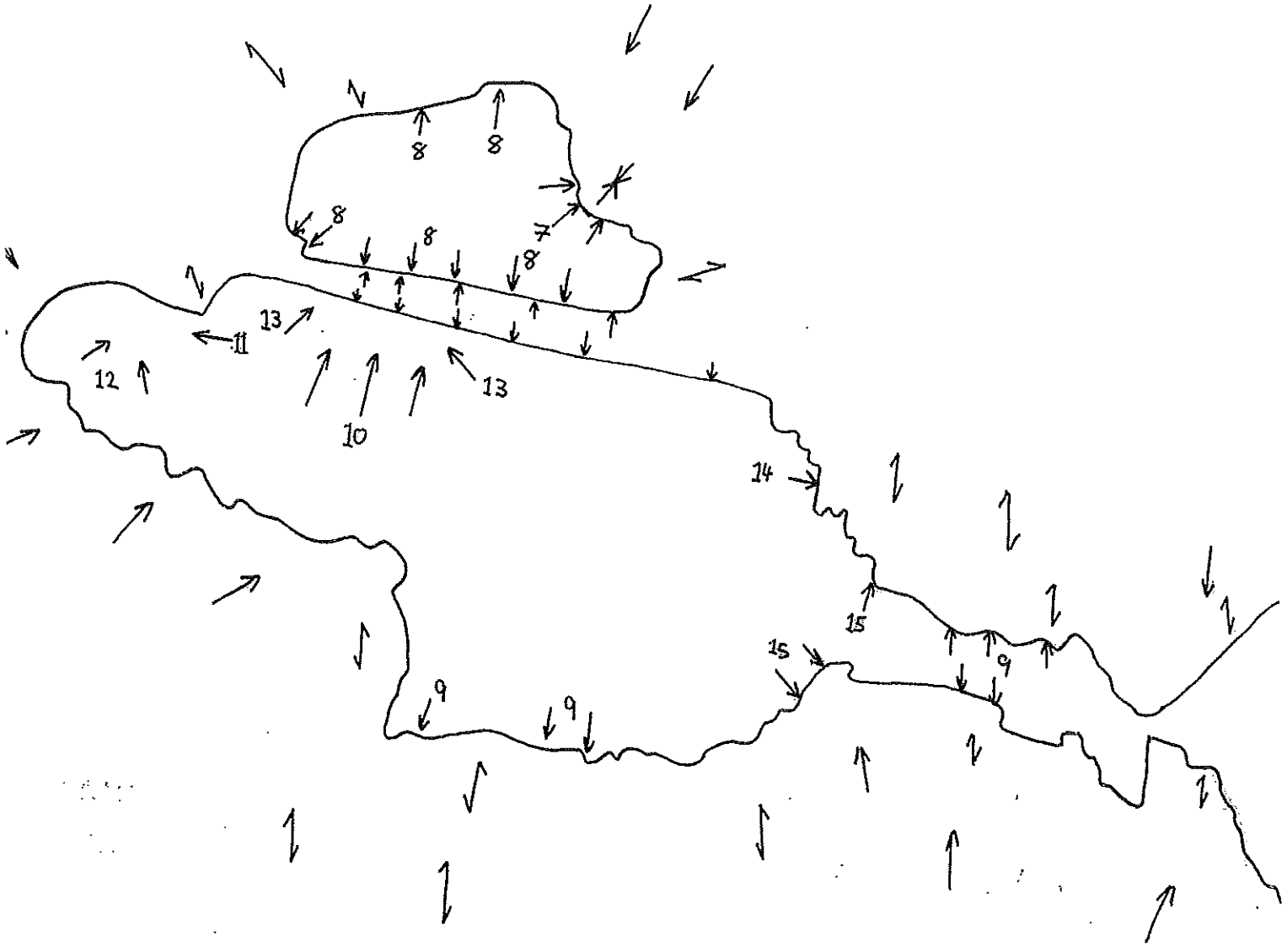
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Mount Hevey (1584)
Cos Meath & Westmeath
Drainage

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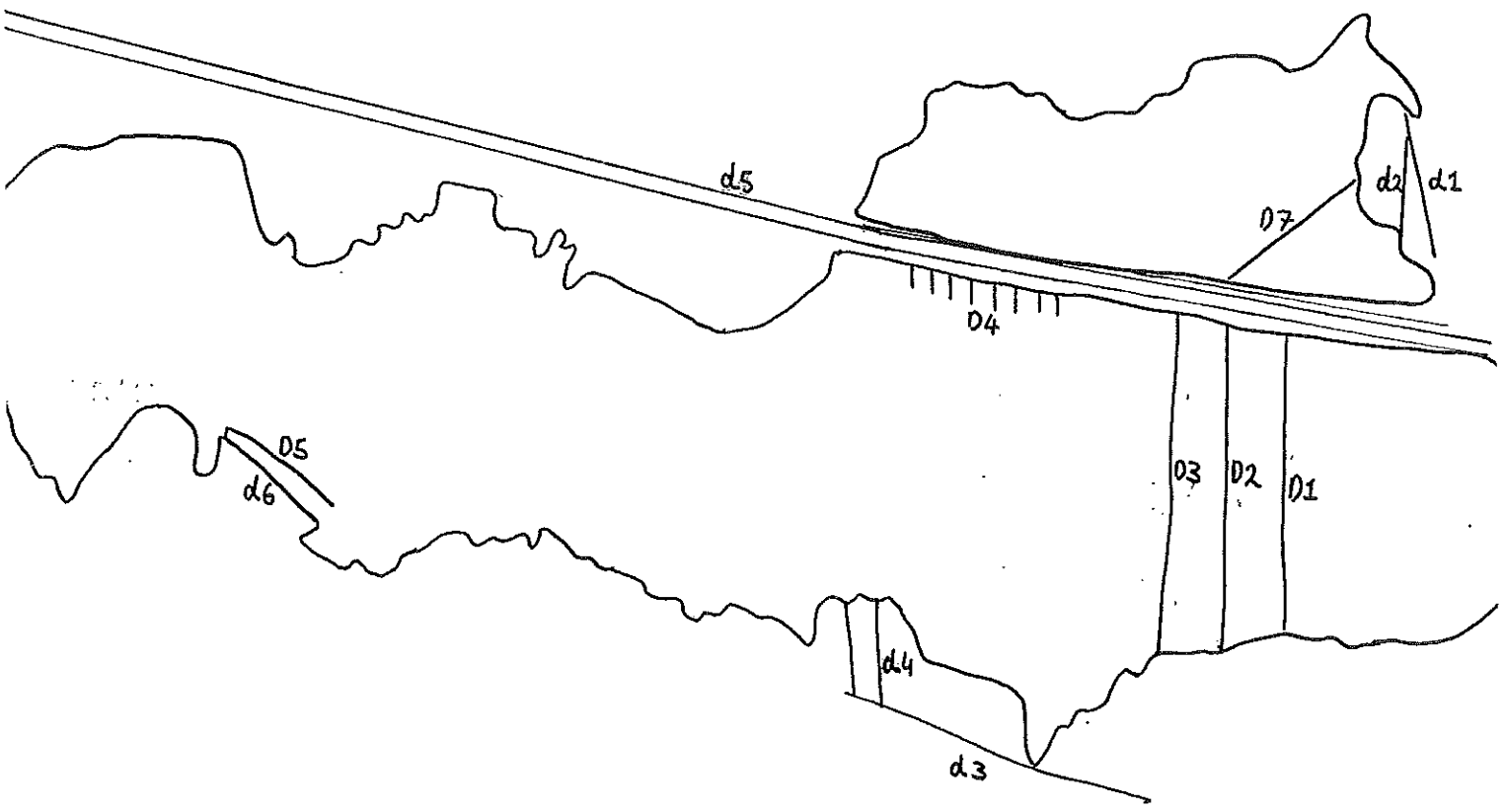

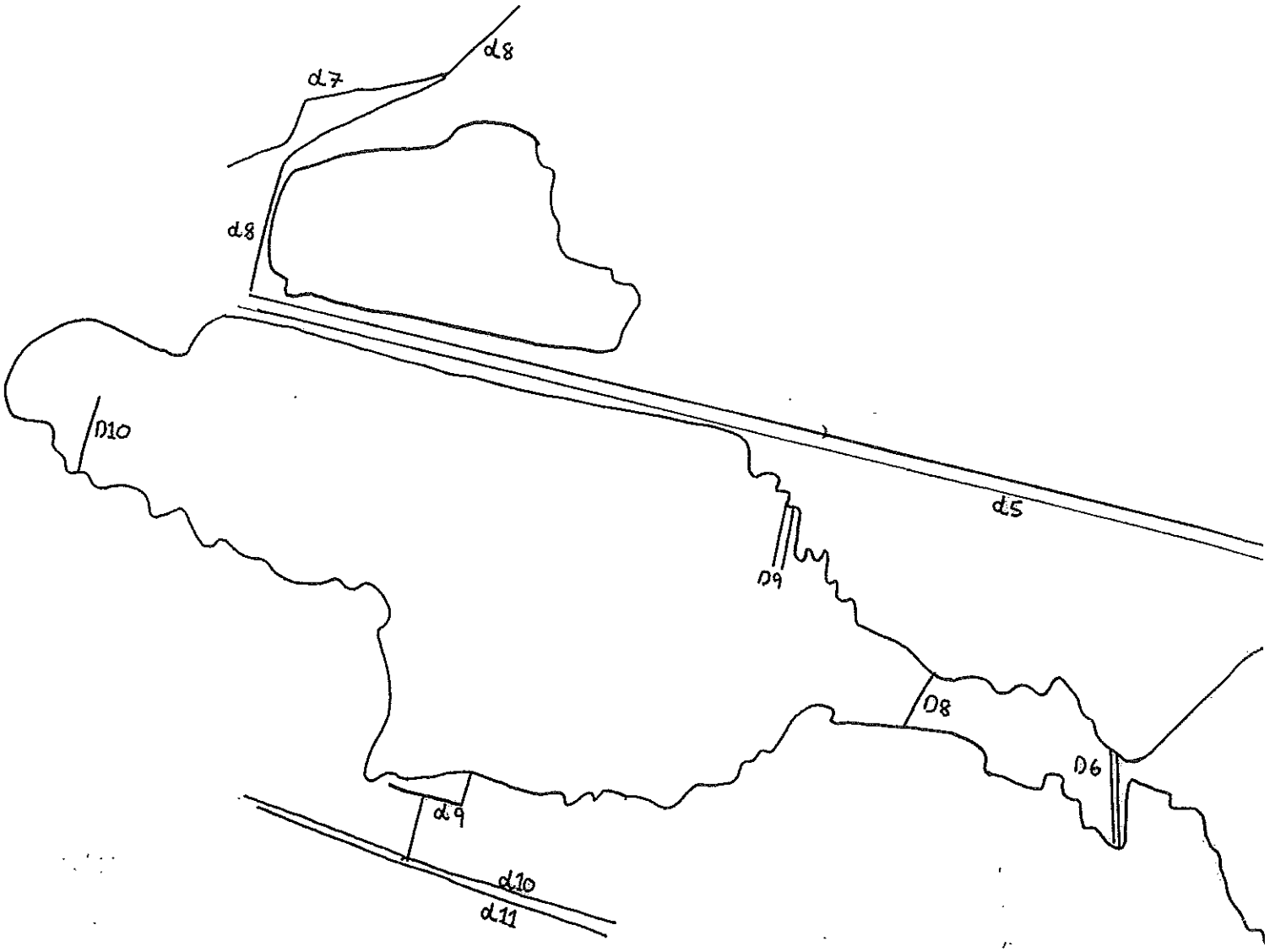
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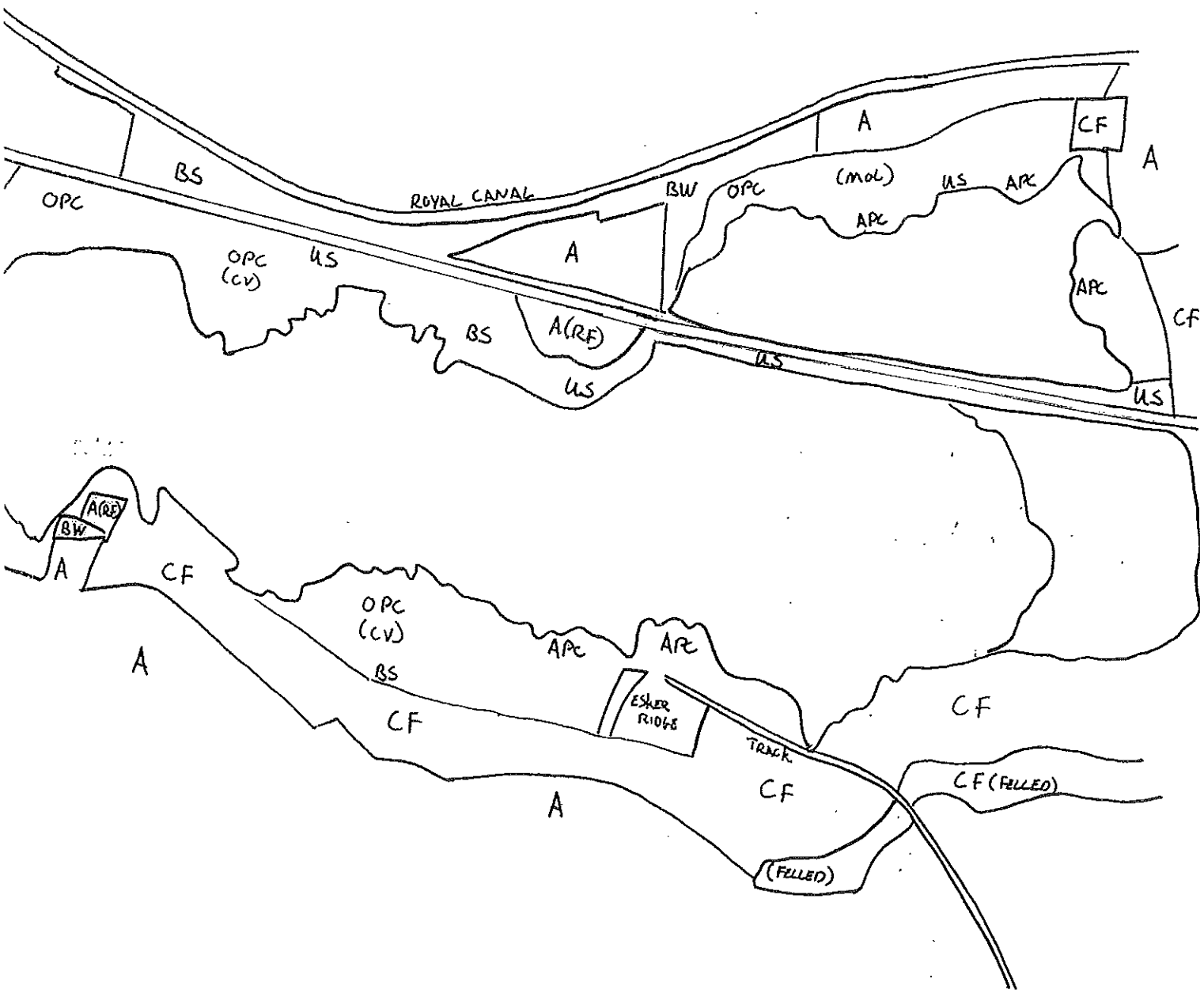
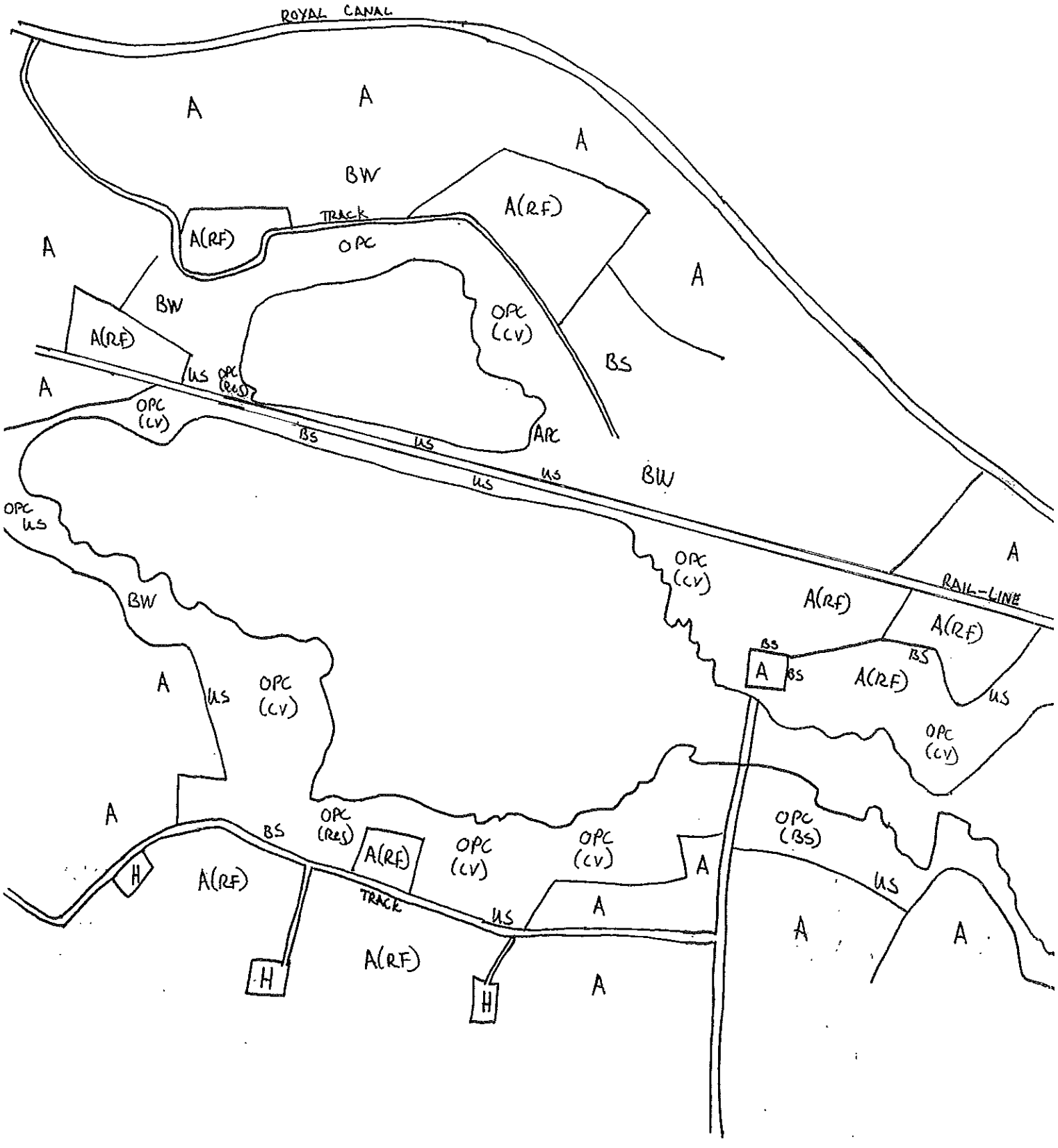
Mount Hevey (1584)
Cos Meath & Westmeath
Landuse

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Drain D5: A deep drain, 1m wide, 2m deep and fast flowing at cutaway margin, where it flows north-west into d4. There is some *Phragmites australis* at this end but the rest of the drain has been cleared recently. About 10m from the cutaway there is a ford across the drain. Below this ford the water is 10cm deep and fast flowing. Above the ford the drain is completely filled with water.

Drain D6: A deep drain, 1.5m wide and 1m deep with 50cm of water. There is no flow and no vegetation in this drain. *Molinia caerulea* becomes dominant along the drain margin.

Drain D7: A 1m wide drain flowing east into D5. It is 0.5 m deep, water filled with surface water flowing off the bog surface into it. This drain was dug between '93 and '95 as it is not mentioned in the 1993 NHA report, but appears on the 1995 aerial photo.(See aerial photos).

Drains D8: A series of small drains associated with active peat cutting.

Drains D9: A series of small, old, in-filling drains, 0.25m wide, 3m apart. These are in-filling with *S. cuspidatum* and the surrounding area is very wet.

Drains D10: A newly excavated drain, 1-2 years old with fresh spoil heap, running along the top of an old trackway (R2, P4 & P5). Part of the new drainage system in the south-western section of bog. It is 1m wide and 1.5m deep with 50cm of water. There is a slight flow to the south-east (R2, P5). An older in-filling drain runs parallel to this new drain and this corresponds to a townland boundary (R2, P4).

Drain D11: A newly excavated drain, 1m wide with 50cm of water flowing north-west along a townland boundary.

Drain D12: A newly excavated drain 1m wide, 1.5m deep with water flowing into Drain D13. The drain corresponds to a townland boundary.

Drain D13: A newly excavated drain not present on the 1995 aerial photo which is 1m wide and 1.5m deep. This water in this drain is flowing fast out onto the cutaway with the smaller drains D14 and D15 flowing into it.

Drains D14: A series of drains 1m wide and 0.5 m deep which have been excavated in the past couple of years. They are 3m apart and are probably drains for planned forestry. These drains flow north into D13.

Drains D15: These drains are the same as D14 but are in a north-east/ south west alignment and flow into D11 as well as D13.

Drain D16: A newly excavated drain, 1m wide and 1.5m deep (deeper than D14). Part of the south-western drain complex corresponding to a townland boundary.

Drains D17: Two old in-filling drains along old trackway. 1.5m wide and in-filling with *Sphagnum cuspidatum*, *Drosera anglica* and *Eriophorum angustifolium*.

Drains D18: A series of very old in-filled drains with *Sphagnum cuspidatum*, *Sphagnum capillifolium*, *Calluna vulgaris* and *Eriophorum angustifolium*. These drains are 0.5m wide and are just shallow depressions, less than 10cm deep.

Drains D19: A series of very old dry drains separating a small section of high bog from the rest of the site. Filled with *Calluna vulgaris* and leading into old cutaway.

Drain D20: An old drain, 1m wide, along track, in-filling with *Sphagnum cuspidatum* and *Calluna vulgaris*.

5.2.2 Bog Margin Hydrology

Apart from the numerous small drains separating different sections of cutaway which are in-filling, there are five drains of note.

Drain d1: This is a deep water-filled drain flowing north-east along trackway, 1m wide.

Drain d2: Another deep drain along track, 1m wide, 2m deep. The water level is lower than d1 but it is flowing faster.

Drain d3: A free flowing stream at base of 2m tall face-bank. Flowing on mineral substrate.

Drain d4: A free flowing drain with *Phragmites australis*, running along reclaimed field boundary. This flows into d3.

Drains d5: Two wide drains in cutaway which are lined by *Ulex europaeus* scrub.

5.3 GEOHYDROLOGICAL OVERVIEW

Description of the bog in the 19th century
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.

Description of the present-day bog
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. This outcrop now borders the high bog margin. 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. There is a large area of level cutaway to the east, dominated by *M. caerulea* and backed by sloping agricultural land. This is the most suitable area for bog margin restoration work. 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.

There is level old cutaway to the south, dominated by *Calluna vulgaris*. This is backed by sloping cutaway with *Ulex europaeus* scrub. This has some potential for restoration work. However, extensive new drainage on the high bog indicated that intensive peat extraction is planned for here.

To the west there is old cutaway with *Ulex europaeus* scrub and *Betula* wood. A small area of *Phragmites australis* occurs on old cutaway at the base of a mineral slope. This could form a small lagg zone by the bog margin.

There is extensive drainage on this bog. 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.

6. VEGETATION

6.1 VEGETATION SUMMARY

6.2 DETAILED VEGETATION OF HIGH BOG

The vegetation of this bog is varied but no central ecotope was identified due to the effects of the numerous drains. The majority of the bog vegetation is classified as marginal. The distribution of the community complexes is shown on the vegetation map. These community complexes are also divided into ecotope types (see Ecotope map).

6.2.1 Complexes

Marginal Complexes

Facebank Complex 7
Marginal area, face-bank very narrow, except in the north-west of the site where its bordering active peat cutting. Right at the face-bank *Calluna vulgaris* reaches 1m in height. Goes quickly into a marginal area dominated by *Calluna vulgaris* with prominent *Trichophorum caespitosum* tussocks. *Erica tetralix* and *Cladonia portentosa* are common. *Carex panicea* and *Eriophorum vaginatum* are also noticeable. *Narthecium ossifragum* and *Hypnum jutlandicum* are less common. There is cracking and slumping near the drains.

Complex 2
A steep, sloping area towards face-bank dominated by *Trichophorum caespitosum* with *Calluna vulgaris* and *Cladonia portentosa*. *Sphagnum* cover is very poor and absent on the cutaway margin.

Complex 4/2
Along trackway margin, dominated by *Rhynchospora alba* and *Trichophorum caespitosum* with some *Narthecium ossifragum*. A lot of surface water. Steeply sloping at the southern margin of the trackway, with some tear pools and *Sphagnum cuspidatum* pools present.

Complex 6 (recently burnt)
One big lawn of *Narthecium ossifragum* (80%) with occasional clumps of *Rhynchospora alba* (5%), *Trichophorum caespitosum* (5%), *Calluna vulgaris* (10%), *Sphagnum capillifolium* (5%) and *S. papillosum*. The area is burnt within the past five years as burnt heather branches testify. There are also occasional clumps of bare peat colonizing *Cladonia* lichens on what appear to be dead, burnt moss hummocks.

Complex 6/3
On slope towards face-bank, *Narthecium ossifragum* (40%), *Carex panicea* (40%) and *Calluna vulgaris* (20%).

Complex 6/7
A large, flat recently drained area dominated by *Narthecium ossifragum* and *Calluna vulgaris*. Previously, pools were recorded in this area (Douglas 1994). Remnants of these pools were seen in the form of bare peat colonized by *Eriophorum angustifolium*. Drains are clear with parallel spoil-heaps, colonized in places by *N. ossifragum*. There is little or no *Sphagnum* cover.

Complex 6/7/9
Area with extensive *Narthecium ossifragum* (60%), *Calluna vulgaris* (20%) and *Eriophorum angustifolium* (20%). There is no *Sphagnum* cover but there is *Cladonia portentosa* (5%). This vegetation type occurs along the margins of newly excavated drains.

Complex 7
Drains over a slight ridge in the bog centre, as clearly seen on the aerial photograph, have resulted in a vegetation dominated by tall *Calluna vulgaris*. The drains contain some *Sphagnum cuspidatum*, with *Rhynchospora alba* at the margins. Occasionally drains have collapsed and here *R. alba* and *C. vulgaris* are growing in the in-filled drains.

Complex 7/3
Below the drain, a very dry area with bare peat. *Calluna vulgaris* and *Carex panicea* dominate with some *Eriophorum vaginatum*. The bare peat was in some places colonized by *Cladonia* lichens.

Complex 7/6
An area with many drains coming out from the forestry. Plenty of *Narthecium ossifragum* and *Calluna vulgaris* occur with prominent *Eriophorum vaginatum* and *Eriophorum angustifolium*. A marginal area because of so many drains.

Complex 7/6 + Cladonia
Moving inwards it gets quite wet very quickly. *Calluna vulgaris* still dominant with lots of *Erica tetralix*. There is abundant *Cladonia portentosa* with some *Cladonia uncialis*. There is plenty of *Narthecium ossifragum* with *Carex panicea, Eriophorum angustifolium, Eriophorum vaginatum* and *Rhynchospora alba. Andromeda polifolia* is noted. Algal hollows with some *Narthecium ossifragum* hollows also. *Trichophorum caespitosum* becomes more abundant near the edges. Some *Sphagnum capillifolium* is present. Small patches of *Racomitrium lanuginosum* are also present.

Complex 7/6/2
A small area of short *Calluna vulgaris* with *Narthecium ossifragum* and *Trichophorum caespitosum*.

Sub-Marginal Complexes

Complex 4/3 + Algal Pools
An area over two old in-filling drains. Dominated by *Rhynchospora alba* and *Carex panicea* with *Eriophorum vaginatum* and *Trichophorum caespitosum*. Heather and moss cover is very low. The ground underfoot is very hard compared to the wet area on the other side of the drain. Some algal pools are present.

Complex 4/7
A small area dominated by *Rhynchospora alba* with *Calluna vulgaris*. This area is sandwiched between an area of tear pools with Pine trees and another area dominated by *Calluna vulgaris*.

Complex 7/6
A sub-marginal area dominated by *Calluna vulgaris* with *Narthecium ossifragum*. It is dry underfoot with little moss cover. A narrow lobe of the bog with active cutaway to the north and a recently burnt area to the south. These activities have caused a reduction in habitat quality here. To the east this vegetation type grades into a wetter area.

Complex 7/9
An area dominated by *Calluna vulgaris, Eriophorum vaginatum* and *E. angustifolium*. Occasional patches of *Narthecium ossifragum*. Towards the northern end *Sphagnum* cover increases. The ground is soft underfoot and *Cladonia* cover is more or less absent.

Complex 7/9/2 + Tear Pools
Ground moderately hard underfoot. Pine trees encroaching 120m into the bog, these trees are older near the cutaway where they reach 5m in height. 30cm high *Calluna vulgaris* is co-dominating with *Eriophorum vaginatum*. The algal hollows throughout the area are dominated by *Narthecium ossifragum*. *Trichophorum caespitosum* increases in cover towards the bog margins. *Sphagnum* cover is low and consists mainly of *S. papillosum*. *Carex panicea* occurs in patches. *Cladonia portentosa* cover is less than 5% indicating that the area was burnt in the past. Occasional small hummocks of *Sphagnum capillifolium* occur with *Vaccinium oxycoccus* growing over them. Some patches of *Sphagnum imbricatum* are present. Where the ground levels out, it becomes wetter with scattered tear pools and higher *Sphagnum* cover.

Complex 7/9/6 + Cladonia
Similar to vegetation type 7/9/2 above but *Calluna vulgaris* is quite tall and more abundant. Dominant in patches with *Narthecium ossifragum* and *Eriophorum vaginatum*. *Trichophorum caespitosum* is absent. Robust clumps of *Cladonia portentosa* are noted present. A large patch of *Phragmites australis* occurs near the active cutaway margin.

Complex 7/9/6 + Cladonia + Tear Pools
An area of scattered tear pools filled with algae. Some *Sphagnum cuspidatum* is in an old, in-filling drain but is generally absent from the tear pools. *Calluna vulgaris* and *Eriophorum vaginatum* are dominant with prominent *Cladonia portentosa*.

Topographically varied with heather hummocks and some large low *Sphagnum imbricatum* hummocks. Small clumps of *Sphagnum magellanicum, S. capillifolium*, and *S. papillosum* were seen. *Narthecium ossifragum* and *Eriophorum angustifolium* are growing associated with the tear pools. *Calluna vulgaris* reaches 40-50cm. The ground is soft and spongey and sloped slightly towards the nearby coniferous forestry. *Rhynchospora alba* grows through the vegetation with occasional *Andromeda polifolia*. There are a few small Pine trees present (R2, P3). Several *Dicranum scoparium* hummocks are noted with *Calluna vulgaris* growing on top. Several types of *Cladonia* lichens are present including *C. floerkeana* and *C. pyxidata* on peat exposed by animal tracks but also brown *Cladonia* lichens are present. At the south-east margin of this vegetation type there are many parallel drains going into the bog with a high cover of *S. capillifolium* and *S. papillosum* between the drains and *S. cuspidatum* in the open water.

Complex 9/7

This central area is dominated by *Eriophorum vaginatum* (60%), *Calluna vulgaris* (30%) with *Erica tetralix*. *Sphagnum capillifolium* cover is 30% with *Cladonia portentosa* present also. There are some *Narthecium ossifragum* hollows noted.

Complex 9/7 + Pools

Eriophorum vaginatum dominates with 50% cover. *Calluna vulgaris* is tall, and *Narthecium ossifragum* cover is much reduced occurring in isolated patches. The scattered pools may be tear pools and are beginning to in-fill with *Sphagnum papillosum, S. capillifolium* and *S. Cuspidatum* with *Rhynchospora alba* and *Eriophorum angustifolium* at the edges. The pools are quite large with *Menyanthes trifoliata* and *Drosera anglica* in some. *Sphagnum magellanicum* have only rare occurrences. At 40%-50%, *Cladonia portentosa* cover is quite high. Overall the *Sphagnum* cover is less than 10% except at the pool edges where it is prominent. Some *Hypnum jutlandicum* grows under the *Calluna vulgaris* bushes. *Andromeda polifolia* is also present. The ground is more or less level except where it slopes slightly towards the forestry.

Sub-Central Complexes

Complex 7/6 + Algal Pools

An area dominated by tall (60cm) *Calluna vulgaris* (50%) hummocks with *Narthecium ossifragum* hollows in between. *Sphagnum* cover is less than 10% with some *S. capillifolium* hummocks. There is very little *Eriophorum angustifolium* and *E. vaginatum* present. Pools are large with some *Sphagnum cuspidatum*. The edges do not have *Sphagnum* present but *Narthecium ossifragum* and *Trichophorum caespitosum* are present. The topography is varied with several *Leucobryum glaucum* hummocks. There are no noticeable *Cladonia* species present, indicating burning in the past. Parts of the area are slightly quaking but due to a lack of adequate *Sphagnum* cover, the area could not be termed central.

Central Complexes

Due to excessive drainage, there are no central complexes on this bog.

6.3 DETAILED VEGETATION OF THE HIGH BOG MARGIN

Apart from where the cutaway has been reclaimed for agriculture, it is dominated by *Molinia caerulea* and scattered *Ulex europaeus* scrub. There is some scattered *Betula pubescens* scrub in places and in the west there is a small area of flooded cutaway with a *Phragmites australis* reed-bed. The southern cutaway has old peat banks remaining and is dominated by *Calluna vulgaris*, with dense *U. europaeus* scrub on the higher slopes.

7. BOG TYPE

This is probably a basin bog

8. HUMAN IMPACT

8.1 RECENT HUMAN IMPACT (see Landuse map)

8.1.1 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.

8.1.2 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.

8.1.3 Fire History

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

8.1.4 Dumping

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

8.1.5 Agriculture

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

8.2 NHA BOUNDARY CHANGES

The NHA boundary for this site needs to be extended to include the coniferous plantation on the high bog in the north.

9. INTER-RELATIONSHIPS OF VEGETATION, HYDROLOGY, TOPOGRAPHY AND LOCATION

1. This site was surveyed as it was one of the most southerly raised bog sites remaining. From the aerial photograph the site appeared large and relatively undisturbed.

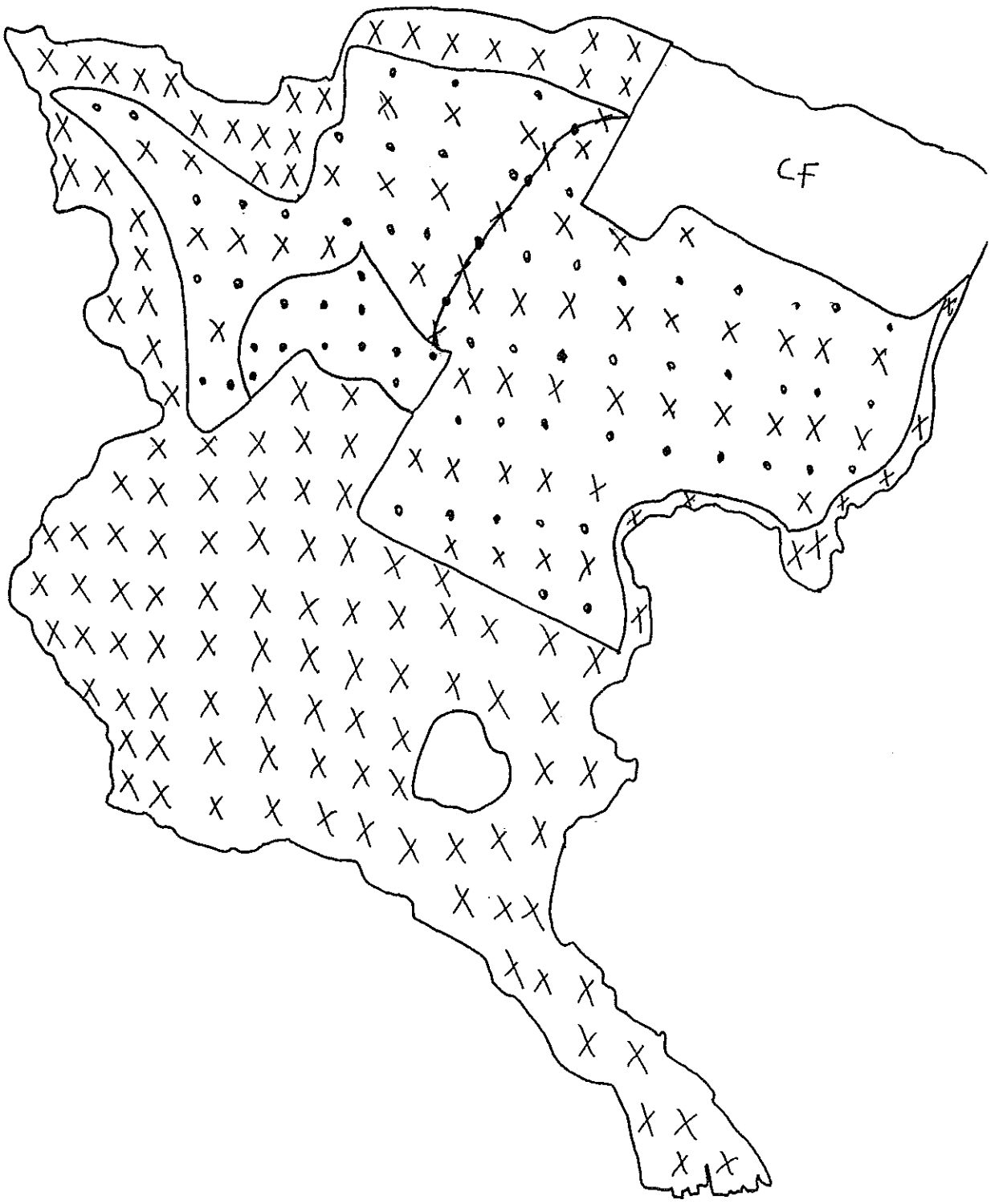
2. This visit revealed that there had been extensive damage due to drainage of the south-western section of the bog since the 1995 aerial photograph was taken. There were only algal tear pools and *Sphagnum* cover was generally low. The site, however, was wet along the old drains and therefore this leaves the possibility of re-wetting particullarly in the south-east, the most recently drained area.

3. There is active drainage in the south-west of the site with a lot of run-off.

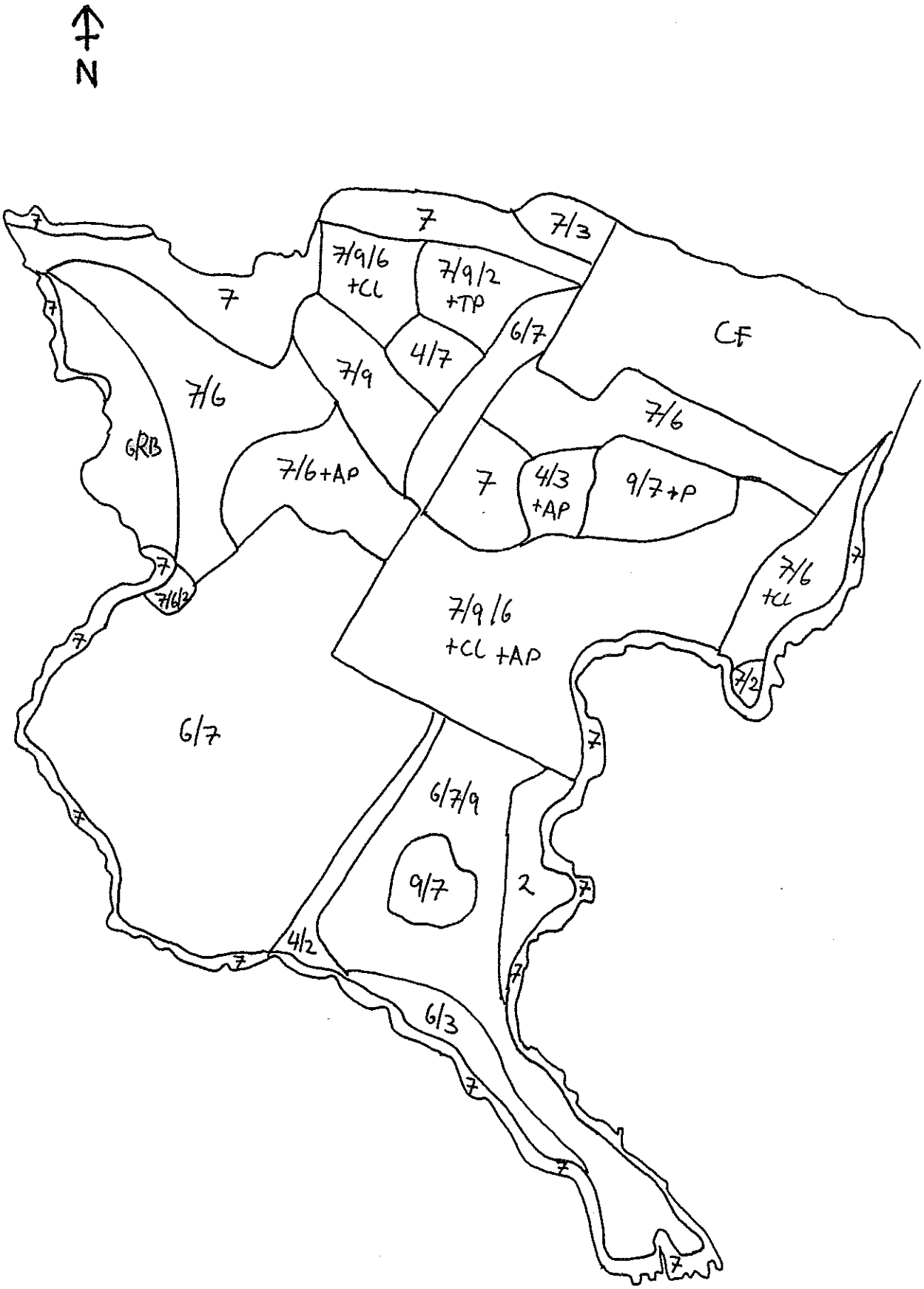
4. Some of the bog margins have been reclaimed for agriculture, but extensive areas of abandoned cutaway remain. In general the cutaway is level with the surrounding agricultural land sloping down to the cutaway. To the east there is an extensive area of level cutaway backed by sloping agricultural land. 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.

Scohaboy bog (937)
Co. Tipperary
Ecotopes

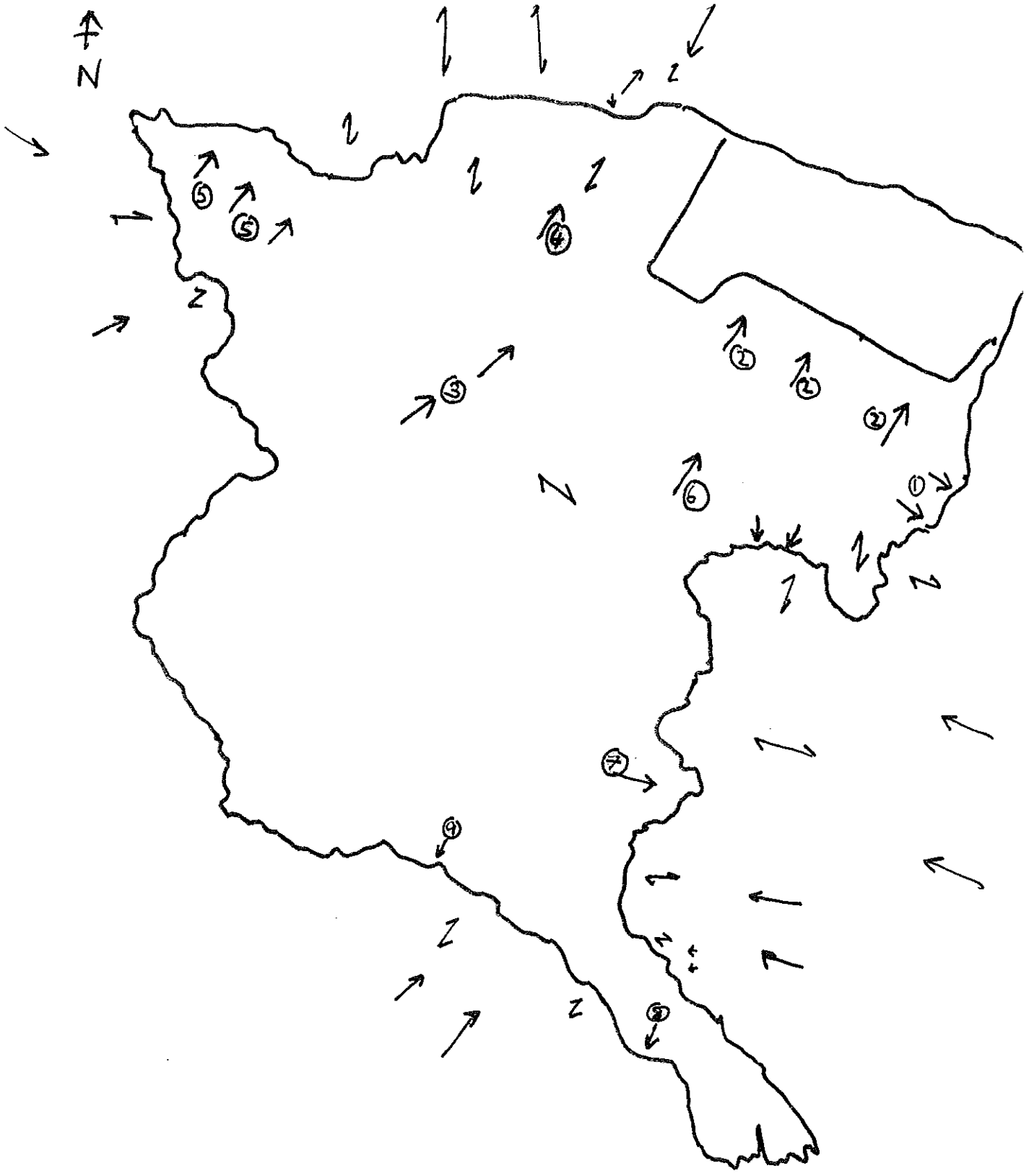
N



Scohaboy bog (937)
Co. Tipperary
Vegetation complexes



Scohaboy bog (937)
Co. Tipperary
Slopes



Scohaboy bog (937)
Co. Tipperary
Drainage

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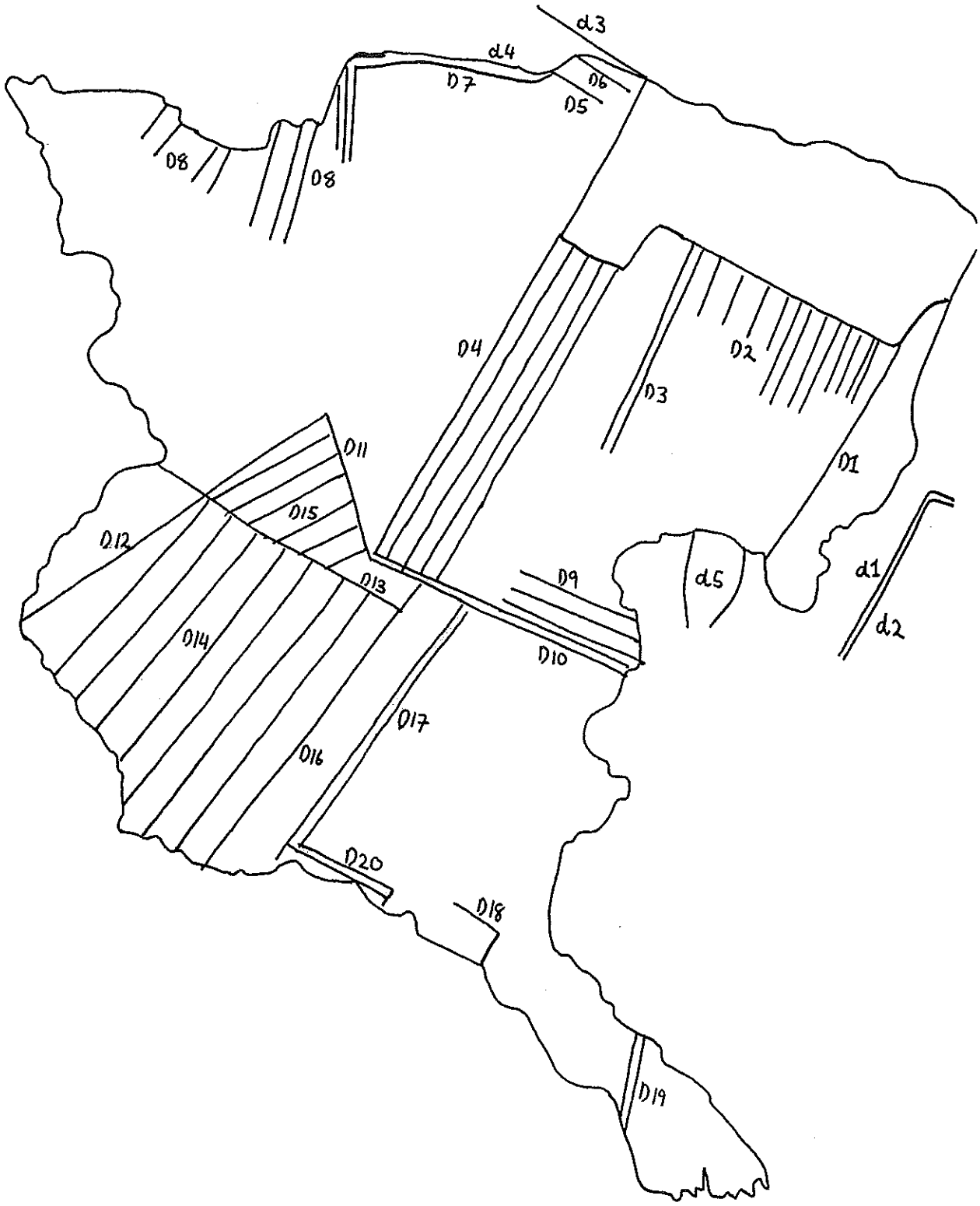
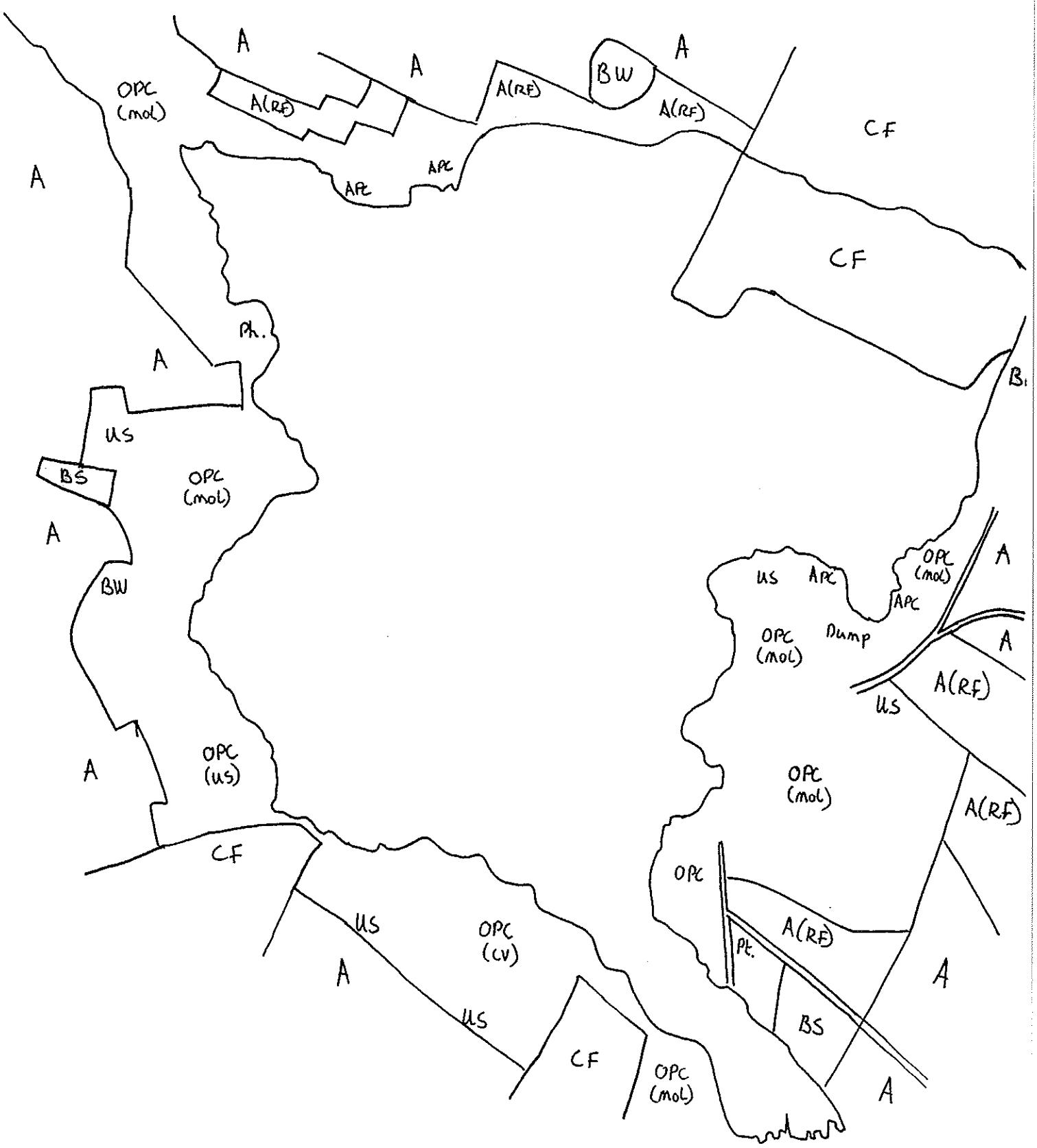




Scohaboy bog (937)
Co. Tipperary
Landuse

TIMONEY BOG, CO. TIPPERARY

1. SUMMARY OF SITE DETAILS

NHA no.:	1853	6" Sheet:	TY17 & 18
Grid Ref.:	S180 870	1:126,000 Sheet:	15 & 18
G.S.I. Aerial Photo:	46 (6323)	1:50,000 Sheet:	60
Other Photo:		High bog area (ha):	95.3
Date(s) of Visit:	13/1/2000		

Townlands: Timoney, Cappalahan, Bawnmadrum North.

2. INTRODUCTION

2.1 BACKGROUND

This site was surveyed as it has a large area of intact high bog with two wooded flushes. There are areas of active industrial peat cutting, but its southerly location and previous survey notes, indicated that there was botanical interest on this site.

2.2 LOCATION AND ACCESS

This is a medium sized bog located about 8km south-east of Roscrea. It can be accessed off the local road from Roscrea to the Timoney Hills.

3. METEOROLOGY

No meteorological measurements have been made on this bog. Rainfall data from the nearby Roscrea weather station for the years 1960-89, indicates that the area recieves appproximately 882mm of rainfall annually (R). The nearest synoptic station at Birr indicates that the site has up to 150 wet days annually. (Wet day is defined as a day when > 1mm of rainfall recieved).

Evapotranspiration measurements are only available for synoptic stations. With the large exposed areas on high bogs, actual evapotranspiration rates would probably be higher than at the nearest synoptic station. The effective rainfall (ER) rate for a site is the annual rainfall (R), less the actual evapotranspiration (AE). With only the potential evapotranspiration (PE) rate available for Birr of 454 the effective rainfall for the site is calculated as less than (R - PE) i.e. ER< 882 - 454 = 428mm.
(See Fig. 1)

4. GEOMORPHOLOGY

4.1 TOPOGRAPHY OF THE HIGH BOG

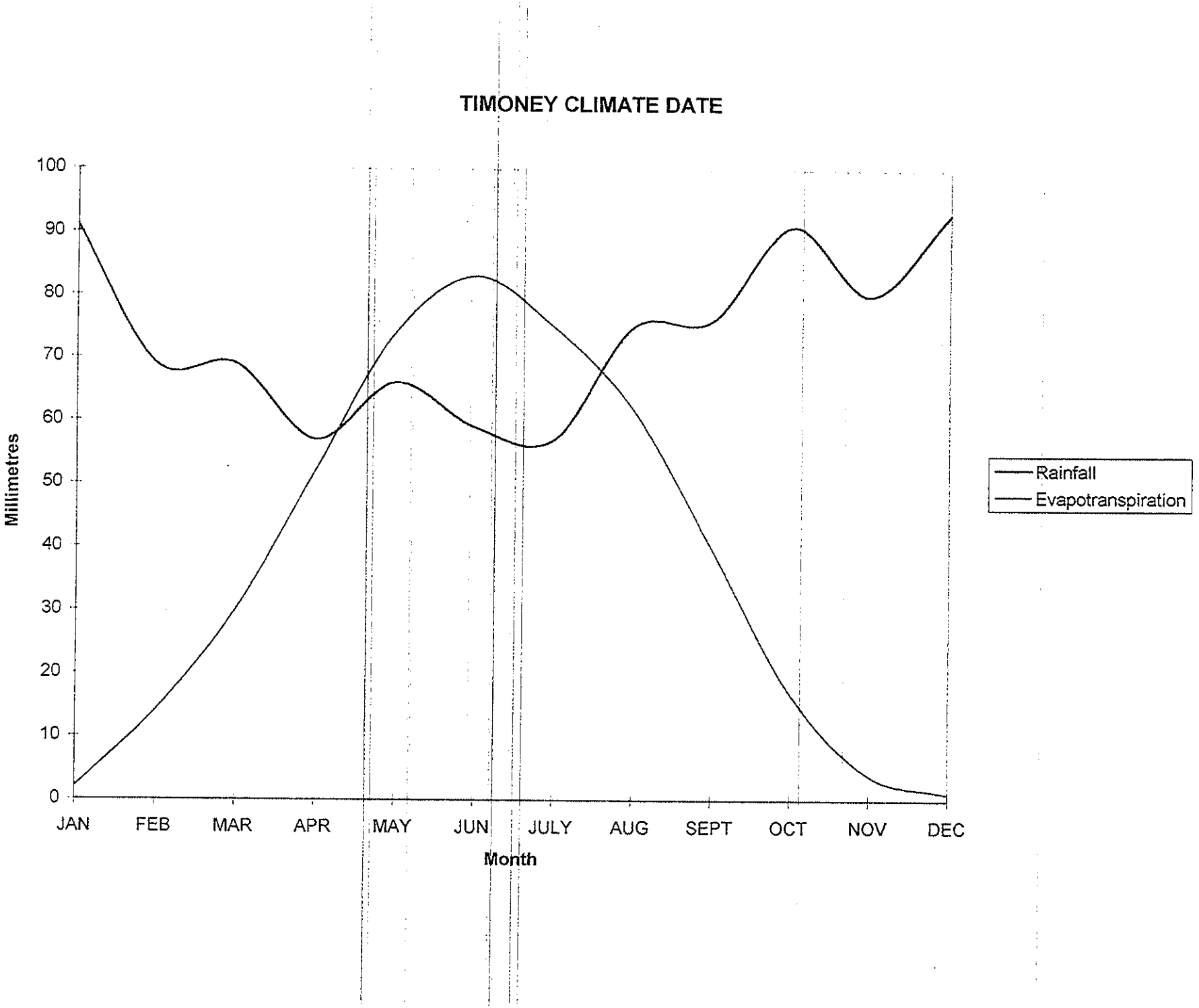
This bog was relatively flat with steep marginal slopes associated with active peat cutting. There was a gradual slope across the bog towards the south-east.

4.1.2 Slopes of the High Bog

Slope 1 = A series of marginal slopes (50cm/50m).

Slope 2 = A series of gradual slopes towards the margins (50cm/100m).

Slope 3 = A series of steep marginal slopes associated with the active drains leading to the industrial cutaway in the north-west (1m/50m).


TIMONEY CLIMATE DATE
Millimetres
100
90
80
70
60
50
40
30
20
10
0
JAN
FEB
MAR
APR
MAY
JUN
JULY
AUG
SEPT
OCT
NOV
DEC
Month
Rainfall
Evapotranspiration

4.2 TOPOGRAPHY OF THE BOG MARGINS

There are extensive areas of flat cutaway associated with the industrial peat cutting. There is also level, old peat cutting to the south and west. In the north there is an area of old cutaway that slopes away from the high bog in between the two areas of active peat cutting.

5. HYDROLOGICAL SYSTEM

5.1 GEOLOGY/HYDROLOGY

5.1.1 Bedrock

This bog is underlain by Old Red Sandstone (ORS) and argillaceous Bioclastic limestone (ABL) according to the GSI/Chevron series maps.

5.1.2 Subsoils

No data on subsoils was available for this site.

5.1.3 Peats

The peat at this site was classified by Hammond asMan-Modified.

5.2 HYDROLOGY

5.2.1 High Bog Hydrology (see Drains map)

The active drainage is associated with active industrial peat cutting. The only other drainage is three in-filled drains cutting across the eastern section of the bog.

Drain D1: Water flowing off the high bog through some *Betula pubescens* scrub at this point. This drain is marked on the 6" map separating the main section of the bog from a small south-eastern lobe. This flows down a small waterfall into d1 in active cutaway (R3,P11).

Drain D2: A recently cleared drain by the northern margin of the high bog. It is 0.5m wide with water at its base and bare sides. There is a 5m wide margin to this drain which has been cleared of vegetation.

Drain D3: This drain runs parallel to D2. It is 1.5m wide and 0.5m deep with fast flowing water at its base. It sides are bare peat but it is lined with tall *Calluna vulgaris* on old spoil heaps.

Drain D4: A narrow water-filled drain which is less than 0.5m wide. It is in-filling from the margins with *Calluna vulgaris*, *Erica tetralix* and *Narthecium ossifragum* with some *Sphagnum cuspidatum* present. At the southern section of this drain it is 0.5m wide, water-filled with *S. cuspidatum*. There is no flow and it is in-filling with *S. capillifolium* and *N. ossifragum*.

Drain D5: A narrow water-filled drain which corresponds to a drain on the 6" map. It is 30cm wide and filled with *Sphagnum cuspidatum*. *Calluna vulgaris* and *E. vaginatum* are in-filling from the sides. This drain becomes completely filled with *Narthecium ossifragum* 30m in from the northern margin. At the southern section of this drain it is in-filled with *S. cuspidatum*, *Narthecium ossifragum* and *C. vulgaris*. It is 30cm wide, water-filled and there is a slight flow to the south.

Drains D6: A series of deep drains associated with industrial peat cutting which extend 20m in from the cut-face. These have probably been extended further in than indicated on the aerial photo as the peat cutting appears to be quite intensive. They are 0.5m wide and 1m deep with water at the base. They are lined by *Calluna vulgaris* with bare sides. There is a slight flow off the bog.

Drains D7: Shorter drains nearer the cut-face. These are spaced 5m apart and have been recently excavated to a width of 2m with spoil-heaps on either side.

Drain D8: A 1m wide, 1.5m deep drain, separating old Difco peat cutting from the high bog. There is a slight flow of water to the west, into old cutaway. *Calluna vulgaris* lines the drain on old spoil heaps and there is *Molinia caerulea* on the cutaway side.

Drain D9: A 1m wide, 1.5m deep drain with 20cm of water. There is a fast flow in a south-east direction to old cutaway. There are bare peat sides topped with *Calluna vulgaris*. This drain also adjoins old Difco cutaway.

Drain D10: A 1m wide drain, 1.5m deep with 50cm of water. There is no flow and it is lined with *Calluna vulgaris*.

Drain D11: A 1m wide drain, 1m deep with 10cm of water. There is a slight flow of water off the bog and it is lined with *Calluna vulgaris*.

Drain D12: A series of old in-filled drains 20cm wide, Completely in-filled with *Calluna vulgaris*, *Narthecium ossifragum* and some *Sphagnum cuspidatum*. These drains slope to old cutaway.

Drain D13: A 0.5m wide drain filled with *Sphagnum cuspidatum*. There is a slight flow to the south-east and it is in-filling with *Calluna vulgaris* and *Eriophorum angustifolium*.

Drain D14: A water-filled drain, 0.5m wide which is flowing east towards the active cutaway.

Drains D15: An extensive series of drains set 5m apart, 1m wide and 1.5m deep associated with industrial peat cutting. Similar to D7.

5.2.2 Bog Margin Hydrology

The only drainage of note in the cutaway is associated with active peat cutting. The river Nore also runs to the north-west of the site.

Drain d1: Water flows off the high-bog into this drain (R3, P11 & 12). It is 1m wide and water-filled. It is fast-flowing eastwards through active cutaway to d2.

Drain d2: A wide drain alongside the road. It is 2m wide and water-filled and acts as an outflow for a series of drains in this active cutaway.

Drains d3: A series of wide, deep drains in active cutaway. They are 2m wide and 1.5m deep with 50cm of water. There is *Molinia caerulea* and *Juncus effusus* on the banks and these drains are widely spaced indicating that this extensively cut area is an individual peat harvesting operation. These drains run to the River Nore d4.

Drain d4: The river Nore flows past the northern margin of the bog. It is channelled here and a trackway runs parallel to it. It is lined with *Betula pubescens* woodland and the drains d3 flow into this river.

Drain d5: A 1.5m wide deep water-filled drain with *Glyceria fluitans* and *Potamegeton* spp. This runs through old cutaway and corresponds to the drain on 6" map.

5.3 GEOHYDROLOGICAL OVERVIEW

Description of the bog in the 19th century
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.

Description of the present-day bog
A road now runs across the eastern section of the bog isolating a small section of high bog from the remainder (R3, P16 & P17). 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. These areas are extensive and level and would be suitable for restoration work. A narrow margin occurs to the north between the high bog and the river Nore. This area is dominated by *Molinia caerulea* and slopes down to a track which runs beside the river. There is *Betula* woodland along the river bank.

The cutaway to the south and south-west is dominated by *M. caerulea* with *Eriophorum angustifolium* and adjoins reclaimed fields. To the south-east there is old level cutaway between the high bog and the drainage channel, which acts as the present day boundary. This cutaway is level and dominated by *Ulex europaeus* scrub. To the south of this there is a small isolated section of high bog which has been extensively cutaway. There are two *Pinus* flushes on the high bog, indicating that there is some mineral influence. Extensive burning and drainage however have reduced the interest of these.

6. VEGETATION

6.1 VEGETATION SUMMARY

No central ecotope is found on this bog. It is composed of mainly sub-marginal type vegetation with marginal vegetation associated with drains and cutaway. There are two *Pinus* flushes on the high bog.

6.2 DETAILED VEGETATION OF HIGH BOG

6.2.1 Complexes
Marginal Complexes

Complex 6/4/7 - burnt
This vegetation complex dominated along the bog margins and it is also found along the internal drains and in association with the south-eastern slopes. Spears of old *Narthecium ossifragum* (30%) flowers dominated this vegetation type. The complex is co-dominated by *Rhynchospora alba* (30%), *Calluna vulgaris* (30%) with *Trichophorum caespitosum* (20%) at the edges. There are occasional patches of *Sphagnum* (5%) consisting of *S. papillosum* and *S. capillifolium*. The area has obviously been burnt in the past and there is a lot of bare peat often colonized by *Cladonia floerkeana* (5%). There are frequent hollows containing standing water in these unvegetated areas. Other lower plants noted on these bare peat areas are *Cladonia pyxidata* (+) and *Cladonia gracilis* (+) along with *Campylopus introflexus* (+) and small patches of *Cladonia uncialis* (+) and *Cladonia portentosa* (+). *Eriophorum angustifolium* (+) only occurs occasionally and *Erica tetralix* (5%) and *Hypnum jutlandicum* (+) are also present. About 10m inwards, the vegetation grades into Complex 6/7/9 (burnt) at the northern part of the bog.

Complex 7/6/3 - burnt
This vegetation type is found in just one small area on the bog between the two *Pinus* flushes. The vegetation is dominated by *Calluna vulgaris* with *Narthecium ossifragum* and *Carex panicea*. The ground is hard with dry, dead hummocks of moss signifying a burn in the past.

Complex 7/6 - burnt
A narrow band of burnt vegetation co-dominated by *Calluna vulgaris* (30%)/ *Erica tetralix* (30%) and *Narthecium ossifragum* (30%). The compacted, burnt ground is water-logged with many hollows full of standing water present. Some of these contain *Sphagnum capillifolium* and/or *S. papillosum*.

Sub-Marginal Complexes

Complex 6/7/9 - burnt
The vegetation here is very similar to Complex 6/4/7 (burnt), but there is less bare ground and notably more *Sphagnum* species (15%) present. A notable difference is the presence of *Eriophorum vaginatum* which with a 20% cover is co-dominant. *Rhynchospora alba* has been reduced to small localized patches which seem to show up as pale areas on the aerial photograph. The moss *Hypnum jutlandicum* (5%) is more noticeable in this area. The short (<10cm), young *Calluna vulgaris* and *Erica tetralix* plants indicate a burn in the past. Other indicators of the burn are the occasional *Calluna vulgaris* hummocks dotted across the bog surface. These appear to be the stumps of dead, burnt *Pinus sylvestris* trees under which the *C. vulgaris* grew. Other species present are *Molinia caerulea, Eriophorum vaginatum*, and *Vaccinium myrtillus*. A few *Betula pubescens* saplings are also noted. The peat of these hummocks is also dry and hard underfoot.

Complex 9 + *Erica tetralix* + *Eriophorum angustifolium* - burnt
This vegetation complex is co-dominated by *Eriophorum vaginatum* (40%)/ *Eriophorum angustifolium* (30%)/ *Erica tetralix* (25%). Both *Calluna vulgaris* (15%) and *Sphagnum* species (20%) are prominent. The main *Sphagnum* species are *S. capillifolium* and *S. papillosum* with some *S. cuspidatum* in wet hollows. The whole area is very wet with about 40% standing water after recent heavy rain. Despite the *Sphagnum* cover the acrotelm is poor with depths of 0-3cm. There are occasional *Trichophorum caespitosum* (+) tussocks. The area has been burnt and some of the dead and dried-out hummocks are colonized by *Hypnum jutlandicum* (+) and *Cladonia floerkeana* (+). There are occasional occurrences of *Andromeda polifolia* (+), *Dicranum scoparium* (+) and *Cladonia portentosa* (+). *Carex panicea* (5%) is scattered through the vegetation along with *Narthecium ossifragum* (5%).

Sub-Central Complexes

Complex 10/9/7
This area is very wet and is co-dominated by *Eriophorum vaginatum* (40%)/ *Calluna vulgaris* (30%)/ *Sphagnum* (50%). This area seems to have recovered better from the burn which has affected most of the bog. The acrotelm is quite good at 5cm and there is plenty of standing water in the scattered hollows of the area. A few of these scattered pools contain *Sphagnum cuspidatum* but they are also in-filling with *Eriophorum vaginatum* and *E. angustifolium*. The other *Sphagnum* species present are *S. capillifolium, S. magellanicum* (+) and *S. papillosum*. Other occasional species are *Erica tetralix* (5%), *Narthecium ossifragum* (+), *Andromeda polifolia* (+) and *Vaccinium oxycoccus* (+). The lichen cover is poor with *Cladonia portentosa* (+) and *Cladonia pyxidata* (+) noted. Old machinery tracks are present leading to the ESB double pole just 5m from the scattered pools.

Central Complexes

No central complexes found on this bog.

6.2.2 Flushes and Soaks

Flush 1 (R3, P14)
A flush dominated by *Pinus sylvestris* with a lush understorey dominated by *Calluna vulgaris* (40%) and *Eriophorum vaginatum* (60%). The area is very wet underfoot with abundant bryophytes. The main mosses form large hummocks and these include *Sphagnum capillifolium, Leucobryum glaucum, Polytrichum commune* and *Dicranum scoparium*. Other shrub species present are *Vaccinium oxycoccus, V. myrtillus, Erica tetralix* and *Andromeda polifolia. Thuidium tamariscinum, Hypnum jutlandicum* and *Pleurozium schreberi* are also noted. *Campylopus introflexus* and the lichens *Cladonia pyxidata, Cladonia gracilis* and *Cladonia floerkeana* are recorded on some bare hummocks - these appear to have been dead tree stumps indicating a past burn. *Molinia caerulea, Betula pubescens* and *Juncus effusus* are growing around the living tree bases.

Flush 2 (R3, P15)
A similar but much larger flush, with mature *Pinus sylvestris* trees over 10m tall and an understorey dominated by *Betula pubescens*. Similar shrubs to those of Flush 1 are present with *Calluna vulgaris* and *Vaccinium myrtillus* growing particularly vigorously.

Flush 3
A *Myrica gale*-dominated flush at the southern margin of the bog. The slope across the high bog from the Pine flushes to the old cutaway has flushed this area resulting in a ring of *Myrica gale* growing through the vegetation. There is also *Molinia caerulea* growing through vegetation Complex 6/4/7 (burnt) all along the edges here along with more patches of *Myrica gale*.

6.3 DETAILED VEGETATION OF THE HIGH BOG MARGINS

The active cutaway is mainly bare peat. Old cutaway is dominated by *Molinia caerulea* with *Ulex europaeus* scrub. There are some *Calluna vulgaris*-dominated banks in the old cutaway to the south. There is also agricultural reclamation on the southern cutaway and *Betula pubescens* woodland occurs in the south, the west and along the banks of the River Nore. There is a small coniferous plantation on the cutaway to the north-east.

7. BOG TYPE

This is probably a ridge river bog associated with the River Nore.

8. HUMAN IMPACT

8.1 RECENT HUMAN IMPACT (see Landuse map)

8.1.1 Peat Cutting

There is intensive industrial peat cutting to the east (R3, P9 & P10) and north-west (R3, P13) 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.

8.1.2 Forestry

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

8.1.3 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.

8.1.4 Dumping

No dumping occurs on this site.

8.1.5 Agriculture

Some agricultural reclamation has occurred in the south-west.

8.2 NHA BOUNDARY CHANGES

No change to the NHA boundary of this site is needed.

9. INTER-RELATIONSHIPS OF VEGETATION, HYDROLOGY, TOPOGRAPHY AND LOCATION

1. This bog was the most southerly midland raised bog on our site list. There were flushes present and although there were drains and active peat cutting, the western section of the bog appeared undisturbed

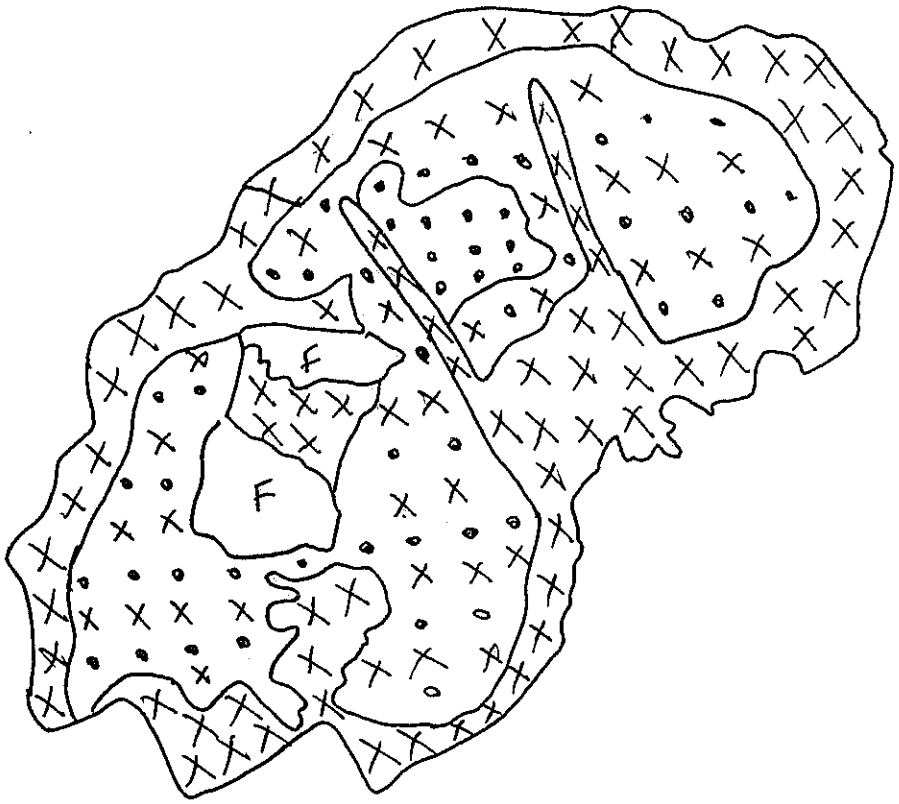
2. The visit found that there was intensive, industrial peat cutting and the whole bog surface was damaged by fire.

3. There is no active drainage on the high bog apart from the marginal drainage associated with peat cutting.

4. There were extensive areas of flat cutaway associated with the industrial peat cutting. The cutaway in the east was lower than the adjoining road (2-3m). This has good potential for re-flooding once peat cutting has stopped.

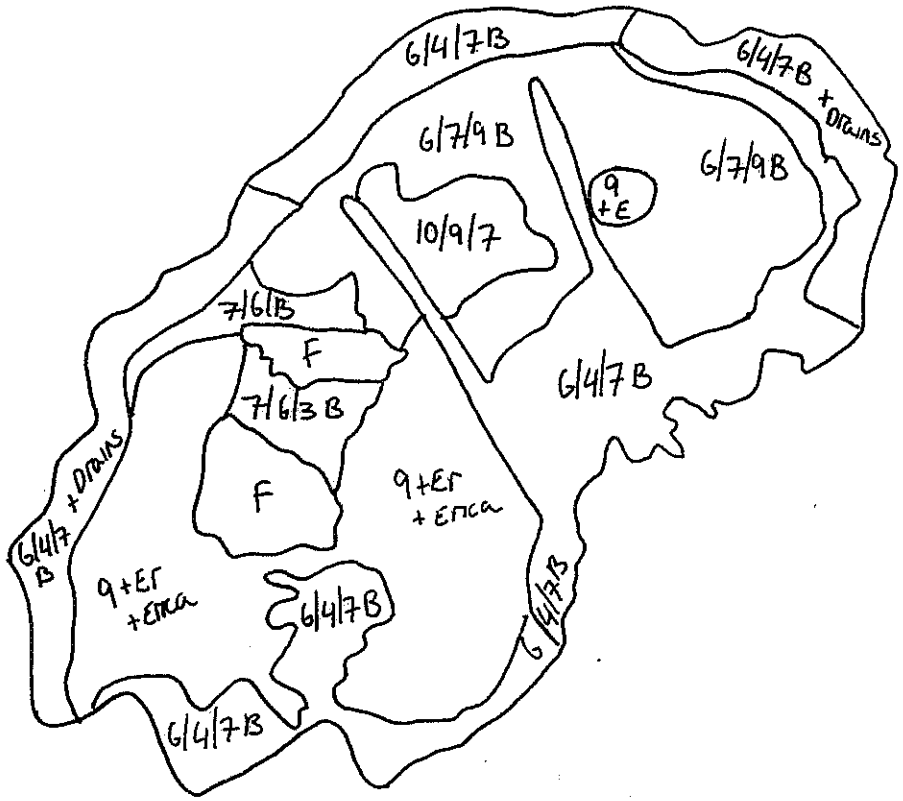
Timoney bog (1853)
Co. Tipperary
Ecotopes

N

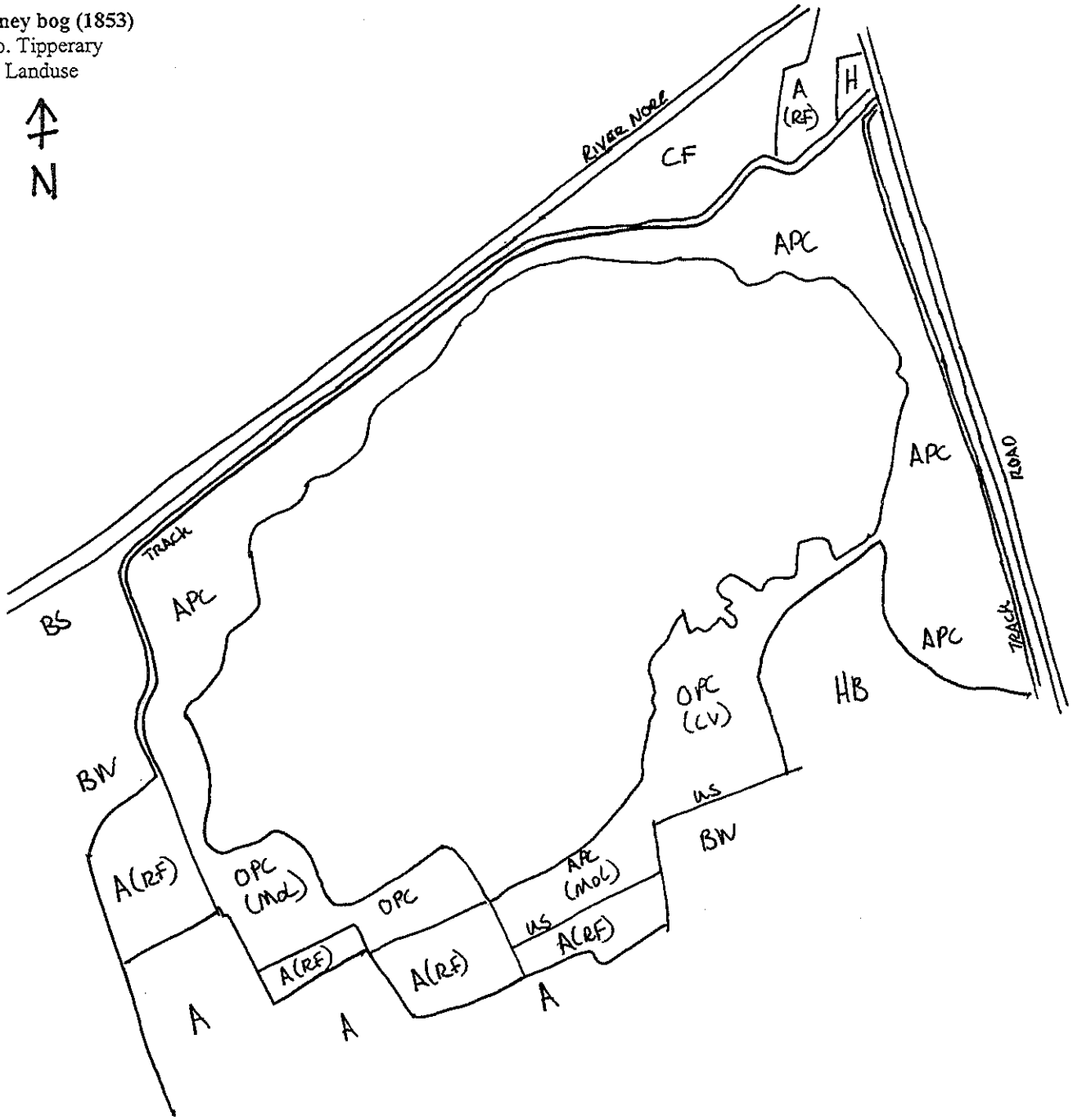


Timoney bog (1853)
Co. Tipperary
Vegetation complexes

N

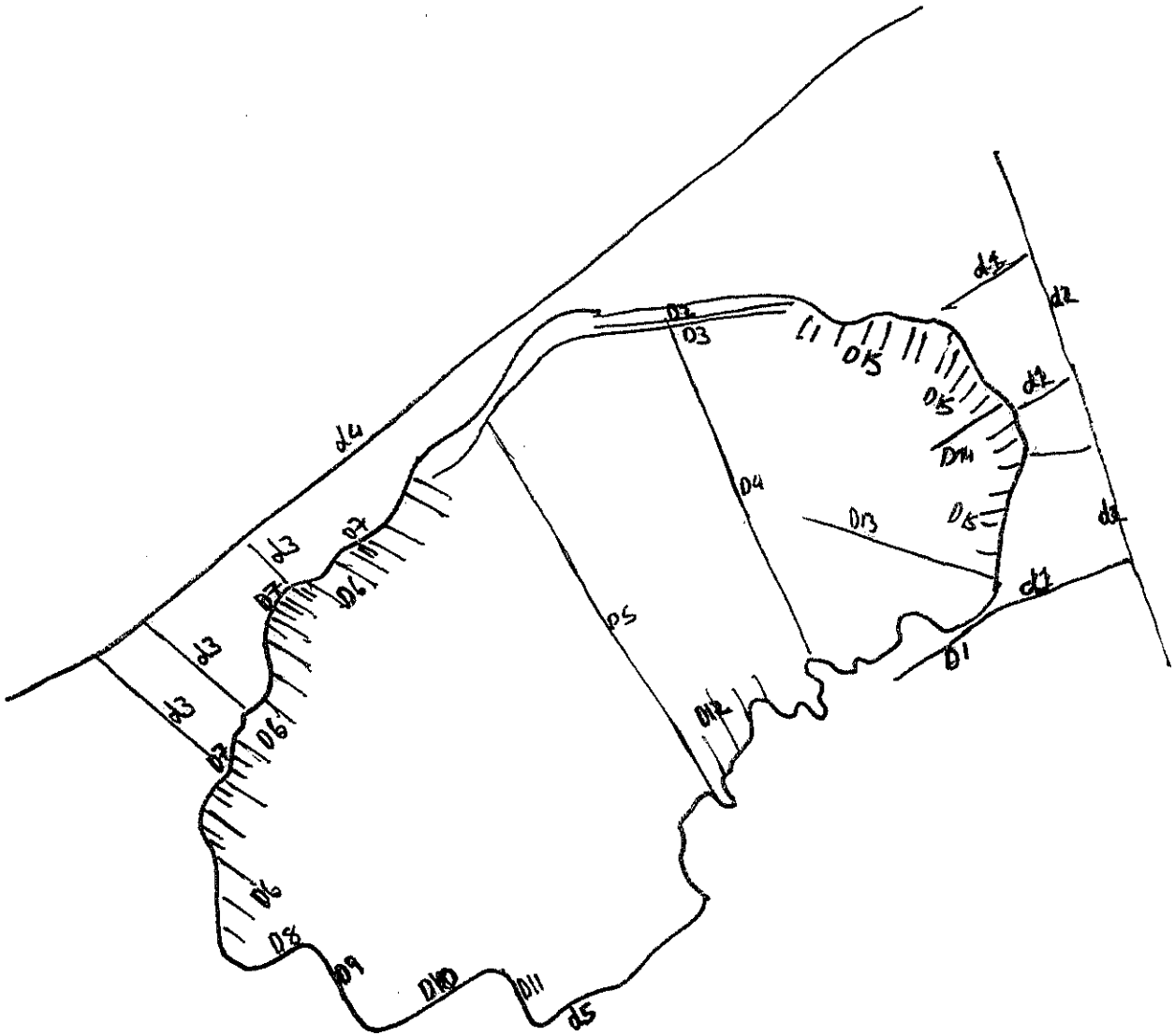


Timoney bog (1853)
Co. Tipperary
Landuse



Timoney bog (1853)
Co. Tipperary
Drainage

N



Timoney bog (1853)
Co. Tipperary
Slopes

N

TULLAGHAN ROCK BOG, CO. ROSCOMMON

1. SUMMARY OF SITE DETAILS

NHA no.:	2013	6" Sheet:	RN8
Grid Ref.:	M650 960	1:126,000 Sheet:	12
G.S.I. Aerial Photo:	29 (8501)	1:50,000 Sheet:	32
Other Photo:		High bog area (ha):	67.4ha
Date(s) of Visit:	18/11/1999		

Townlands: Tullaghan Rock, Creggan.

2. INTRODUCTION

2.1 BACKGROUND

This small bog was selected due to its extreme north-west location and the presence of an almost intact high bog. There was very little active peat cutting and there appears to be a semi-intact margin to the lung river. It is also in close proximity to Callow Bog to the east.

The 1987 survey by Cross described this as a soft wet bog with high Sphagnum cover. The 1993 NHA survey described this bog as a small but remarkably intact western raised bog with good Sphagnum cover and no active peat cutting. The retention of a near natural margin along its southern end was noted.

2.2 LOCATION AND ACCESS

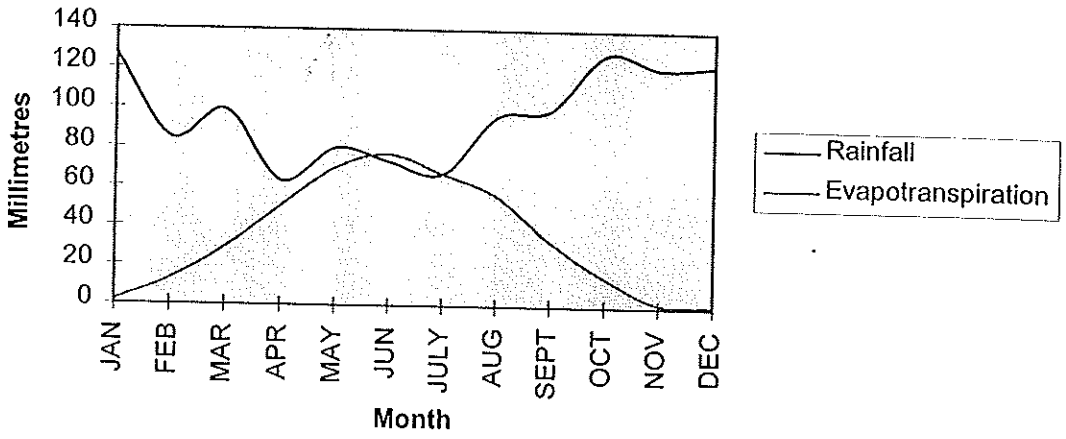
Small raised bog on the banks of the Lung river, 3km north-east of Ballaghderreen and 2km west of the southern end of Lough Gara.

3. METEOROLOGY

No meteorological measurements have been made on this bog. Rainfall data from the nearby Ballaghderreen weather station for the years 1960-93, indicates that the area recieves appproximately 1159mm of rainfall annually (R). The nearest synoptic station at Claremorris indicates that the site has up to 177 wet days annually. (Wet day is defined as a day when > 1mm of rainfall recieved).

Evapotranspiration measurements are only available for synoptic stations. With the large exposed areas on high bogs, actual evapotranspiration rates would probably be higher than at the nearest synoptic station. The effective rainfall (ER) rate for a site is the annual rainfall (R), less the actual evapotranspiration (AE). With only the potential evapotranspiration (PE) rate available for Claremorris of 415mm the effective rainfall for the site is calculated as less than (R - PE) i.e. ER< 1159 - 415 = 744mm.

(See Fig. 1)



4. GEOMORPHOLOGY

4.1 TOPOGRAPHY OF THE HIGH BOG

This is an intact dome sloping gently (0.25m/100m) down to the margins on all sides.

4.1.1 Slopes of the High Bog

Slopes 1: A series of gradual slopes from the dome to the margins (25cm/100m).

Slopes 2: A number of gradual slopes on the high bog sloping east and north-east from the central ecotope towards the margins (25cm/100m).

4.2 TOPOGRAPHY OF THE BOG MARGINS

There are several naturally steep slopes at the southern bog margins associated with the river Lung (100cm/50m). In general the cutaway is level.

5. HYDROLOGICAL SYSTEM

5.1 GEOLOGY/HYDROLOGY

5.1.1 Bedrock

The site, according to the GSI 1840s maps, is underlain by Yellow-grey Carboniferous sandstone and Boulderclay drift.

5.1.2 Subsoils

No data on subsoils was available for this site.

5.1.3 Peat

The peat at this site was classified by Hammond as Transitional and Man-Modified Types.

5.2 HYDROLOGY

5.2.1 High Bog Hydrology (see Drains map)

There are several old drains on the south-eastern margins of the bog.

Drains D1: Deep drains (2m deep, 0.5m wide) with low water-levels and no flow, around coniferous forestry on the high bog.

Drain D2: An old in-filling drain running from the high bog to the cutaway. This drain is in-filling with *Sphagnum* species.

Drains D3: These are very old in-filled drains as seen on the 6" map, they are dividing the marginal from the sub-marginal ecotopes in the south-east of the bog. *Calluna vulgaris*, *Eriophorum angustifolium* and *Sphagnum* species are in-filling these drains.

Drains D4: A series of old drains as seen on the 6" map, running from D3 to the cutaway. These are old boundary drains occurring in the marginal areas of the bog.

5.2.2 Bog Margin Hydrology

The bog is bounded by a river, streams and a series of old cutaway drains.

Drain d1: A stream at the north-eastern margin of the cutaway. The cutaway slopes down to this.

Drain d2: A fast-flowing river to the south and east of the bog. The cutaway margins slope down to this.

Drains d3: A series of old drains in cutaway to the west which has been reclaimed for agriculture.

Drains d4: A series of old drains in the northern cutaway. These flow north to drain d1.

5.3 GEOHYDROLOGICAL OVERVIEW

Description of the bog in the 19th century
This was always a small bog, between sloping mineral land to the north and west and the Lung river to the south and east. A small tributary in the north-east was the final boundary to the original bog.

Description of the present-day bog
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-east there is some old cutaway between the cut-face and the stream. This is dominated by *Molinia caerulea* and slopes down to the stream. To the north-west an old dismantled rail-way runs across the cutaway. Between this and the cut-face, the cutaway has been reclaimed for agriculture, with some coniferous forestry.

To the west the cutaway has also been reclaimed for agriculture and a small broad-leaved plantation. There is very little old cutaway remaining between the fields and the cut-face. This is very wet in places and regenerating with *Eriophorum angustifolium* and *Sphagnum* spp.

There has been very little drainage on the high bog and a small area of central ecotope occurs. Due to the size of this bog, this central area was probably always small.

6. VEGETATION

6.1 VEGETATION SUMMARY

A very nice small bog - a discrete unit of a central dome sloping down to the Lung river on its S & E sides with agricultural land at its other borders.

6.2 DETAILED VEGETATION OF HIGH BOG

6.2.1 Complexes

Marginal Complexes

Complex 7

This vegetation type covers the natural slopes of the bog margins and the artificially marginal area of drains in the south-east. The vegetation is *Calluna vulgaris*-dominated with *Molinia caerulea* growing through it and several *Trichophorum caespitosum* tussocks. The southern area by the river Lung is poached by cattle although not too seriously, it is quite wet with small pools forming in the old hoof-prints. *Myrica gale* bushes are frequently found growing through the *C. vulgaris*. Out at the margins the ground is hard with *Hypnum jutlandicum* and occasional *Sphagnum capillifolium* hummocks. The bog becomes progressively wetter away from the margin.

Sub-Marginal Complexes

Complex 2/7

Sub-marginal *Trichophorum caespitosum* complex. Dominated by *T. caespitosum* with *Calluna vulgaris*. *Rhynchospora alba, Eriophorum vaginatum* and *Carex panicea* are also prominent. *Narthecium ossifragum* hollows are common and the acrotelm is variable (0-5cm). It is quite shallow near the margins but it increases towards the centre. Of the *Sphagnum* cover, there are pronounced *Sphagnum magellanicum* hummocks with *S. capillifolium* found throughout the complex. Both *Cladonia portentosa* and *C. uncialis* are also found throughout. *Erica tetralix* is common with *Pedicularis sylvatica* noted several times. The area is quite wet underfoot. An algal aggregate covers the bare peat - especially on the more marginal areas.

Sub-Central Complexes

Complex 10/15

A vegetation type very similar to 10/14 described below but for a lower frequency of pools. Very wet underfoot with good *Sphagnum* cover (*S. magellanicum, S. papillosum* and *S. capillifolium*) despite being on a slight slope (0.25m/100m) down to the margins. Some *Trichophorum caespitosum* and *Rhynchospora alba* are growing through the vegetation.

Central Complexes

Complex 10/14

Central area of frequent small pools - all contain *Sphagnum cuspidatum* and the bigger pools have *Menyanthes trifoliata* and *Drosera anglica* at their edges. A slightly quaking area with depauperate *Calluna vulgaris* and *Erica tetralix*. Also prominent, are *Eriophorum angustifolium* and *Eriophorum vaginatum*. *Narthecium ossifragum* grows through the vegetation - not in clumps. *Sphagnum* cover is high with *S. magellanicum, S. papillosum* and *S. capillifolium* as well as *S. cuspidatum* already noted in the pools. Both *Cladonia portentosa* and *C. uncialis* are present. *Pedicularis sylvatica* and *Hypnum jutlandicum* are also present. This is an area of secondary wetting due to subsidence caused by drainage.

Flushes 1 & 2 ?

6.3 DETAILED VEGETATION OF THE HIGH BOG MARGINS

The cutaway around this bog is not extensive. To the west and north-west it has been reclaimed for agriculture. To the south the cutaway grades into grass-dominated river banks. To the north there are old peat-cuttings dominated by *Molinia caerulea* and *Ulex europaeus* scrub which slope down to *Betula pubescens* scrub beside a stream bank. 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.

7. BOG TYPE

This is probably a Ridge-river bog. - Perched.

8. HUMAN IMPACT

8.1 RECENT HUMAN IMPACT (see Landuse map)

8.1.1 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.

8.1.2 Forestry

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

8.1.3 Fire History

No sign of recent burning.

8.1.4 Dumping

No obvious dumping was noted.

8.2 NHA BOUNDARY CHANGES

No changes are necessary to the NHA boundary of this site.

9. INTER-RELATIONSHIPS OF VEGETATION, HYDROLOGY, TOPOGRAPHY AND LOCATION

1. This site was surveyed because it was one of the most westerly, intact raised bog sites. The bog is an intact unit with drainage restricted to the margins.

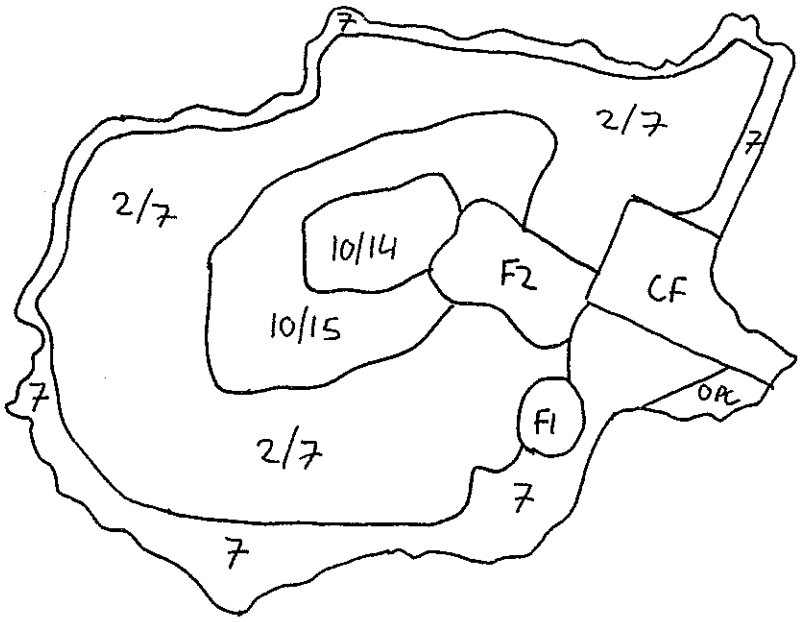
2. The site visit found a wet pool system in the centre and a nice gradation of ecotopes out towards the margins.

3. There is very little active drainage of the site apart from the forestry and the natural camber of the bog towards the river.

4. 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. Blocking of drains on the high bog and cutaway would help conserve this site. The forestry plantation to the east should be removed.

Tullaghanrock bog (2013)
Co. Roscommon
Vegetation complexes

N



Tullaghanrock bog (2013)
Co. Roscommon
Ecotopes

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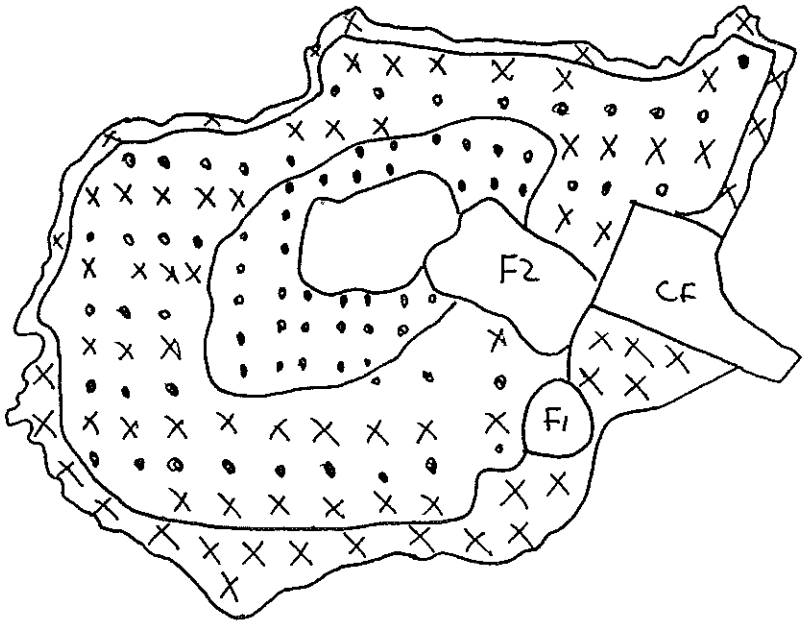
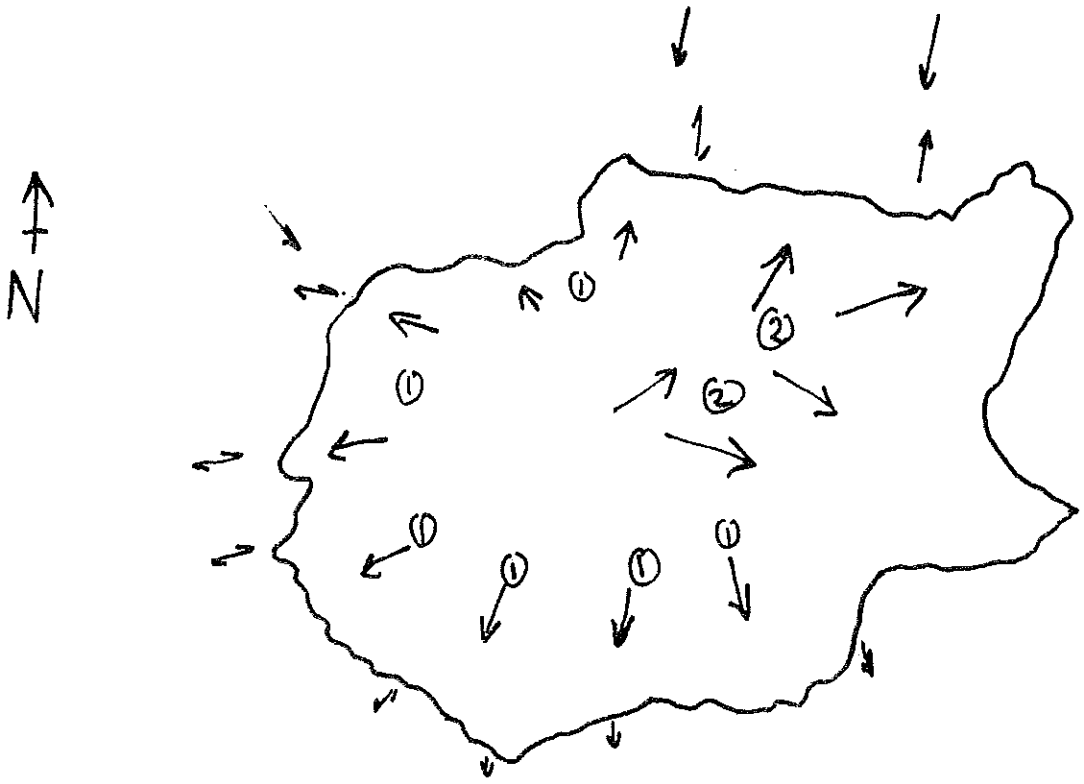
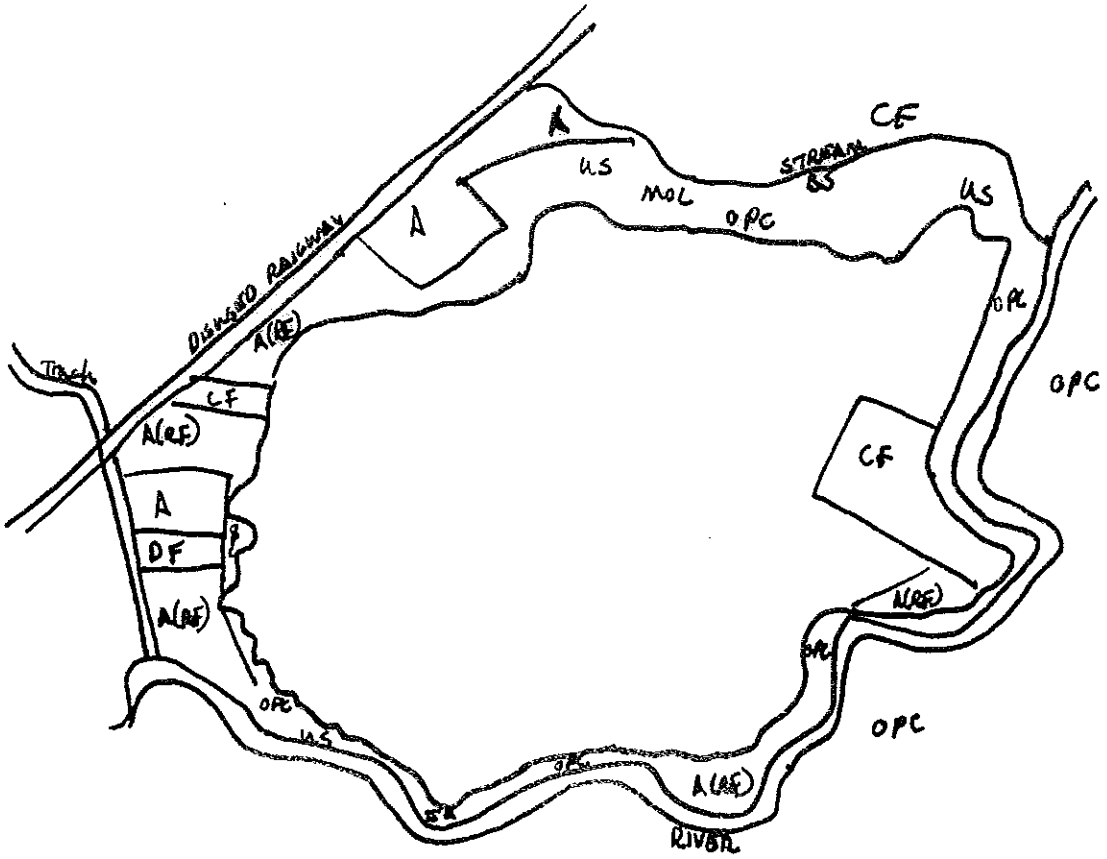


Tullaghanrock bog (2013)
Co. Roscommon
Slopes





Tullaghanrock bog (2013)
Co. Roscommon
Landuse

N

Tullaghanrock bog (2013)
Co. Roscommon
Drainage