Scottish Natural Heritage
Research Report No. 890

Site Condition Monitoring survey of upland notified features on designated sites – Drumochter Hills

Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdar air fad airson Alba air fad

RESEARCH REPORT

Research Report No. 890

Site Condition Monitoring survey of upland notified features on designated sites – Drumochter Hills

For further information on this report please contact:

Brian Eardley
Scottish Natural Heritage
Great Glen House
INVERNESS
IV3 8NW
Telephone: 01463 725304
E-mail: brian.eardley@nature.scot

This report should be quoted as:

Campbell, D., Marchbank, M., Marshall, G. & Miller, L. 2018. Site Condition Monitoring survey of upland notified features on designated sites – Drumochter Hills. *Scottish Natural Heritage Research Report No. 890.*

SCM Reports

This report was commissioned by SNH as part of the Site Condition Monitoring (SCM) programme to assess the condition of special features (habitats, species populations or earth science interests) on protected areas in Scotland (Sites of Special Scientific Interest, Special Areas of Conservation, Special Protection Areas and Ramsar). Site Condition Monitoring is SNH's rolling programme to monitor the condition of special features on protected areas, their management and wider environmental factors which contribute to their condition.

The views expressed in the report are those of the contractor concerned and have been used by SNH staff to inform the condition assessment for the individual special features. Where the report recommends a particular condition for an individual feature, this is taken into account in the assessment process, but may not be the final condition assessment of the feature. Wider factors, which would not necessarily be known to the contractor at the time of the monitoring, are taken into consideration by SNH staff in making final condition assessments.

RESEARCH REPORT

Summary

Site Condition Monitoring survey of upland notified features on designated sites – Drumochter Hills

Research Report No. 890
Project No: 013952
Contractor: Strath Caulaidh Ltd.
Year of publication: 2018

Keywords

Site Condition Monitoring; Protected Area; Upland; Special Area of Conservation; Condition; Grazing

Background

Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), and Ramsar sites are designated on the basis of notified features of interest. Site Condition Monitoring (SCM) is a six year rolling programme of assessment, against quality standards, of the state of notified features of interest on designated sites. This report is concerned with five qualifying features on Drumochter Hills SAC (Grid Ref NN 630765).

Main findings

- Montane acid grassland was assessed at 27 sampling points (26 previous; 1 new). All plots passed all the targets in the assessment, whereas on the previous assessment some points failed due to high levels of herbivore impact. The status of the feature is judged to be 'favourable-recovered'.
- Montane willow scrub was assessed at 12 sampling points (9 previous; 3 new) and 8 plots failed the assessment (total of 15 targets). Key reasons were: contraction of feature extent since the time of the last survey (photographic evidence available), and high levels of browsing on some leading shoots. The failure implies a 'clear and present danger' to the feature. The status of the feature, based on the limited extent assessed, is judged to be 'unfavourable-declining'.
- Plants in crevices on acid rocks were assessed at 11 sampling points (10 previous; 1 new). 10 plots passed all the targets in the assessment; 1 plot failed on 1 target (heavily-grazed Blaeberry) which is a similar outcome to the 2007 assessment. The status of the feature is judged to be 'unfavourable-no change'.
- Tall herb communities were assessed at 8 sampling points (6 previous; 2 new) and 1 plot failed the assessment on 1 target (over-grazing). On the previous assessment two plots failed as they lacked sufficient indicator species. The feature overall is judged to be 'unfavourable-recovering'.
- Species-rich grassland was assessed at 25 sampling points (20 previous; 5 new) and 13 plots failed the assessment (total of 17 targets failed) for a similar range of reasons as in 2007 (the key reason was insufficient cover of forbs). The failure is a 'cause for concern' and the status of the feature is judged to be 'unfavourable-no change'.

Key recommendations

Consider local grazing reductions around key parts of the montane willow scrub feature to help ascertain if this can enable the feature to recover and, ideally, to expand in future.

For further information on this project contact:
Brian Eardley, Scottish Natural Heritage, Great Glen House, Inverness, IV3 8NW.
Tel: 01463 725304 or brian.eardley@nature.scot
For further information on the SNH Research & Technical Support Programme contact:
Knowledge & Information Unit, Scottish Natural Heritage, Great Glen House, Inverness, IV3 8NW.
Tel: 01463 725000 or research@nature.scot

Table of Contents **Page**

Acknowledgements

We would like to thank Iain Hope and Brian Eardley (SNH) for their assistance in answering queries and providing us with the previous survey data. We would also like to thank all the landowners, estate representatives, keepers and staff on the Estates on whose land this survey was carried out. We would also like to thank the SCL survey team for their hard work on this project.

1. BACKGROUND

1.1 The Site

Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), and Ramsar sites are designated on the basis of notified features of interest. These features of interest may be particular habitats or vegetation types, particular species, or particular geological or geomorphological features.

1.2 The Assessment

Site Condition Monitoring is a six year rolling programme of assessment, against quality standards, of the state of notified features of interest on designated sites.

This report is concerned with features on Drumochter Hills SAC (Grid Ref NN 630765) in the SNH South Highland Area (Map 1 – see Annex 1).

1.3 The Features

At Drumochter Hills SAC, five features were assessed in 2013: montane acid grasslands, plants in crevices on acid rocks, species-rich grassland with mat-grass in upland areas, tall herb communities and montane willow scrub.

2. METHODS

2.1 Common Standards Monitoring

The methods used to assess the condition of this feature followed those given in 'Common Standards Monitoring - guidance for upland habitats' (JNCC 2009). The CSM guidance provides attribute tables with a number of targets to be assessed for each feature.

2.2 Selection of Assessment Points

SNH provided a set of points for each feature. Of these points, many had been previously assessed during the 2nd cycle of SCM by Nikki Dayton in 2007. The remainder were new points supplied by SNH, derived as likely suitable locations from NVC maps of the site.

Surveyors were asked to (i) re-survey the original set of points and (ii) to visit the new points and survey each if the appropriate feature was present. In the case of features which have very limited distributions and had previously been sampled on an opportunistic basis only (montane willow scrub; tall herb communities) new opportunistic sample points were added if suitable sites were noted whilst undertaking the wider survey.

2.3 Field Methods

The surveyors navigated to each pre-determined point using a hand-held Garmin GPS accurate to within 10m. SNH provided photographs of the points previously surveyed where available. At each point where a new plot was to be assessed, the required feature was searched for and sampled if present within a radius of 20m. The grid reference for the actual location of each assessment made in 2013 was then recorded for old plots and new plots.

At all points, all CSM targets for the feature were assessed. The actual value of the assessment was recorded where judged useful, as well as a note of whether the feature passed, failed or was judged to be marginal for each target.

The scale of assessment varied according to the target being assessed and was carried out in accordance with the CSM guidance. Many targets are assessed using a 1x1m quadrat but some are assessed using larger quadrats or otherwise for the extent of feature 'visible from the sampling point'.

Photographs were taken of each point in 2013 to illustrate the general condition of the feature assessed / any particular issues related to condition or management. Each photo was given a unique reference as listed in the spreadsheet containing the data for the assessment (supplied to SNH).

A Site Check was also undertaken on other notified features observed when en route between formal SCM points. The approach taken was to check for any signs of obvious disturbance or potential deterioration from the previous cycle, such as new roads or tracks, eroding footpaths etc.

2.4 Data Presentation/Spreadsheets

All field data was collated into a spreadsheet (supplied separately). Each survey point is supported by the following information: point number, surveyor's initials, date, grid reference (6 figure easting and northing) and any photo details.

2.5 Dates, Surveyors & Local Conditions

The site was surveyed from 10th July – 8th August 2013 by staff from Strath Caulaidh Ltd (Douglas Campbell, Mel Marchbank, Gareth Marshall and Liz Miller). Conditions were variable during the period, with occasional rain and low cloud, but the majority of the work was carried out in clear conditions with high level cloud or bright sunshine.

2.6 Difficulties with particular features, attributes & targets

None

2.7 Generic problems with attributes & targets

None

3. RESULTS

The results of the 2013 assessment are summarised in Table 1. Maps 2-6 show the results of the assessments on a plot-by-plot basis (Annex 1; also supplied separately as PDF's).

Table 1. A summary of results for the five features assessed at Drumochter Hills SAC.

		Number of points which		
Feature	**Number points surveyed**	**passed all targets**	**failed at least 1 target**	**Total number targets failed**
Montane acid grassland	27	27	0	0
Plants in crevices on acid rocks	11	10	1	1
Species-rich grassland	25	12	13	17
Tall herb communities	8	7	1	1
Montane willow scrub	12	4	8	15

3.1 Montane acid grassland

Feature Location

Montane acid grassland is an extensive feature of the large upland plateaus of Drumochter Hills SAC. These high plateaus form mosaics of blanket bog, dwarf shrub heath and the short, wind-exposed mossy summit heaths characteristic of this feature. The points provided by SNH reflect this, being relatively evenly distributed across the highest ground of the site, between 750m and 950m above sea level. A total of 27 points were assessed, all but one of which had been assessed in previous cycles of monitoring (SNH had provided grid references for additional plots but they were judged unsuitable because the feature was not present hence they were discarded).

Summary of Formal Findings

- 27 of 27 points assessed PASSED on all targets.

Extent

It was possible to use 1 of the 8 photos of previous points to make a definitive measure of change in feature extent. The photo showed no measurable decline in extent, but a sample size of 1 is clearly too small to draw any firm conclusions from. The feature was still present at all of the 26 original plots visited which provides further evidence that the extent of the feature has probably not changed markedly since the time of the last survey. Moreover, across the feature more widely there were no other signs during the survey that it was likely to have decreased in extent since the time of the last assessment.

3.2 Plants in crevices on acid rocks

Feature Location

Although relatively limited in total extent, this feature is widely distributed across the site at a range of altitudes. The points provided by SNH appeared to be well distributed across the majority of major rocky or steep areas of the site. 11 points were assessed, comprising 10 included in previous monitoring and 1 new point (SNH had provided grid references for additional plots but they were judged unsuitable because the feature was not present hence they were discarded).

Summary of Formal Findings

- 10 of 11 points PASSED on all targets.
- 1 point FAILED to meet 1 target (>50% Blaeberry cover browsed).

Extent

Photos were provided for 8 of the original survey points. It was possible to use 4 of these to compare with the current extent of the feature at each point. All 4 showed no measurable decline in extent, although drawing conclusions from such a small sample size is not ideal. That said, on all the other original plots visited the feature was still present, and this is another sign that feature extent is probably similar to that found on the previous cycle. Moreover, across the feature more widely there were no other signs during the survey that it was likely to have decreased in extent since the time of the last assessment.

3.3 Species-rich grasslands with mat-grass in upland areas

Feature Location

Small patches of the species-rich grassland feature are found throughout the site, usually in a mosaic with other communities on well-drained slopes. Swards are usually closely grazed and consist of intimate mixtures of grasses, small dicotyledonous herbs and bryophytes. When ungrazed or only lightly grazed a taller sward develops in which there is a greater representation of taller herb species. 25 plots were assessed, of which 20 had been assessed in previous cycles of monitoring (SNH had provided grid references for additional plots but they were judged unsuitable because the feature was not present hence they were discarded). Some of the plots from the previous cycle were located in areas where the vegetation was not considered entirely reflective of the target feature.

Summary of Formal Findings

- 12 of 25 points PASSED on all targets.
- 13 points FAILED to meet 1 or more SCM targets (ranging between 1 and 2 target failures per point)
- 2 points did not have the minimum of 2 key indicator species present.
- 10 points had insufficient cover of forbs (>33% required).
- 1 point had a high cover of weedy perennials (e.g. *Cirsium* sp.) present.
- At 2 points there were insufficient leaf tips > 5cm tall.
- At 2 points there were insufficient leaf tips < 5cm tall.

Extent

Photos were provided for 10 of the original plots but the nature of the photos made it difficult to compare with the current feature extent except at 1 point. This point was deemed to have no measurable change in extent, but clearly it is not possible to draw any wider conclusions from such a small sample size.

3.4 Tall herb communities

Feature Location

Tall herb communities are restricted to rocky ledges and steep ground that is inaccessible to herbivores, allowing assemblages of more palatable species to flourish. In the Drumochter Hills SAC sample points are located on small, isolated ledges in the major corries, gullies and river gorges. The inaccessible nature of some of the ground mean that some points were assessed through binoculars from a safe vantage point. SNH provided grid references for 6 previously surveyed points of which one appeared to have an incorrect grid reference so was discarded. Two opportunistic points were located and surveyed, making a total of 8 points sampled for this feature.

Summary of Formal Findings

- 7 of 8 points PASSED on all targets.
- 1 point FAILED to meet 1 target.
- The point failed because it showed signs of over-grazing (less than 50% of tall herbs were 20cm tall).

Extent

Photos were provided for 2 of the 6 previously surveyed points of which only 1 was possible to use to compare any change in extent - no change was detected. The habitat found at all 6 of the original points still qualified as the feature, implying that little change in extent was likely since the last cycle of assessment. Also, there were no other signs from across the feature more widely that the feature was likely to have decreased in extent since the time of the last assessment.

3.5 Montane willow scrub

Feature Location

The distribution of montane willow scrub is highly restricted across the site, occurring mainly on steep crags and on the sides of rocky streams / gullies. A total of 12 plots were assessed: 9 were known historical locations, and 3 new locations were assessed.

Most plots surveyed on this feature comprised small patches of habitat with few individual plants. Most of the plots were on steep ground and were surveyed from a safe vantage point using binoculars.

Summary of Formal Findings

- 4 out of 12 points PASSED on all targets.
- 8 points FAILED on one or more targets (ranging from 1 to 4 targets failed).
- 3 points failed because the size of the bushes had clearly decreased (i.e. there was evidence of reduced feature extent). This conclusion was reached by a comparison of current bush size with photos taken on the previous survey (NB 4 plots had previous photos for comparison but 1 assessment point was judged inaccessible and assessed from a vantage point hence no robust visual comparison of bush size could be made).
- 4 plots failed because there was not enough cover of arctic-alpine Salix spp. to meet the criteria (25% of 16m²). However, some sampling locations only consisted of one or two bushes on small ledges so the appropriateness of applying the 16m² scale is debatable – strictly speaking there is very limited cover at many of the sampled locations.
- 1 plot (of 9 applicable) failed as no catkins could be seen.
- 3 plots failed to meet the target of greater than 50% shoots being greater than 40cm long. Of the three that failed, one was marginal being assessed as having just under 50% of shoots over 40cm.
- 2 plots failed (of 5 applicable) due to direct evidence of high levels of browsing being present on shoot tips (7 plots were inaccessible and so were assessed using the target for inaccessible locations – all 7 met the target of < 10% of shrub cover showing a distinct browse line).

Extent

Using the information SCL received prior to the survey it was possible to determine that there had been a measurable decline in the size of individual plants or populations at 3 locations.

In addition to the 9 locations revisited, 3 new locations were sampled in 2013. Plants at these locations were relatively similar in size, structure and age to those that had previously been surveyed. It is considered unlikely that these new locations are evidence of the feature expanding in range but rather they are likely to reflect populations not previously assessed.

3.6 Site check results

While moving between the survey points provided for each feature, field surveyors made observations relating to habitat impacts on the other features of the SSSI.

The following activities were noted which might have adversely affected site condition since the last assessment:

- On the lower slopes of the Pass of Drumochter the Beauly-Denny pylon line is currently under construction and a long spine road and access tracks to it have been built recently. We assume the extent of dry heath, wet heath, blanket bog and possibly flush communities will have declined as a result of direct impacts and possibly also indirect impacts (bog, flush).
- In a similar vein, a considerable amount of new infrastructure has been put in place for grouse management (new or upgraded lines of butts for grouse shooting; new tracks) in line with the plans of several estates to increase this type of land use. These activities have mainly reduced the extent of dry heath but also blanket bog and flush.
- Mobile phone masts and access tracks are present, but we do not know when these were built relative to the date of the last assessment.
- Burning has been carried out on many parts of the site, including areas of wet heath and blanket bog. It is not known whether there will be longer term damage from this type of activity.
- Significant numbers of sheep were seen on the site (190 in total) mainly on the summit plateau of Carn na Caim and its slopes in the north east of the site, and in Coire Dhomhain, west of the A9. We do not know how this number compares to previous sheep stocking levels.

3.7 Management activities

Management activities with positive effects:

- Deer grazing occurs across much of the site at a level which appears beneficial for the calcareous grassland feature (i.e. levels will help, with all else equal, to help maintain the current extent of the feature).

Management activities with negative effects:

- Deer trampling and deer grazing impacts are causing some localised effects on particular features (e.g. patch edges of some heather stands within grass mosaics being heavily browsed; some areas of bare peat being poached).
- Burning of dry and wet heath is attracting grazing animals and leading to suppression of dwarf shrub recovery; long-term conversion to grassland is possible if this is sustained.
- A considerable amount of new infrastructure has been built in previous years and this has led to direct habitat losses.

4. INTERPRETATION OF FINDINGS

4.1 Montane acid grassland

All the plots sampled were found to be in good condition with a diversity of indicator species present and a generally very low level of grazing and physical disturbance apparent. Throughout the site the feature displayed variability in species composition and structure, based on local topography, altitude and exposure. There was no evidence to suggest that

there has been a decline in the extent of this feature since the time of the last survey. In the previous cycle of monitoring Dayton (2007) reported that 4 of 32 sample points failed due to herbivore grazing impacts. On balance of evidence we propose that this feature is classified as 'favourable-recovered'.

4.2 Plants in crevices on acid rocks

All but one of the plots sampled were found to be in good condition, with a low level of grazing apparent and signs of encroachment by non-native or invasive species absent. Moreover, there was no evidence to suggest that there has been a decline in the extent of this feature since the time of the last survey. That said, one plot failed one target (over-grazing of Blaeberry). In the previous cycle of monitoring Dayton (2007) reported similarly that one sample point had failed due to herbivore browsing impacts. On balance of evidence we propose that this feature is therefore classified as 'unfavourable-no change'.

4.3 Species-rich grassland with mat-grass in upland areas

The extent of the species-rich grassland feature is limited on this site by the location of suitable geological and hydrological conditions since well-drained, nutrient rich soils are required. Where these conditions do arise, the structure of the feature is strongly influenced by the grazing pressure because of the relative palatability of the plant species present.

The feature failed the assessment on a number of targets. Two plots lacked some of the characteristic species expected of this feature and there appeared to be two possible reasons. In some places, plots were located in a small-scale mosaic with heath communities so some species might have been lost over time due to encroachment of heather into the grasslands (close up images from the previous study were not available to verify this). Secondly, under-grazing may have caused the loss (encroachment of grasses) given that the previous report by Dayton (2007) mentions the removal of significant numbers of sheep from some lower slopes. Moreover, a number of points failed because of insufficient cover of forbs. Some fell on areas which appeared fairly lightly grazed whilst a few occurred on plots which were clearly being heavily grazed. Some plots also failed due to a lack of shorter patches of grass leaves and some for too many leaf tips above the target height.

On balance of evidence we propose that this feature is classified as 'unfavourable-no change' with localised under-grazing of the feature most likely to be the cause.

4.4 Tall herb communities

The tall herb feature on the site contains a range of palatable species hence are naturally limited in extent by grazing pressure. The feature tends to be found in locations that are inaccessible to herbivore grazing, which was the case for almost all of the survey points.

The majority of the feature appeared to be in good condition, given that seven of eight points passed all targets. However it failed the assessment at one point due to the level of grazing. The point in question was markedly more accessible to deer/sheep than most of the other plots sampled hence it is not surprising it was grazed. The previous assessment in 2007 found two of seven plots to be lacking in the indicator species typical of the feature.

On balance of evidence we propose that this feature is classified as 'unfavourable-recovering'.

4.5 Montane willow scrub

This feature tends to be restricted to crags, ledges and inaccessible gullies on the site. A number of points from previous cycles were assessed along with some new points.

Eight of twelve points failed the assessment. The feature failed on numerous targets relating to the condition of willow plants in the face of continuing browsing pressure from deer/sheep. Most of the plants present appear typically to be older and to have experienced browsing over many years where in any way accessible, albeit some plants are isolated on crags that make them inaccessible.

On balance of evidence we propose that the 'willow scrub' feature is in 'clear and present danger' (according to the approach proposed in MacDonald (2004)[1]), because 6 or more plots failed the assessment, and is classed as 'unfavourable-declining'.

5. CONCLUSIONS & RECOMMENDATIONS

In conclusion, four of the five features assessed (plants in crevices on acid rocks, species-rich grassland with mat-grass in upland areas, tall herb communities and montane willow scrub) all failed to meet at least one target based on Common Standards Guidance.

The status of the willow scrub is arguably most notable finding, given this habitat type is so rare across Scotland. For the other features that failed, there is some cause for concern relating primarily to grazing pressure.

Following the advice given in MacDonald (2004), and taking into account the results of the 2007 assessment also, we propose the following status for the five features based on the assessment of 2013:

- Montane acid grassland: 'favourable-recovered'
- Montane willow scrub: 'unfavourable-declining'
- Plants in crevices: 'unfavourable-no change'
- Tall herbs: 'unfavourable-recovering'
- Species-rich grassland: 'unfavourable-no change'

We recommend the following actions:

- Grazing densities should ideally be reduced locally - see map of willow scrub distribution and the status of plots in Annex 1 - for an agreed period. The aim would be to establish if a local grazing reduction can help the willow scrub feature to stabilise and, ideally, begin to flourish given its rarity and importance for biodiversity on upland sites such as Drumochter. Any reduction in grazing might conceivably also benefit most of the other features in the local area. The main exception to this is the species-rich grasslands which in many places appear to be under-grazed when judged against the Common Standards Guidance.

[1] Site Condition Monitoring of Upland Sites in Scotland: Method of Field Assessment. Report to SNH by A. MacDonald. 2004.

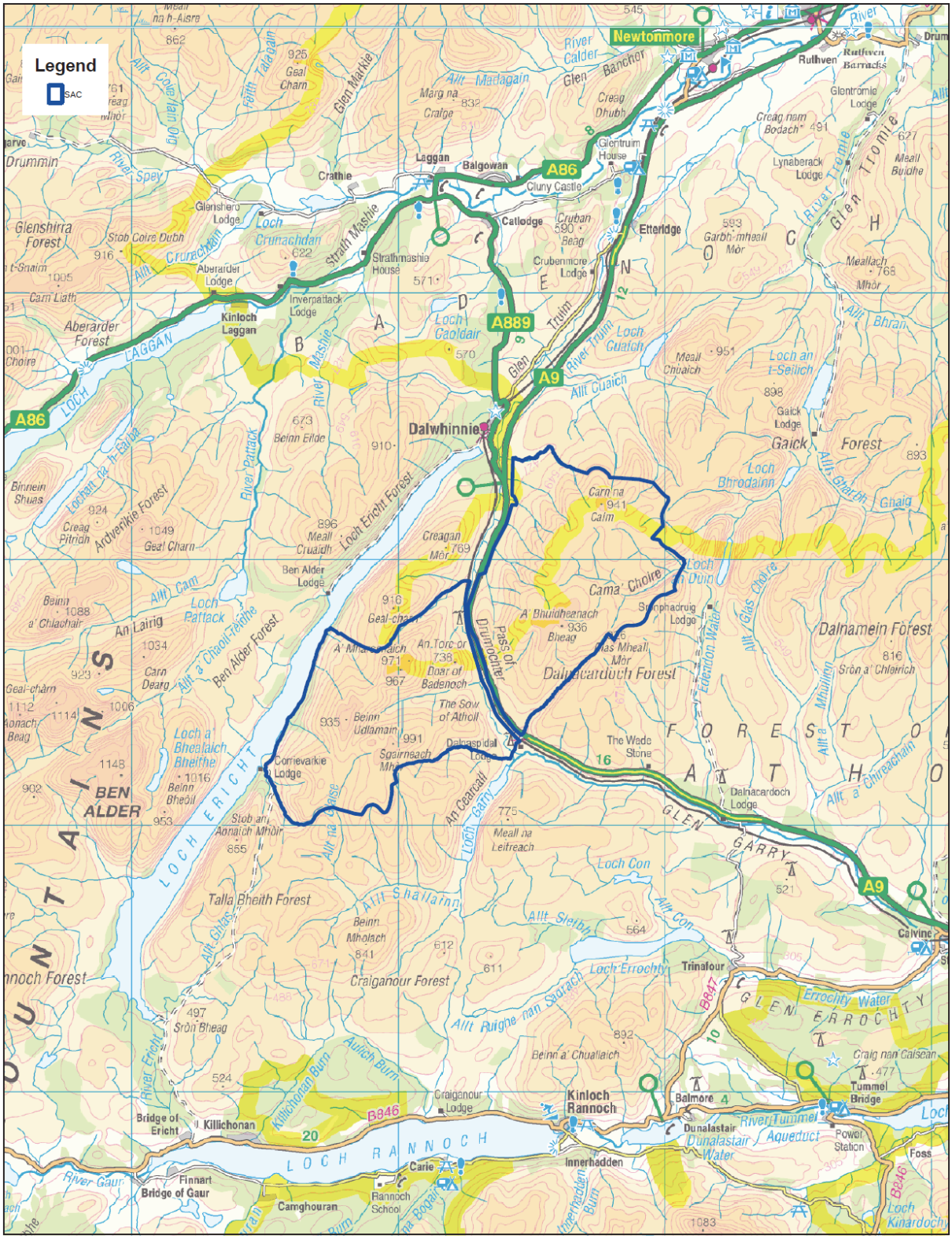
6. REFERENCES

JNCC, 2009. Common Standards Monitoring Guidance for Upland habitats. Version October 2006 ISSN 1743-8160. Available at: http://www.jncc.gov.uk/Default.aspx?page=2237

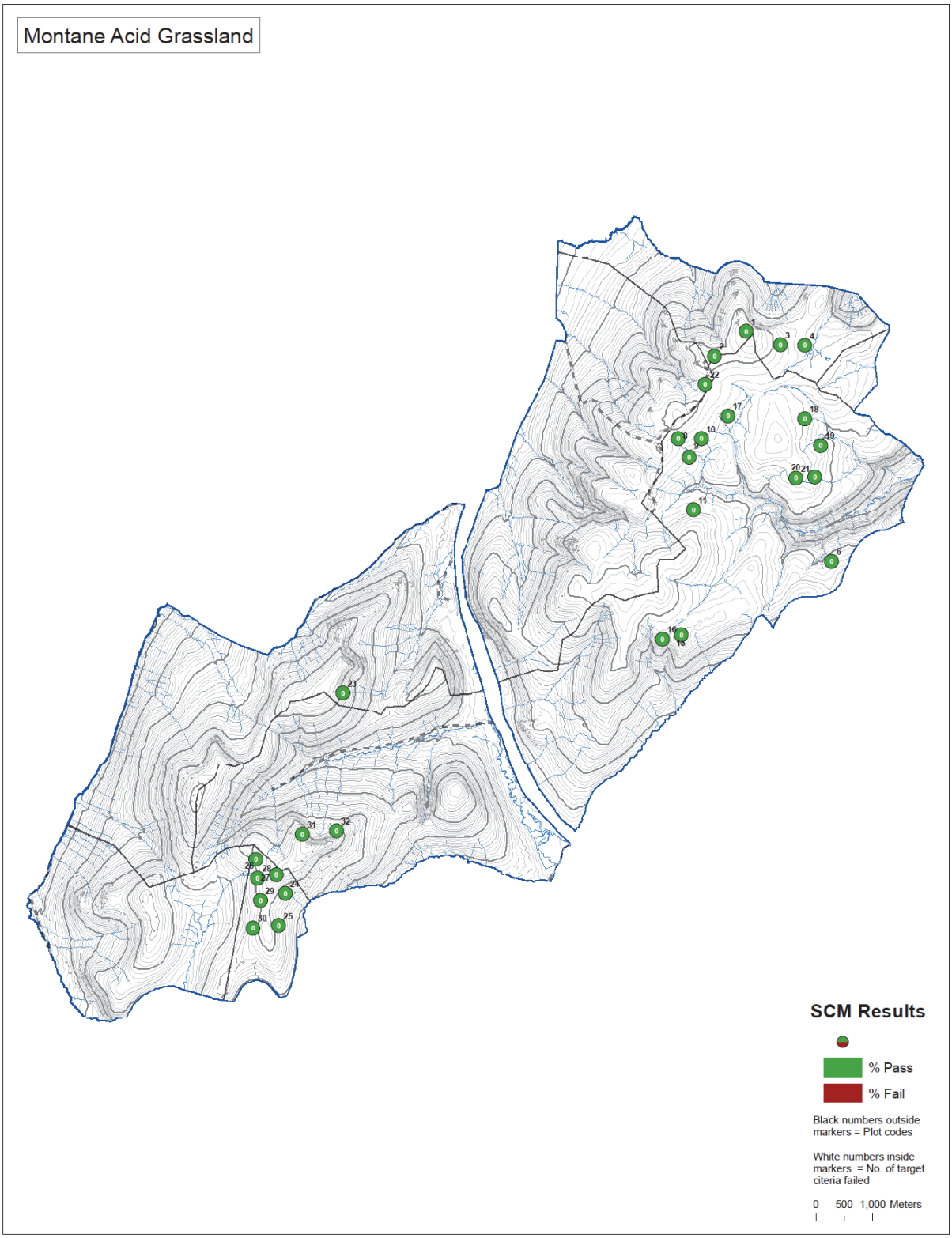
MacDonald, A.J. 2004. Site Condition Monitoring of Upland Sites in Scotland: Method of Field Assessment. Report to SNH.

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

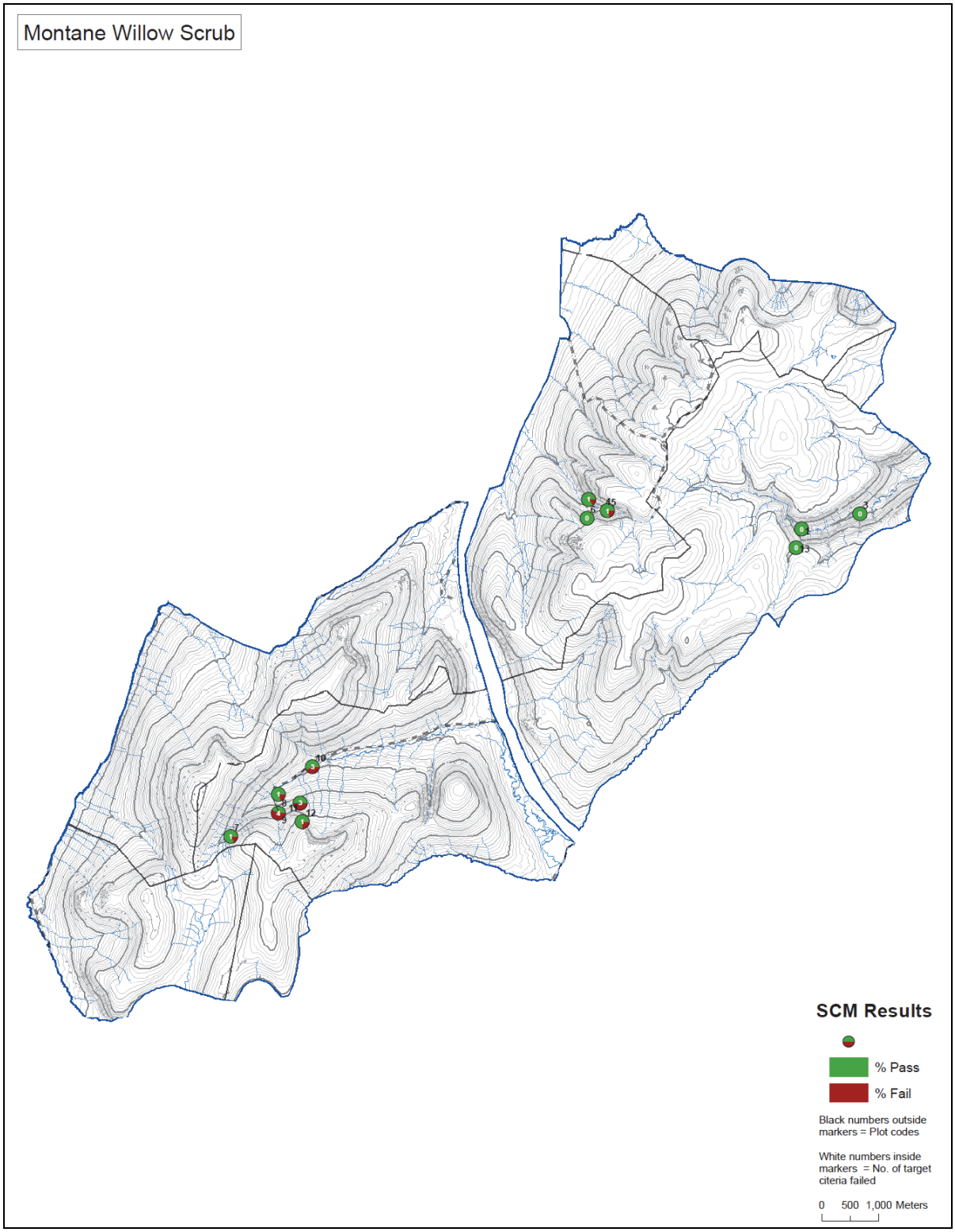
ANNEX 1: MAPS



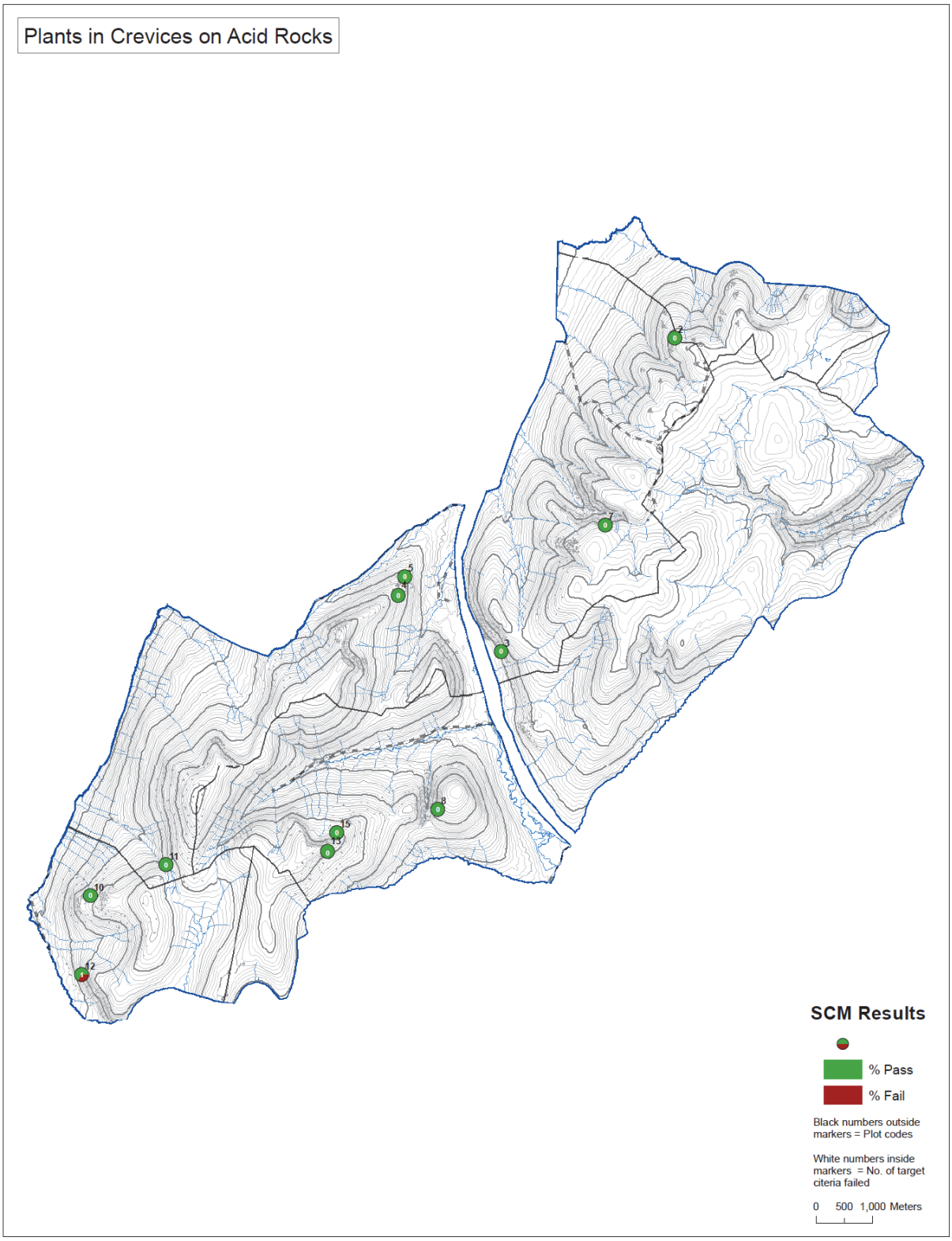
Map 1. Drumochter Hills SAC © Crown copyright [and database rights] 2018 OS 100017908



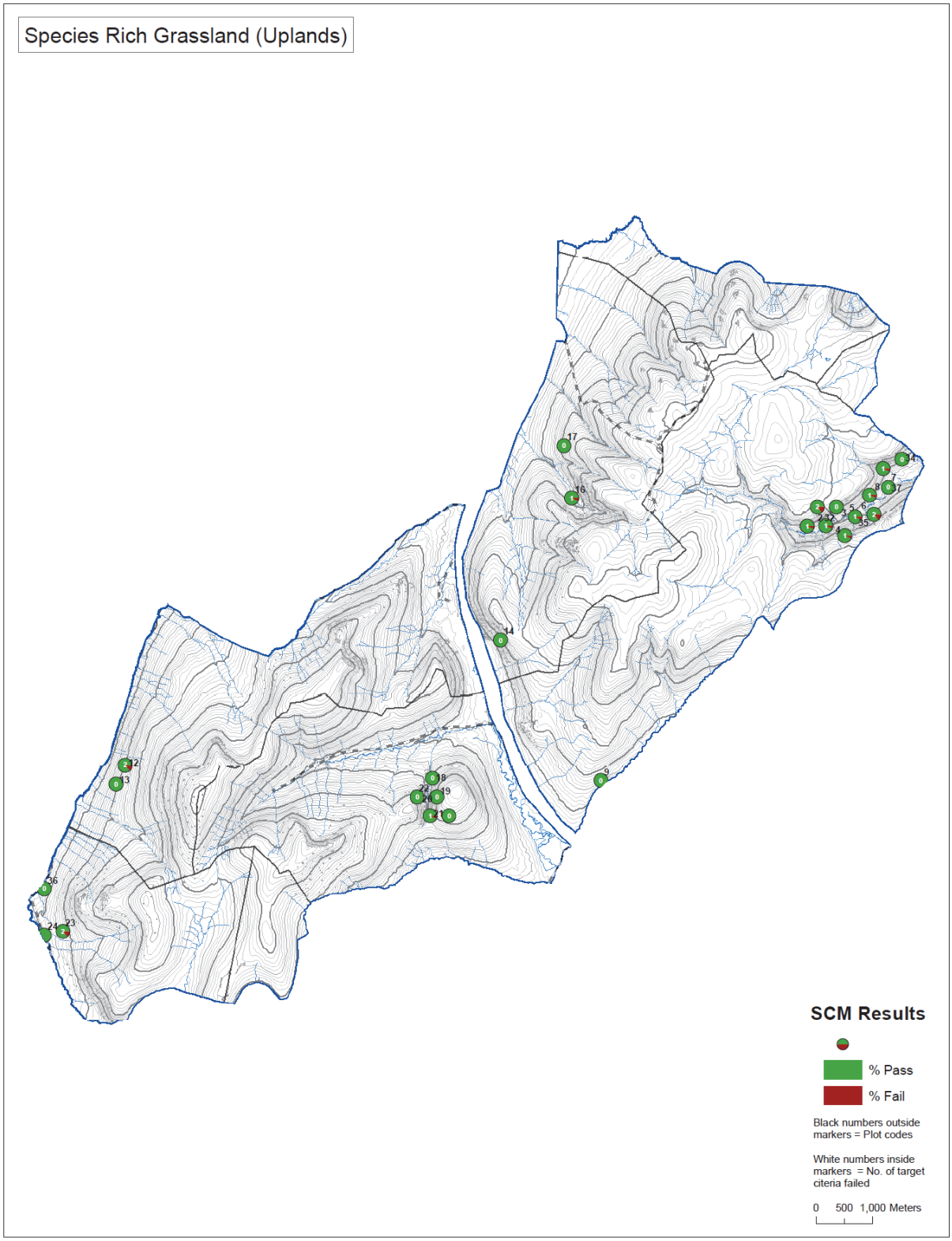
Map 2. Montane acid grassland SCM assessment results, 2013 © Crown copyright [and database rights] 2018 OS 100017908



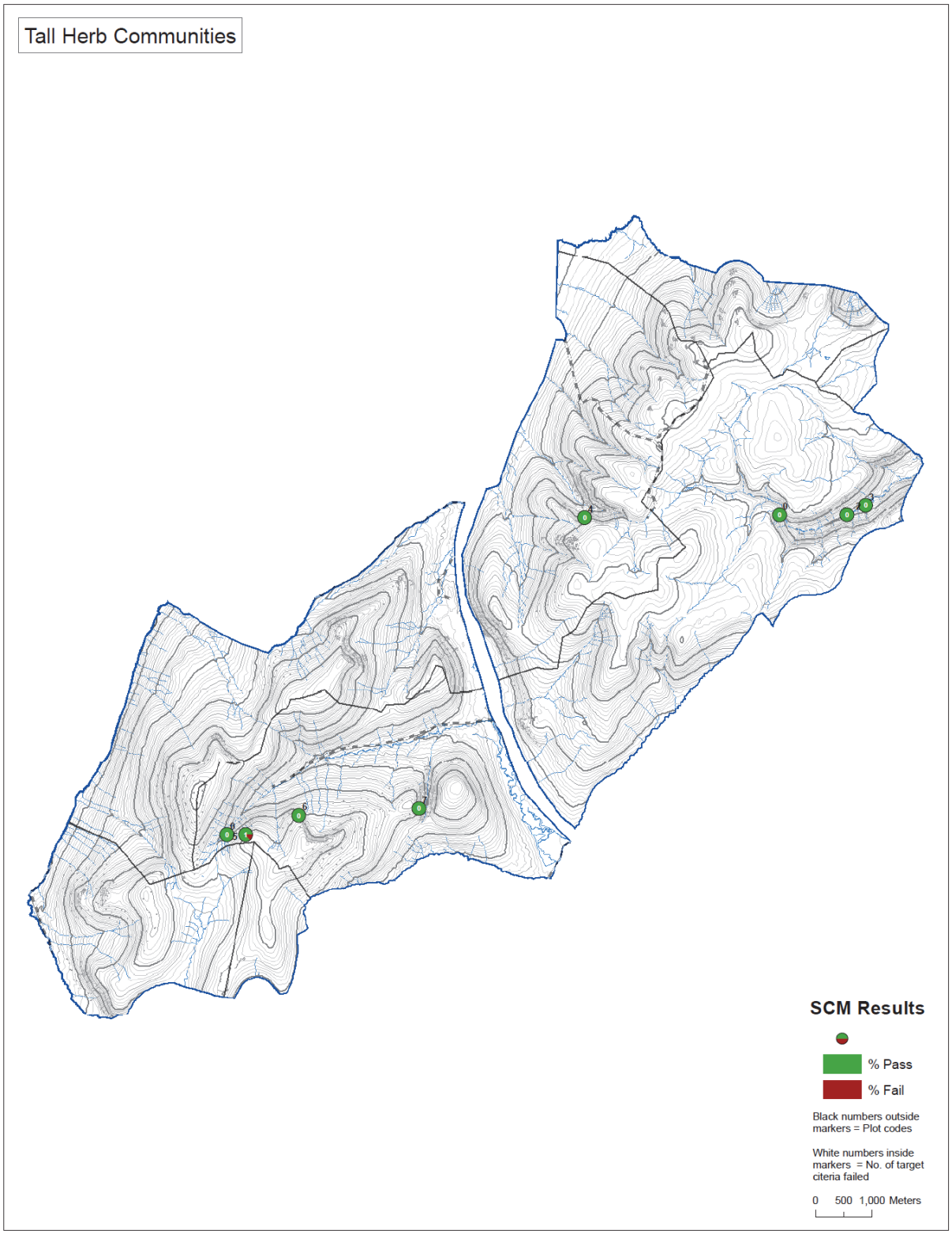
Map 3. Montane willow scrub SCM assessment results, 2013 © Crown copyright [and database rights] 2018 OS 100017908



Map 4. Plants in crevices on acid rocks SCM assessment results, 2013 © Crown copyright [and database rights] 2018 OS 100017908



Map 5. Species rich grassland (uplands) SCM assessment results, 2013 © Crown copyright [and database rights] 2018 OS 100017908



Map 6. Tall herb communities SCM assessment results, 2013 © Crown copyright [and database rights] 2018 OS 100017908

www.nature.scot

ISBN: 978-1-78391-350-3

Policy and Advice Directorate, 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
All of nature for all of Scotland
Nàdar air fad airson Alba air fad