Scottish Natural Heritage
Research Report No. 1203

Rannoch Moor riparian habitat survey

Scottish Natural Heritage
Dualchas Nàdair na h-Alba
nature.scot

RESEARCH REPORT

Research Report No. 1203

Rannoch Moor riparian habitat survey

For further information on this report please contact:

Corrina Mertens
Scottish Natural Heritage
Torlundy
FORT WILLIAM
PH33 6SW
Telephone: 01463 701644
E-mail: corrina.mertens@nature.scot

This report should be quoted as:

Proctor, K. 2020. Rannoch Moor riparian habitat survey. *Scottish Natural Heritage Research Report No. 1203*.

This report, or any part of it, should not be reproduced without the permission of Scottish Natural Heritage. This permission will not be withheld unreasonably. The views expressed by the author(s) of this report should not be taken as the views and policies of Scottish Natural Heritage.

© Scottish Natural Heritage 2020.

RESEARCH REPORT

Summary

Rannoch Moor riparian habitat survey

Research Report No. 1203
Project No: 117596
Contractor: Kate Proctor, Highland Ecology
Year of publication: 2020

Keywords

NVC survey; SAC; upper River Ba catchment

Background

An area of the River Ba catchment between the West Highland Way (WHW) and the A82 has been identified by SNH as a potential area for planting native trees and/or shrubs with the aim of improving riparian habitat through this area.

The Rannoch Moor SAC/SSSI is designated for a variety of upland habitats which are blanket bog, hollows with *Rhynchospora alba,* dry heath, quaking bogs and wet heath. The aim of the survey was to map the habitats present in order to provide information on the distribution of both qualifying and non-qualifying habitats. This information will then allow a plan for tree/scrub establishment on areas of non-qualifying habitat to be created.

Main findings

- Frequent habitat suitable for woodland and scrub establishment was found within the survey area
- This habitat is mainly M25a marshy grassland/mire
- Additional non-qualifying habitats were acid grassland, bracken and acid flush
- In parts the M25a was over deep peat
- Non-qualifying habitats were mainly found alongside waterbodies and watercourses.

For further information on this project contact:
Corrina Mertens, Scottish Natural Heritage, Torlundy, Fort William, PH33 6SW.
Tel: 01463 701644 or corrina.mertens@nature.scot
For further information on the SNH Research & Technical Support Programme contact:
Research Coordinator, Scottish Natural Heritage, Great Glen House, Leachkin Road, Inverness, IV3 8NW.
Tel: 01463 725000 or research@nature.scot

Table of Contents **Page**

Acknowledgements

Many thanks to Corrina Mertens of SNH and to Black Mount Estate staff for providing information and general assistance during the course of the project.

1. METHODS

Fieldwork was carried out in August and September 2019 by Kate Proctor, Highland Ecology. The extent of field survey is shown in Figure 1 below. The River Ba was surveyed from Ba Bridge in the west to the A82 in the east. The tributary watercourses outlined in green were also surveyed along with Lochan na Stainge, Loch Buidhe and a smaller loch to the west of Lochan na Stainge.

Field survey was carried out according to the NVC methodology outlined in Rodwell J. S. British Plant Communities Vols. 1 – 5 (Cambridge University Press, 1991, 1991, 1992, 1995, 2000). The ground was surveyed at a rate of approx. 1 – 1.5 km of river bank or loch shore per day. The ground was walked so as to see and identify all habitat types and to map their boundaries onto OS field maps at a scale of 1:5,000.

Due to the requirements of the survey, mapping mosaics of qualifying and non-qualifying habitats together was avoided. Where qualifying NVC communities occurred together in a repeating pattern these were however mapped as a mosaic due to the difficulty in separating wet heath and blanket bog over undulating ground. In these cases the percentages of the component types within an area were estimated between 10 and 100%. Smaller fragments are listed separately in brackets. A typical example would be M15b/M17a/M17b (M1) 60:30:10.

Target notes were taken of any areas of habitat which were too small to map and any features of interest.

Handheld GPS units and field GIS systems with aerial imagery were used at all times to aid accuracy of mapping boundaries and target notes.

Representative digital photographs were taken throughout the survey. These are included in Annex 1 along with the target notes.

Digital maps were created using the Arcview GIS system and the iGIS iPad app. Separate areas were then created using adjusted boundaries and the data attributes (each NVC type and its proportion etc.) and a serial number entered for each area.

The final datasets are supplied separately as .shp files.

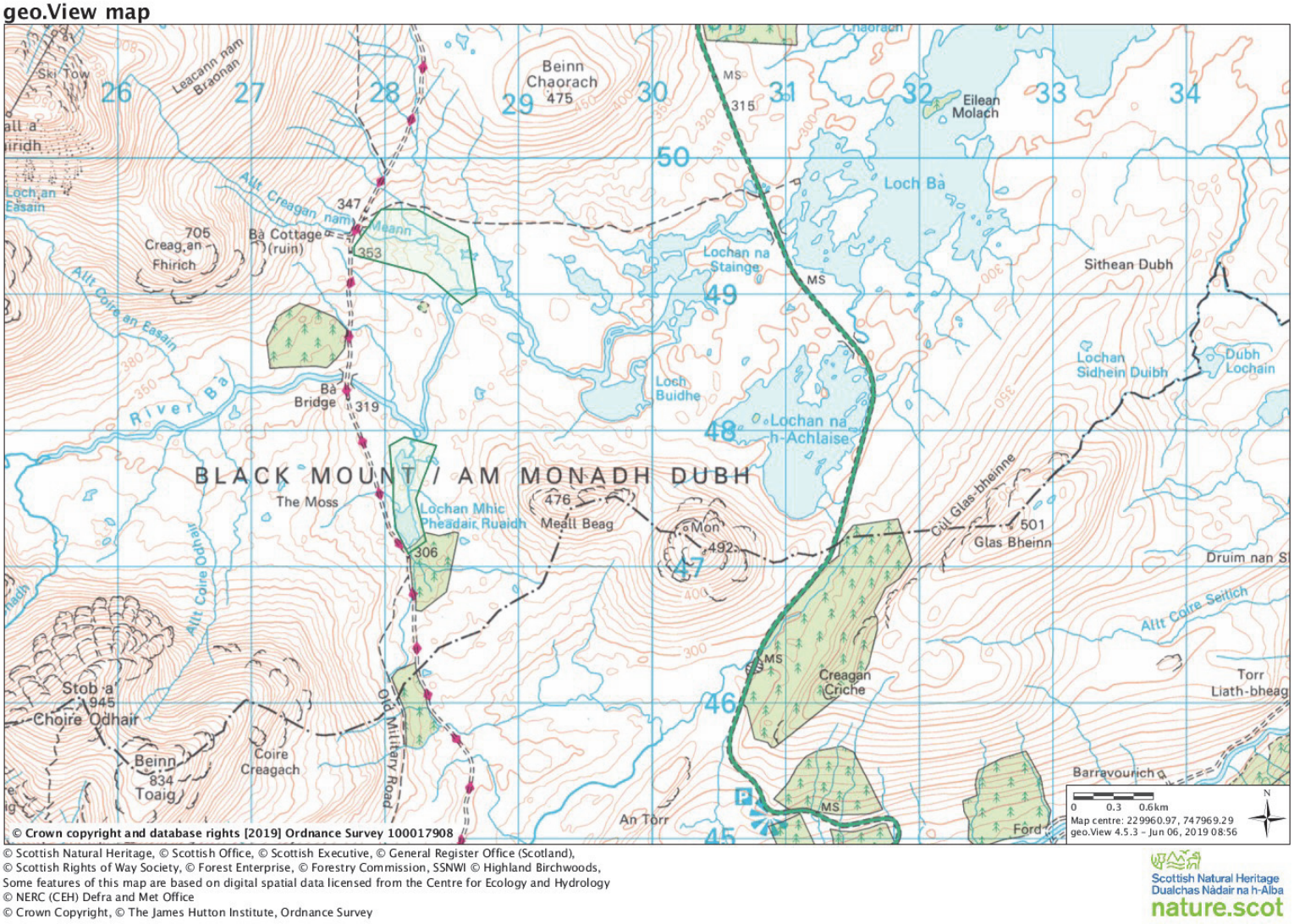


Figure 1. Survey area from Ba Bridge in the west to the A82 in the east. Tributaries outlined in green, Loch Buidhe, Lochan na Stainge and the unnamed Lochan to the west of Lochan na Stainge were also surveyed.

2. SUMMARY DESCRIPTION OF THE VEGETATION

The majority of the survey area is gently to moderately undulating terrain covered by acid, deep and shallow peats. Some of the ground is covered by a mantle of blanket peat from 50cm to over 1.5m deep. Over this deeper peat the vegetation is usually most similar to the *Trichophorum cespitosum-Eriophorum vaginatum* blanket mire (M17), with frequent wetter hollows and pools of the M1 *Sphagnum denticulatum* bog-pool community. Less frequent is the *Calluna vulgaris-Eriophorum vaginatum* blanket mire (M19a). All blanket bog communities were found to be in relatively good condition with only localised erosion or tracking.

Elsewhere the peat is shallower, supporting predominantly wet heath which falls into one of the M15 *Trichophorum cespitosum-Erica tetralix* wet heath sub-communities depending on associates present. This habitat was also found to be in generally favourable condition.

Watercourses and bodies of standing water are a frequent and significant feature of the Rannoch Moor landscape, varying in size from the main River Ba and Lochan na Stainge and Loch Bhuidhe to small tributaries, lochans and pools. This network of waterbodies and watercourses also supports the majority of the less important, non-qualifying, habitats on their immediate banks, before they grade into a wider expanse of blanket bog and wet heath mosaic. These bankside habitats are mainly heavily dominated by *Molinia caerulea* (M25a) marshy grassland where there appears to be greater fluctuations in the water table. Of less frequency on the immediate river banks are small stands of acid grassland (U4) which attract greater attention from grazing deer. Acid flush (M6) habitats are quite localised becoming most extensive in association with the Allt Creagan nam Meann tributary to the north-west of the survey area.

Small runnels also support vegetation similar to the documented M29 soakway community. These are infrequent, and occurring where there is some soligenous influence through areas of blanket bog or marshy grassland.

Dry heath is a rarely encountered habitat with only small stands occurring on steep sides of knolls or as very small fragments on the river or lochside banks. The dry heath tends to fall into one of the *Calluna vulgaris-Erica cinerea* (H10) sub-communities depending on associates present.

Trees and shrubs are conspicuously absent over the survey area with only a small stand of *Betula pubescens* present below Ba Bridge at the western extent of the survey area. A small section of inaccessible channel on the Allt Creagan nam Meann, at the north-west extent of the survey area, supports a stand of tall herbs and *Salix aurita* where it is not subjected to herbivore grazing.

3. NVC COMMUNITIES – TECHNICAL DESCRIPTIONS

3.1 Qualifying habitats

3.1.1 Dry heath communities

H10 *Calluna vulgaris – Erica cinerea* heath
EC Habitats Directive 4030 European dry heaths

Sub-communities:
a) Typical sub-community
b) *Racomitrium lanuginosum* sub-community
c) *Festuca ovina-Anthoxanthum odoratum* sub-community

Acid dry heath is found on free-draining, shallow peaty soils, which are generally found on steeper slopes and banks. It is very rare over the survey area, occurring on river and loch banks or over knolls as small fragments. All three sub-communities listed above were found as isolated occurrences.

The typical (H10a) sub-community is dominated by *Calluna vulgaris* with scattered *Erica cinerea, Erica tetralix, Anthoxanthum odoratum* and *Potentilla erecta.* There is usually a carpet of hypnaceous mosses such as *Hylocomium splendens, Hypnum jutlandicum* and *Rhytidiadelphus squarrosus. Racomitrium lanuginosum,* although present, attains a more sparse cover here than in the H10b sub-community.

The H10b sub-community also occurs with similar infrequency on steeper banks of watercourses. *C. vulgaris* and *E. cinerea* are the dominant dwarf shrubs again but here there is a more prominent moss layer consisting of *R. lanuginosum* with *Cladonia* spp. There is frequently also some *P. erecta*.

In the grassier H10c sub-community *C. vulgaris* is still the dominant dwarf shrub with *E. cinerea* also being quite prominent. There is also sparse *Vaccinium myrtillus* amongst these two and some *P. erecta* and *Carex binervis*. The frequency of *Juncus squarrosus* and grasses such as *Nardus stricta*, *Anthoxanthum odoratum*, *Molinia caerulea*, *Festuca ovina* and *Festuca vivipara*, is what characterises this sub-community.

3.1.2 Wet heath communities

M15 *Trichophorum cespitosum-Erica tetralix* wet heath
EC Habitats Directive 4010 Northern Atlantic wet heaths with *Erica tetralix*.

Sub-communities
b) Typical sub-community
c) *Cladonia* sub-community
d) *Vaccinium myrtillus* sub-community

Wet heath was one of the most frequently occurring habitats over the survey area. Wet heath occurs predominantly over shallow wet peat in a mosaic with blanket bog. In parts it continues right to the river or loch banks but elsewhere it is replaced by a band of *M. caerulea* (M25a) where there are greatest fluctuations in the water table.

The habitat was recorded most frequently as the M15b sub-community, consisting of constant or frequent *T. cespitosum*, *E. tetralix*, *C. vulgaris*, *Carex panicea*, *Potentilla erecta, M. caerulea* and *Narthecium ossifragum* along with the mosses *Sphagnum capillifolium* and *Sphagnum tenellum*.

Also frequently recorded throughout the survey area was the *Cladonia* sub-community (M15c). Here, *R. lanuginosum* and *Cladonia* spp. attain higher cover giving the vegetation a distinctively pale appearance. *E. cinerea* is also frequent through the sward, particularly where the peat surface is broken by rocks.

Where a similar range of species occurs but with an increase in *T. cespitosum* and grasses such as *M. caerulea, Nardus stricta*, *Anthoxanthum odoratum* and *Agrostis canina*, it was recorded as the M15d sub-community. There is also generally less *Sphagnum capillifolium* and more hypnaceous mosses through this somewhat drier sub-community. This grassier sub-community occurred at several locations through the survey area but was not a commonly encountered habitat.

3.1.3 Blanket bog communities

M1 Sphagnum denticulatum bog-pool community
EC Habitats Directive 7130 Blanket bogs

M1 pools and hollows were generally found within areas of M17a and M17b blanket bog throughout the survey area.

The community is typified by an abundance of *Sphagnum cuspidatum*, often with *Sphagnum denticulatum* in standing water. Growing through this there is often some *Eriophorum angustifolium, Drosera rotundifolia, Utricularia minor, Potamogeton polygonifolius* and *Menyanthes trifoliata.*

M3 Eriophorum angustifolium bog-pool community
EC Habitats Directive 7130 Blanket bogs

This bog pool community is associated with eroding areas of blanket peat. There are a few small areas over the survey area usually in association with small scale eroding hag systems. Here M17a, M17b, M1 and M3 form an intricate mosaic within the hag system. Drier M17b occupies the hag tops with predominantly M3, M17a and M1 in the wetter hag bottoms. In most cases the blanket bog immediately surrounding these hags is of the M17a sub-community.

As well as bare peat the most frequent species is *E. angustifolium* along with sparse amount of other species such as *C. vulgaris, E. tetralix, T. cespitosum, Eriophorum vaginatum. E. angustifolium* spreads mainly by rhizome growth rather than seed making it a successful initial coloniser of bare peat, particularly in eroding or grazed habitats.

M17 *Trichophorum cespitosum-Eriophorum vaginatum* blanket mire
EC Habitats Directive 7130 Blanket bogs

Sub-communities:
a) *Drosera rotundifolia-Sphagnum* spp. sub-community
b) *Cladonia* sub-community

M17a is the most frequent type of blanket bog found over the survey area. It usually occurs on flat or very gently sloping ground with a higher water table than M19a. Large stands of this community occur throughout the area surveyed where the ground is flat and wet enough. Areas of peat hags within the blanket bog are where most of the M17b sub-community was found, occupying the drained peats of the hag tops and sides.

The wetter *D. rotundifolia* sub-community, M17a is usually characterised by a largely intact *Sphagnum* carpet with both *Sphagnum papillosum* and *S. capillifolium* attaining high cover.

There can frequently be some *Sphagnum tenellum* and, in transitions to wetter hollows and pools some *S. cuspidatum* and *S. denticulatum*. Of the vascular associates most of the common blanket bog species are frequent. *C. vulgaris* is usually present along with *E. tetralix*. Other constant to frequent species are *T. cespitosum*, *E. vaginatum* (though never as prominent and tussocky as in M19a), *N. ossifragum*, *D. rotundifolia*, *P. erecta* and *E. angustifolium*.

The M17b sub-community is one of drier peats and is most commonly found in areas of eroding bog over hags. It is characterised by a lack of *Sphagna* and an abundance of the moss *R. lanuginosum* with some *Cladonia portentosa, Cladonia uncialis* and *S. capillifolium*. *T. cespitosum* is very frequent along with some *C. vulgaris*, *E. angustifolium*, *N. ossifragum*, *E. angustifolium*, sparse *E. vaginatum*, *E. tetralix* and, less frequently, *V. myrtillus* and *Empetrum nigrum*.

M19 *Calluna vulgaris – Eriophorum vaginatum* blanket mire
EC Habitats Directive 7130 Blanket bogs

Sub-communities:
a) *Erica tetralix* sub-community

The M19 blanket bog community is found less frequently over the survey area than the M17 sub-communities. Where it does occur it is generally over gently to moderately sloping ground and mainly on peat that is over 50cm deep. It usually forms a mosaic with M15 wet heath and M17 blanket bog over undulating ground.

The physiognomy of the vegetation is quite distinctive and is visually characterised by a co-dominance of tussocky *E. vaginatum* with *C. vulgaris.* Also abundant/frequent through the sward are *E. tetralix* and *N. ossifragum.* At lower cover are scattered *P. erecta* and *Deschampsia flexuosa*, and less frequently some *T. cespitosum* and *E. angustifolium*. The moss layer is characterised by *S. capillifolium* on the flat, moister, ground between the tussocks of *E. vaginatum* and hypnaceous mosses such as *Hypnum* sp., *Rhytidiadelphus loreus*, *Hylocomium splendens, Pleurozium schreberi*, *R. lanuginosum* and *Dicranum majus* where it is drier around the tussocks and dwarf shrubs.

3.2 Non-qualifying habitats

3.2.1 Calcifugous grassland communities

U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland

Sub-communities:
a) Typical sub-community
b) *Holcus lanatus-Trifolium repens* sub-community
d) *Luzula multiflora-Rhytidiadelphus loreus* sub-community

Semi-improved acid grassland is rarely encountered over the survey area and is found along the banks of the River Ba and the north-western tributaries as small, rather insignificant stands.

The composition of the vegetation is fairly typical with the sward being made up of *Festuca ovina*, *A. odoratum*, *Agrostis canina*, *Holcus lanatus* with *P. erecta*, *Galium saxatile* and *Nardus stricta*. The moss layer is dominated by *Rhytidiadelphus squarrosus*. Where the grassland becomes a little more mesotrophic it was recorded as the *Holcus lanatus-Trifolium repens* sub-community. Here there is greater grazing pressure and an increase in cover of

H. lanatus in combination with the appearance of *Trifolium repens* and *Prunella vulgaris* through a grazed turf of vegetation.

U20 *Pteridium aquilinum - Galium saxatile* community

Sub-communities:
a) *Anthoxanthum odoratum* sub-community
b) *Vaccinium myrtillus-Dicranum scoparium* sub-community

Stands of *Pteridium aquilinum* were only found over headlands and islands within the central part of Lochan na Stainge.

The grassy U20a sub-community was fairly typical of this vegetation type with *P. aquilinum* forming a canopy over a mixture of low growing associates including *H. lanatus*, *G. saxatile, F. ovina, P. erecta, Viola riviniana*, *A. odoratum* and *R. squarrosus*.

The slightly heathy U20b sub-community differs in that there is generally some *C. vulgaris* or *V. myrtillus* present.

3.2.2 Marshy grassland communities

M25 *Molinia caerulea-Potentilla erecta* mire

Sub-communities:
a) *Erica tetralix* sub-community

Molinia caerulea mire (M25) was found extensively along river banks and around the margins of most of the lochs. As is typical of this community the *Erica tetralix* sub-community (M25a) occurs in association with blanket mire (M17a) and wet heath (M15). These communities have however been mapped separately for the purpose of this survey as the latter are SAC qualifying habitats and the M25a is not. However, where small fragments of wet heath or blanket bog were encountered within wider M25a these were target noted if too small to map.

Stands are heavily dominated by *M. caerulea* and are mainly found as a transition between waterbodies/watercourses and surrounding, more widespread, wet heath and blanket bog. Amongst the *M. caerulea* there is typically some sparse *P. erecta* and the odd poor bit of *C. vulgaris* and *E. tetralix*. Mosses are generally sparse and choked by the leaf litter of *M. caerulea*.

Peat depth varies through this habitat which should be taken into consideration with any proposed planting.

3.2.3 Acid flush and communities associated with seepage

M6 *Carex echinata-Sphagnum fallax*/*Sphagnum denticulatum* mire

Sub-communities and variants:
bi) *Carex nigra-Nardus stricta, Sphagnum fallax* variant
bii) *Carex nigra-Nardus stricta*, *Sphagnum denticulatum* variant
di) *Juncus acutiflorus* sub-community, *Sphagnum fallax* variant

Acid flush vegetation is very frequent to the north-west of the survey area along the Allt Creagan nam Meann and the more minor tributary here. It is also notably frequent on the left bank of the River Ba below the confluence with the Allt Creagan nam Meann and where the

river Ba enters and leaves Loch Buidhe. In these locations it occurs in a mosaic with *M. caerulea* dominated vegetation (M25a). All of these larger stands were recorded as the M6di sub-community. Elsewhere only small fragments of the M6b community were recorded.

The M6di vegetation is visually conspicuous and identified by the dominance of rushes which are predominantly *Juncus acutiflorus* and less abundant *Juncus effusus*. The other main distinguishing feature of this vegetation type is the abundance of *Sphagnum fallax* and *S. palustre* with occasional *S. cuspidatum* which occurs as an extensive carpet. As well as the two rushes there is frequently some sparse *H. lanatus*, *Succisa pratensis*, *P. erecta* and *M. trifoliata*.

The less frequent M6b sub-community is less visually obvious with a generally shorter sward dominated by *Carex nigra* with frequent *M. caerulea, P. erecta, M. trifoliata* and *J. effusus.* The main difference between the two variants is in the dominance of the two sphagnum species, *S. fallax* and *S. denticulatum.*

M29/30 *Hypericum elodes-Potamogeton polygonifolius* soakway

This type of blanket bog soakway was found occasionally in flat wetter areas through the survey area.

The soakways are linear, winding and narrow and are characterised by *P. polygonifolius*, *Utricularia minor, C. nigra, Carex echinata, Carex viridula ssp. oedocarpa, Carex rostrata, Carex panicea, M. trifoliata, N. ossifragum, S. denticulatum*, *E. angustifolium*, *D. rotundifolia* and *Pinguicula vulgaris.* It is characteristic of this type of habitat but does not have *Hypericum elodes*, as do many examples of this community throughout Scotland.

3.2.4 Broadleaved woodland communities

W17 *Quercus petraea-Betula pubescens-Dicranum majus* woodland

Sub-communities:
b) Typical sub-community

Broad-leaved woodland was only recorded at one location over the survey area, on the banks of the river below Ba Bridge. Even here the stand is no more than a few riparian *Betula pubescens* trees.

This stand was felt to be closest to the typical (W17b) sub-community with a heathy component to the ground flora where it becomes inaccessible to deer on the steep banks of the river.

4. VEGETATION CONDITION AND MANAGEMENT

The whole of the survey area is managed as part of the Black Mount sporting estate and is grazed by red deer. The heaviest grazing occurs on the river margins where these is some more palatable fragments of grassland. Tracking and poaching of blanket bog was found to be minimal with pathways more evident through *M. caerulea* dominated (M25a) near the river. There was some evidence of browsing through wet heath but again this was at a low level.

Recreational use was considered low and mainly for fly fishing. At one location there were the remains of a fire and a selection of cans and bottles. Isolated pieces of litter appear to have been blown in from the A82 or perhaps from the west highland way. Litter close to the road and the west highland way was quite frequent.

5. CONCLUSIONS

Extensive areas were mapped as potentially suitable for woodland and scrub establishment. These non-qualifying habitats are shown in green on the maps in Annex 3. Although these habitats form a semi-continuous strip around the watercourses and waterbodies surveyed it should be noted that in parts *M. caerulea* grassland (M25a) is over deep peat and may not always be suitable for planting or regeneration. These habitats are also indicative of fluctuating water levels which were observed frequently during the course of the survey. In addition *M. caerulea* leaf litter was frequently seen along flood lines. This regular rise and fall of water may also pose issues for fencing in relation to movement of debris.

6. REFERENCES

Grime, J.P., Hodgson, J.G. & Hunt, R. 1990. *The Abridged Comparative Plant Ecology.* Chapman & Hall.

Preston, C.D., Pearman, D.A. & Dines, T.D. 2002. *New Atlas of the British & Irish Flora.* Oxford, Oxford University Press.

Rodwell, J.S. 1991. *British Plant Communities Volume 2. Mires and heaths.* Cambridge, Cambridge University Press.

Rodwell, J.S. 1992*. British Plant Communities Volume 3. Grasslands and Montane communities.* Cambridge, Cambridge University Press.

Stace, C. 1997. *New Flora of the British Isles.* 2nd edition. Cambridge, Cambridge University Press.

ANNEX 1: TARGET NOTES AND PHOTOGRAPHIC RECORD

ID	XI	YI	Note
1	227792	749474	Small fragments of acid grassland (U4b) both sides of the burn below bridge.
2	227899	749450	Tall herbs on left bank of watercourse include *Angelica sylvestris, Succisa pratensis, Luzula sylvatica, Lonicera periclymenum* and *Salix aurita.* Inaccessible to herbivores. Photograph RB01 (below left).
			 
3	227955	749418	Small area (approx. 20m x 5m) on left bank which is a mosaic of M25 and U4a (7:3). There are also small fragments of upland calcareous grassland (CG10a) at the edge of the burn. Photograph RB02 looking east (above right).
4	228211	749374	Soakway (M29/M30) with *Potamogeton polygonifolius, Carex nigra, Utricularia minor, Narthecium ossifragum, Carex echinata, Sphagnum fallax, Drosera rotundifolia, Juncus acutiflorus* and *Sphagnum denticulatum.* There are fragments of blanket bog along margins no wider than 1m. Photograph RB03 (below left).
			 
5	228297	749482	Small area (approx.. 8m x 8m) of H10a dry heath at stream confluence. Main species are *Calluna vulgaris, Erica cinerea, Anthoxanthum odoratum, Racomitrium lanuginosum, Potentilla erecta* and *Erica tetralix.* Photograph RB04 (above right).
6	228389	749342	Acid grassland (U4d) strip (4-6m) dominated by *Nardus stricta* and *Anthoxanthum odoratum* with scattered *Succisa pratensis, Danthonia decumbens, Agrostis capillaris, Potentilla erecta, Molinia caerulea, Plantago lanceolata* and *Lotus corniculatus.* At river margins it becomes more species rich and similar to CG10a.
7	228482	749071	Hummock hollow blanket bog (M17b/M1/M17a) 25m from bank. High quality blanket bog which shouldn't be planted too close to. Photograph RB05 (below left)

8	228411	748986	Acid flush habitat (M6bi) around and between braided tributaries. *Carex nigra* dominates with *Molinia caerulea, Potentilla erecta, Menyanthes trifoliata* and *Juncus effusus.*
9	230761	749409	Large M1 bog pool with abundant *Menyanthes trifoliata.* Frequent *Sphagnum denticulatum* at margins with *Sphagnum palustre, Carex nigra, Utricularia minor* and occasional *Potamogeton polygonifolius. Drosera rotundifolia* on *Sphagnum* margins and islands. Photograph RB06 (above right).
10	230659	749402	Frequent *Lobelia dortmanna* along margins of watercourse.
11	230438	749169	Narrow strip *Molinia caerulea* dominated vegetation (M25a) approx. 20m x 5 above shoreline.
12	230298	748939	Large M1 bog pool dominated by *Menyanthes* trifoliata and *Potamogeton polygonifolius* with *Sphagnum denticulatum* and *Sphagnum cuspidatum.* Surrounded by mainly *Molinia caerulea* (M25a). M25a is very tussocky and species poor to west of here. Photograph RB07 (below left).

13	230872	749403	M30 soakway with *Potamogeton polygonifolius, Carex viridula ssp. oedocarpa, Carex panicea, Carex rostrata, Pinguicula vulgaris, Drosera rotundifolia* and *Menyanthes trifoliata* at margins.
14	230191	748605	Area of eroded blanket bog which is mainly M15 with some areas of bare peat (M3) and fragments of blanket bog (M17b) where there is greater peat depth. Photographs RB08 and RB09 below.


15	229939	748723	Pool which is mainly open water with marginal vegetation including *Sphagnum denticulatum, Sphagnum palustre, Myrica gale, Drosera rotundifolia, Molinia caerulea, Calluna vulgaris, Narthecium ossifragum, Erica tetralix, Sphagnum papillosum, Sphagnum cuspidatum, Sphagnum capillifolium, Eriophorum angustifolium, Eriophorum vaginatum* etc. Photograph RB10 below.

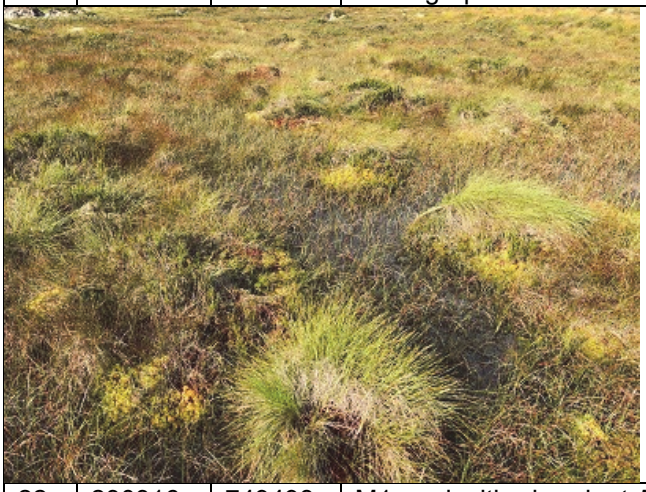
16	229699	748694	Fragments of dry heath on banks of river island which are otherwise dominated by *Molinia caerulea* (M25a). Not accessible at time of survey due to high water. Photographs taken from main bank. Photographs RB11 and RB12 below.


17	229708	748654	M1 pools systems within an area of blanket bog (M17a/b) with *Sphagnum cuspidatum, Eriophorum angustifolium, Sphagnum denticulatum, Drosera rotundifolia, Narthecium ossifragum* etc. at margins. Photograph RB13 (below left).


18	229789	748447	Large pool vegetated with abundant *Menyanthes trifoliata.* Around margins are frequent *Sphagnum denticulatum, Carex nigra, Sphagnum palustre, Myrica gale* and *Eriophorum angustifolium.* Photograph RB14 (above right). Immediately surrounding this pool vegetation is transitional between M17a and M25a with deep peat and abundant *Sphagnum* spp. Avoid planting near pool.
19	229890	748164	Small stand of wet heath within predominantly M25a.
20	229552	748111	M1 runnel with abundant *Sphagnum denticulatum, Menyanthes trifoliata* and *Myrica gale* within wider area of blanket bog/wet heath mosaic. Photograph RB15 (below left). Photographs RB16 and RB17 (below middle and right) show loch margins from same point.

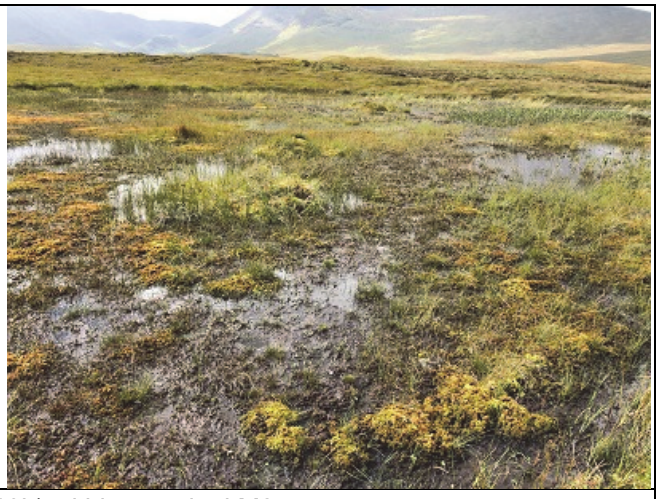


21	230382	749502	M1 hollows with *Eriophorum angustifolium, Sphagnum cuspidatum, Eriophorum vaginatum* tussocks, *Sphagnum capillifolium, Sphagnum palustre, Drosera intermedia, Sphagnum denticulatum* and *Racomitrium lanuginosum.* Photograph RB18 below left.




22	230316	749498	M1 pool with abundant *Menyanthes trifoliata.* Margins are frequently bare peat with *Sphagnum denticulatum.* Photograph RB19 (above right).
23	230190	749442	Frequent *Lobelia dortmanna* around loch margins. Aquatics within waterbody

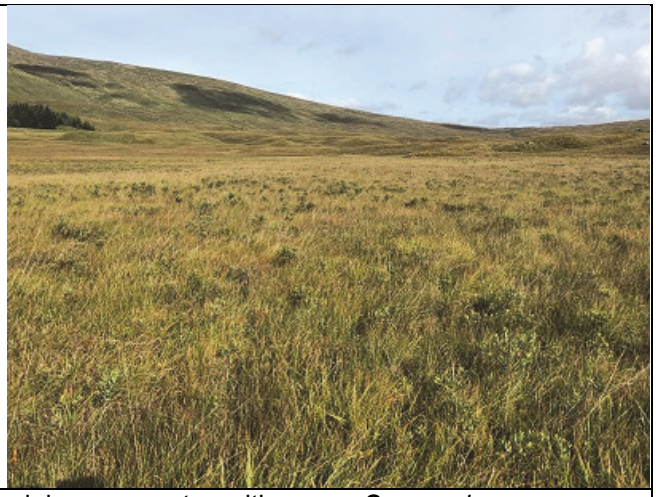
			not surveyed or accessed.
24	229942	749418	Soakway dominated by *Carex rostrata* over *Sphagnum denticulatum* with abundant *Potamogeton polygonifolius.* In terms of NVC this habitat is most similar to M29, although transitional to M8. Photograph RB20 (below left).
			
25	229923	749412	Small areas beside loch dominated by *Carex nigra* with *Myrica gale, Erica tetralix, Potentilla erecta, Sphagnum palustre, Calluna vulgaris* and *Sphagnum denticulatum.* In terms of NVC classification vegetation most closely resembles M6bii.
26	229957	749263	Stand of *Carex rostrata* which is inaccessible. Photograph RB21 (above right).
27	229927	749147	Photograph RB22 (below left) of M19a. *Eriophorum vaginatum* tussocks dominate with abundant/frequent *Calluna vulgaris, Sphagnum capillifolium, Erica tetralix, Hypnum* spp., *Racomitrium lanuginosum, Dicranum majus, Narthecium ossifragum* etc. Wet heath (M15d) to west has high *Trichophorum cespitosum* and locally frequent *Molinia caerulea. Calluna vulgaris* reduced and *Myrica gale* frequent.
			
28	229967	748937	M1 pools within blanket bog (M17a/b/M1) approx. 50m from loch. Photograph RB23 (above right). Area between here and loch is a mixture of M15b wet heath and M19a blanket bog.
29	230108	749123	Scattered *Cirsium heterophyllum t*hrough dense *Molinia caerulea* (M25a).
30	230094	748902	Litter left by campers on loch side.
31	230054	748903	Acid flush vegetation (M6di) with abundant *Juncus acutiflorus* over *Sphagnum fallax* and *Sphagnum cuspidatum* with occasional *Menyanthes trifoliata.* Photograph RB24 (below left).
32	230044	748918	Large M1 pool with abundant *Sphagnum denticulatum,* localised *Menyanthes trifoliata,* occasional *Eriophorum vaginatum, Erica tetralix* (on drier hummocks) and *Carex nigra.* Photograph RB25 (below right).



33	229745	748775	Small hill of dry heath (H10b) within marginal M25a.
34	229744	748793	M1 pool system at edge of blanket bog. Photograph RB26 (below left).

35	227727	748393	Mature *Betula pubescens* trees (W17b) on both banks of watercourse below Ba Bridge. Photograph RB27 (below left) and RB34 (below right) from right bank downstream.

36	227845	748331	Small fragment (10x2m) of grassy dry heath H10c within otherwise M25a. Narrow strip along bank.
37	227915	748309	Photograph RB28 on left bank (below left). Area of mainly blanket bog over flatter ground.
38	228086	748237	Frequent *Molinia caerulea* through predominantly M17a blanket bog which is transitional to M25a locally. Photograph RB29 (below right).

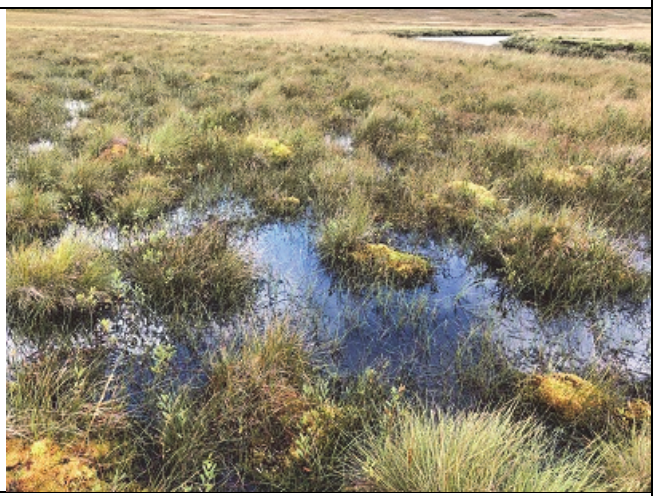
39	228179	747855	Small Lochan which is mainly open water with some *Sparganium emersum, Menyanthes trifoliata* and *Carex rostrata.* Immediate margins are M17a blanket bog which quickly grades into M25a. Photograph RB30 (below left).
40	228141	747751	Large shallow Lochan with frequent *Carex rostrata, Menyanthes trifoliata* and *Lobelia dortmanna.* Photograph RB31 (below right).


41	228014	748133	Pool with *Sphagnum denticulatum* margins. Frequent *Potamogeton polygonifolius, Menyanthes trifoliata, Carex nigra, Sphagnum cuspidatum, Eriophorum angustifolium* etc. Photographs RB32 and RB33 below.


42	228372	748522	Narrow strip of *Molinia caerulea* (M25a) along river bank which is mainly 2-4m wide but increasing locally to 6m. Photographs RB35 and RB36 (below).


43	228370	748542	M1 pools at edge of blanket bog with *Utricularia minor, Menyanthes trifoliata, Eriophorum angustifolium, Sphagnum cuspidatum* and *Sphagnum denticulatum.* Photographs RB37 and RB38 (below).


44	228382	748567	Soakway with *Potamogeton polygonifolius, Utricularia minor, Menyanthes trifoliata, Eriophorum angustifolium, Sphagnum denticulatum* and *Sphagnum cuspidatum.* Another similar soakway occurs approx. 20m to the north.
45	228424	748882	Area of very wet blanket bog and abundant pool systems. Photographs RB40 and RB41 (below). Surrounding habitat is mainly *Molinia caerulea* dominated (M25a).

46	228378	748999	Very wet and waterlogged ground with limited access.
47	228694	749071	Small pool with *Eriophorum angustifolium, Juncus acutiflorus, Sphagnum denticulatum, Sphagnum cuspidatum* and *Potamogeton polygonifolius.* Photograph RB42 (below left).

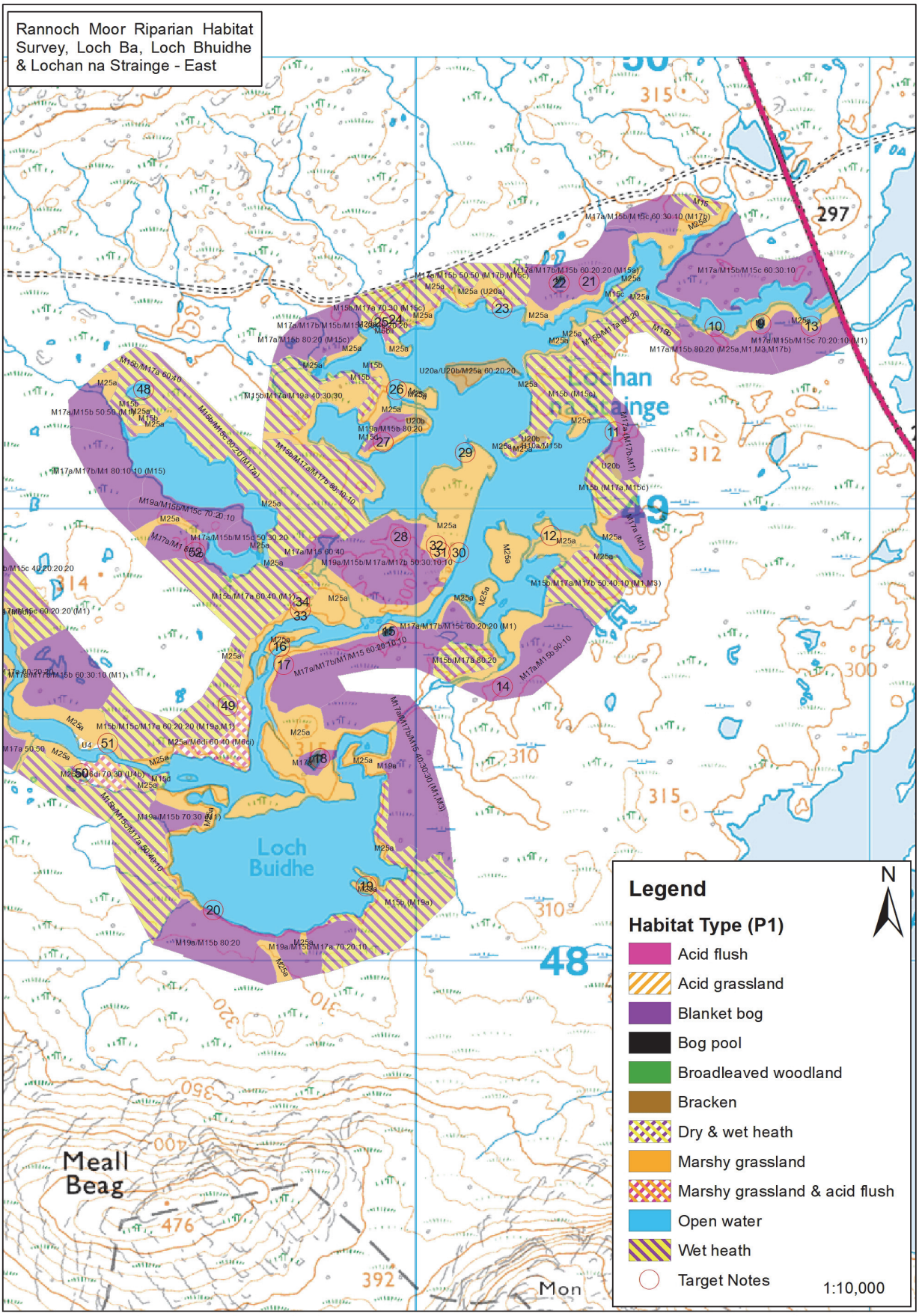

48	229399	749263	Small Lochan with *Menyanthes trifoliata*. Photograph RB43 (above right).
49	229585	748563	M1 pools at edge of blanket bog. Photograph RB44 (below left).


50	229262	748413	Pool with narrow strip of blanket bog around it on river side. Species present within the pool include *Menyanthes trifoliata, Utricularia minor, Sphagnum cuspidatum, Sphagnum denticulatum* and *Carex rostrata.* Photograph RB45 (above right).
51	229320	748480	Shieling photograph RB46 (below left) and habitat upstream RB47 (below right).

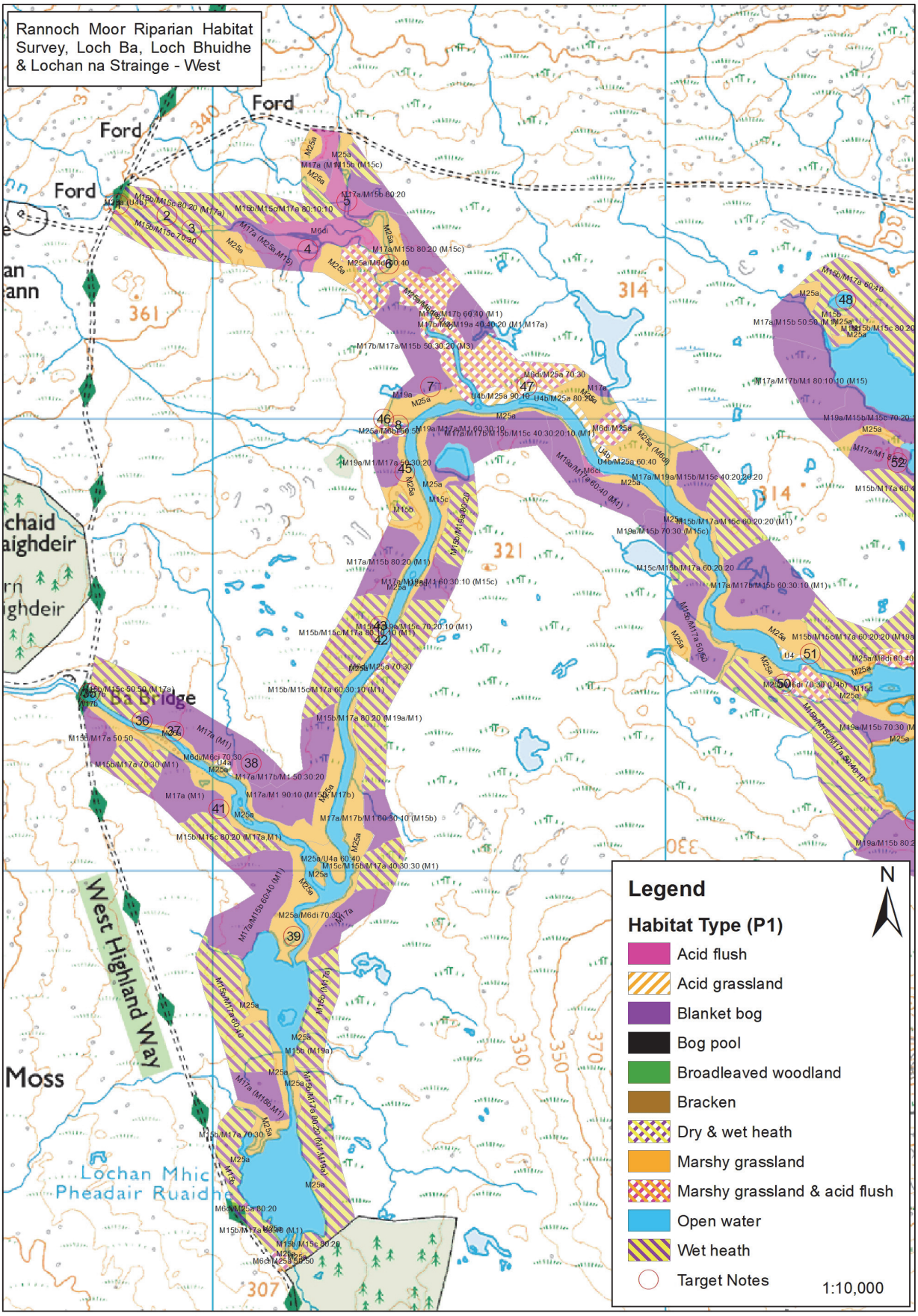

52	229513	748903	Frequent *Rhynchospora alba* in M1 hollows within M17a blanket bog.

ANNEX 2: NVC HABITAT MAPS

The following maps show the distribution of NVC communities and sub-communities over the survey area. These have been coloured to represent standard Phase 1 wherever possible. Target note locations are also included on these maps.



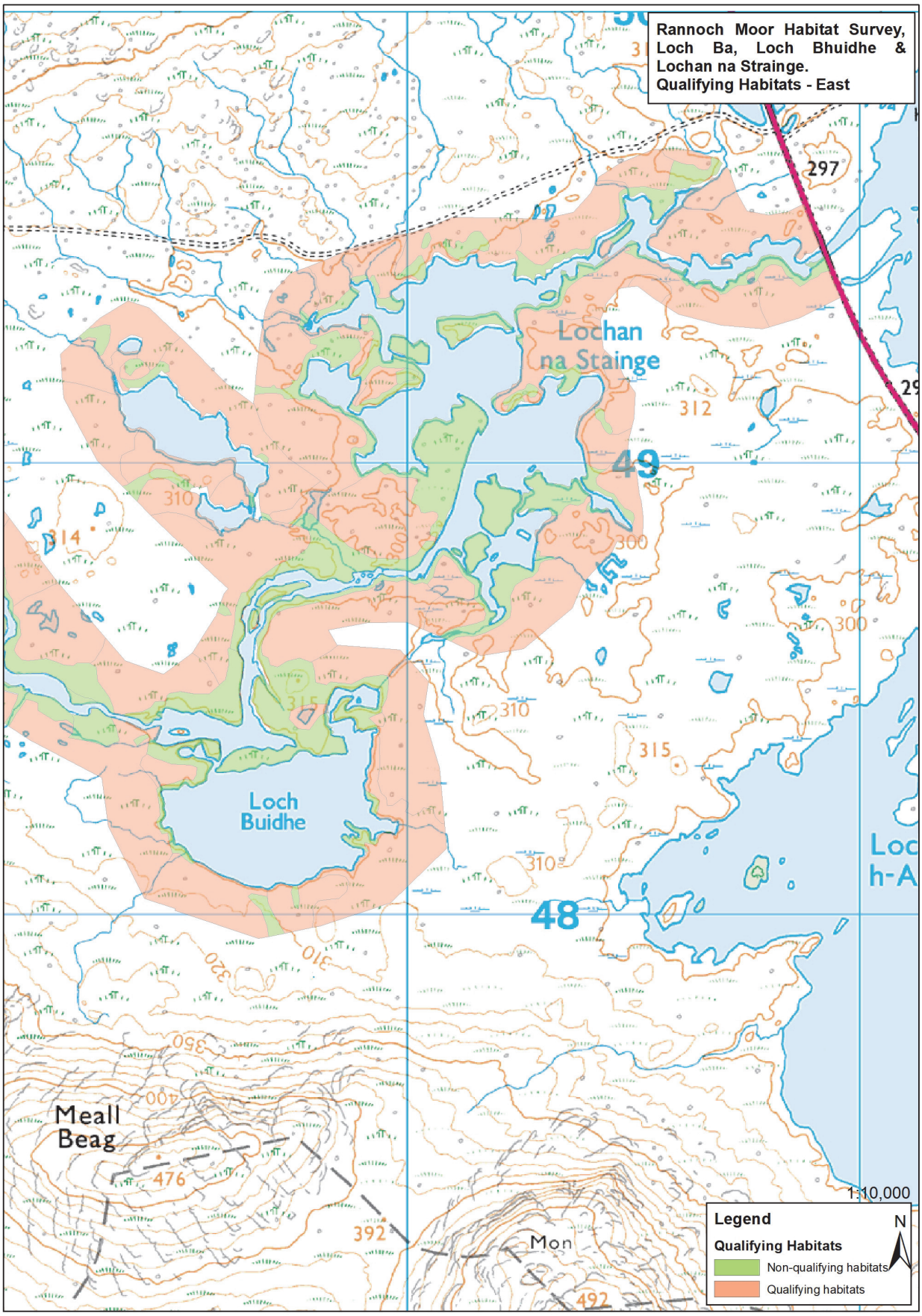
© Crown copyright [and database rights] 2020 OS 100017908



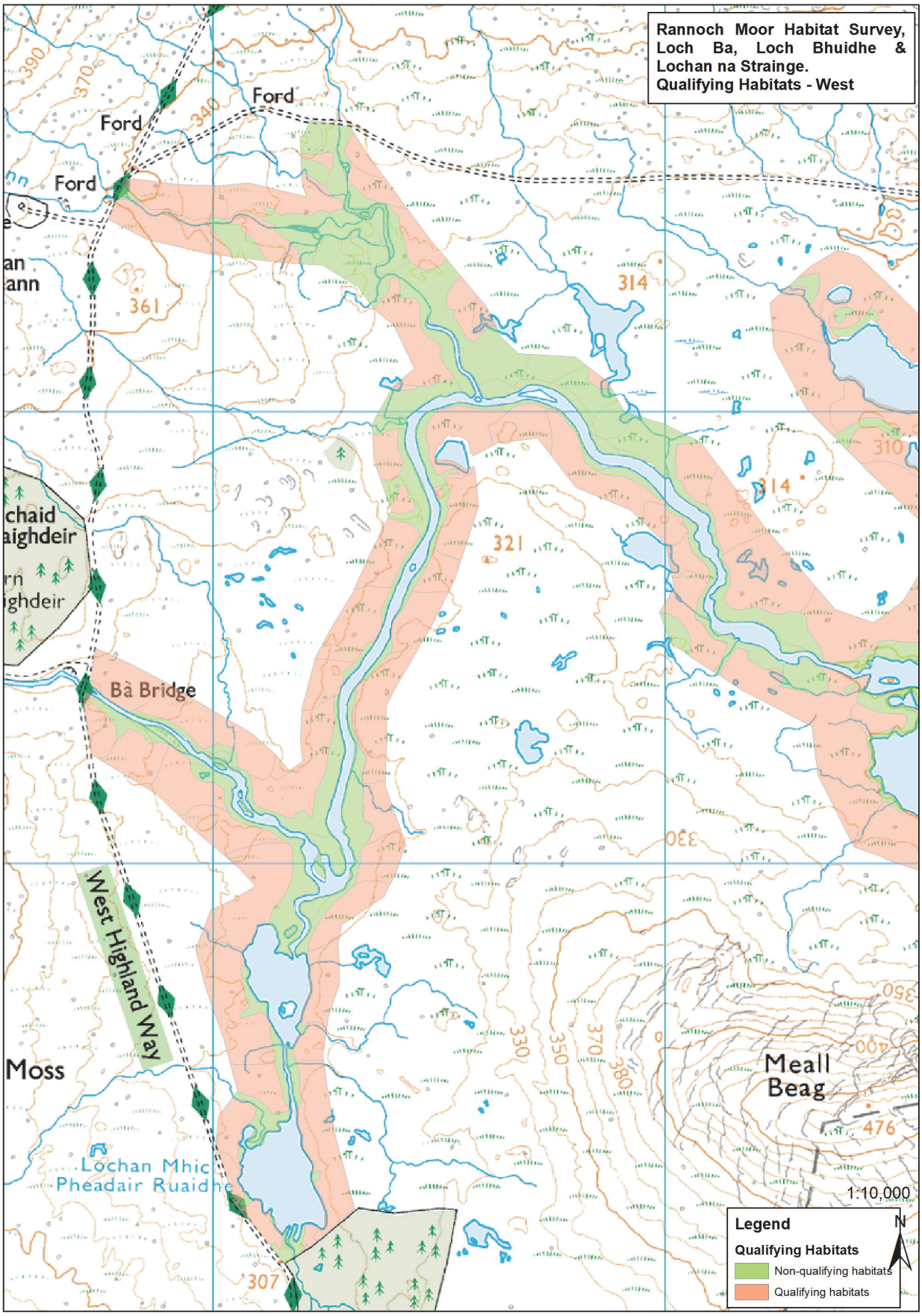
© Crown copyright [and database rights] 2020 OS 100017908

ANNEX 3: QUALIFYING HABITATS MAPS

The following maps show the distribution of both qualifying (pink) and non-qualifying (green) habitats.



© Crown copyright [and database rights] 2020 OS 100017908



© Crown copyright [and database rights] 2020 OS 100017908

www.nature.scot

© Scottish Natural Heritage 2020
ISBN: 978-1-78391-853-9

Great Glen House, Leachkin Road, Inverness, IV3 8NW
T: 01463 725000

You can download a copy of this publication from the SNH website.

recycle

Scottish Natural Heritage
Dualchas Nàdair na h-Alba
nature.scot