

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



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**Biological Records Centre Meeting of National Recording Schemes.**  
**7 March 2020, Edinburgh.**



## Overview

- Summary of Projects
- Case Studies
- Key Messages



## Published Reports

Cathrine, C., Norris, G., Wiswell, H., Glead-Owen, C., Wilkinson, G., Willet, J. & Shanks, S. 2015. *Site Condition Monitoring of invertebrate features at 19 designated sites in Scotland. Scottish Natural Heritage Commissioned Report No. 872.* Scottish Natural Heritage, Inverness.

Cathrine, C., Foster, G., Norris, G. & Currie, N. 2020. *Site Condition Monitoring of beetle assemblage features at 11 designated sites in Scotland 2015. Scottish Natural Heritage Research Report No. 1115.* Scottish Natural Heritage, Inverness.

Cathrine, C., Norris, G., Falk, S., Glead-Owen, C., Currie, N. & Gillen, C. 2020. *Site Condition Monitoring of invertebrate assemblage features at six designated sites in Scotland 2015. Scottish Natural Heritage Research Report No. 1118.* Scottish Natural Heritage, Inverness.

Foster, G., Cathrine, C & Norris, G. 2020. *Site Condition Monitoring of beetle assemblage features at eight designated sites in Scotland. Scottish Natural Heritage Research Report No. 1116.* Scottish Natural Heritage, Inverness.

<https://www.nature.scot/information-hub/information-library>

## Unpublished Reports

Kirkland, P., Cathrine, C., Bairner, S., Macadam, C. & Willet, J. 2012. *Site Condition Monitoring of Invertebrate Assemblages at 10 Designated Sites in Scotland*. Scottish Natural Heritage, Inverness.

Cathrine, C. & Falk, S. 2018. *Site Condition Monitoring of Invertebrate Features at Fannich Hills and Torridon Forest Sites of Special Scientific Interest in 2017*. Scottish Natural Heritage, Inverness.

## Other Information

Various other scientific publications and conference papers:

[www.caledonianconservation.co.uk/publications](http://www.caledonianconservation.co.uk/publications)

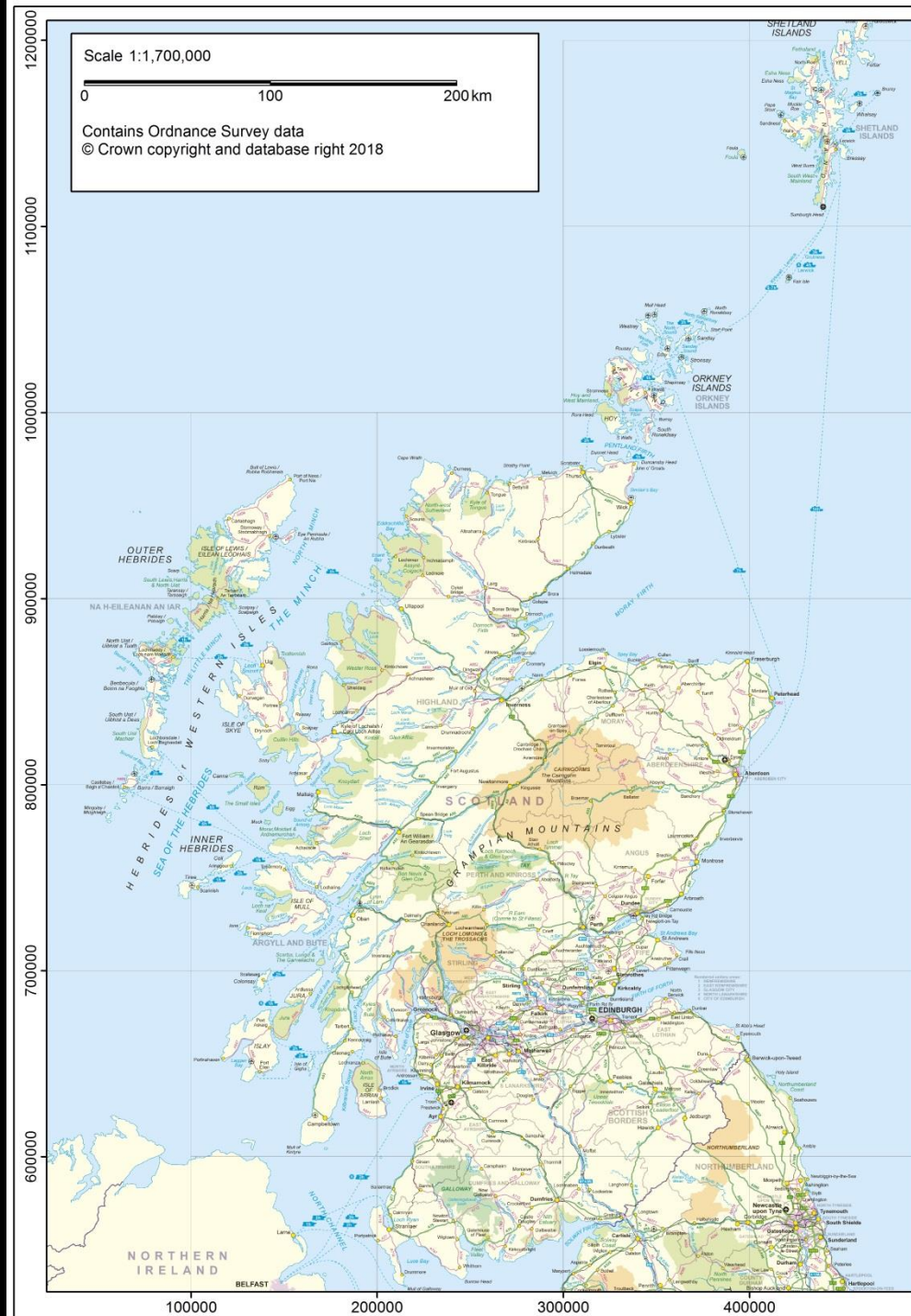
Data available on NBN Atlas:

<https://registry.nbnatlas.org/public/show/dp4>



# SCM 2011-17

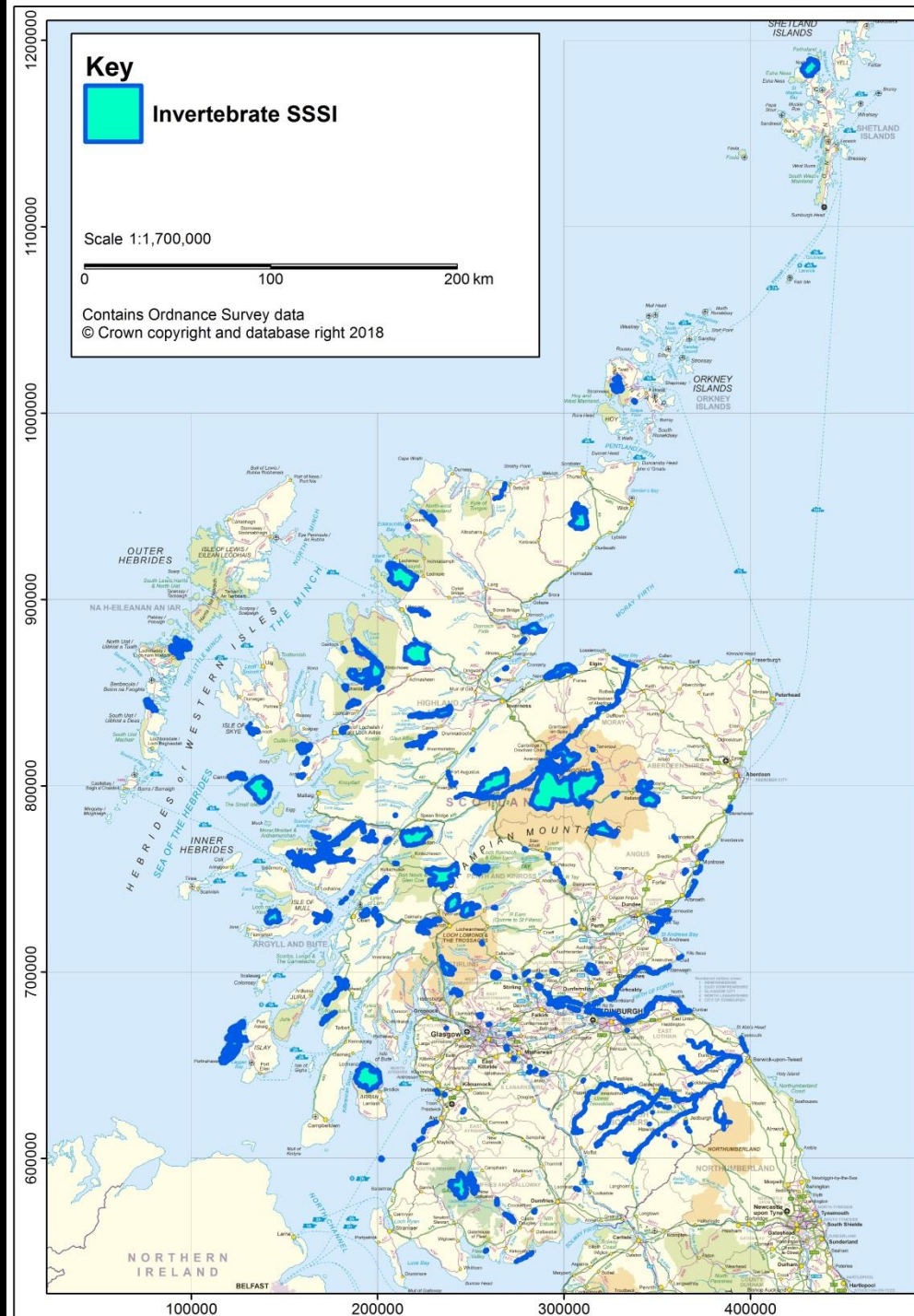
## 158 Invertebrate SSSIs



# SCM 2011-17

## 158 Invertebrate SSSIs

Littlewood, N.A. 2017. *A revision of invertebrate features of designated sites in Scotland. Scottish Natural Heritage Commissioned Report No. 1007.* Scottish Natural Heritage, Inverness.

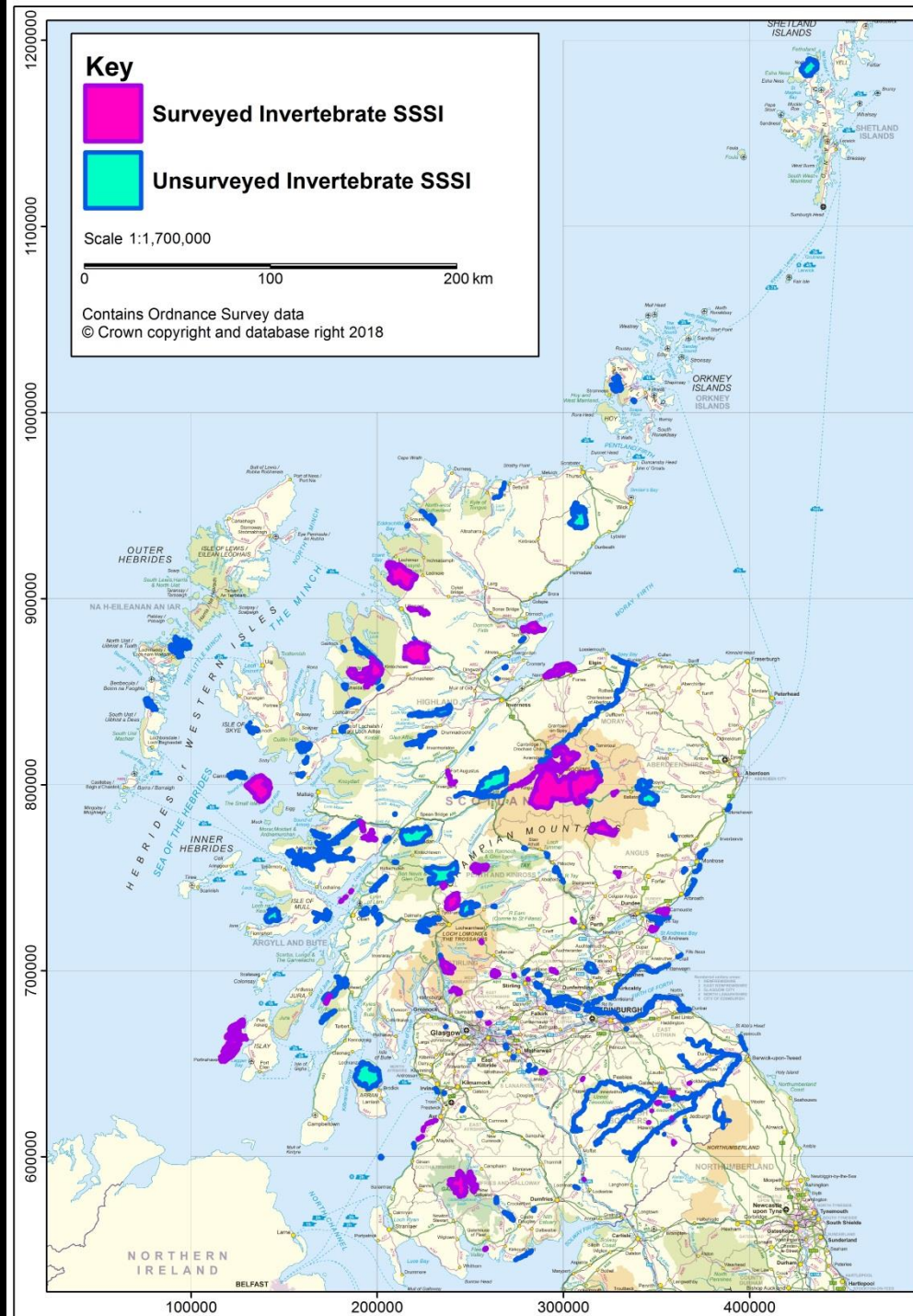




# SCM 2011-17

158 Invertebrate SSSIs

57 Site Survey Projects

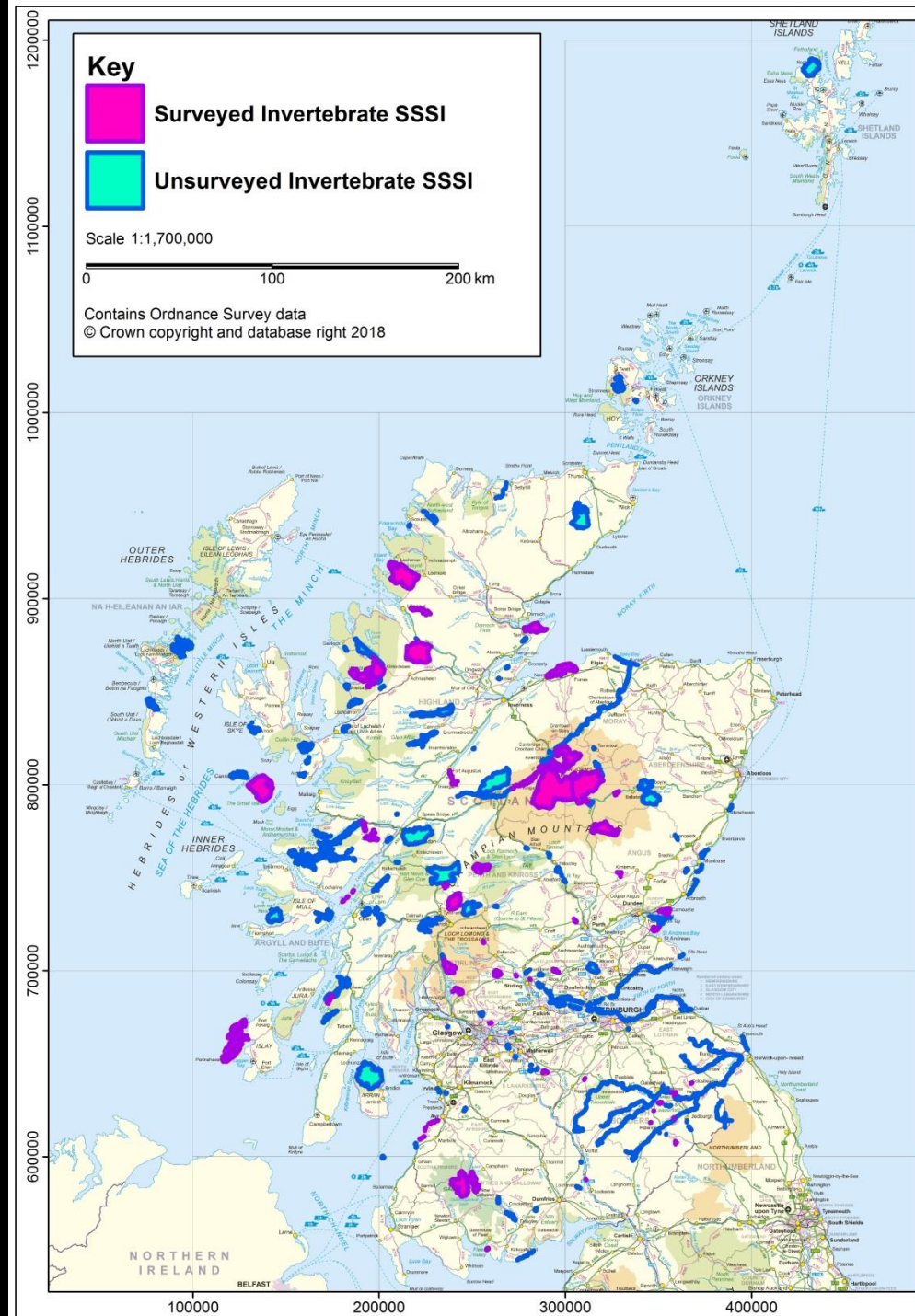


# SCM 2011-17

158 Invertebrate SSSIs

57 Site Survey Projects

51 SSSIs





## Data...

### What?

### Who?

- Data types:

- Casual / anecdotal
- Verified
- Detailed
- Population
- Movements / behaviour
- Protected sites
- Broad habitats
- Detailed habitats

- Source:

- NBN, LRC, NGO
- Recording Scheme
- Research
- Research
- Research
- SNH, Recording Scheme
- SNH (IHN)
- SNH (NVC)

## Considerations & Limitations

- Permissions



## Considerations & Limitations

- Permissions
  - CC0
  - CC BY
  - **CC BY-SA**
  - CC BY-NC

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- Permissions
  - CC0
  - CC BY
  - **CC BY-SA**
  - ~~CC BY-NC~~



## Considerations & Limitations

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- Accuracy

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- Resolution:
  - High enough for purpose?

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- Under-recorded groups



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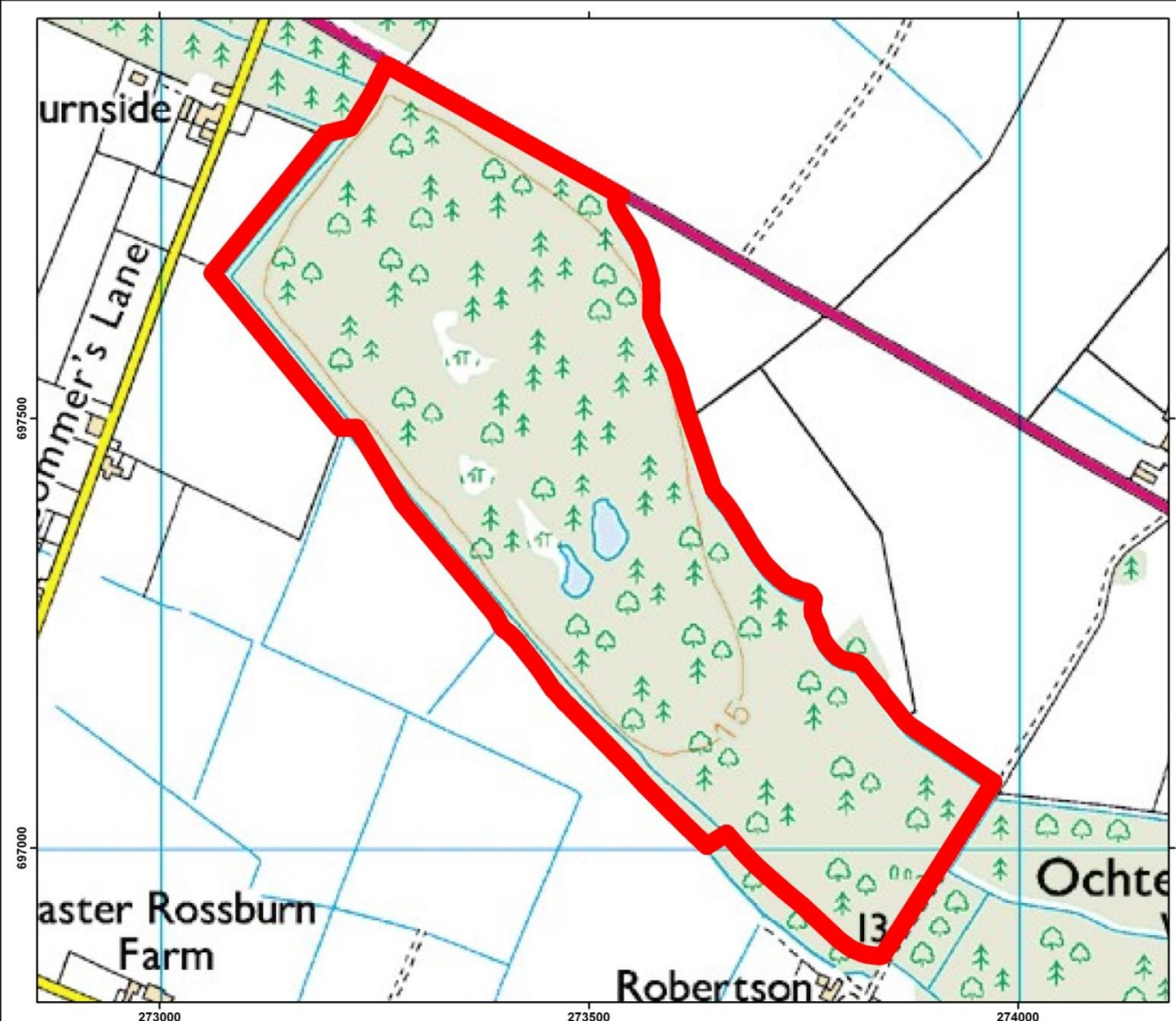
**ABSENCE OF RECORDS DOES NOT  
DEMONSTRATE ABSENCE OF PRESENCE**

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland

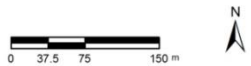


## Ochtertyre Moss 2011

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



**Key**  
 SSSI



**Ochteryre**  
**Spider SCM 2011**



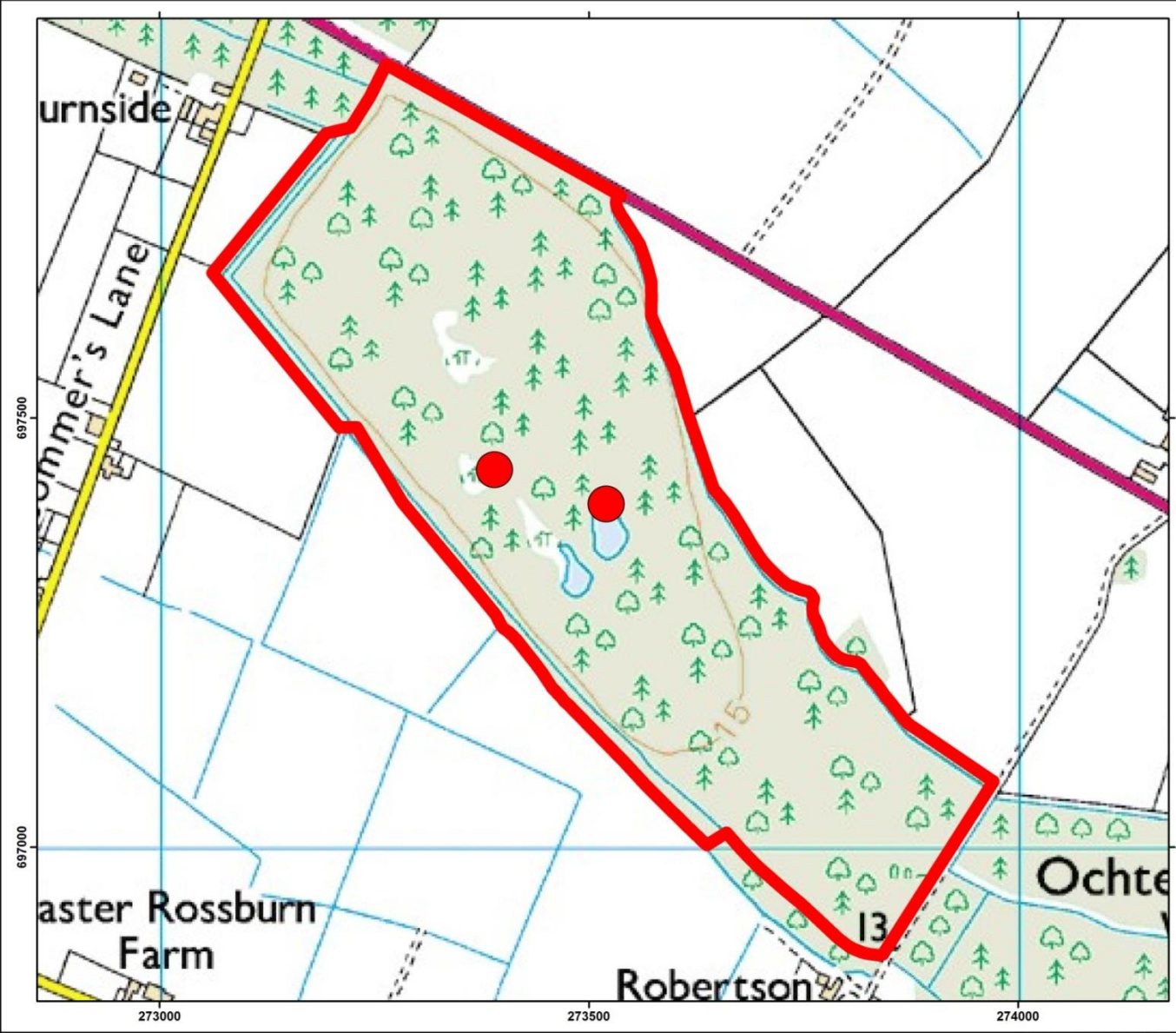
# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland

*Heliophanus dampfi*





# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



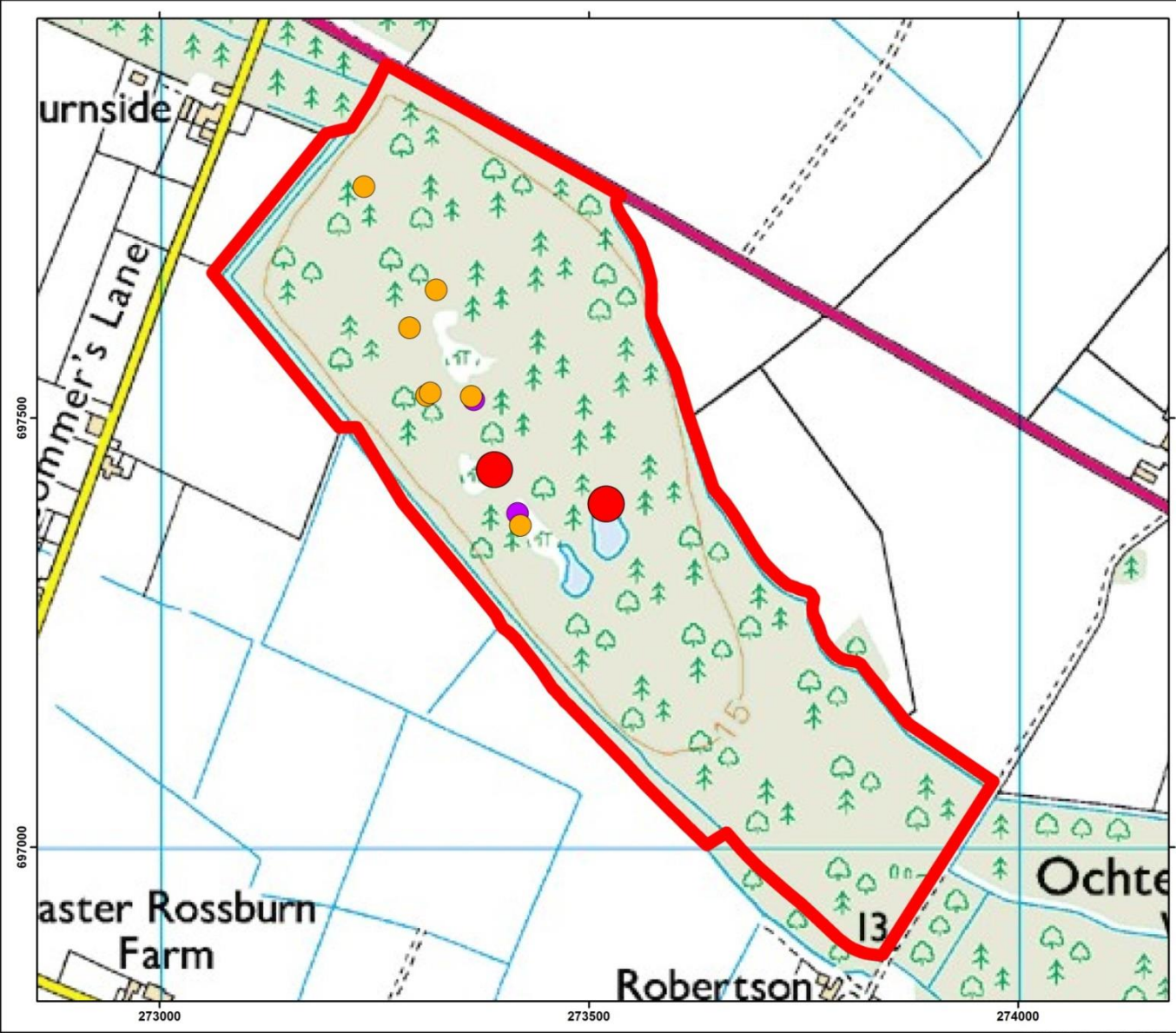
### Key

- Historic Record
- ▭ SSSI



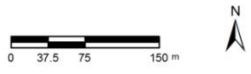
Ochteryre  
Spider SCM 2011

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



### Key

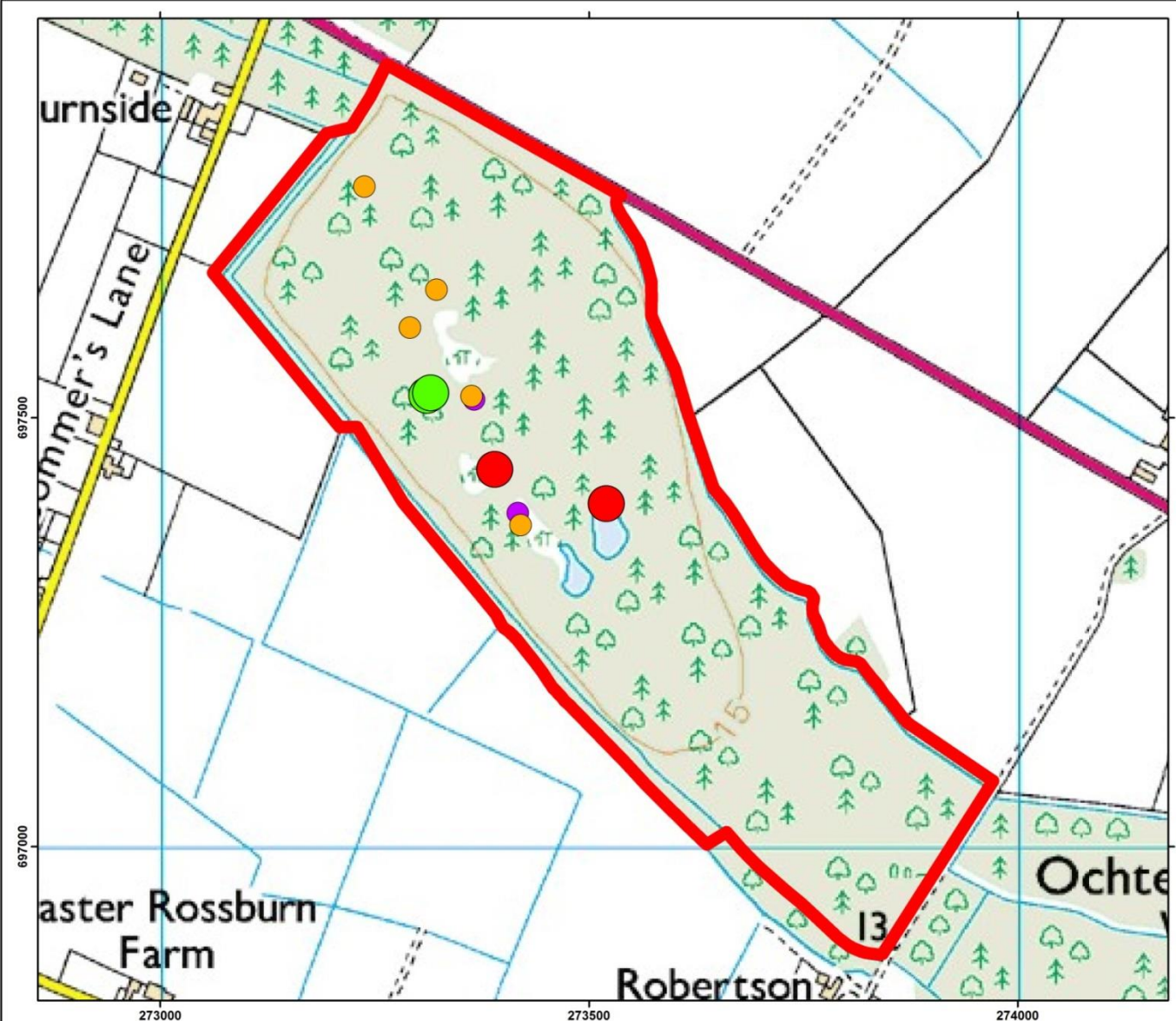
- Historic Record
- Pitfall
- Active Sample
- ▭ SSSI



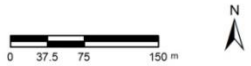
Ochteryre  
Spider SCM 2011



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



- Key**
- Historic Record
  - Pitfall
  - Active Sample
  - SSSI
  - New Record



**Ochteryre**  
**Spider SCM 2011**



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland




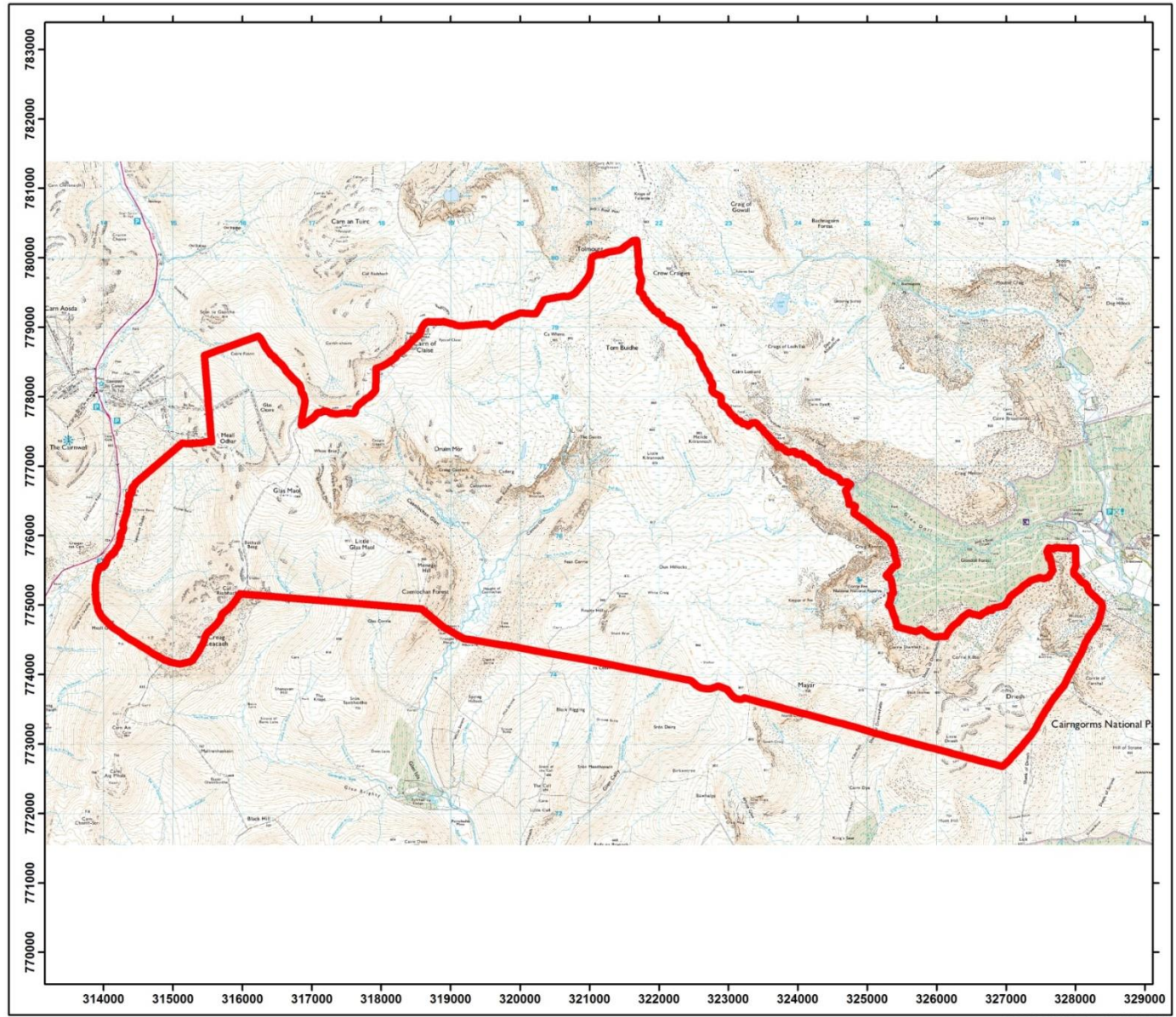
**Caenlochan 2011**

## *Mecynargus paetulus* – Scottish mountain- spider


- RDB2
- Elevations above 850m
- Associated with *Nardus strictus* matt grass snow-bed habitats
- ♂ ♀ May & September



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland


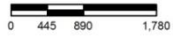


Scottish Natural Heritage  
All of nature for all of Scotland



Caledonian Conservation Ltd

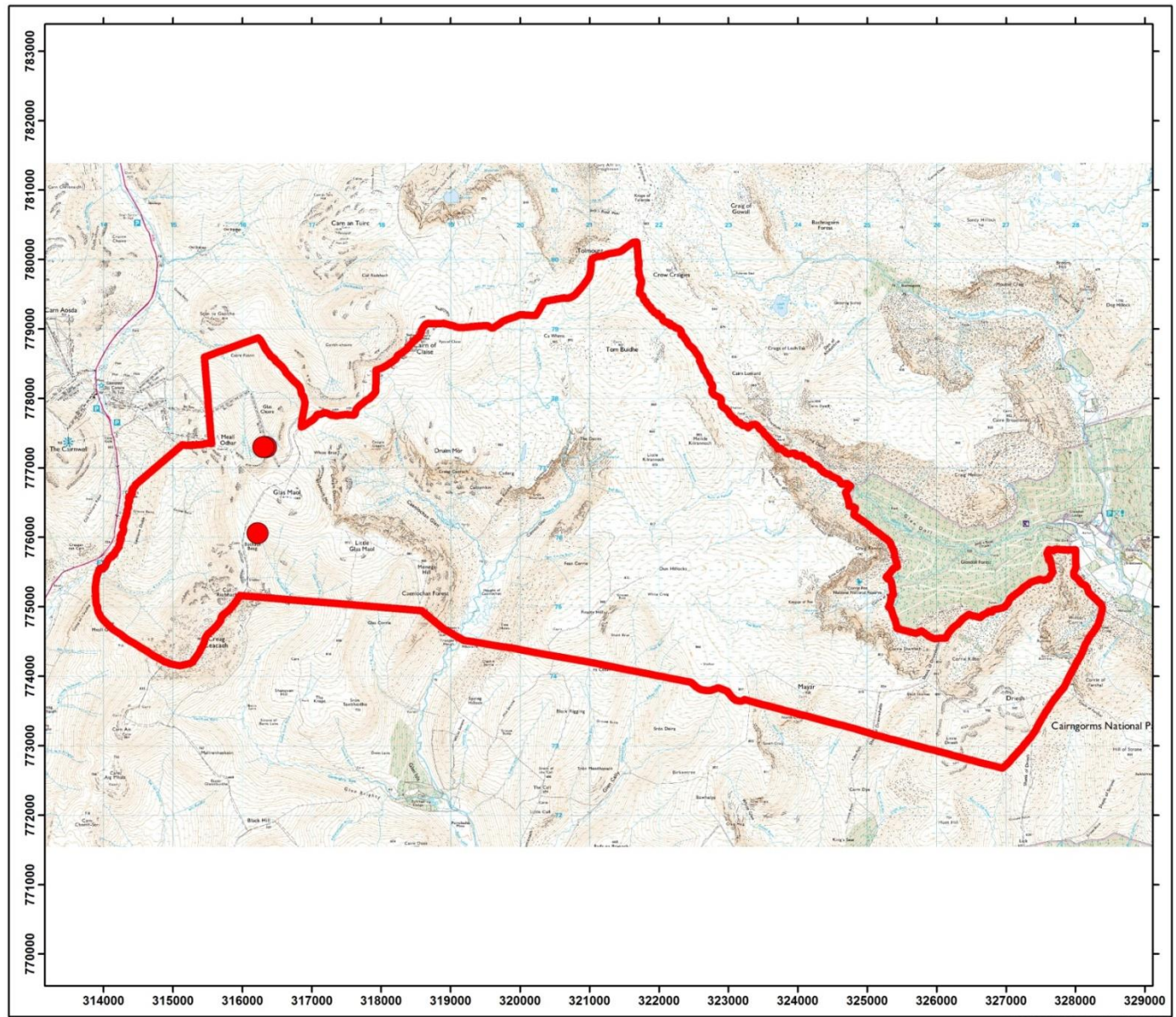
**Key**  
[Red box] SSSI



**Caenlochan**  
**Spider SCM 2011**



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



Scottish Natural Heritage  
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**Key**

- Historic Record
- SSSI

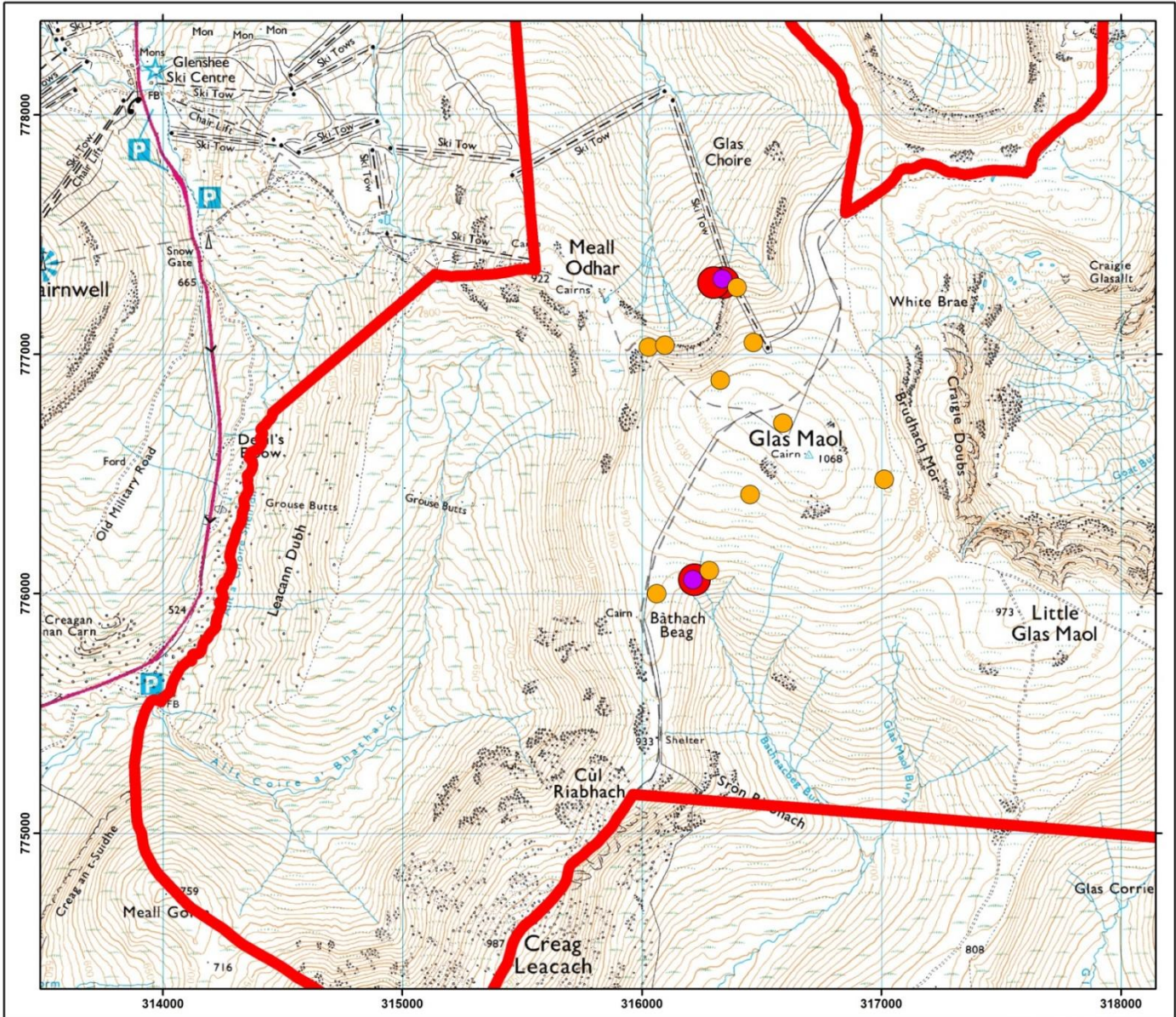
0 445 890 1,780 m

N

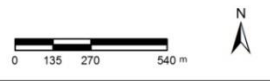
**Caenlochan**  
**Spider SCM 2011**



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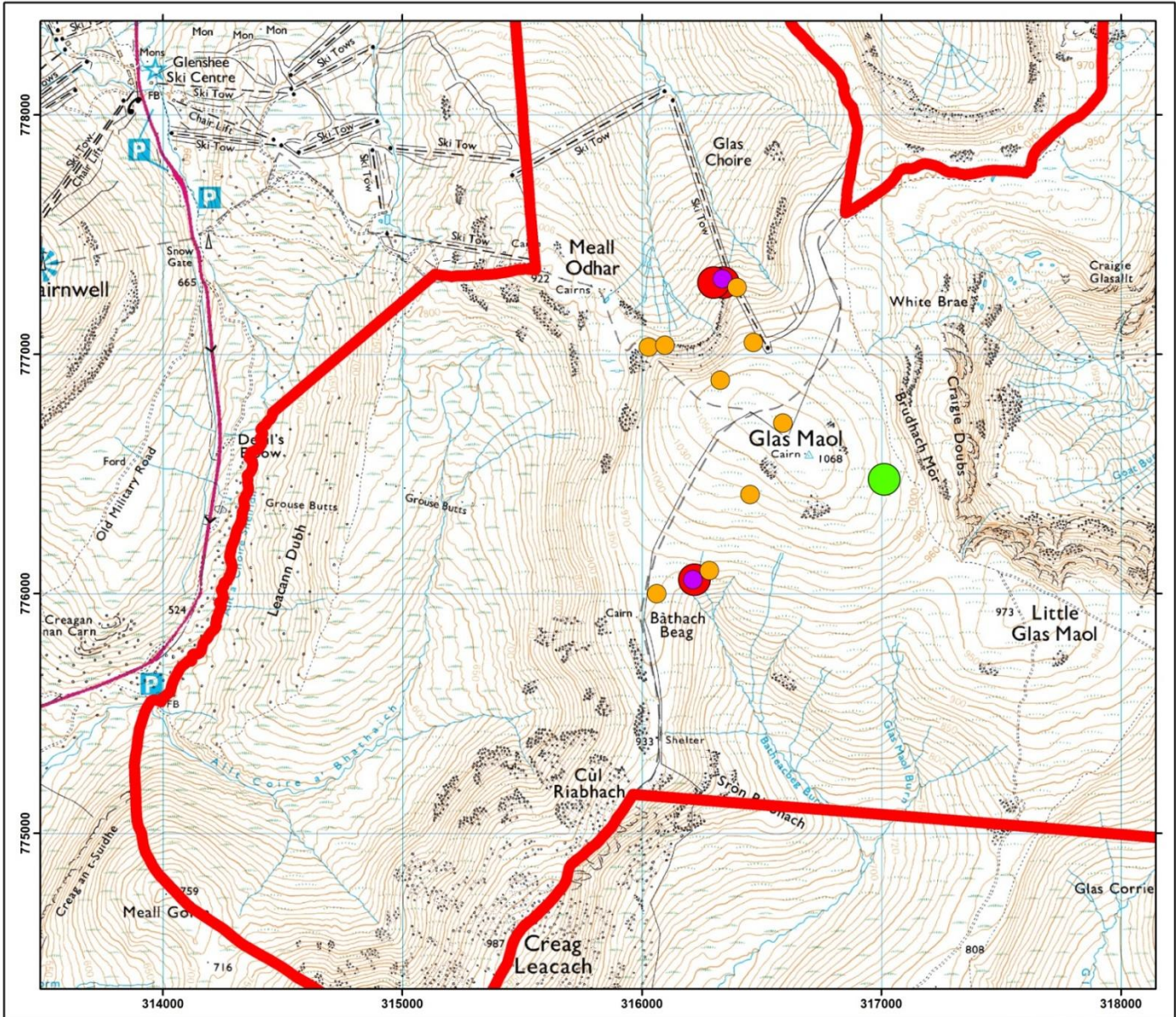


**Caenlochan**  
**Spider SCM 2011**

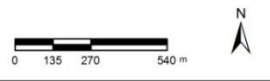
NOT FOR DISTRIBUTION OR REPRODUCTION



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



- Key**
- Pitfall
  - Active Sample
  - Historic Record
  - SSSI
  - New Record



**Caenlochan**

**Spider SCM 2011**

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# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland





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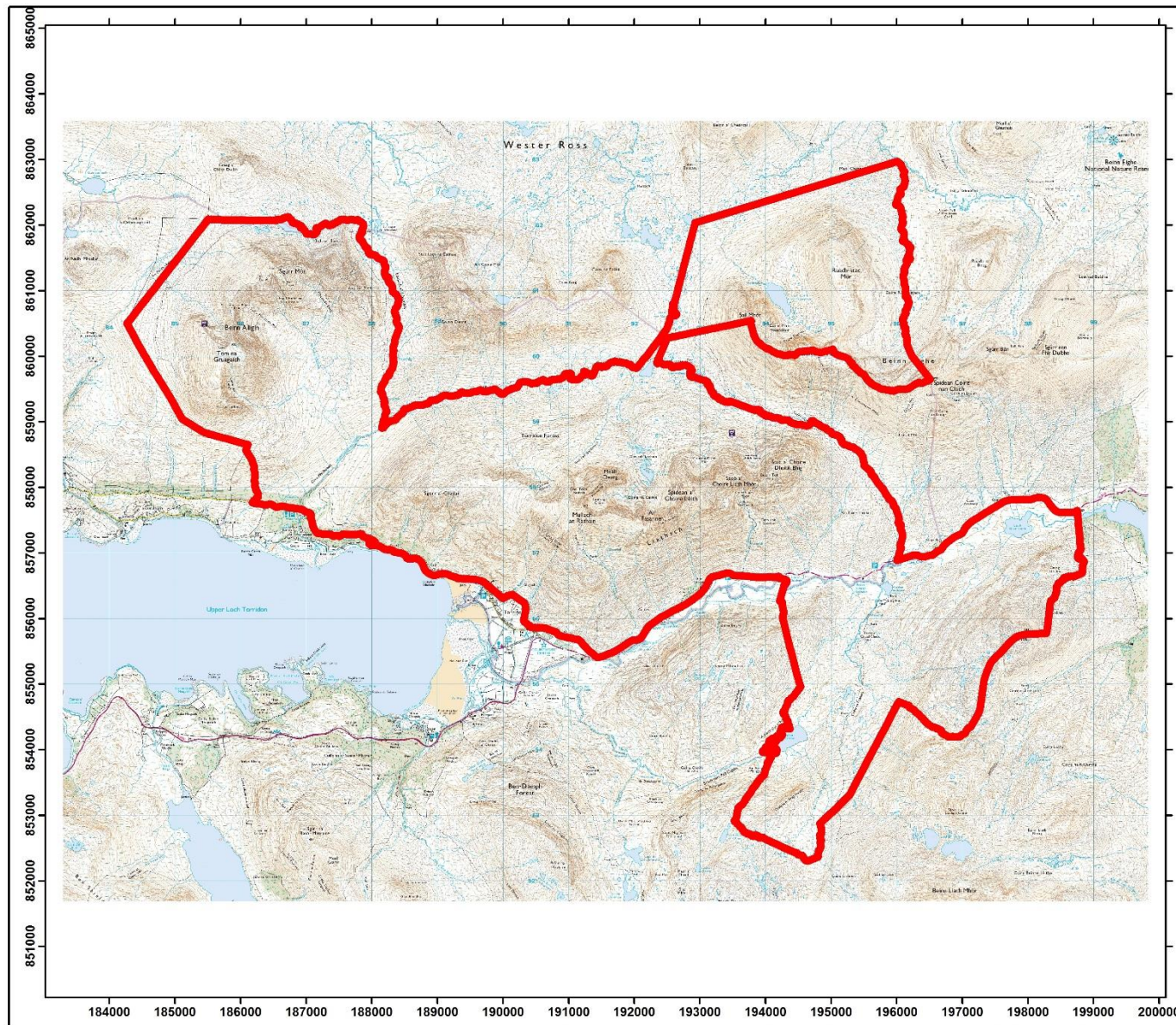
# SCM 2011-17



## Torridon Forest 2017

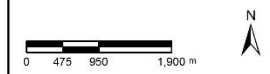


# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



### Key

 SSSI



**Torridon Forest  
SSSI**

**Invertebrate SCM  
2011**



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland

The screenshot shows a web browser window displaying a map of Scotland with a data table for *Phratora polaris* records. The browser address bar shows the URL: <https://data.nbn.org.uk/imt/?mode=SPECIES&species=NBNSYS0000022413#0-5.531,57.517,-4.948,57.669|G94pWju,eE69U>. The map shows the Kinlochewe area, with a search bar for "Phratora polaris 1km presence records". The data table below shows 8 entries.

Taxon Name	Organisation	Location	Site Name	Start Date	End Date	Recorder
Phratora polaris Schneider, 1886	Seed and Leaf Beetle Recording Scheme	NG9659	Beinn Eighe			Morris
Phratora polaris Schneider, 1886	Seed and Leaf Beetle Recording Scheme	NG95	Sgurr Mohr	1982-06-01	1982-06-30	Owen, Prof J.A.
Phratora polaris Schneider, 1886	Scottish Natural Heritage	NG9862	Beinn Eighe NNR	1987-01-01	1987-12-31	Unknown
Phratora polaris Schneider, 1886	Scottish Natural Heritage	NG9862	Beinn Eighe NNR	1967-01-01	1967-12-31	Unknown
Phratora polaris Schneider, 1886	Scottish Natural Heritage	NG9561	Ruadh-stac Mor	1966-01-01	1966-12-31	Unknown
Phratora polaris Schneider, 1886	Scottish Natural Heritage	NG9561	Ruadh-stac Mor	1966-01-01	1966-12-31	Unknown
Phratora polaris Schneider, 1886	Scottish Natural Heritage	NG9561	Ruadh-stac Mor	1967-01-01	1967-12-31	Unknown
Phratora polaris Schneider, 1886	Seed and Leaf Beetle Recording Scheme	NG951609	Ruadh-stac Mor	2000-07-11	2000-07-11	Harrison, T.D.

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



## Mark Telfer's Website

Beetles, Pan-species Listing, all-round natural history. Britain, Ireland and abroad.



Home » Beetles » The toughest day of 2010: Phratora polaris

### Recent Posts

- "How many firsts for Britain have you found, Mark?"
- A new Sunshiner
- This website is back!
- Acrotona pseudotenera
- Ponking

### Recent Comments

- DAVE HEMINGWAY on The 'immaculate' collection
- Clive Washington on Euaesthetinae, Oxyporinae,

## The toughest day of 2010: Phratora polaris

By admin in Beetles, Plants on December 19, 2011.

24th June 2010: day three of my Scottish fieldwork campaign was to be a change from surveying for saproxylic beetles in woodland. I was headed to the summit plateau of **Ruadh-stac Mòr, Beinn Eighe** where Mike Morris (1970) discovered the leaf-beetle *Phratora polaris* new to Britain in 1966. Ruadh-stac Mòr lies within the massive (5,800 hectares) Torridon Forest SSSI.



### Categories

- Ants
- Arachnida
- Bees
- Beetles
- Birds
- Bugs
- Centipedes
- Cockroaches
- Dragonflies
- Earthworms
- Earwigs
- Fatworms
- Flies
- Fungi
- Galls



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



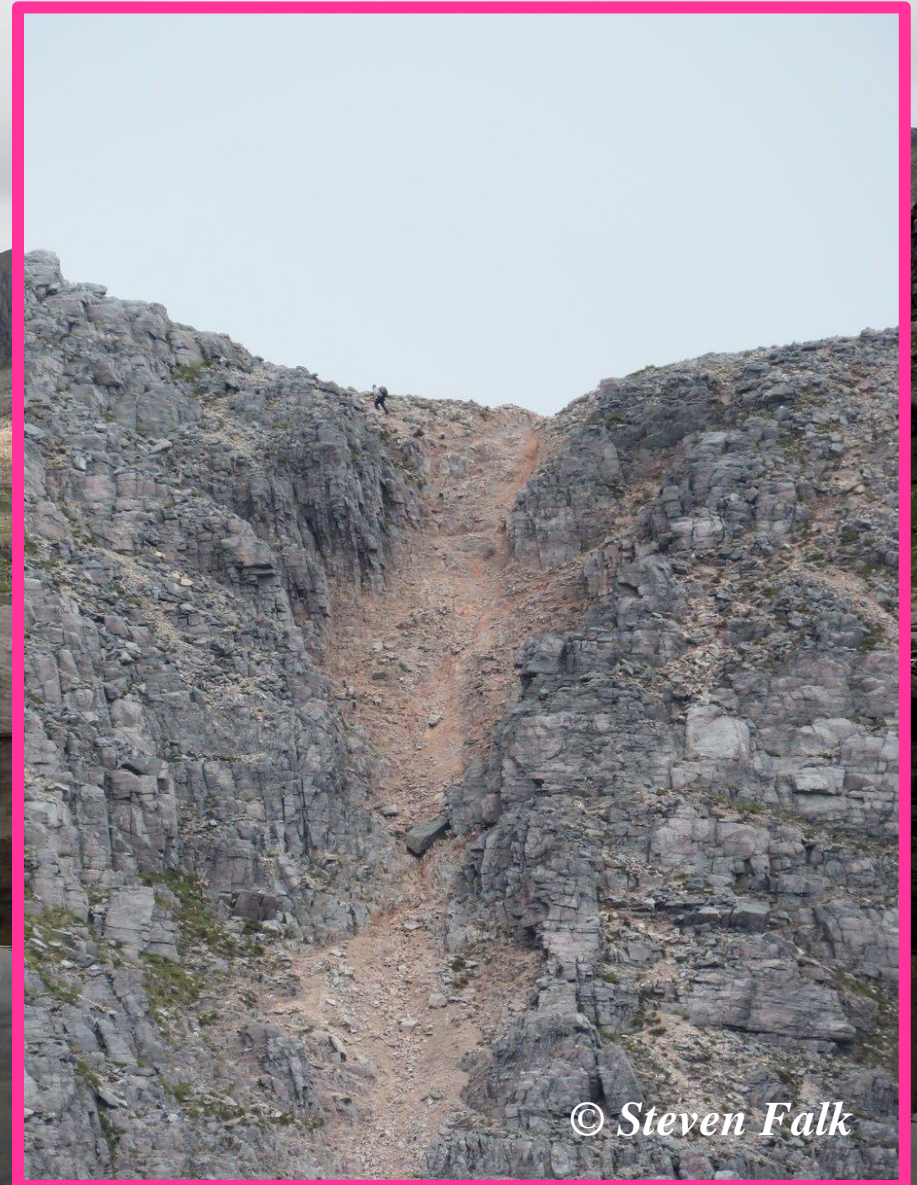


# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland





# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



© Steven Falk



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland





# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland

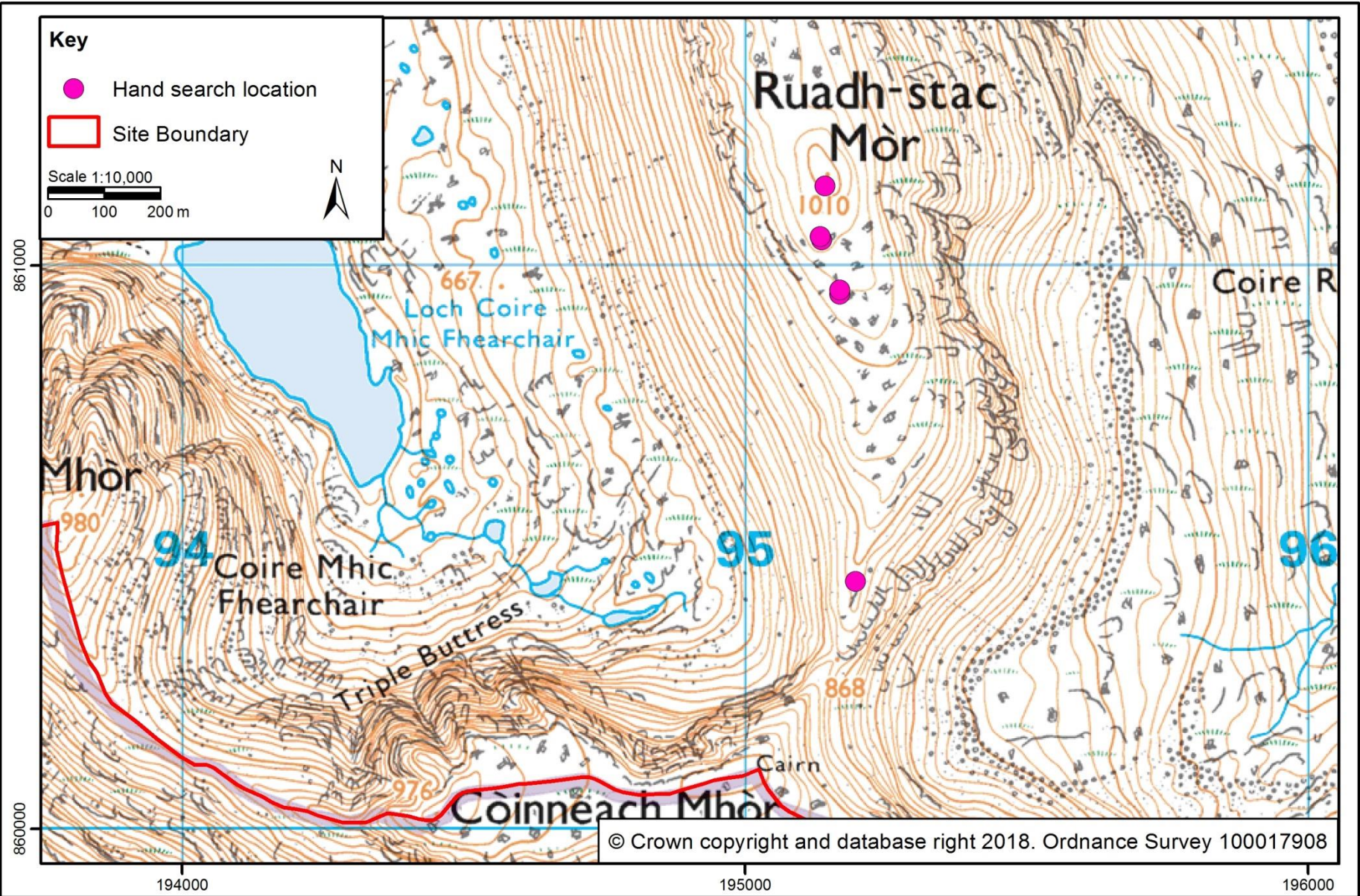


*Phratora polaris*



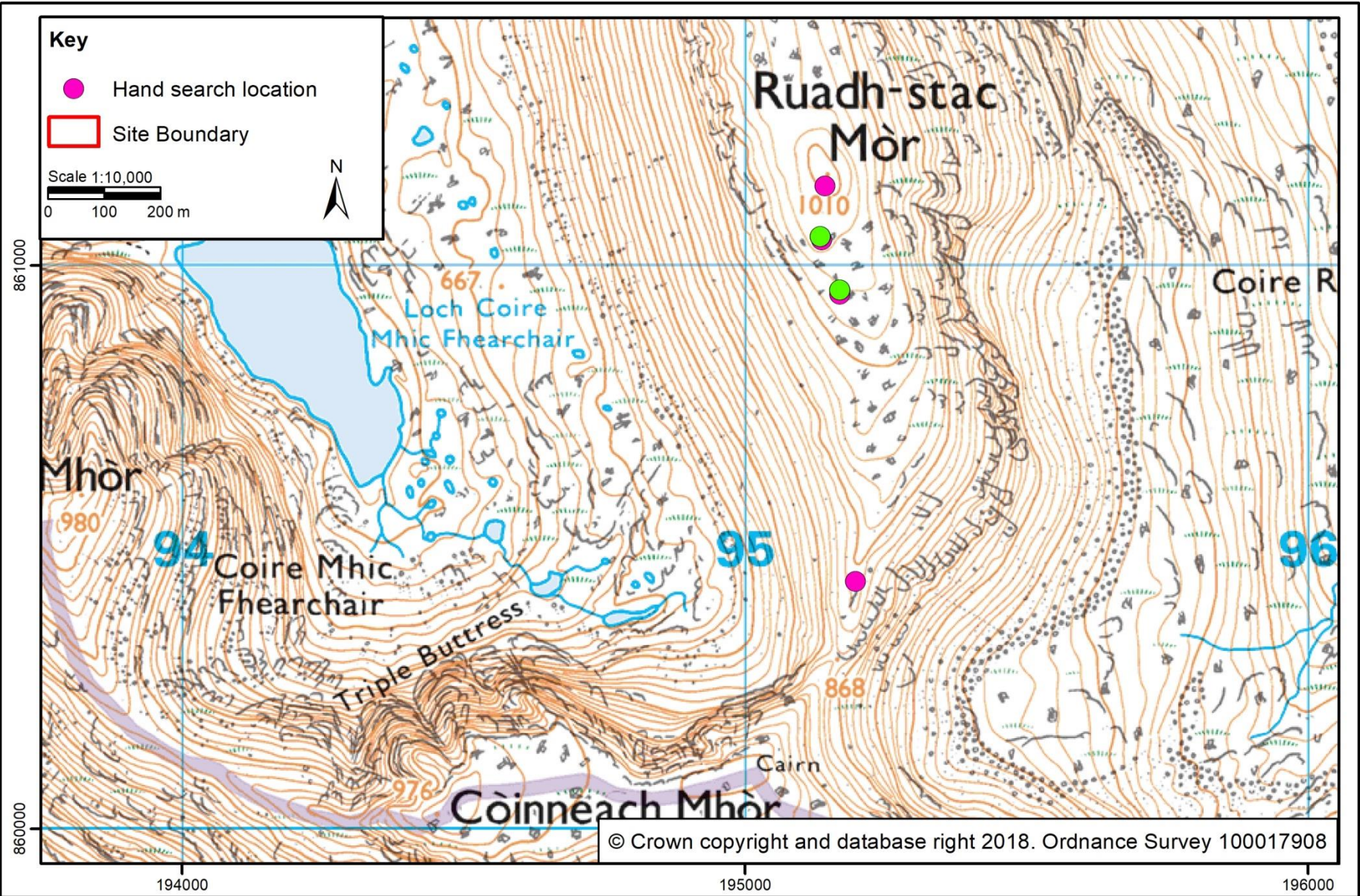


# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland





# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland





# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



*Phratora polaris*



*Stenus glacialis*



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland





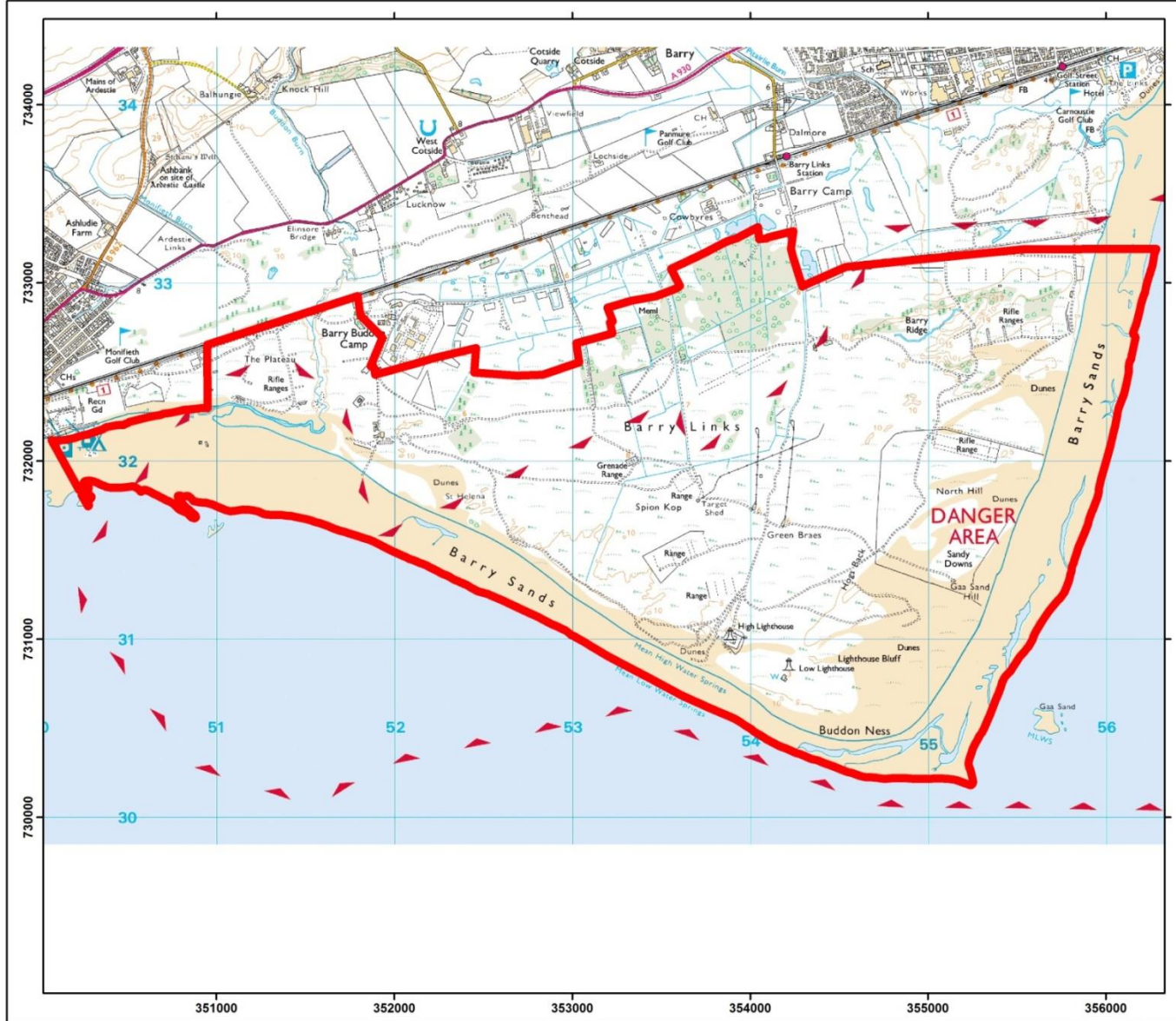
# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



## Barry Links 2011



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



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All of nature for all of Scotland

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**Key**  
 SSSI

0 185 370 740 m

**Barry Links**  
**Spider SCM 2011**

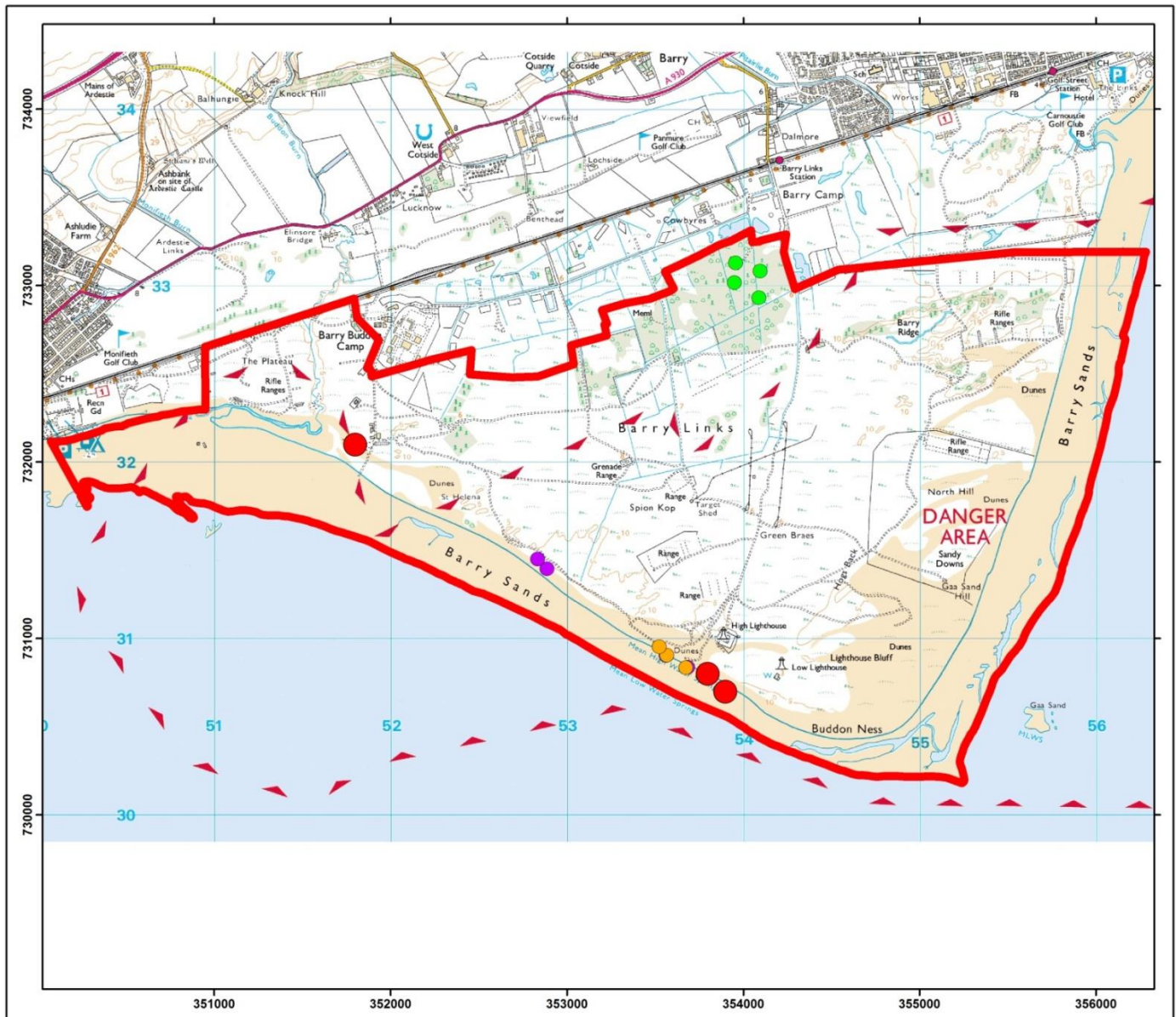
NOT FOR DISTRIBUTION OR REPRODUCTION



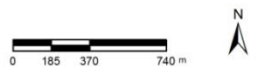
## *Dictyna major* – Northern mesh-weaver

- RDB2
- Associated with:
  - Sandy shores & dune systems
  - Biological strandline litter

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



- Key**
- Pitfall
  - Active Sample
  - Tree Sample
  - SSSI
  - Historic Record



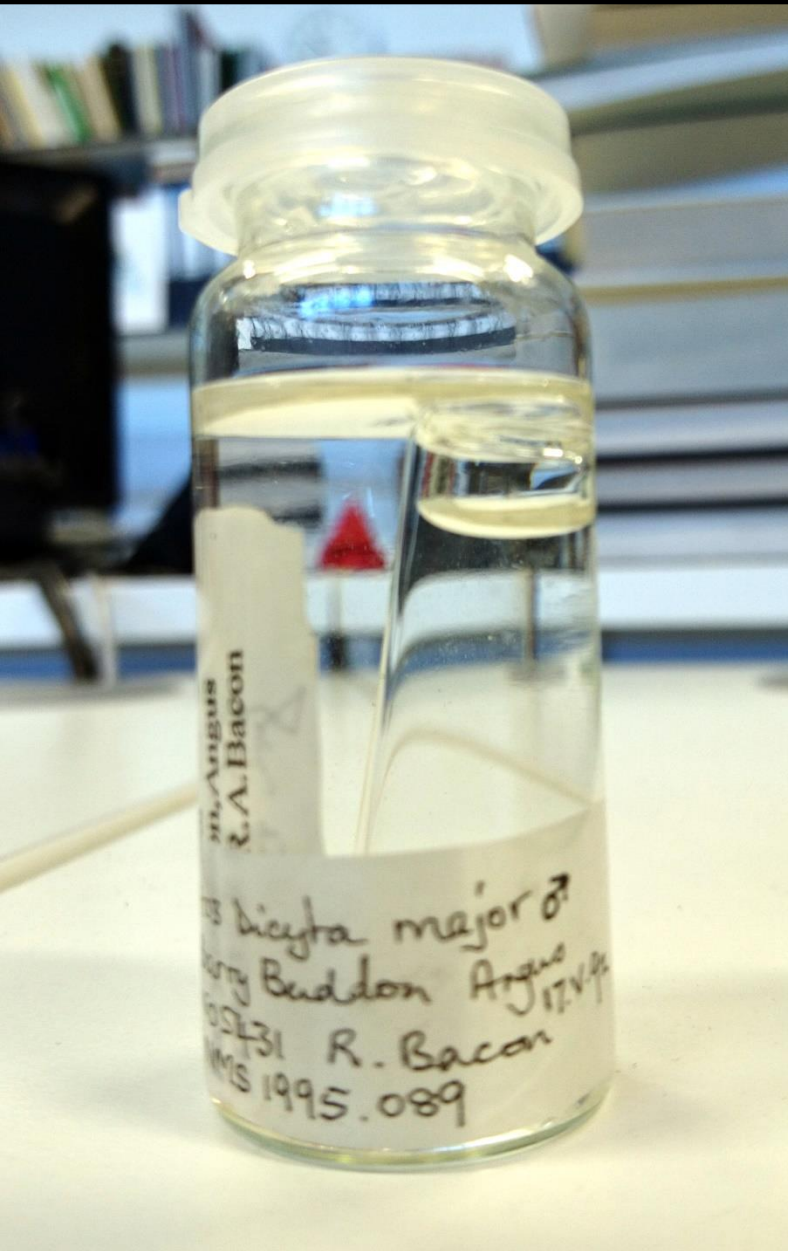
**Barry Links**  
**Spider SCM 2011**



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



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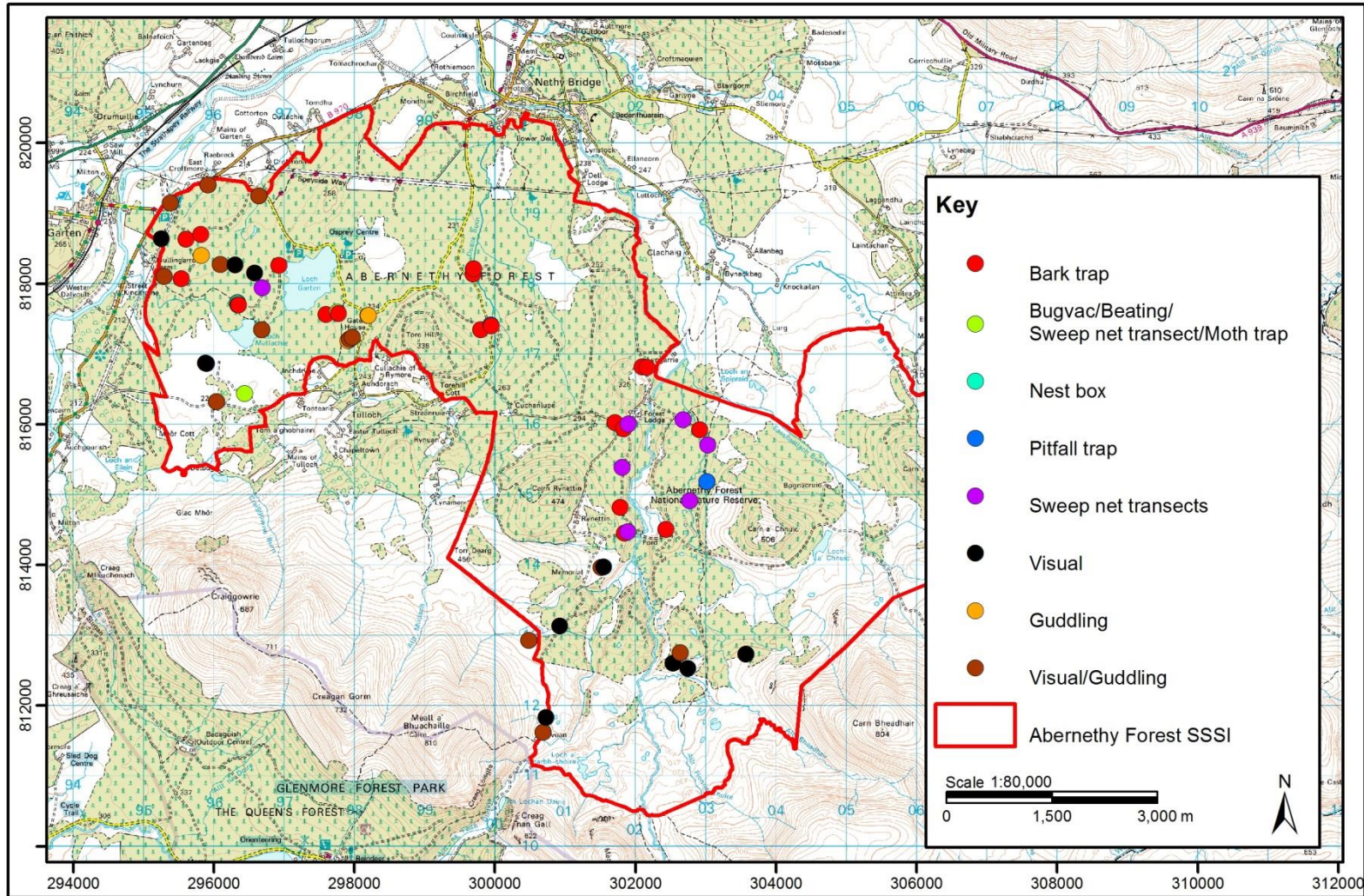


## Abernethy Forest 2013



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland

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## Abernethy Forest: Sample Locations



## Abernethy Forest (57.9km<sup>2</sup>)

- Feature poorly defined in citation
- Used unpublished SNH dossier of invertebrate records from site to target surveys
- Included:
  - Araneae
  - Coleoptera
  - Hemiptera
  - Hymenoptera
  - Lepidoptera
  - Odonata

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  - **Araneae**
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  - Lepidoptera
  - Odonata



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



***Clubiona subsultans***

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



## COMMISSIONED REPORT

---

Commissioned Report No. 784

### **A survey of the mason bee *Osmia uncinata* in Caledonian pine woodlands and evaluation of its status in 2006-07**

For further information on this report please contact:

Athayde Tonhasca  
Scottish Natural Heritage  
Battleby  
Perth  
PH1 3EW  
Telephone: 01738 458671  
E-mail: [athayde.tonhasca@snh.gov.uk](mailto:athayde.tonhasca@snh.gov.uk)

This report should be quoted as:

Sears, J., Amphlett, A., Macdonald, M. & Taylor, S. 2014. A survey of the mason bee *Osmia uncinata* in Caledonian pine woodlands and evaluation of its status in 2006-07. *Scottish Natural Heritage Commissioned Report No. 784.*



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland





# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



**North Rothiemurchus Pinewood 2013**



## North Rothiemurchus Pinewood (15.1km<sup>2</sup>)

- Includes:
  - Araneae (*Clubiona subsultans*)
  - Coleoptera (*Dryops nitidulus*, *Hydrochus brevis*)
  - Hymenoptera (*Formica exsecta*, *Osmia uncinata*)
  - Odonata (Northern damselfly)

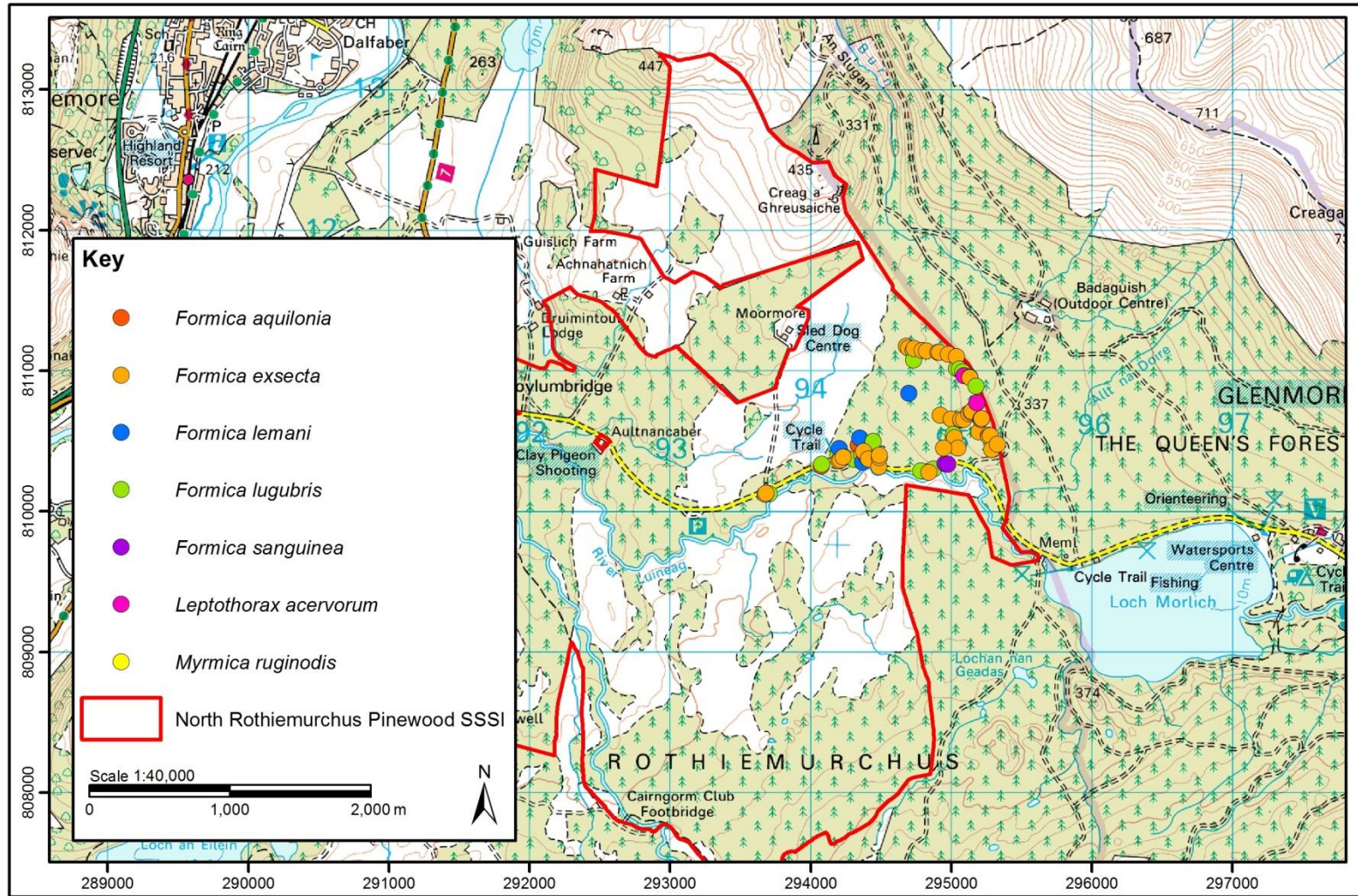
## North Rothiemurchus Pinewood (15.1km<sup>2</sup>)

- Includes:
  - Araneae (*Clubiona subsultans*)
  - Coleoptera (*Dryops nitidulus*, *Hydrochus brevis*)
  - Hymenoptera (***Formica exsecta***, *Osmia uncinata*)
  - Odonata (Northern damselfly)



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland

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## North Rothiemurchus Pine Wood: Wood Ant Nests

## North Rothiemurchus – Results: Hymenoptera

- Re-found *Formica exsecta*
- 45 nests found (less than 52 found by Gus Jones survey in 1996-97)
- Shading rendering habitat less suitable
- Development pressures



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



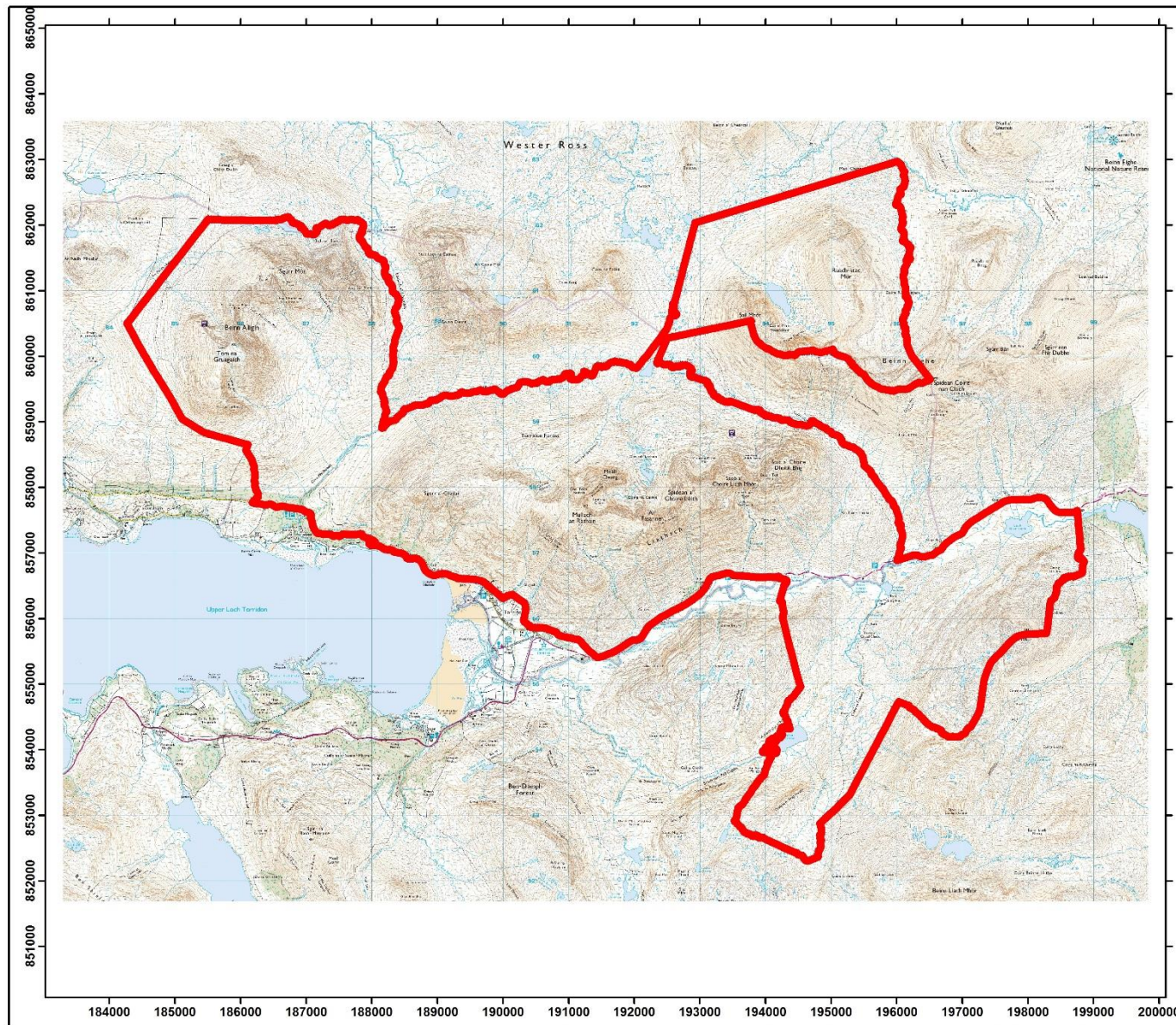
## Torridon Forest 2011

## *Micaria alpina* – Alpine ant-spider

- RDB3
- Elevations above 750m
- Associated with:
  - *Vaccinium myrtillus* (bilberry heath)
  - *Racomitrium*

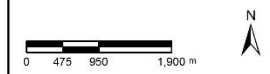


# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



Key

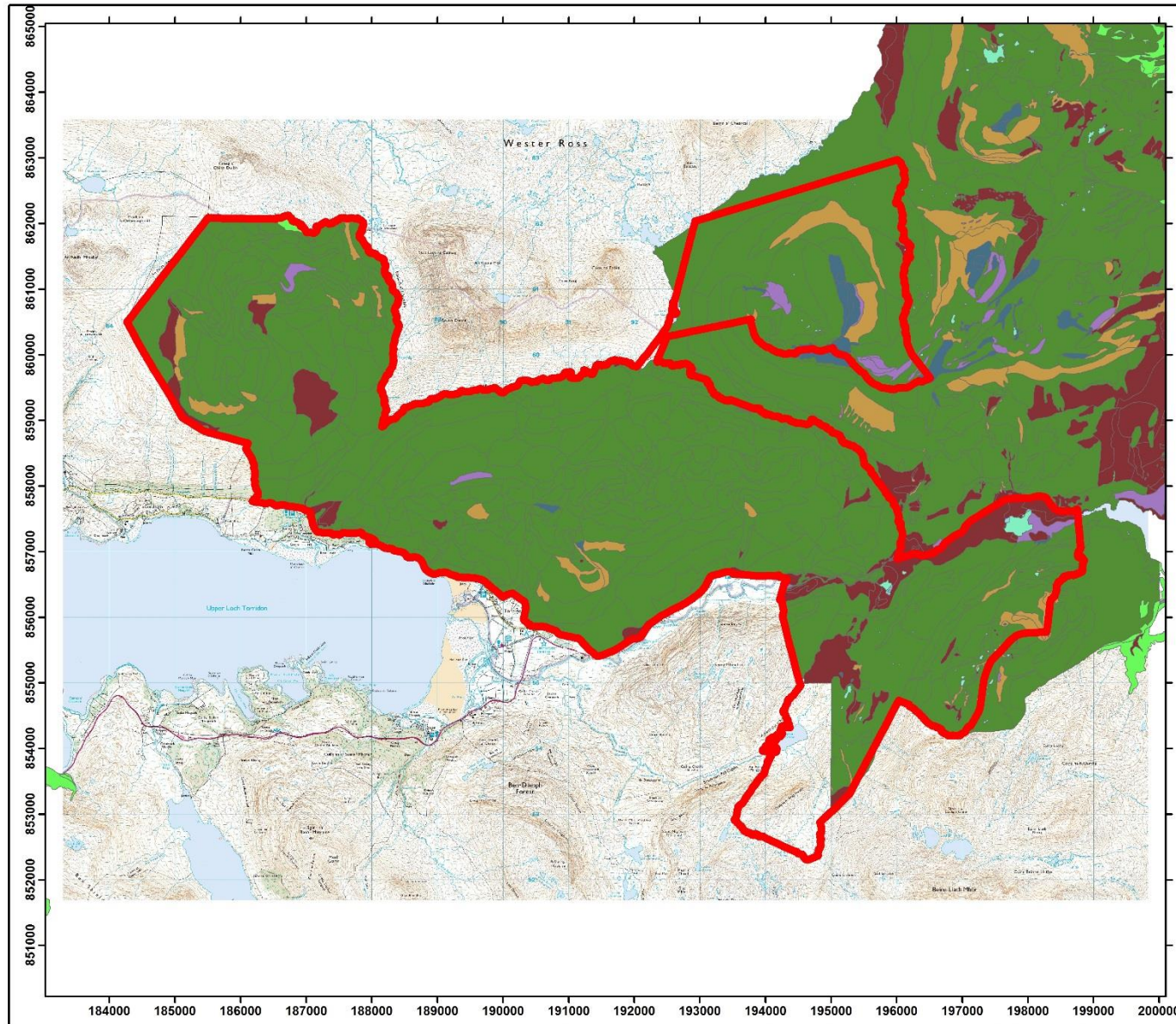
 SSSI



Torridon Forest  
SSSI  
Invertebrate SCM  
2011



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



**Key**

SSSI

**NVC Scotland (SNH)**

**Category**

- A
- CG
- H
- M
- Mosaic
- N/A
- OV
- OW
- S
- U
- W

0 475 950 1,900 m

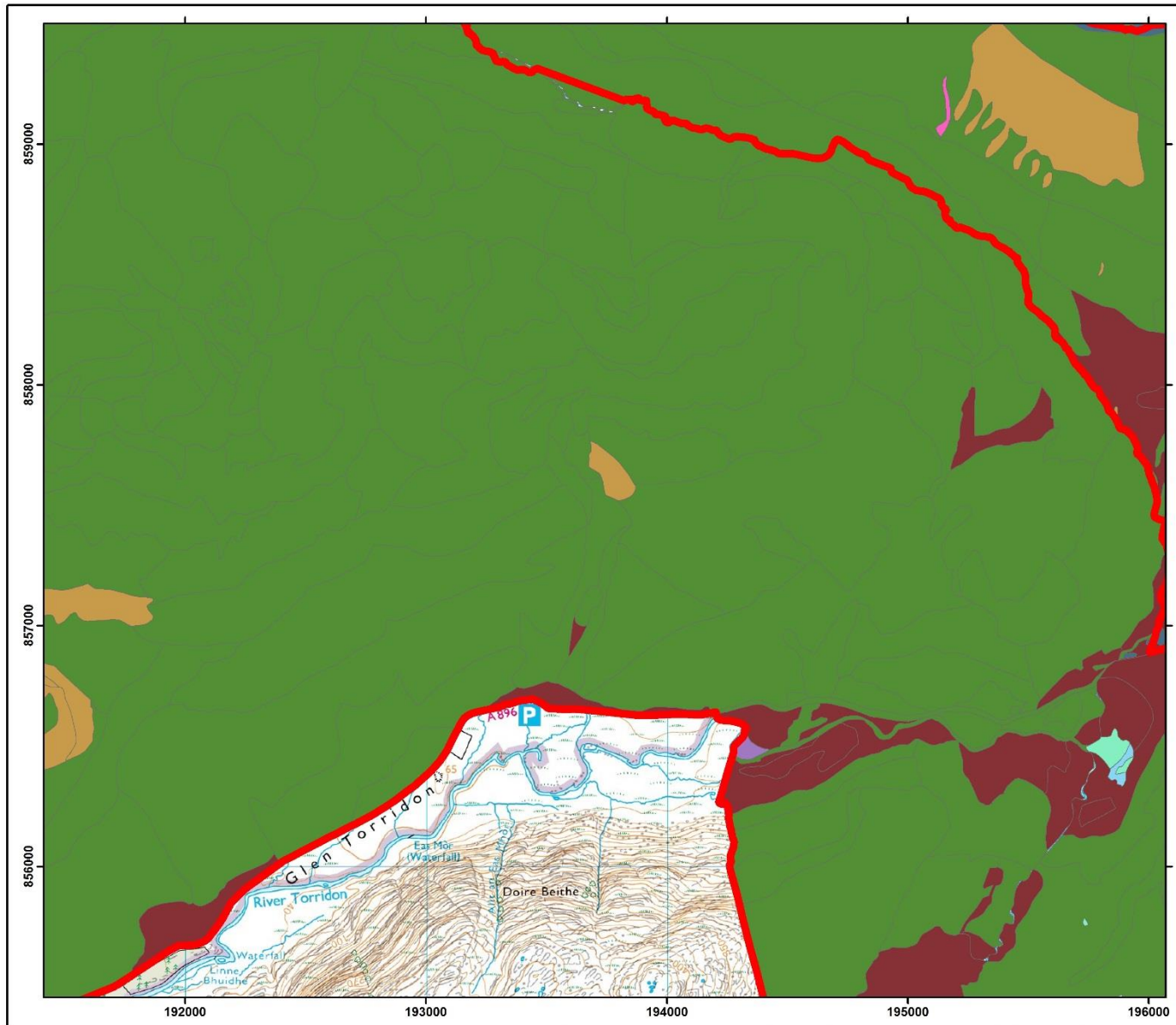
N

**Torridon Forest  
SSSI**

**Invertebrate SCM  
2011**



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



Scottish Natural Heritage  
All of nature for all of Scotland

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**Key**

SSSI

**NVC Scotland (SNH)**

**Category**

- A
- CG
- H
- M
- Mosaic
- N/A
- OV
- OW
- S
- U
- W

0 135 270 540 m

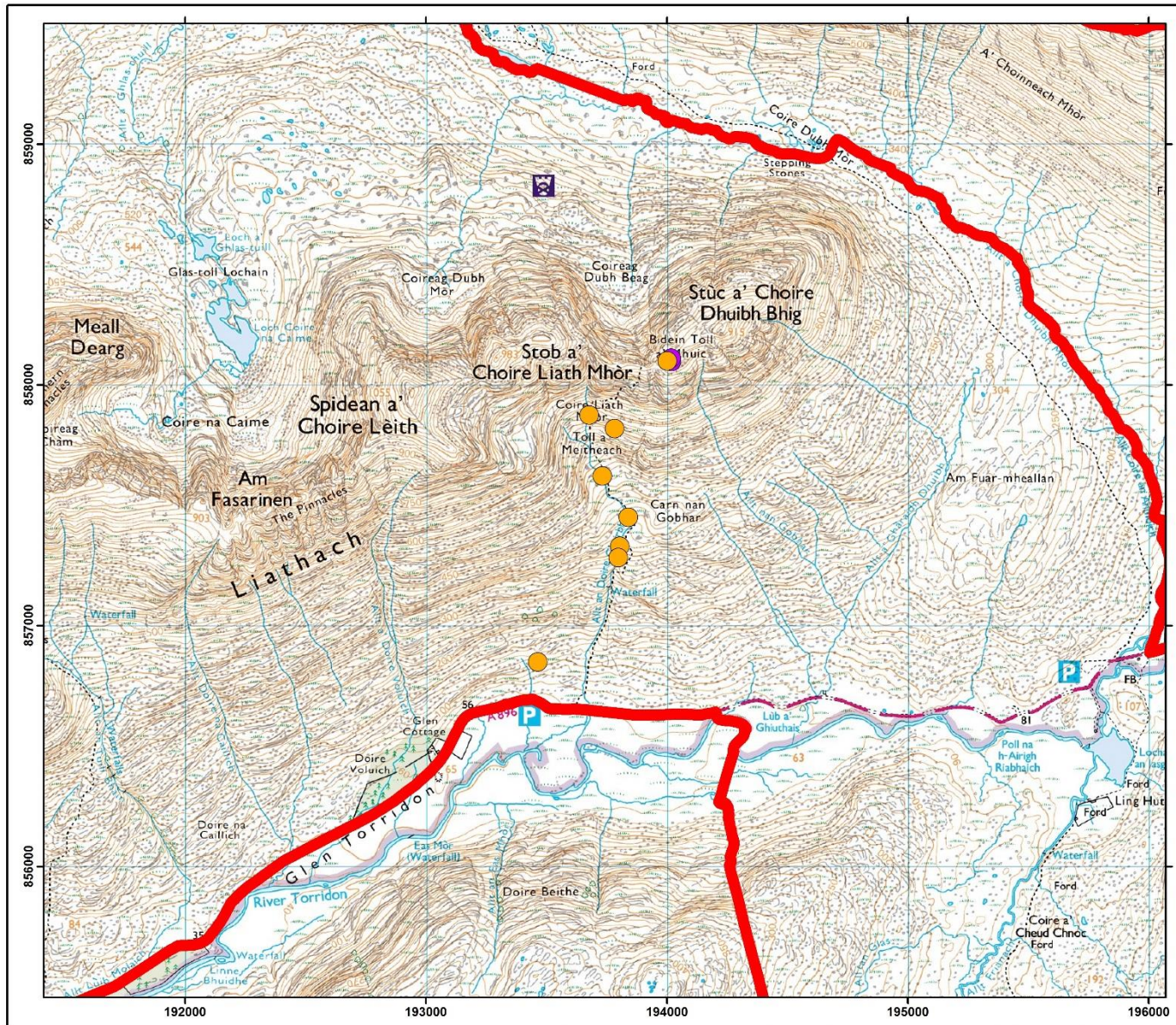
N

**Torridon Forest SSSI**

**Invertebrate SCM 2011**



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



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**Key**

- Pitfall
- Active Sample
- SSSI

0 135 270 540 m

N

**Torridon Forest SSSI**

**Invertebrate SCM 2011**

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## Torridon Results

- Erroneous record
- Actually Lochan Fheoir in Cnoc an Alaskie SSSI (not added as a feature to date)

Milner, J.E. 1988. New records of *Erigone psychrophila* Thorell and *Micaria alpina* L. Koch from Sutherland and Ross, Scotland. *Newsletter of the British Arachnological Society* **51**, 6.

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



## Cairngorms 2013

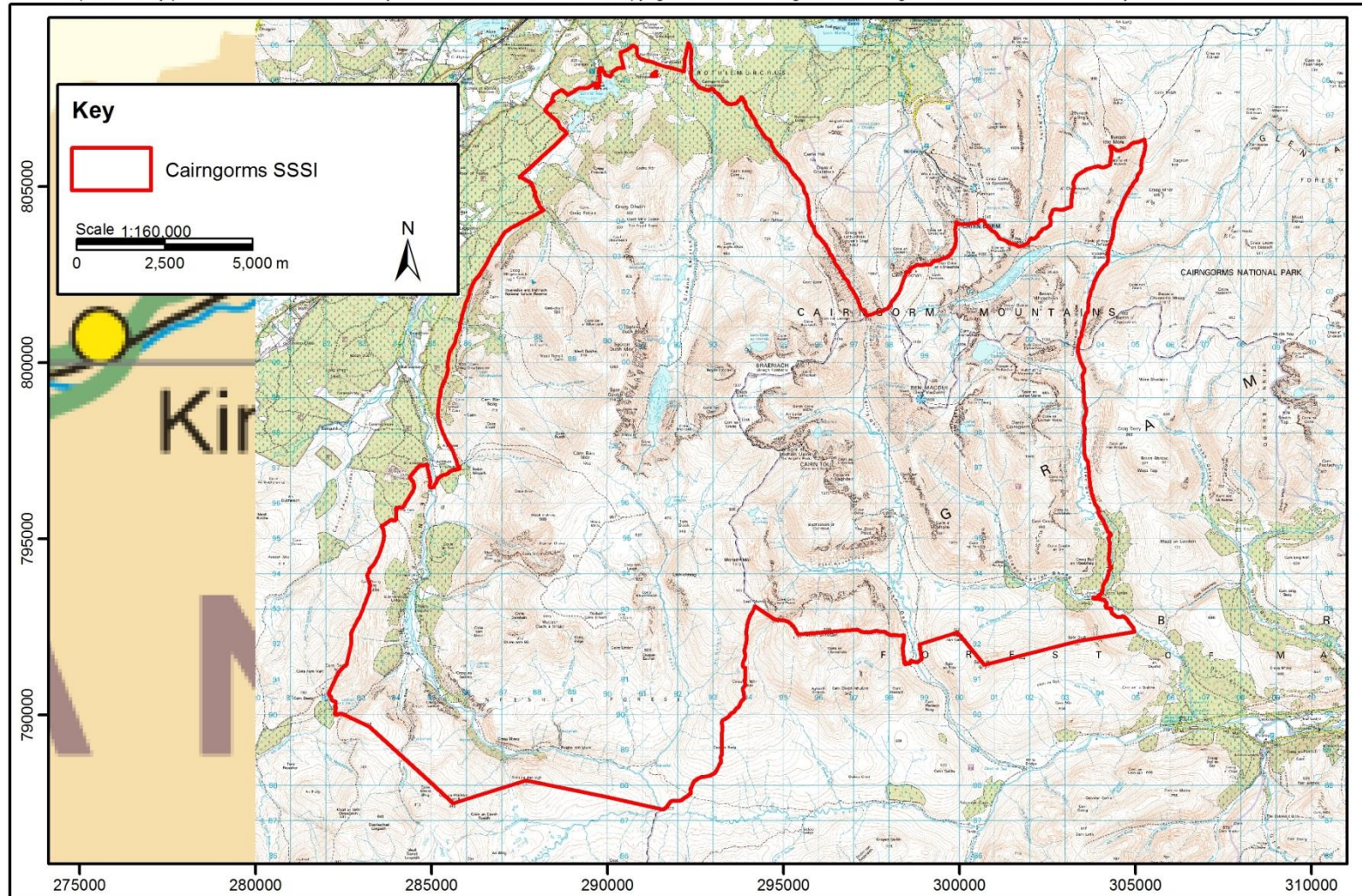


## Cairngorms (292.3km<sup>2</sup>)

- Elevation 200 – 1,309m
- Range of habitats from mountain to forest
- Feature poorly defined in citation
- Used unpublished SNH dossier of invertebrate records from site to target surveys
- Included:
  - Araneae
  - Coleoptera
  - Hemiptera
  - Lepidoptera
  - Mollusca
  - Odonata

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland

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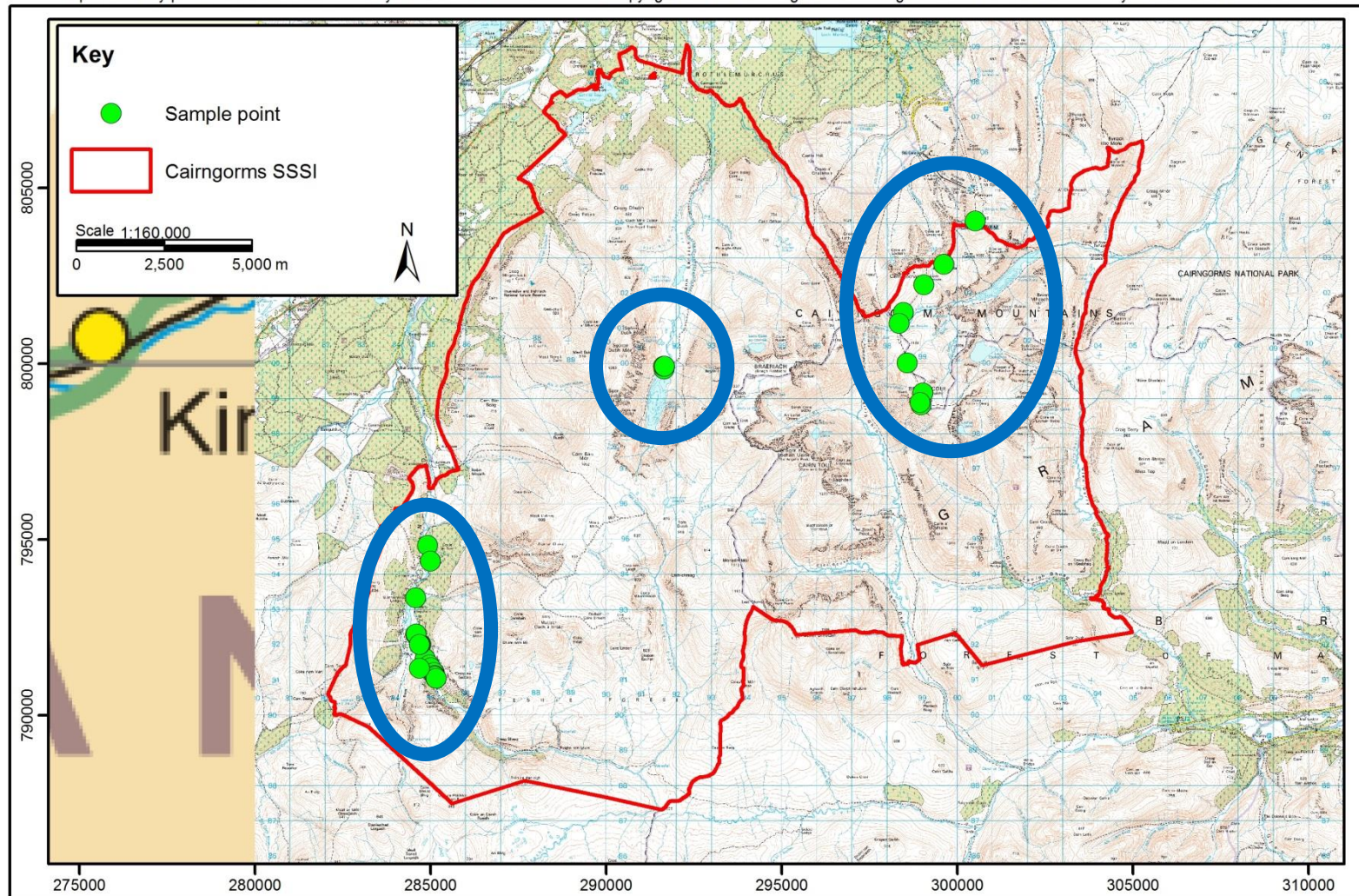


**Cairngorms: Site**



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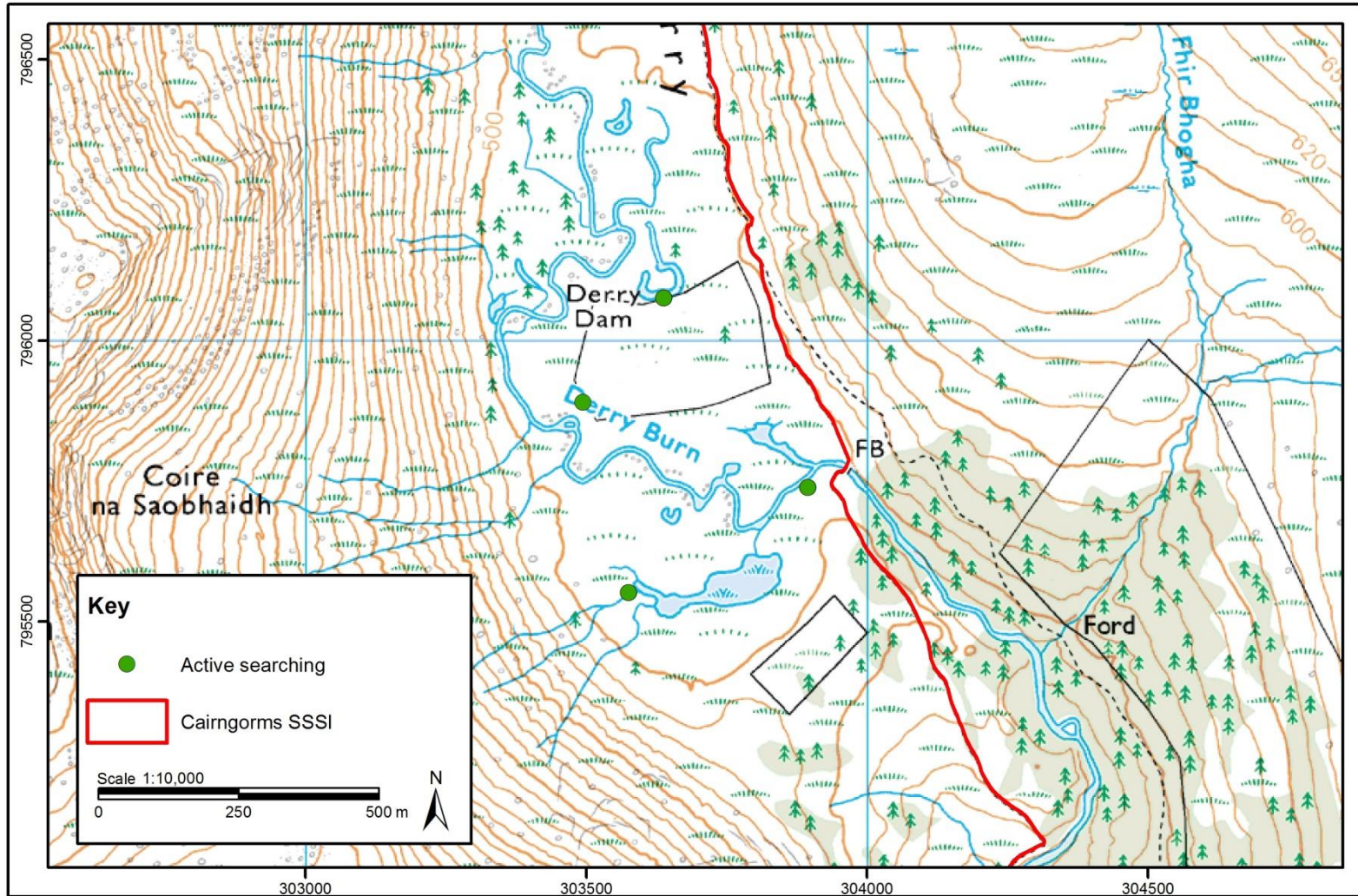
## Cairngorms: Sample Locations

## Cairngorms (292.3km<sup>2</sup>)

- Elevation 200 – 1,309m
- Range of habitats from mountain to forest
- Feature poorly defined in citation
- Used unpublished SNH dossier of invertebrate records from site to target surveys
- Included:
  - Araneae
  - Coleoptera
  - Hemiptera
  - Lepidoptera
  - **Mollusca**
  - **Odonata**



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## Cairngorms: Odonata Sample Locations

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Table 3.12 List of Odonata species recorded in Cairngorms SSSI compared with species recorded from this area historically

Possible Species	Cairngorms Sites 2013 SCM	Glen Derry 2014 SCM
<i>Aeshna caerulea</i> (azure hawkler)*		
<i>Aeshna juncea</i> (common hawkler)	X b	X b
<i>Coenagrion hastulatum</i> (northern damselfly)		
<i>Cordulegaster boltonii</i> (golden-ringed dragonfly)	X	X
<i>Enallagma cyathigerum</i> (common blue damselfly)	X	
<i>Ischnura elegans</i> (blue-tailed damselfly)	X b	
<i>Lestes sponsa</i> (emerald damselfly)	X	X
<i>Leucorrhinia dubia</i> (white-faced darter)	X b	
<i>Libellula quadrimaculata</i> (four-spotted chaser)	X b	
<i>Pyrrhosoma nymphula</i> (large red damselfly)	X b	X b
<i>Somatochlora arctica</i> (northern emerald)		
<i>Sympetrum danae</i> (black darter)	X b	X b
<i>Sympetrum striolatum</i> (common darter)		
<b>Total</b>	<b>9/6b</b>	<b>5/3b</b>

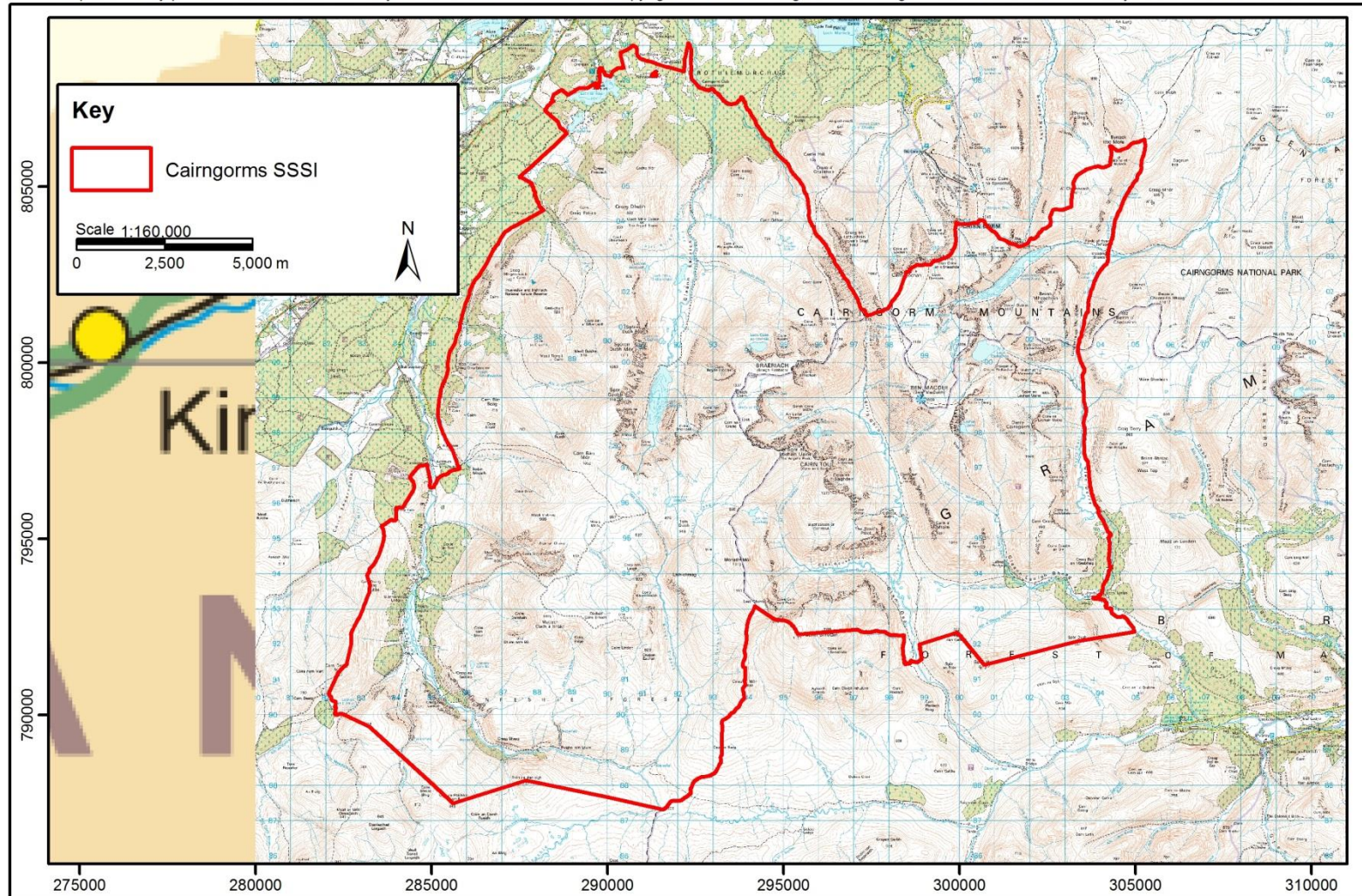
X = present; b = evidence of breeding

\* Records of this species are considered to be questionable in this area



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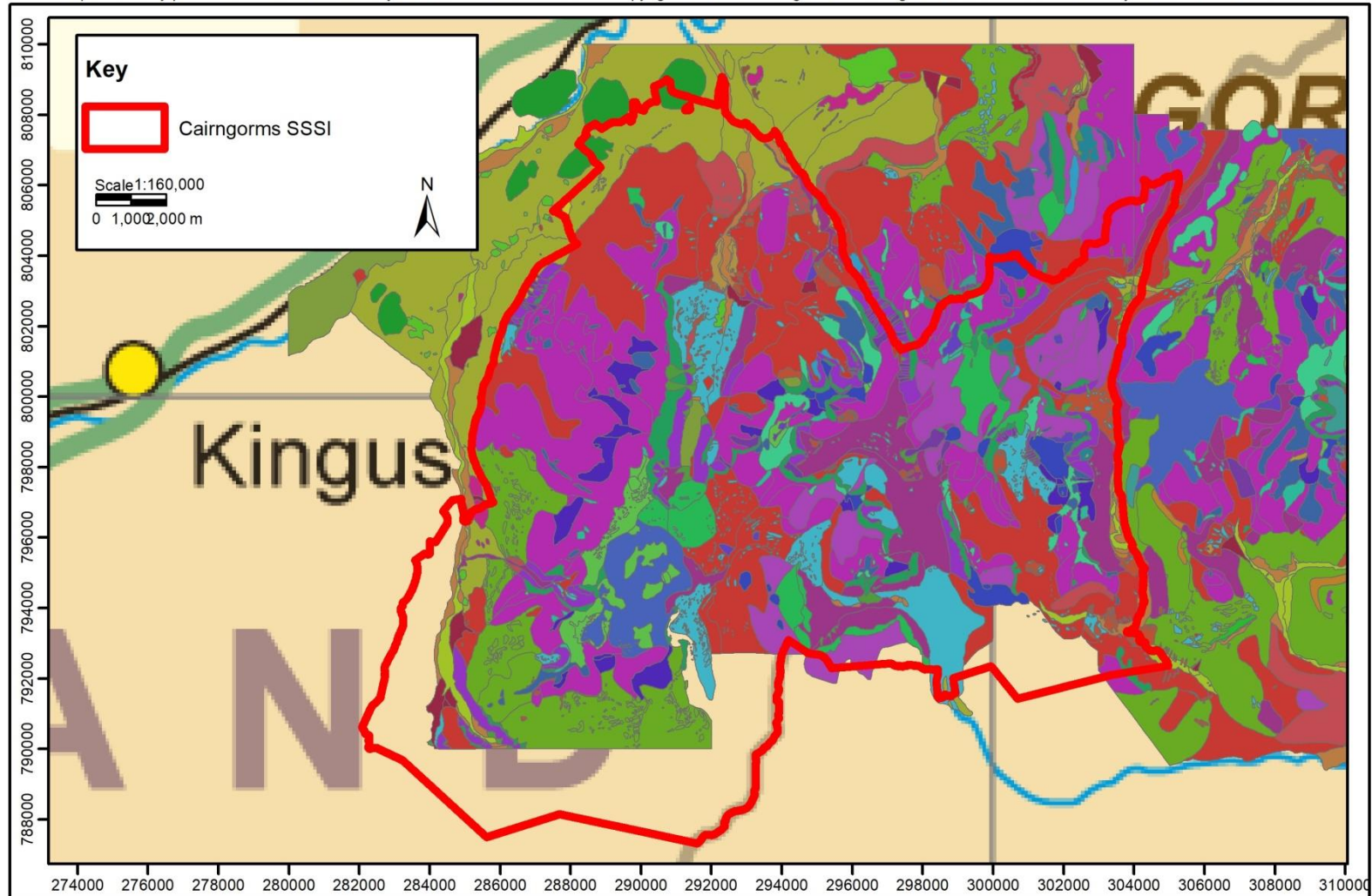


## Cairngorms: Site



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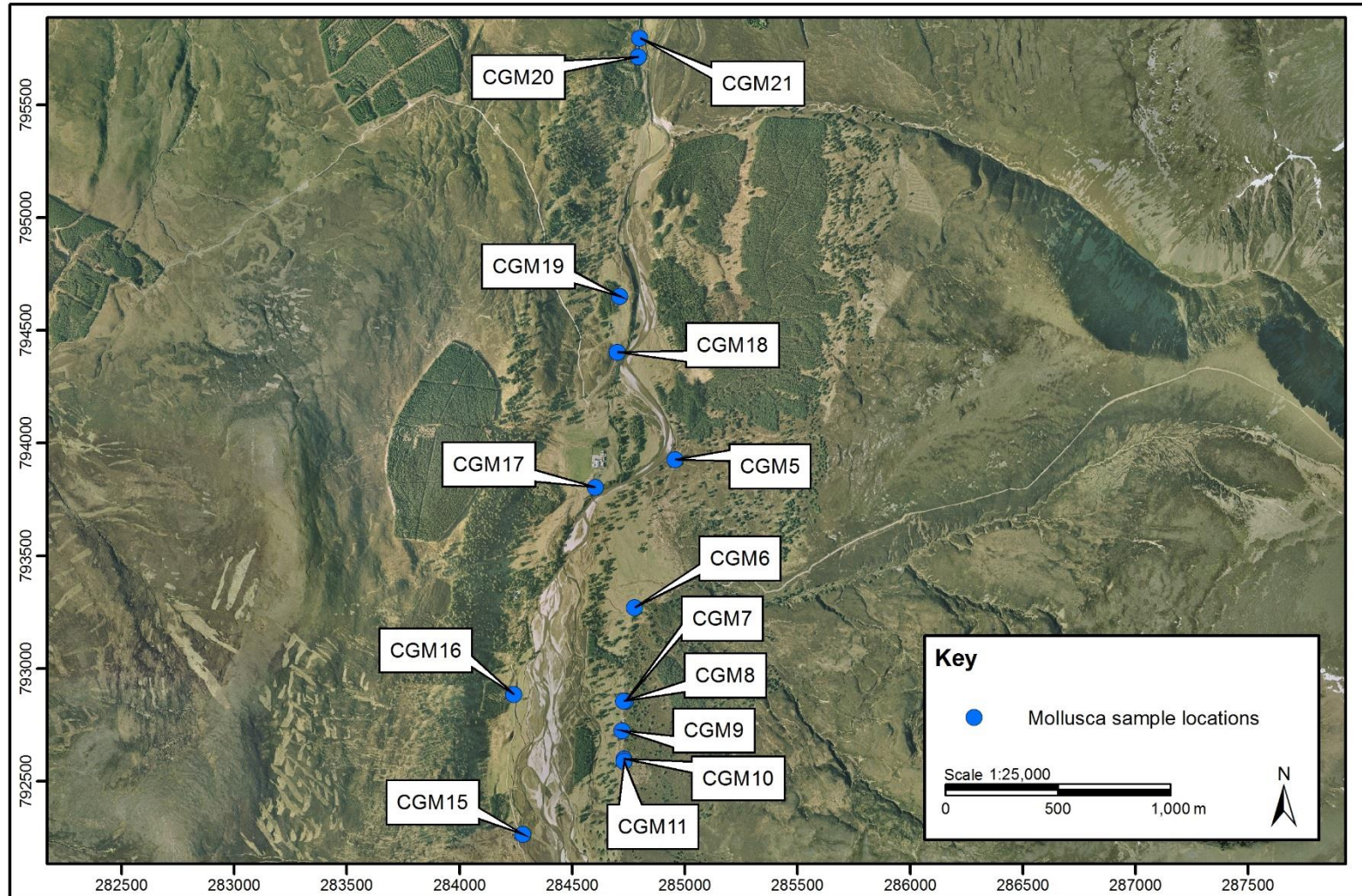


## Cairngorms: Geology



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Aerial images provided by SNH, © GetMapping Plc 2014



## Cairngorms: NW Mollusc Sample Locations



# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



**Rum 2015**



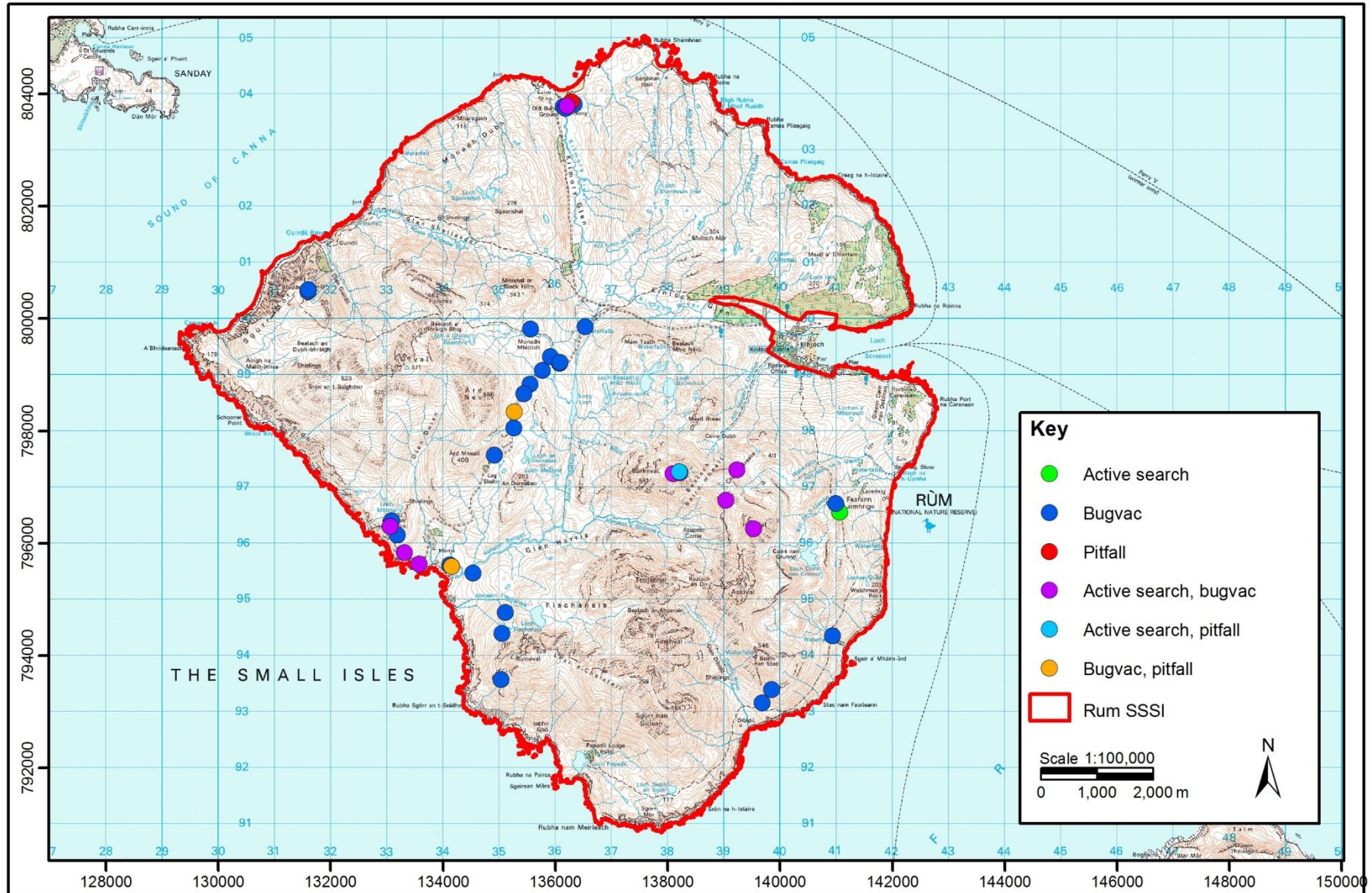
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- Exceptional work completed by Peter Wormell (former Warden), but records and reports thought to be lost through pulping as part of a rationalization process without digital copies being kept.
- Wormell published articles in journals so these remain, but are not as detailed as original records and reports.
- Invertebrate assemblage feature was defined based on upland, peatland, and coastal habitats.

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland

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## Key Messages

- Never destroy historic data!
- The better the data, the more easily a feature can be relocated or not, increasing confidence in monitoring.
- Huge range of data sources, of varying detail and reliability.
- Think outside the box – sometimes useful data comes from unexpected sources.
- Museums collections are an invaluable resource.
- Keep recording, with as much detail as possible.
- Share data.

# Using Existing Datasets to Inform Site Condition Monitoring at SSSIs in Scotland



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