

Mountain Hare Survey Instructions



MOUNTAIN HARE, SARAH KELMAN / BTO

This project aims to gather much-needed information about Mountain Hares in Scotland. You can also record all UK mammals and, optionally, up to 23 upland bird species. You can take part year round and at any time of day. You can undertake 'Square Surveys', which are structured survey where you visit a pre-selected 1 kilometre grid square and walk either one or two transect lines; or, 'Rambling Surveys' which are more casual surveys that you can undertake on any walk in the uplands of Scotland. You can carry out the survey using the [Mammal Mapper app](#) on your smartphone, or you can use paper recording sheets provided by BTO.

1. 'SQUARE SURVEYS' – SIGN UP TO COVER HIGHER PRIORITY 1 KM SQUARES AND SURVEY THESE VIA TWO LINEAR TRANSECTS

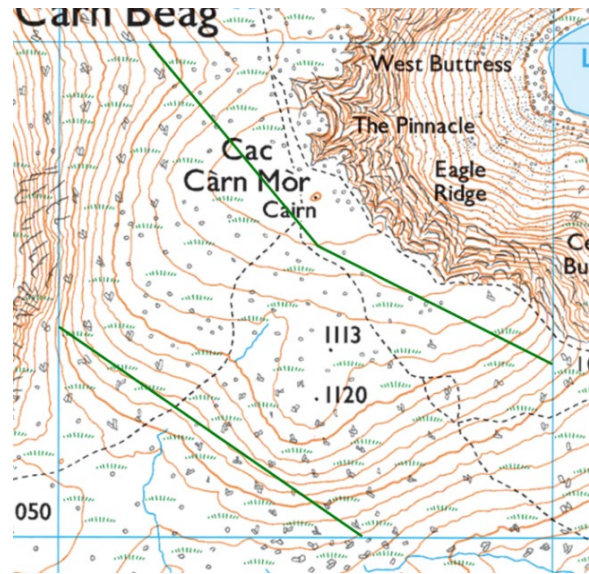
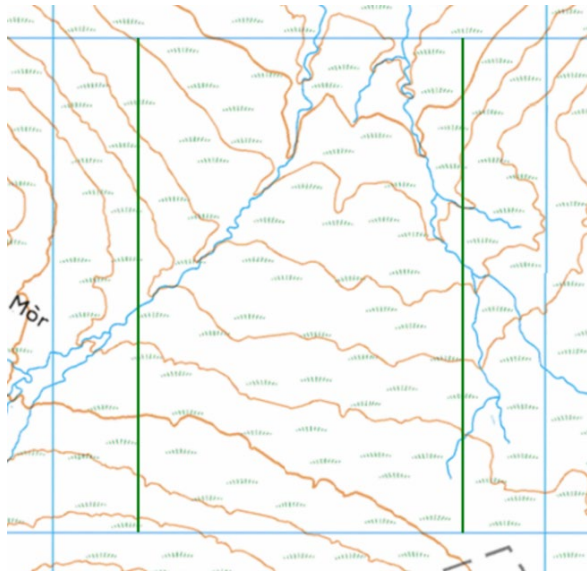
Square Surveys involve structured visits to 1 km squares of your choosing, and they provide us with particularly valuable information. Please select your square/s using the [interactive map](#) before doing a Square Survey. The map indicates which areas and squares we'd be particularly pleased if you'd visit, though all data are useful. You only need to visit each square once. Once you've signed up for a square, you'll receive an email with a printable Ordnance Survey map. Please use this to plan your survey route. The 'ideal' arrangement is illustrated overleaf, and consists of two transect lines which are:

- roughly straight
- 1 km long
- parallel to the edges of the square (i.e. aligned north-south or east-west)
- separated from the other transect by 400–500 m
- separated from the parallel edges of the square by about 250 m

You can choose to only do only one transect within your square if it is more convenient, for example if the terrain is challenging, or you are continuing your walk elsewhere. In some squares it will not be practical or safe to follow 'ideal' transects, in which case please walk one or two roughly linear transects through suitable habitat, covering as much of the square as possible. Keep your transects separated by at least 200 m. If you need to briefly enter an adjoining square for reasons of safety or practicality then that's okay, but please re-enter the main square as soon as possible.

You should avoid sharp doglegs as they make it difficult to avoid double-counting. You're unlikely to see Mountain Hares in dense woodland or built-up areas so it's fine to avoid these areas. You should avoid major paths/tracks if you can, as you're more likely to see Mountain Hares in less disturbed areas. If the terrain in your square necessitates non-standard transects, and one or more of them is shorter than 1 km, then that's fine.

On the day of your survey visit use an Ordnance Survey map, GPS or navigation app to reach your chosen 1 km square. If you are using the Mammal Mapper app and you are ready to start your first transect, ensure that 'location' (GPS) is enabled on your mobile device, then open the Mammal Mapper app and tap 'Start Survey'. Be sure to set the survey ID to 'HARE_ SQUARE'. If you don't see these options, make sure that you have enabled the Volunteer Mountain Hare Survey in 'Settings'. If you are using the paper recording forms fill in the top-level information on the field recording sheet, including your name, contact details, the 4-figure (1 km square) grid reference for the survey square, the date of survey and the weather information. At the start of your first transect in the square, record the starting point 10-figure (1m) grid reference or the [what3words](#) location, and the start time. If you don't have a smartphone, GPS device or paper map to work out the location, you can add this later by using [Grid Reference Finder](#) online.



Examples transect routes. Left: gentle gradients mean it is possible to walk the 'ideal' transect routes. Right: more challenging, but the marked routes are still quite straight and avoid major paths.

Please walk at a steady pace along your survey transect line. Record all individuals and groups of birds and mammals (do not aggregate common species, unlike during Rambling Surveys). Please try to avoid double-counting and be conservative in your estimates of numbers. When you get to the end of your first transect, press the 'Finish' button in the bottom-right corner of the app, or fill in the end point grid reference and time on the field recording sheet. If you are doing a second transect you can then take your time to walk to the start of the second transect and start a new survey. Remember to press 'Finish' in the app or fill in the correct details on the paper form at the end of your second transect, too. You can then 'save and exit' from the app and submit the results later, or if you have a good mobile data connection you can submit the results straightaway. Please send your completed field recording sheets or scanned/photographed sheets to: **Volunteer Mountain Hare Survey, BTO Scotland, Unit 15 Beta Centre, Stirling University Innovation Park, Stirling, FK9 4NF** or to vmhs@bto.org

2. 'RAMBLING SURVEYS' – SIMPLY RECORD UPLAND WILDLIFE DURING YOUR EXISTING UPLAND WALKS

Rambling Surveys can be carried out on any walk in Scotland simply by switching on the Mammal Mapper app, or by recording your start and end locations on the paper field recording sheets. If you are using the app, before you start be sure to enable the Mountain Hare Survey in the app settings and then select 'HARE_RAMBLE' as the survey ID. If you'd prefer to focus on recording Mountain Hares and not record upland birds then select 'HARE_ONLY' instead.

You can actively survey throughout your walk if you want to, or you can just record during a short section – it's up to you. Just start the app whenever you're ready to begin recording and remember to tap 'Finish' when you're done, or record you start and end locations and times in the field on the recording sheet.

Please record all individuals and groups of Mountain Hares and do likewise for scarcer upland birds (if you are recording these). If you encounter a species such as Meadow Pipit very frequently then you don't have to record every individual. Instead, add a record every 500 m or so, giving an estimate of the number seen since your last entry. Use the comments box in the app or make a note on the recording form to let us know that you're recording in this way. You can record widespread mammal field signs in a similar way.

Extra background and information on methods is provided on the survey page on BTO's website, which also has a useful FAQ section. You can also email vmhs@bto.org with any additional questions.

The Volunteer Mountain Hare Survey is a partnership involving BTO along with NatureScot, the Mammal Society, and the Game & Wildlife Conservation Trust



Saving
Britain's
Wildlife



Volunteer Mountain Hare Survey

Field Recording Sheet

Square Survey



Observer name:	ANTHONY WETHERHILL			E-mail:	anthony.wetherhill@bto.org
Grid reference (i.e. NS8096)	NT 4946			Survey date	05/10/2022
Weather (1,2 or 3)	Cloud	Wind	Rain	Visibility	Cloud: 1 = clear, 2 = partial, 3 = full Wind: 1 = still, 2 = breezy, 3 = strong wind Rain: 1 = none, 2 = light rain, 3 = heavy rain Visibility: 1 = good, 2 = moderate, 3 = poor
	3	2	2	2	

Transect 1			
Start grid ref. or what3words	NT 4933646096 bins • averages • bedding		
Start time	08:10		
Species	Count	Distance (m)	Detection code
RG	2	10	A
MP	1	25	H
MP	2	20	A
MHA	1	5	A
MHA	-	0	D
S.	3	50	H
CU.	1	100	A
End grid ref. or what3words	NT 4933746992 nesting • ringside • supporter		
End time	08:45		

Transect 2 (if relevant)			
Start grid ref. or what3words	NT 4977546975 testers • dentures • guses		
Start time	09:05		
Species	Count	Distance (m)	Detection code
SN	1	0	A
FOX	-	0	F
RAB	1	0	X
C.	2	0	S
MP	1	50	H
MP	1	25	H
MP	2	10	H
M	2	10	S
MHA	2	25	A
MHA	1	0	P
End grid ref. or what3words	NT 4985746165 eternally • bucked • leans		
End time	09:35		

Species recorded	Bird codes	Bird detection codes: Seen alive = A, Seen dead = X, Heard = H			
Tick if you recorded Mountain Hare only, and no other mammals <input checked="" type="checkbox"/> Tick if you attempted to record all bird species encountered (if not tick individual species that you were confident of identifying) <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> C. Carrion Crow <input checked="" type="checkbox"/> CS Common Sandpiper <input checked="" type="checkbox"/> CK Cuckoo <input checked="" type="checkbox"/> CU Curlew <input checked="" type="checkbox"/> DI Dipper <input checked="" type="checkbox"/> DO Dotterel	<input checked="" type="checkbox"/> DN Dunlin <input checked="" type="checkbox"/> GP Golden Plover <input checked="" type="checkbox"/> GK Greenshank <input checked="" type="checkbox"/> GL Grey Wagtail <input checked="" type="checkbox"/> HC Hooded Crow <input checked="" type="checkbox"/> JD Jackdaw	<input checked="" type="checkbox"/> MP Meadow Pipit <input checked="" type="checkbox"/> PM Ptarmigan <input checked="" type="checkbox"/> RN Raven <input checked="" type="checkbox"/> RG Red Grouse <input checked="" type="checkbox"/> RZ Ring Ouzel <input checked="" type="checkbox"/> S. Skylark	<input checked="" type="checkbox"/> SN Snipe <input checked="" type="checkbox"/> SB Snow Bunting <input checked="" type="checkbox"/> SC Stonechat <input checked="" type="checkbox"/> W. Wheatear <input checked="" type="checkbox"/> WC Whinchat <input type="checkbox"/> I did not record birds	
Mammal codes	Mammal detection codes: Seen alive = A, Seen dead = X, Print/Trail = P, Den/Burrow = D, Droppings = F				
MHA Mountain Hare BAD Badger BAT Bat species BEA Beaver BHA Brown Hare	CAT Cat (domestic) CSE Common Seal FDE Fallow Deer FGO Feral Goat FSE Feral Sheep	FOX Fox GSE Grey Seal GSQ Grey Squirrel HED Hedgehog MIN Mink	MOL Mole MOU Mouse sp. OTT Otter PMA Pine Marten RAB Rabbit	RDE Red Deer RSQ Red Squirrel ROE Roe Deer SHR Shrew species SDE Sika Deer	STO Stoat VOL Vole species WEA Weasel WBO Wild Boar WCA Wildcat

Volunteer Mountain Hare Survey

Field Recording Sheet

Rambling Survey



Observer name:	Anthony Wetherhill			E-mail:	anthony.wetherhill@bto.org
Survey date	05/10/2022			Sheet number	1 of 2
Weather (1,2 or 3)	Cloud	Wind	Rain	Visibility	Cloud: 1 = clear, 2 = partial, 3 = full Wind: 1 = still, 2 = breezy, 3 = strong wind Rain: 1 = none, 2 = light rain, 3 = heavy rain Visibility: 1 = good, 2 = moderate, 3 = poor
	3	2	2	2	

Start grid ref. or what3words	NT4931745658 complain.songbirds.chucks			Species	Count	Distance (m)	Detection code
Start time	10:30			CU	2	150	H
Species	Count	Distance (m)	Detection code	BAD	-	0	F
				S.	1	50	H
				ROE	1	10	X
				MP	1	10	H
				MP	2	25	A
				MP	1	75	A
				MHA	1	100	A
				RG	1	5	A
				RG	2	100	H
FOX	-	0	P				
RDE	2	200	A				
End of survey <input checked="" type="checkbox"/> or Continued on next sheet <input checked="" type="checkbox"/>				Grid ref. or what3words	NT4979346569 unsightly.degree.count		
Waypoint grid ref. or what3words	NT5020745960 gymnasium.levels.orions			End time	11:20		

Species recorded	Bird codes	Bird detection codes: Seen alive = A, Seen dead = X, Heard = H			
Tick if you recorded Mountain Hare only, and no other mammals <input checked="" type="checkbox"/> Tick if you attempted to record all bird species encountered (if not tick individual species that you were confident of identifying) <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> C. Carrion Crow <input checked="" type="checkbox"/> CS Common Sandpiper <input checked="" type="checkbox"/> CK Cuckoo <input checked="" type="checkbox"/> CU Curlew <input checked="" type="checkbox"/> DI Dipper <input checked="" type="checkbox"/> DO Dotterel	<input checked="" type="checkbox"/> DN Dunlin <input checked="" type="checkbox"/> GK Golden Plover <input checked="" type="checkbox"/> GK Greenshank <input checked="" type="checkbox"/> GL Grey Wagtail <input checked="" type="checkbox"/> HC Hooded Crow <input checked="" type="checkbox"/> JD Jackdaw	<input checked="" type="checkbox"/> MP Meadow Pipit <input checked="" type="checkbox"/> PM Ptarmigan <input checked="" type="checkbox"/> RN Raven <input checked="" type="checkbox"/> RG Red Grouse <input checked="" type="checkbox"/> RZ Ring Ouzel <input checked="" type="checkbox"/> S. Skylark	<input checked="" type="checkbox"/> SN Snipe <input checked="" type="checkbox"/> SB Snow Bunting <input checked="" type="checkbox"/> SC Stonechat <input checked="" type="checkbox"/> W. Wheatear <input checked="" type="checkbox"/> WC Whinchat <input checked="" type="checkbox"/> I did not record birds	
Mammal codes		Detection codes: Sighting = S (Alive = A, Dead = X), Print/Trail = P, Den/Burrow = D, Droppings = F			
MHA Mountain Hare	CAT Cat (domestic)	FOX Fox	MOL Mole	RDE Red Deer	STO Stoat
BAD Badger	CSE Common Seal	GSE Grey Seal	MOU Mouse sp.	RSQ Red Squirrel	VOL Vole species
BAT Bat species	FDE Fallow Deer	GSQ Grey Squirrel	OTT Otter	ROE Roe Deer	WEA Weasel
BEA Beaver	FGO Feral Goat	HED Hedgehog	PMA Pine Marten	SHR Shrew species	WBO Wild Boar
BHA Brown Hare	FSE Feral Sheep	MIN Mink	RAB Rabbit	SDE Sika Deer	WCA Wildcat