



Sandwood Estate Management Plan
2014-2018

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Sandwood Management Plan
2014-2019

1. Introduction

This management plan follows previous plans (most recent 2009 – 2013). It contains minor updates and revisions to previous plans rather than significant changes in direction. It has been slimmed down to make it more accessible and a list of actions provided in Table 1 in appendix i. Status of actions from previous plans is held at our Pitlochry Office.

2. Vision

The John Muir Trust's Vision is that:

Wild land is protected and enhanced throughout the UK and wild places are valued by all sectors of society. This Vision will be achieved when:

- Wild land is protected
- Wild land is enhanced
- People engage with wild places
- Communities thrive alongside wild land

The John Muir Trust's long-term vision for Sandwood Estate is to see that the remote and unpopulated areas retain their character of exposure and wildness whilst the populated areas contain a thriving community, intimately connected with ensuring the long-term well-being of the surroundings.

3. Aims and Objectives

Aims:

- Protecting the wild character of the estate
- Enhancing native habitats and encouraging native species
- Maintaining protected sites in favourable condition
- Working with the community

Objectives: These are defined within the Trusts Wild Land Management Standards at www.wildlandmanagement.org.uk.

4. Actions

See Table 1 Land Management Actions in appendix i.

5. Additional information

5.1 Location

Location map including wild land (a new map is in consultation at the time of this plan being written) - see Map 1 in appendix ii.

5.2 Designations

Designation	Area on Sandwood estate	Condition on JMT land
Sheigra-Oldshoremore SSSI	157 Ha (of 257 total)	2 features favourable
Southern Parphe SSSI	1131 Ha (of 5286 Ha)	3 features favourable, 2 unfavourable recovering due to management (blanket bog and alpine heath)
Oldshoremore & Sandwood SAC	292 Ha (of 444 Ha)	3 features favourable

Also see Map 2 appendix iii and the SNH website: <http://gateway.snh.gov.uk/sitelink/index.jsp>

5.3 Management Agreements

There are two Sites of Special Scientific Interest within Sandwood Estate boundaries and a Special Area of Conservation. Sandwood Estate was purchased with grant assistance from Scottish Natural Heritage and the National Heritage Memorial Fund; both carry conditions related to the management of Sandwood Estate. This is through an agreement under section 49A of the Countryside (Scotland Act 1967 dated 28 May 1993 for 99 years and placed a duty on the John Muir Trust to prepare a Management Plan. See appendix iv extract from management agreement relating to this.

5.4 Tenure

Sandwood Estate was purchased by the John Muir Trust in 1993 and is entirely under crofting tenure. The crofting tenure is divided into three separate grazings: Oldshoremore, Oldshorebeg and Sheigra.

The dunes and machair behind Am Meallan (Oldshoremore Beach), Loch Aisir Mor and Amhainn Aisir Mhor are excluded from Sandwood Estate. They are owned by G.E.R. & R. Osborne (Rhiconich Estate).

There are a number of small exclusions within Sandwood Estate derived from the sale of crofts and croft house sites (sold under statutory crofting rights). A map showing these will be produced before this plan is updated in 2018. Once complete will be able to be updated as and when sales occur in the future.

The John Muir Trust retains the mineral and sporting rights on Sandwood Estate.

5.5 Legal and other obligations

Wayleaves

Hydro-Electric: Power lines running through Sandwood Estate. Lines renewed in 1996; cables in the immediate vicinity of many houses are buried.

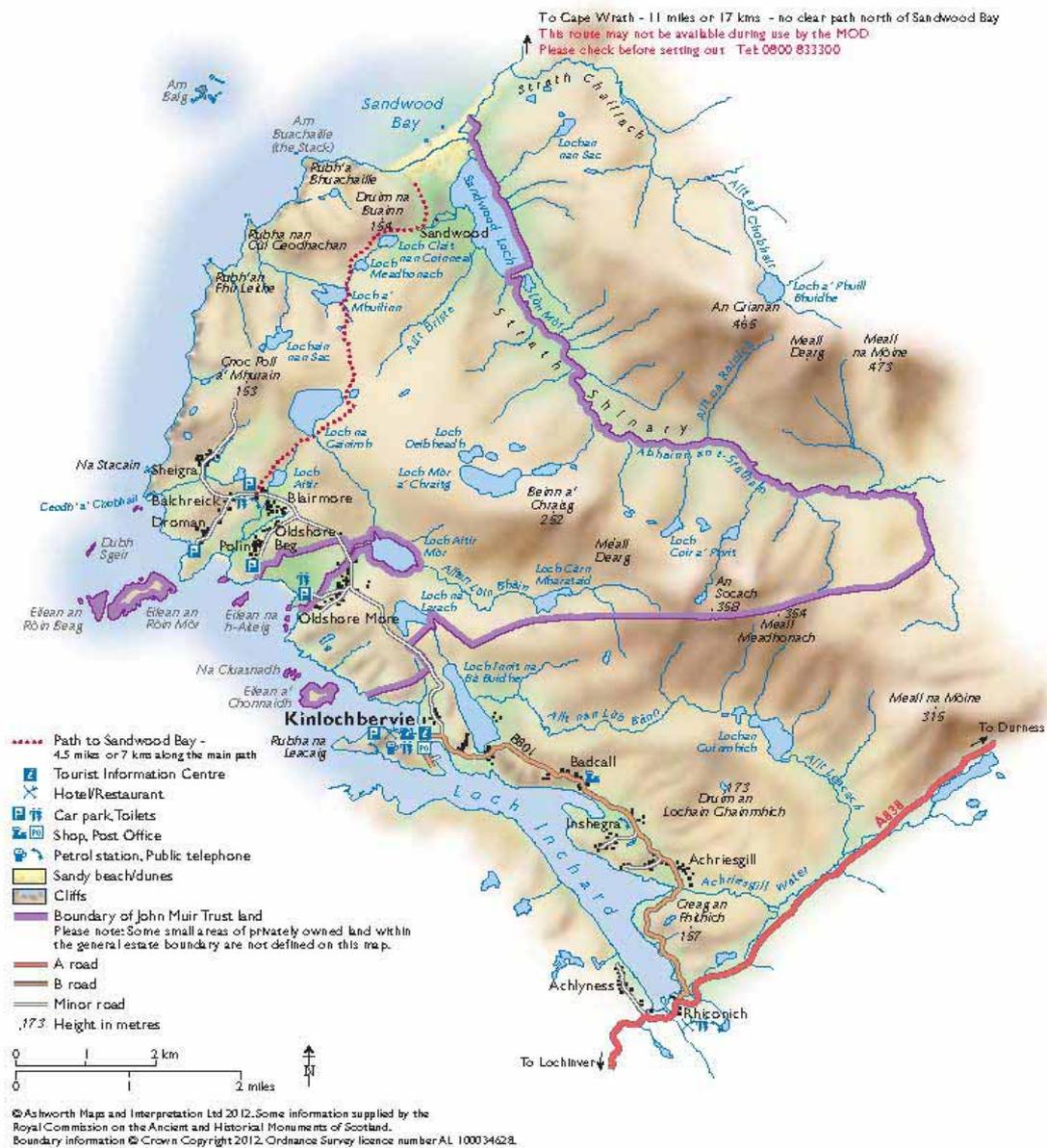
British Telecom: Cables and ducts in general follow the line of public roads. A telephone kiosk outside Balchrack Post Office was moved to the new Blairmore parking area in 1997.

Scottish Water: Buried water-mains.

5.6 Management responsibilities

5.6.1 Access

There are a number of paths and access points on the estate see Map below. The Trusts Footpath officer has recently carried out a review of all the paths. The path to Sandwood bay from NC2079462676 to NC2192765017 has been identified as a priority for work by 2016, After that a system of monitoring of paths will be set up to detect erosion at an early stage. A more detailed report on the path is given in appendix v. The section of vehicle track from Blairmore car park towards Sandwood bay also requires maintenance and monitoring. See appendix v for report on priority footpath work and supporting map.



5.6.2 Deer

A deer management plan for the estate is in place and is reviewed annually; see appendix vi for most recent plan.

Deer cull data:																	
2008/2009			2009/2010			2010/2011			2011/2012			2012/2013			2013/2014		
S	H	C	S	H	C	S	H	C	S	H	C	S	H	C	S	H	C
24	10	8	27	10	8	29	19	12	22	10	8	17	15	2	26	13	6
Deer Count data:																	
98	49	19	60	47	19	57	24	7	46	45	11	62	48	20	61	44	18

5.6.3 Buildings

Sandwood House (NC221641) is the most significant of many ruins on Sandwood Estate and has been stabilised and prevented from further decay.

The Trust owns and maintains the Blairmore parking area with toilet facilities, interpretation boards and donations box. There is currently a storage facility is currently at the old coastguard station.

5.6.4 Additional environmental information

See Appendix vii

5.6.5 Cultural, Social and Economic Information

See Appendix viii

5.7 Appendices

This management plan has been produced as a concise working document and further more detailed information is contained in the following Appendices:

Appendix i	Table 1 Land Management Actions
Appendix ii	Map 1 - Location
Appendix iii	Map 2 - SNH map of relevant statutory designations
Appendix iv	Extract from management agreement with SNH
Appendix v	Map 3 and report on priority footpath works
Appendix vi	Sandwood Estate Deer Management Plan 2013 - 2018
Appendix vii	Additional Environmental Information
Appendix viii	Cultural, Social and Economic Information
Appendix ix	Map 4 Habitat map
Appendix x	Map 5 Location of habitat monitoring plots

WLM - STANDARDS	Action Name	Description	Annual action (or year)	YEAR 5 OUTCOMES
1. Audit existing state and condition	Map all man made structures	Map all man made structures	Create digital map 2014	
	Digitise woodland	Digitise areas of existing woodland and woodland remnants	Create digital map 2014	
2. Establish survey and monitoring programme	Conduct archaeological survey	Surveys carried out in 1998 and 2000		
	Collate all relevant data	Data held at Pitlochry	collate new data	Relevant data collated and stored.
	Conduct habitat monitoring programme	Dwarf Shrub Heath monitoring	Record plots 5 yearly	Data assessed for any changes in habitat condition
		Carry out fixed point photography of machair and sand dunes at Sheigra, Oldshorebeg and Oldshoremore and Sandwood bay	Annual	Photos assessed for any changes in habitat condition
		Blanket Bog plot monitoring	Annual and 5 yearly recording	Data assessed for any changes in habitat condition
	Conduct species monitoring programme	Monitor core water vole areas	2014, repeat survey of estate, Annual monitoring of core areas thereafter	
		Undertake survey of breeding seabird population	Annual (volunteer)	Feed in to national dataset, assess changes in breeding success
		Undertake annual surveys of <i>Bombus distinguendus</i>	Annual	
		Raptors - record breeding pairs liaise with raptor study group	Annual	Look at long term data for any changes
		Bat conservation Trust field survey	Annual	
	Monitor deer and livestock enclosure plots	n/a		
	Maintain species records	Record and maintain records of existing native vegetation and wildlife	Upload ad hoc species records to Pitlochry database	All Sandwood records added to Trust species recording database
		Use camera traps to record images of wildlife	Annual	
	Take fixed point photographs	n/a		
	Monitor people counters / car park useage	Continue monitoring of vehicle numbers at Blairmore car park	Annual (volunteer)	Estimate visitor numbers see appendix xxx
		Collate data from people counter on Sandwood track	Annual	Estimate visitor numbers
	Conduct visitor survey	n/a		
3. Develop SMART actions	Develop SMART actions	Five year management plan with annual work programme	Action table monitoring and reporting on quarterly basis	Revisions drafted and approved by 31 st Dec 2019
4. Consult stakeholders	Consult on plan with stakeholder	Consult local community with regard to significant management issues	Stakeholder workshop 5/12/13	
5. Maximise water tables on peatlands	Drain Blocking	Potential project work, study planned for 2014		
6. Minimise exposure, burning and grazing	Minimise Burning	Discourage burning		
7. Minimise pollution	Remove litter	Remove Litter as seen on all visits	Litter removed when seen on site, including beach cleaning work parties as appropriate during the period of the plan	

WLM - STANDARDS	Action Name	Description	Annual action (or year)	YEAR 5 OUTCOMES
8. Maintain protected sites in favourable condition	Implement SNH advice	Annual meeting with area staff	Put into place all actions within trusts remit to maintain/achieve favourable condition status	
	Inform/ work with other groups / users	As appropriate		
	Advance Agri environment scheme applications to deliver management	As appropriate		
9. Maximise native habitats	Maximise native habitats	Maximise native habitats		
10. Biodiversity species management	Map and remove non-native invasives (plants)	Check for appearance of these species and encourage reporting	Annual	
	Develop and implement a control strategy for non-native invasives (animals)	Control rabbit numbers	Annual 2014 investigate if control of <i>mimus</i> is needed	Protection of designated site and Bumblebee habitat
		Report any mink sightings and monitor rafts with partners (West Sutherland Fisheries Trust)	annual	Control implemented if necessary
11. Re-structure woodlands	Develop / implement a forest plan	n/a		
	Additional native woodland planting projects	Native woodland planting	potential planting in small fenced area (1Ha)	
			work with crofters to improve success of allt briste woodland scheme	
12. Re-introductions	Consider reintroductions	As appropriate		
13. Minimise deer impacts	Collect and analyse relevant deer / habitat data	Collate relevant deer and habitat data	Annual	
	Produced deer management plan	Review existing Deer Management Plan	Annual	See DMP in appendix xxx
	Deliver cull targets	Deliver annual cull	Annual	
	Engage with relevant group DMG / Section 7 or other stakeholders	Attend relevant meetings	Annual	
14. Leave deer carcasses for eagles	Leave carcasses	Leave small number of deer carcasses for eagles	as appropriate	
	Camera trap monitor carcasses	Install camera traps on deer carcasses	as appropriate	
	Control numbers	n/a crofted estate		
15. Minimise livestock impacts	Monitor incursions and liaise with owner	n/a		
	Staff training	Implement training plan	annual	
16. Staff training	Monitor and maintain paths	Maintain existing paths on property	annual maintenance,	implement priority work identified in footpath plan appendix xxx; Establish path monitoring programme

WLM - STANDARDS	Action Name	Description	Annual action (or year)	YEAR 5 OUTCOMES
		Maintain Sandwood track	2014 repair section of Sandwood track	monitoring programme established
17. Infrastructure & heritage maintenance	Monitor and maintain buildings, fences etc.	Empty collection box	Annual	
		Clean toilet block regularly and inspect building at least twice a year	Annual	
		Check and secure Sandwood House to ensure public safety	Annual	
		Maintain and fire out storage facility		
		Maintenance of stone bridge on Strathan peat road	2014	
	Run conservation work parties	Run conservation work parties	Annual programme includes path work and beach cleans	Volunteers contribute to management plan objectives
	Minimise resource use and waste		Annual	
	Maximise energy efficiency		Annual	
18. Reduce, re-use, recycle	Explore local renewable options	n/a		
19. Minimise carbon footprint	Remove redundant structures	As appropriate		
20. Explore local renewable energy	Remove, reduce or narrow roads where this is possible	n/a		
21. Remove redundant structures	Apply sensitive techniques to any new build	n/a		
	Apply sensitive techniques to any footpath maintenance or building	As appropriate		
22. Sensitive new build techniques	Provide guidance on large scale events	Encourage use of Institute of Fund Raising's code of conduct for Outdoor Challenge Events for large scale events. http://www.institute-of-fundraising.org.uk/guidance/code-of-fundraising-practice/guidance/outdoor-uk-challenge-events/	Cape Wrath challenge	
23. Sensitive footpath techniques	Provide guidance on fishing policy	Ensure fishing policy is circulated to all permit providers	Annual	
24. Provide responsible access	Advise on responsible campfires and clean up	Continue to provide advice on responsible access for visitors to Sandwood Estate and direct queries to the Scottish Outdoor Access Code	Annual	
25. Meet responsibilities towards local people		Monitor camp fires on Machair	Annual	
	Liaise with neighbours	Develop relationships with appropriate neighbouring landowners, relevant local bodies and communities of interest	Annual	
	Engage with local groups	Attend relevant local community and partnership meetings	Annual	
	Hold Open meetings	Management plan workshop Dec 2013		
	Use local contractors / volunteers / produce	Prioritize where possible in procuring goods and services	Annual	
	Liaise locally with SNH	As appropriate – mainly for protected site issues	Annual	

WLM - STANDARDS	Action Name	Description	Annual action (or year)	YEAR 5 OUTCOMES
	Contribute to relevant wider projects	As appropriate		
	Review and update leaflets, ensure leaflet dispensers filled (including gaelic)	Refill Leaflet dispenser on every visit	Annual	
	Review and maintain website information (including gaelic)	Ensure info on website is kept up to date	Annual	
27. Maximise interpretation	Review and maintain interpretation panels (including gaelic)	New Interpretation panel	Interpretation about Sandwood track	
	Consider providing interpretation in Gaelic	As appropriate		
28. Maximise education opportunities	Carry out guided walks / talks / events / land days / wild land awareness / open days programme	As appropriate	Annual	
	Produce articles for local media	As appropriate	Annual	
	Encourage local John Muir Award activity	As appropriate	Annual	

Appendix ii Map 1 Location



Sandwood Estate

Extract from SNH/JMT Management Agreement relating to Sandwood Estate (June 1997)

5. MANAGEMENT POLICIES

(a) The Owners shall prepare an interim Management Plan to the satisfaction of SNH by 31 March 1996 and shall compile the full Management Plan, to the satisfaction of SNH, not later than 1 April 1997. The Management Plan, once approved shall be binding on the Owners. In consequence no alteration to, or deviation from the Policies of the said Plan may be effected without the prior written consent of SNH. In the event of any dispute relating to the content or prescriptions of the Management Plan this shall be referred to arbitration under Clause 15 of the Agreement.

For the avoidance of doubt SNH's decision in relation to the inclusion in the Management Plan of operations listed in the list of Potentially Damaging Operations attached to the notification of any part of the Land notified under S.28 of the 1981 Act shall be final.

(b) The Management Plan shall be subject to 5 yearly reviews, or such interim reviews as are requested and agreed between the respective parties to the Agreement, to the satisfaction of SNH.

(c) The Management Plan shall in so far as it may do so without prejudice to the Crofting Tenants reflect a holistic approach to the Owners' management of the Land.

Appendix IV

DEER MANAGEMENT PLAN SANDWOOD ESTATE 2013-18

1. Rationale

The John Muir Trust recognises that:

- Native deer species are an integral part of the natural heritage,
- Deer management can bring environmental, social and economic benefits,
- At inappropriate population levels, deer impacts can damage habitat condition and suppress natural processes.

Deer populations will be manipulated through culling:

- To achieve the Trust's charitable objective to "conserve and protect wild land encouraging natural processes",
- In line with industry best Practice Guidance,
- Not impeding public access at any time.

2. Audit

Detailed information about the property is available in the estate management plan.

2.1 Geology, soils, habitats and species

See estate management plan

2.2 Designations, biodiversity priorities, habitat conditions

See estate management plan

2.3 Livestock

The entire estate is under crofting tenure. The general trend over the last few years is for a decrease in sheep numbers. Current estimates are 700 sheep and 40 cattle, 7 goats, 10-12 horses grazing on the estate. About 700 rabbits are culled annually on the estate.

2.4 Employment and income

Deer management on the open hill and to prevent damage to croft land is carried out by the Conservation Officer employed full time by the John Muir Trust. Venison income is obtained from carcasses.

2.5 Deer population estimates and cull figures

Approximately 50 hinds are hefted to Sandwood but these calve on the higher ground on Keoldale, returning to Sandwood in late summer.

Year	Count estimate				Cull			
	Stags	Hinds	Calves	Total	Stags	Hinds	Calves	Total
2008/09	98	49	19	166	24	9	9	42
2009/10	60	47	19	126	27	10	8	45
2010/11	57	24	7	88	29	19	12	60
2011/12	46	45	11	102	22	10	8	41
2012/13	62	48	20	130	17	15	2	34
2013/14	61	44	18	123	26	13	6	45

The most recent count estimate gives a broad density figure of around 3 deer per km² but this figure increases in the winter.

3. Objectives, targets and constraints

3.1 Habitat

The habitat objectives for Sandwood are to maintain blanket bog and dry heath in favourable condition thus protecting designated areas as well as in the wider context. Due to the presence of livestock it is unlikely that woodland regeneration will be achieved through deer management alone. Current monitoring results of dry heath and blanket bog, shows them to be in favourable condition. There is no burning on the John Muir Trust's part of the designated areas. There is an informal agreement with graziers not to burn over the wider John Muir Trust owned ground

3.2 Deer population and cull

The objective is to maintain the deer population on Sandwood at its existing density. Deer may be culled on croft land in response to requests to prevent damage to crops. Purely as a **guide** it is anticipated that a total annual maintenance cull of around 20 stags and 12-15 hinds plus associated calves will be required for 2013-17. This figure will be reviewed annually and discussed with neighbours.

3.3 Employment and income

Current annual levels of employment and income are expected to be maintained.

3.4 Constraints and mitigation

It is recognised that the habitats, natural processes and associated species mentioned in 3.1 may be constrained by external uncontrollable factors such as weather, fire etc. Livestock grazing outwith the control of the property may also impact on objectives and where possible the Trust will seek to reduce impacts through negotiation with livestock managers and encouraging application to any appropriate environmental schemes. Wider deer management by neighbours may also impact on both the habitat objectives and the cull required. The Trust has adhered to the current Deer Management Plan drawn up by Professor Rory Putman and is supportive of the new plan being proposed by NWSDMG. The Trust seeks to engage with the meaningful reviews and assessments of DMPs at regular intervals. The Trust attends DMG meetings, liaises with and assists neighbouring estates with their deer management.

4. Monitoring

4.1 Habitats and species

A programme of habitat and species monitoring is in place on the properties. Regular habitat monitoring (carried out in May / June) demonstrates levels of impact which are currently stable. Any changes will be used to inform cull targets for that year.

4.2 Deer and livestock numbers

While the key measures are habitat impact and condition, information on deer numbers will be used to adjust cull targets. The John Muir Trust organises annual deer counts on its own ground and that of Kinlochbervie Estate. We will participate and assist in any other local deer counts should they ever be organised by neighbouring estates. Other than informal agreements the John Muir Trust has no control over livestock numbers (see 2.3) but numbers have been falling in recent years.

5. Review

5.1 Habitat monitoring, deer count and cull data is reviewed annually with the plan adjusted accordingly in discussion with the DMG. A review of the whole plan will take place in 2018.

Appendix v Additional Environmental Information

Wildness

Much of Sandwood Estate is open and exposed and unquestionably wild. However it is the remote upland, peatland and coastal areas which are of most significance in terms of wildness. More than 50% of the estate falls within the SNH Search areas for wild land, see map 1, the estate is also within the SNH Cape Wrath Core wild area currently under review as part of the Scottish National Planning Framework reform <http://www.snh.gov.uk/docs/A917042.pdf>.

Sandwood Estate is populated by about a hundred people all living along the South-western shores. Away from the settlements, much of the land remains unspoilt by any obvious signs of modern intervention. The inner hills and peatlands, to the trained eye can be seen to have been modified by humans in the form of drainage and other earth workings. The peatlands and other areas may be described as barren, but this is a quality which adds to its wildness. The hidden corners where there are small pockets of trees or taller shrubs are few and far between. Such areas have a special wild quality of their own. The wildness of Sandwood Estate is as much to do with its exposed, open and remote feeling as it is to do with its diversity of native species.

Much of the peatlands were at one time subjected to drainage attempts. These have left scars across areas of an otherwise unblemished landscape. This is particularly noticeable where the unique, natural curves of the bog-pool systems are broken by the unnatural lines of purpose built drains. Away from the drainage, the peatland landscape is un-scarred and retains a distinctly wild and unspoilt environment.

Sandwood Bay is particularly significant in that it is rare to find such a spectacular beach that is so undisturbed by human intervention. Sandwood Bay, being equally hospitable and fertile ground as the 'Oldshores' was at one time inhabited; the oldest ruins on Sandwood Estate may be found there. However, the presence of these ruins and more recent ones such as Sandwood House are a reminder of the past which in no way detracts from the sense of wildness, but more adds a sense of human frailty within the surrounds of nature.

Landscape

Summary of Landscape Characteristics within Sandwood Estate.

Main Landscape Feature	Minor Landscape Division	Landscape Character
Peatlands	Mires, blanket bog, pools and lochans	From Sandwood Bay and Strathan river on the northern edge of Sandwood Estate the peatlands slope gently upwards, broken occasionally by small outcrops of smooth pale grey Lewisian gneiss, rising up to the craggy brown ridges of Torridonian Sandstone of the Uplands. The inland sweep from the Sandwood Bay track is virtually all blanket bog, interspersed with a myriad lochans and pools. To the South West the peatland is serrated with a series of broken peat hags,
Uplands	Beinn a' Chraisg to Creag Riabhach	The uplands rise to around 360 meters above sea level. On the North side of Sandwood Estate from Strath Shinary it rises over gently sloping peatland up to the line of rocky Torridonian Sandstone hills, running almost West to East,

		Beinn Chraisg, Meall Dearg, An Socach, Meall Meadhonach and Creag Riabhach, between Meall Dearg and An Socach are several outcrops of the smoothly rounded grey Lewisian Gneiss which on the southern side have several boulder strewn areas at their bases. From the West it rises very quickly from a great sweep of blanket bog and from the South over areas of broken and eroded peatland to steadily rising plateaus of Torridonian Sandstone.
Coastal hills	West of Sandwood Bay path	West of the Sandwood Bay path the view is mostly of gently rolling the heather clad hills: Cnoc Poll a' Mhurain (503meters), Carn an Righ and Druim na Buainn, broken only by Loch na Gainimh and Loch a' Mhuilinn lying at the head of the valley leading down to Port Mor.
	South of Oldshoremore	Wild unspoilt series of valleys running inland from the coast, large outcrops of grey Gneiss inland covered with heather, nearer the sea very short cropped grass, the coastline is rugged low cliffs broken by the shingle beach of Am Meallan.
Open Water	Sandwood Loch and other large lochs	There are around seven large sized lochs on Sandwood Estate, reflecting the ever changing weather patterns, from the absolute stillness of a summer evening, to the gale lashed spindrift of a winter morning.
Coast	Sandwood Bay beach and dunes	Sandwood Estate lies between the Lewisian Gneiss in the North and the Torridonian Sandstone cliffs to the South, East is Sandwood Loch, the view from the South is of the line of huge marram topped dunes which trap the constantly shifting sands blown inland by the North Atlantic gales, the expanse of the superb beach gives way to the cliffs pushing Northwards to Cape Wrath. Looking from the North, the sea stack Am Buachaille gives a primordial feel dominating the view and the dark cliffs of Rubh a' Bhuachaille contrast with the purity of the white sands
	Polin beach and dunes	Polin beach is tightly squeezed between two ridges of pink and grey Lewisian Gneiss which run inland, a small burn runs into the sea at the Southern end, large marram topped dunes provide a backdrop to the pristine white sands of the beach.
	Sheigra beach and dunes	The small beach at Sheigra nestles between a ridge on the Northern side of pink/grey smoothly rounded Lewisian Gneiss which thrusts into the sea, that along with the rim of large rounded boulders at the top of the beach protects the fragile dune area from the worst ravages of the winter storms. To the South side the black slabs of Torridonian Sandstone look almost man-made. In contrast to the other dune systems on Sandwood Estate the Sheigra dunes are low lying, there being no marram grass present.
	Coastal cliffs	The coastal cliffs are ever changing, from the relatively low Lewisian Gneiss at the Southern end of Sandwood Estate to the impressively high and steep Torridonian Sandstone cliffs south of Sandwood Bay. On the shore at their base lie huge regular shaped blocks which have sheared off the cliff face, particularly evident at Cnoc an Staca .

	Islands	The five main islands lying off Sandwood Estate have some very different features, from the angular slabs of Eilean na Aiteig which provide a superb back-drop for Oldshoremore beach, to the more rounded contours of Eilean an Roin and Am Balg, to the heather clad Eastern side of Eilean a' Chonnaidh and to the almost jet black appearance of the smaller islands which are continuously lashed by the Minch breakers, the sea stack Am Buachaille stands guard-like to the South of Sandwood Bay.
	Machair	The bare grey green interspersed with sandy eroded areas of the winter machair in spring becomes a wonder of colour and hues from the myriad flowering plants replacing one another throughout the growing season.
	Croft inbye	The inbye crofts are characterised by the regular patterns of fences and dykes, the invasion of the common rush has changed their overall appearance of neatness.
Settlements	Sheigra	The houses are situated quite close together on either side of the road which winds its way through the village, it has a picturesque well tended look about it. The Southern boundary of the settlement is marked by a well maintained drystane dyke The inbye croft land is divided by dykes and fences, several acres of land to the rear of the houses have been fenced off and reseeded giving a lush green contrast to the dark brown/black heather hill beyond.
	Oldshorebeg	Oldshorebeg encompasses the settlements of Polin, Drumnaguie, Blairmore, Balchrack and Droman. The houses tend to be in small clustered groups, generally each one is whitewashed with traditional slate roof and most have a small fenced or walled garden.
	Oldshoremore	The houses are mostly well spaced from the South side of Polin brae, almost to the Southern boundary of Sandwood Estate, some have been built in the last few years and contrast somewhat with the older traditional style houses.

Geology

Sandwood Estate consists predominantly of Torridonian gritstone, sandstone and conglomerate, with outcrops of Lewisian gneiss along the south-western coastal strip, North of Sandwood Bay and at the eastern end of Sandwood Estate.

The south-western coastal strip, on which are the crofting townships, although mainly composed of Lewisian gneiss, does have some Torridonian outcrops. A Torridonian sandstone ridge separates the Sheigra and Polin basins, and sandstone forms a ridge within the Oldshoremore depression and Eilean na h-Aiteig. The other ridges consist of Lewisian gneiss.

Sandwood Loch occurs at the junction between the Torridonian (to the south) and Lewisian (to the north) rocks. Torridonian sandstone and conglomerate rocks form the cliffs between Sandwood Bay and Na Stacain (Sheigra), underlie the interior peatland and comprise most of the higher ground further east.

At the east end of Sandwood Estate a band of Lewisian gneiss runs roughly SW/NE, its Northwest edge being between the east slopes of Meall Dearg and waterfalls in the Abhainn an t-Srathain and its south-east being between Lochain an t-Socaich and the western base of Creag Riabhach.

A rare and fascinating *palaeosol* exists on an exposed area of cliff North of Sheigra. The ancient 'soil' sandwiched between the Lewisian Gneiss and Torridonian Sandstone has been buried for around 300,000,000 years.

Geomorphology

Sandwood Estate contains the largest beach and dune area in West Sutherland and is one of the most isolated major dune systems in Britain. At maximum low water a beach almost 3 km long and up to 250 metres wide is exposed. Behind the beach are high (15-60 metres) dunes illustrating the dynamic nature of the area. With the site's exposed location wind blown sand extends not only to a considerable height but also well inland.

The freshwater Sandwood Loch flows out under the Lewisian cliffs on the north-east side of Sandwood Bay. A large flat area of sand (c 9 ha) lies between the fore dunes and Sandwood Loch which becomes flooded with freshwater during periods of high rainfall.

Torridonian cliffs to the west of Sandwood Bay are rapidly eroding and provide the raw materials for the beach and dune systems. Along their length, where they reach a height of about 90 metres, they exhibit a range of classic cliff features including the sea stack, Am Buachaille.

The whole beach system at Sandwood Bay is naturally unstable and highly dynamic and has suffered relatively little human interference.

The sand-dunes and machair within the 'Oldshores' have been severely eroded since the earliest recorded history, a situation now exacerbated by unnaturally high rabbit populations. The dunes and machair remain unstable despite expensive and extensive efforts by the Nature Conservancy Council / Scottish Natural Heritage to control the excessive erosion.

There are many post-glacial features on Sandwood Estate including erratic boulders of Lewisian Gneiss which have been carried and dumped onto the younger Torridonian Sandstone rocks. A classic example may be found on Eilean na h-Aiteig.

Soils

The soils of Sandwood Estate are predominantly peats and peaty gleys belonging to two soil associations: the Torridon Association, drifts derived from Torridonian sandstones, grits and conglomerate and the Lochinver Association, derived from Lewisian Gneiss.

Exceptions are brown calcareous soils and calcareous regosols of the Fraserburgh Association derived from shell sands.

Climate

An oceanic influence on the climate is evident in a high level of rainfall and frequently strong winds. The most common direction from which the wind blows is the south-west, but the wind direction often changes markedly from day to day with the passage of weather systems. There are often more than 30 days per year with gales the worst of which tend to occur in January and February. Summer months can be mild and calm, but still prone to severe gales.

Average annual rainfall in the area is high at approximately **1200mm**. Temperatures tend to be relatively mild owing to the influence of the sea. Frosts are infrequent. Snowfall very rarely occurs before February, but can be very heavy at times. Deep lying snow is rare.

Natural Heritage

Habitats

From 1998 to 2006 A series of vegetation surveys were carried out by Ben and Alison Averis.

The survey was very comprehensive, producing detailed maps of the vegetation communities across the property. The condition of the main habitats was also assessed, and detailed species records taken. Full information on all the various plant communities recorded can be found in the survey. However, to

make assessment simpler, the numerous different habitats can be grouped together in the following broad vegetation types.

Peatland

The peatlands are among the most north-westerly 'flows' in Britain. There is a range of mire types exhibited including valley-side mire, watershed flow and sloping blanket bog. A wide range of topographical features are shown including peat mounds, erosion hags, hummocks, low ridges, high ridges, sphagnum hollows, mud-bottom hollows, Erosion channels, drought sensitive pools and permanent pools.

Blanket bog has developed over fairly level areas of Torridonian Sandstone. On Sandwood Estate it is described as being a mixture of low-relief 'western' blanket bog on the more level areas and low-relief northern boreal blanket bog, more typically on spurs or saddles (N.C.C., 1988). On the most level areas are some extensive bog-pool systems which are extremely varied in their size and structure.

The distinctly oceanic vegetation is characterised by lichen-rich deergrass/cotton grass *Scirpus - Eriophorum angustifolium* mire with hummocks of hare's tail cotton grass, *Eriophorum vaginatum*. *Sphagnum* moss is a major component of the valley-side flows, but not so prevalent in the blanket bog where there are occasional discrete hummocks of the rare *Sphagnum fuscum*. *Drosera anglica* is abundant on the blanket mire, *D. intermedia* and *D. rotundifolia* are also common. At the head of Sandwood Loch the comparatively base-rich soil supports bog sedge *Carex limosa*, black bog rush *Schoenus nigricans* and common reed *Phragmites communis*. There are many interesting flushes and upwellings associated with the hill areas to the South and East. Some areas of the peatlands have been adversely affected by uncontrolled burning, grazing and drainage within the last ten years and are dominated by species poor deergrass / cotton grass communities.

A decline in crofting has led to a reduction in the number of sheep and cattle grazing in much of the peatlands. Flocks tend to stick to the areas of better grazing along the coast.

Upland

The high latitude and oceanicity of Sandwood Estate allows for an altitudinal depression in the distribution of montane plants onto relatively low-lying areas of Torridonian Sandstone. Morainic ground on the lower slopes is dominated by wet heath but on higher levels there is *acomitrium* rich dwarf shrub montane heath. Montane plants such as fir clubmoss *Lycopodium selago*, alpine bearberry *Arctostaphylos alpinus*, wild azalea *Loiseleuria procumbens* and least willow *Salix herbacea* are frequent. Cliff ledge plant communities are represented on some of the remoter crags at the eastern end of Sandwood Estate.

Woodland

There are small pockets of trees throughout Sandwood Estate mostly, consisting of one or two trees clinging to rocky ledges inaccessible to larger herbivores, e.g., beside the burn in Strath Shinary and on large crags such as at the south-western end of Sandwood Bay. The most extensively wooded area is where Allt Briste (Broken Stream) meets Sandwood Loch and in a few other hidden areas on the lochside which contain birch, aspen, hazel, rowan and eared willow with many other species of

woodland plants. A survey by Ben Averis in 1998 identified several notable plant species (see Sandwood Estate NVC).

Willows occur widely throughout Sandwood Estate and prostrate juniper is found on the shallow or bare soils of many of the hills.

Oldshorebeg Grazings Committee have undertaken a 17.1 ha Crofter Forestry Scheme in Allt Briste on the shore of Sandwood Loch. Based on native tree species already present and the ground flora, a planting scheme was devised to accord with three National Vegetation Classification types (W4, W11 and W17). The area was deer fenced in June 1998 and the first trees planted in November 1998.

Some areas within the gorge were left for regeneration (2 ha). The trees were planted in areas of suitable soils (8.1 ha) and other areas were left as open ground (7 ha). Almost all of the trees were planted by volunteers with particular care and attention given to planting in suitable micro sites to ensure the best possible chance of establishment and survival. The overall mix of trees planted is given below:

Exposed areas with poorer soils NVC: W4 Approx. 1500 stems/ha	Downy birch	35%	1840 trees
	Rowan	25%	1310 trees
	Eared willow	15%	787 trees
	Grey willow	15%	787 trees
	Goat willow	10%	526 trees
Sheltered areas with better soils NVC: W11 & W17 Approx. 1100 stems/ha	Downy birch	23%	1164 trees
	Rowan	20%	1012 trees
	Alder	15%	759 trees
	Hazel	15%	759 trees
	Aspen	7%	354 trees
	Holly	5%	253 trees
	Eared willow	5%	253 trees
	Grey willow	5%	253 trees
Goat willow	5%	253 trees	

Grassland

Acid, neutral and marsh grasslands occur in a number of areas. Extensive areas have been improved by fertilisers in several in bye croft or croft apportionment enclosures.

Coastal

Sand dunes and machair are situated behind the sediment shores described previously. All of the sand dune and machair systems are highly dynamic; there are records of extensive sand blow caused by erosion of the dunes and machair from as far back as the eighteenth century. The sand dunes and machair have all had varying degrees of human influence. Much of Sandwood Bay is relatively unmodified, while the rich calcareous soils of the Sheigra, Oldshorebeg and Oldshoremore machairs have been extensively cultivated and grazed for centuries. Past and present agricultural practices within the "Oldshores" machair have greatly influenced not only the stability of the soil, but also the

diversity of the vegetation. The sandy soil, prone to severe erosion and 'blow-outs' is a perfect breeding ground for rabbits.

The sand dunes support calcareous coastal vegetation, while the machairs, all of very high quality and extremely species rich, contain a variety of coastal vegetation communities with rich flushes and fens. Within the Sheigra-Oldshoremore machair, there are around 200 species of flowering plants such as globe flower (*Trollius europeus*), moss campion (*Silene acaulis*), hair sedge (*Carex capillaris*), moonwort (*Botrychium lunaria*) and at least eight varieties of orchid. There is also a great diversity of bryophytes and lichens. Flushes associated with the machairs contain tall herb and meadow vegetation, traditionally cut for hay. Fens thick with reed (*Phragmites communis*) and meadowsweet (*Filipendula ulmaria*) support populations of sedge warblers. The machair is an important feeding ground for bird species of high conservation concern such as skylark and twite. Until recent years, the corncrake bred in high numbers on the machair but this is not just a local trend.

A comparison of the results from a survey carried out in 1999 (Boyd-Wallis, 1999) and 1994 (Slade, 1994) indicated that the measured erosion features had increased in width by 9.0%. Despite these changes, bare ground within the eroded areas has decreased overall by 15.9% owing to the recovery of colonising vegetation and influx of marram grass which have increased by 106.4% and 318% respectively. Overall, there has been a general reduction in bare ground and increase in colonising vegetation cover within the surveyed blow outs.

Over all sites the percentage of bare ground within the erosion features has decreased with vegetation recovering. These changes may be accounted for by the annual work carried out by John Muir Trust volunteers since 1996. Marram planting and brushing placement took place in all of the worst blow-outs in Oldshorebeg and Oldshoremore.

There are maritime cliff habitats sheltered within the broken and collapsed cliffline between Sheigra and Sandwood Estate, areas of ungrazed tall herb and tall fern communities. These areas represent some of the unmodified habitats on Sandwood Estate containing sub-maritime cliff vegetation characterised by a wood-rush/tall fern community containing the hay-scented buckler-fern (*Dryopteris aemula*). Some of the more naturally protected maritime cliff habitats have a woodland atmosphere with wrens nesting amongst honeysuckle (*Lonicera periclymenum*) within hollows between crags and badgers burrowing between the loose rocks below. Open areas of maritime cliff support important populations of breeding seabirds.

Maritime heath and maritime grassland are found on more exposed, fine scree areas including a sub-maritime crowberry (*Empetrum nigrum*) heath community with Juniper/heather (*Juniperus communis/Calluna vulgaris*) wave-form heath. Amongst the maritime heath is thyme/fescue grassland (*Thymus/Festuca*).

There are eight named islands with an area of around a hectare or more within Sandwood Estate which are very wide ranging in their exposure and isolation. The most exposed and isolated is Am Balge (The Belly?) which consequently holds extremely large numbers of infrequently disturbed nesting sea-birds. The other extreme is Eilean na h-Aiteig (Cultivated Island) in Oldshoremore Bay which ceases to be an island at low tide and is one of the most sheltered islands. However, even Eilean na h-Aiteig is highly exposed to whatever the Atlantic throws at it. The other six islands are: Seana Sgeir (Old Rocks), Dubh Sgeir (Black Rocks), Eilean an Ròin Beag (Little island of Seals), Eilean an Ròin Mór (Big island of Seals), Na Cluasnadh (?) and Eilean a' Chonnaidh (Island of Firewood).

Eilean a' Chonnaidh is an important site for a breeding area for greylag geese on the more exposed grassy slopes. Eilean an Roin Mor and Beag are both important wintering ground for barnacle geese.

Intertidal and Marine

The local tidal range is 4.2 metres.

The coastline around the townships, between the point south of Oldshoremore Bay (NC 199 577) and Cnoc an Staca (NC 182 610) was investigated by members of the Marine Biological Associations as part of the Survey of the Littoral Zone of the Coast of Great Britain (Powell et al,1980).

Sediment shores make up roughly 3 km of the coastline. There are three sandy bays within Sandwood Estate: Sandwood, Sheigra and Polin. Oldshoremore Bay is contained within the Oldshoremore Estate owned by the Osbornes. The beach of Sandwood Bay is 2.6 km long with a maximum width of approximately 0.25 km at low tide. The sediment is accumulated from the eroding Torridonian Sandstone cliffs bordering the south-western end of the bay and shell-sand. The shore is extremely exposed to wave action, exhibiting classic beach profile formations at different times of the year. The sand level can rise and fall several metres with changing weather patterns within the space of a few weeks.

Sheigra Bay and Polin Bay are both considerably smaller and more sheltered than Sandwood Bay, with consequently less dynamic beach profiles. As with Sandwood Bay, the sand sediment is derived mainly from eroded Sandstone. At low tide, Sheigra Bay is 200 m long and 70 m wide; Polin Bay is roughly square in shape: 350 m long and 300 m wide.

These beaches are south-west facing, exposed to severe wave-action but with local shelter from reefs. They are generally barren or have a limited Crustacean-Polychaete fauna; representative along this section of the coast. Variety is increased by the close proximity of rocky shores. The sediment shores were considered of 'local importance - grade 4'.

Rocky shores make up approximately 11 km of the coastline. From Sandwood Bay to Sheigra Bay, the littoral zone lies beneath steep, highly broken and erosive cliffs of Torridonian Sandstones and Conglomerates apart from roughly 1 km of Lewisian Gneiss immediately north of Sheigra. Between Sheigra and Droman there is 1 km of Sandstone formations. The remaining areas of rocky shore between Droman and the southern boundary of Sandwood Estate is Lewisian Gneiss. The Lewisian Gneiss is stronger, more stable, erodes at a much slower rate than the Sandstone. Consequently molluscan fauna tends to be poorer on the Sandstone.

West of Sheigra (NC 182605) the coast is completely open to the Northwest and is a good example of a shore subject to very exposed conditions with typical zones of *Alaria esculenta*. At Droman the shore is somewhat protected by offshore islands and large boulders on the southern side offer more sheltered niches. This local shelter is reflected in the increased biomass and diversity. The rocky shores were considered to be of 'regional importance - grade 3'.

Eilean na h-Aiteig shows good algal zonation and colonisation by sponges and hydroids.

Lochan nam Meallan is a lagoon (also known as an 'ob') about 200m across which lies amongst the rocks at the southern end of Oldshoremore Bay. It is entered by a fresh water stream flowing over gravel where there are brackish conditions, but most of the lagoon appears to be totally marine. The floor is covered with sand, gravel and shell gravel, together with considerable amounts of maerl

(mostly *Lithothamnion glaciale*). The calcareous substrate is extremely rich in molluscan fauna including a number of large bivalves. (Smith, 1987)

Lochan nam Meallan (NC 200577), to the south of Oldshoremore Bay, is a lagoon or 'ob' about 200 metres across lying among rocks. It was not visited during the SMBA/MBA survey and is not typical but is considered to be worthy of research (Smith 1981).

There are several areas of shoreline falling within a class between sediment and rocky shores. The once important and sheltered fishing ports of Port Chaligaig in Droman, Port Mór and Port Beag between Sheigra and Sandwood Bay all have shores of variously sized Shingles. There are several other small areas within a number of geòdhan which contain large shingles originating from both Torridonian Sandstone and Lewisian Gneiss.

The shores of the islands lying within Sandwood Estate are not only equally varied, but also in many cases, represent the most exposed sites. The shore of Am Balg, 1.7 km offshore west of Sandwood Estate is extremely steep Lewisian Gneiss which is extremely exposed.

Open Water

Dystrophic standing water is highly acidic, peat stained water, found within the bog-pools and dubh lochans of the peatlands. Clear, slightly acidic, oligotrophic standing water is found in many lochs within Sandwood Estate, with oligotrophic running water draining from them. Brackish standing water is found only in the lagoon at Oldshoremore; but it is worth noting that the more coastal lochs have been found to contain a strong sea-salt influence with high levels of Sodium and Chloride. Marl/tufa running water is found where sand blown onto the slopes above Sandwood Bay produces a high dissolved calcium carbonate content which is visibly deposited on bryophytes and bare rock. Mesotrophic running water is found in drains around inhabited areas.

Rock exposures

There are many areas of unvegetated bare rock and active scree below cliffs along the coast. Inland, rock entirely barren of vegetation is less common; however the Lewisian Gneiss tends to be less open to colonisation than the more degradable Torridonian Sandstone. There are various small stone-pits or quarries with one at Blairmore still in operation.

Flora

Vascular Plants

Over 340 species of vascular plant species have been recorded on Sandwood Estate.

The machair of Sheigra-Oldshoremore SSSI, which is part of Oldshoremore & Sandwood SAC, are among the most species-rich systems for their size in Britain with some 220 species of flowering plants being recorded and one of the best areas of species-rich calcareous dune and machair vegetation in Sutherland. The variable levels of sand blow which have always been apparent, whilst possibly endangering the site, also increase diversity of habitats and microsites suitable for different plant species. However, some diversity of species has been reduced by a lack of cultivation and very

high levels of grazing. At Sandwood Bay the dune flora is remarkable for its purity, with an absence of introduced species and relatively little human disturbance.

Montane species occur at depressed altitudes due to the northerly latitude and oceanicity of the site.

Very rare (Red Data Book):

Euphrasia rotundifolia Eyebright (UK BAP Priority species)

Nationally Scarce:

Arctostaphylos alpinus Mountain Bearberry

Carex capillaris Hair Sedge

Carex vaginata Sheathed Sedge

Deschampsia setacea Bog Hair-grass

Dryas octopetala Mountain Avens

Euphrasia marshallii Eyebright (UK BAP Priority species)

Hammarbya paludosa Bog Orchid

Isoetes echinospora Spring Quillwort

Juncus balticus Baltic Rush

Mertensia maritima Oysterplant

Orobanche alba Thyme Broomrape

Pyrola media Intermediate Wintergreen

Locally Scarce:

Botrychium lunaria Moonwort

Coeloglossum viride Frog Orchid

Draba incana Hoary Whitlowgrass

Fumaria capreolata White Ramping-fumitory

Gentianella campestris Field Gentian (UK BAP Priority species)

Osmunda regalis Royal Fern

Pinguicula lusitanica Pale Butterwort

Saxifraga oppositifolia Purple Saxifrage

Silene acaulis Moss Campion

Trollius europaeus Globeflower

Other UK BAP Species:

Juniper, *Juniperus communis* spp *nana*

Small White orchid, *Pseudorchis albida*

Bryophytes

Over one hundred species of bryophyte have been recorded. The dunes and machairs of Oldshoremore (86 species) and Sandwood Estate (69 species) are exceptionally rich.

Two nationally scarce species (*Barbula reflexa* and *Thuidium recognitum*) have been listed.

A survey of the coastal cliffs carried out by Ben Averis in June 1999 identified the presence of *Acrobulbus wilsonii*, Wilson's pouchwort, a particularly rare species of liverwort. This is the Northern most site known for *A. wilsonii* except for one other in the Faroe Islands.

Lichens

The rare lichen *Siphula ceratites* is present in two extensive areas North of Sheigra.

A reference from an unknown source (possibly Rose, 1974) includes reference to 64 species (mostly *Cladonia*) found by Loch Aisir, Blairmore and 117 species found around Sandwood Loch.

During a 1983-84 British Lichen Society survey (BLS 1984) undertaken for the N.C.C., 17 terricolous species were listed from the dunes and machair systems of Oldshoremore, Oldshorebeg and Sheigra. This area was assessed as being Grade 3, nationally important. Sandwood Bay was also covered by the same survey and assessed as being of local importance for its terricolous lichens.

Three nationally rare (*Siphula ceratites*, *Lempholemma cladodes* and *Sarcogyne clavus*) and five nationally scarce (*Lempholemma myriococcum*, *Peltigera canina*, *P. polydactyla*, *Polyblastia wheldonii*, *Toninia lobulata*)

Fauna

The largest wild mammal present on Sandwood Estate is red deer (*Cervus elaphus*). Numbers of red deer have increased in recent years possibly due to a combination of reduction in domestic stock grazing and neighbouring landowner's management objectives. Roe deer (*Capreolus capreolus*) are present in a number of the more sheltered areas towards the northern margins of Sandwood Estate.

Grey seals (*Halichoerus grypus*) frequently visit Sandwood Estate's shores and the occasional common seal (*Phoca vitulina*) is also seen. The most frequently seen cetacean is the Risso's dolphin (*Grampus griseus*) which has been sighted close into Loch Inchard and regularly off the coast off Sandwood Estate. Porpoise (*Phocoena phocoena*), common dolphin (*Delphinus delphis*), bottle

nosed dolphin (*Tursiops truncatus*), white-sided dolphin (*Lagenorhynchus acutus*), minke whale (*Balaenoptera acutorostrata*) and orca (*Orcinus orca*) all make occasional appearances.

The rabbit (*Oryctolagus cuniculus*) is a common herbivore. Numbers fluctuate from year to year, but have in the past have reached such significant numbers as to have caused habitat damage to the machair in Oldshoremore and Oldshorebeg. At one time they were a valued food source and were trapped on Sandwood Estate. The John Muir Trust has carried out habitat restoration in conjunction with regular rabbit control to prevent numbers rising to damaging proportions.

Mountain hare (*Lepus timidus*) is present in low numbers on Sandwood Estate, mainly on the high ground to the East. There has been evidence of damage to tree seedlings by hare in the Allt Briste area.

A basic water vole (*Arvicola terrestris*) survey is carried out every year which has shown that numbers and range are contracting. A repeat of the comprehensive survey carried in 2006 will be repeated in 2014.

Moles (*Talpa europaeus*) were thought to occur on Sandwood Estate but molehill evidence could have been confused with the unusual activity of some water-voles.

Small mammals surveys undertaken in 1998 and 1999 (Reid, 1998) revealed the presence of large numbers of bank voles (*Clethrionomys glareolus*) on machair habitats and on drier heaths. They are evidently present in Allt Briste where there has been some vole damage to young trees. Other small mammals known to be present include common shrew (*Sorex araneus*), water shrew (*Neomys fodiens*) and wood mouse (*Apeodemus sylvaticus*).

Both badger (*Meles meles*) and fox (*Vulpus vulpus*) are commonly seen. Fox numbers are controlled by crofters. Otter (*Lutra lutra*) have been recorded on almost every water course on Sandwood Estate (Denny, 1999). Stoat (*Mustela erminea*) and weasel (*Mustela nivalis*) have both been recorded on Sandwood Estate in recent years. The presence of American mink (*Mustela putorius*) has been suspected on a number of occasions although as yet is unconfirmed. Wildcat (*Felis silvestris*) tracks have been found in remote country to the north, but are not confirmed to be present on Sandwood Estate.

Pipistrelle bats do occur on Sandwood Estate, though there is little information about their numbers or distribution.

Table 4
UKBAP Mammal Species Present on Sandwood Estate

Species	Common Name	Status	Protection
<i>Arvicola terrestris</i>	Water vole	Present	UKBAP Priority
<i>Felis silvestris</i>	Wildcat	Possible hunting ground	UK BAP Priority
<i>Lepus timidus</i>	Mountain Hare	Present	UK BAP Priority
<i>Lutra lutra</i>	Otter	Present	UKBAP Priority
<i>Meles meles</i>	Badger	Present	LBAP

Pipistrellus pygmaeus	Soprano Pipistrelle	Present	UK BAP Priority
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Birds

Seabird monitoring is carried out during the summer months on the cliffs between Sheigra and Sandwood Bay. Fulmars are particularly prevalent between Sandwood Bay and Droman. Between 1996 and 2002, within 17 fixed plots, an average total of approximately 600 fulmars and occupied nest sites were recorded annually, however, numbers have since dropped to approximately 260.

Am Buachaille and Am Balg host populations of kittiwake. Am Balg also has largely undisturbed, breeding populations of guillemots, razorbills, puffins, shags and greater black-backed gulls. Gannets have also recently been showing an interest in the island and during stormy weather they can be seen feeding close to the sandy shores.

Other sea-bird species, breeding on the mainland includes black-guillemot near Droman, common/arctic terns near Sheigra, puffins near to Sandwood Bay and oystercatchers in a variety of places. Great skua nest on some of the near-shore islands and on Rubh' a Buachaille and arctic skua have successfully bred in an inland site in recent years.

The peatlands host the breeding populations of red-throated divers, golden plover, dunlin and common sandpiper. Meadow-pipits and skylarks are numerous on the moorland. A wood sandpiper was recorded during the breeding season in 1997, but breeding was not confirmed. Merlin, greenshank and red-grouse nest on the higher ground above the peatlands, but regularly feed within them. There are several pairs of raven on Sandwood Estate. The high rabbit populations near to the coast support several pair of buzzards. Kestrel, golden-eagle, peregrine-falcon and sparrow hawk are less frequently seen. A small number of deer carcasses are left out at the end of the hind season as a supplementary food source for the breeding golden eagles.

Ringed-plover nest on some of the sandy shores. Snipe breed in the wetter areas, but their status is uncertain.

The corncrake used to be numerous in the area breeding within hayfields on the machair, but have not been present as a breeding bird since 1996. Lapwings have also declined since there has been a reduction in feeding sites previously enhanced by the cultivation of land for crops. There are no records of Lapwings breeding since 2011.

Twite are numerous in the summer months and feed on the machair.

Sandwood Estate is important as a resting ground or stopover point for many migratory birds. In autumn, numerous redwings and fieldfares weigh down the branches of the few trees on Sandwood Estate. Barnacle geese spend the winter on Eilean an Roin Mor/Beag, Greylag geese and whooper swan make passing visits sometimes remaining for many days. Wintering barnacle geese feeding on Eilean an Roin Mor have been monitored since 1996, the maximum number recorded on the site is around 120, but numbers generally appear to be steadily around 75. Wintering sanderling are occasionally numerous on the sandy shores in early winter.

Birds of Conservation Concern

The following birds present at Sandwood are listed on the Birds of Conservation Concern Red and Amber lists (Eaton MA, Brown AF, Noble DG, Musgrove AJ, Hearn R, Aebischer NJ, Gibbons DW, Evans A and Gregory RD (2009) Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 102,pp296–341.) http://www.rspb.org.uk/Images/BoCC_tcm9-217852.pdf

Species	Concern Level	Status
Skylark	Red	Breeding
Song Thrush	Red	Breeding
Ring Ouzel	Red	Uncertain
Grasshopper Warbler	Red	Breeding nearby
Starling	Red	Breeding
House Sparrow	Red	Breeding
Twite	Red	Breeding
Reed Bunting	Red	Breeding
Cuckoo	Red	Breeding
Lapwing	Red	Uncertain/declining
Herring Gull	Red	Breeding
Arctic Skua	Red	Breeding
Redwing	Red	Uncertain
Dunlin	Red	Breeding
Meadow pipit	Amber	Breeding
Golden Eagle	Amber	Feeding Range
Merlin	Amber	Breeding
Red throated diver	Amber	Breeding
Peregrine	Amber	Breeding
Grey Wagtail	Amber	Breeding
Curlew	Amber	Uncertain
Red Grouse	Amber	Breeding
Fulmar	Amber	Breeding
Gannet	Amber	Potential
Shag	Amber	Breeding
Whooper Swan	Amber	Winter Visitor
Snipe	Amber	Breeding
Woodcock	Amber	Uncertain
<u>Redshank</u> <u>Curlew</u>	<u>Amber</u> <u>Amber</u>	<u>Winter Visitor</u> <u>Breeding</u>
<u>Great Skua</u> <u>Redshank</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Winter Visitor</u>
<u>Common Gull</u> <u>Great Skua</u>	<u>Amber</u> <u>Amber</u>	<u>Uncertain</u> <u>Breeding</u>
<u>Kittiwake</u> <u>Common Gull</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Uncertain</u>
<u>Arctic Tern</u> <u>Kittiwake</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Breeding</u>
<u>Guillemot</u> <u>Arctic Tern</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Breeding</u>
<u>Razorbill</u> <u>Guillemot</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Breeding</u>
<u>Black Guillemot</u> <u>Razorbill</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Breeding</u>
<u>Puffin</u> <u>Black Guillemot</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Breeding</u>
<u>Barn Owl</u> <u>Puffin</u>	<u>Amber</u> <u>Amber</u>	<u>Uncertain</u> <u>Breeding</u>
<u>Short-eared Owl</u> <u>Barn Owl</u>	<u>Amber</u> <u>Amber</u>	<u>Occasional Breeder</u> <u>Feeding Range</u>
<u>Swallow</u> <u>Short-eared Owl</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Occasional Breeder</u>
<u>Dunnock</u> <u>Swallow</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Breeding</u>

<u>Greylag Goose</u> <u>Dunneock</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Breeding</u>
<u>Barnacle Goose</u> <u>Greylag Goose</u>	<u>Amber</u> <u>Amber</u>	<u>Winter Visitor</u> <u>Breeding</u>
<u>Common Eider</u> <u>Barnacle Goose</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Winter Visitor</u>
<u>Goldeneye</u> <u>Common Eider</u>	<u>Amber</u> <u>Amber</u>	<u>Winter Visitor</u> <u>Breeding</u>
<u>Kestrel</u> <u>Goldeneye</u>	<u>Amber</u> <u>Amber</u>	<u>Uncertain</u> <u>Winter Visitor</u>
<u>Oystercatcher</u> <u>Kestrel</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Breeding</u>
<u>Ringed Plover</u> <u>Oystercatcher</u>	<u>Amber</u> <u>Amber</u>	<u>Breeding</u> <u>Breeding</u>
<u>Ringed Plover</u>	<u>Amber</u>	<u>Breeding</u>

Reptiles and Amphibians

Species known to occur include:

Adder	<i>Vipera berus</i>
Common/Viviporous lizard	<i>Lacerta vivipara</i>
Common frog	<i>Rana temporaria</i>
Palmate newt	<i>Triturus helveticus</i>
Common toad	<i>Bufo bufo</i>

Fish

Brown trout (*Salmo trutta*) occur in many of the lochs while salmon (*Salmo salar*) and sea trout (*Salmo trutta*) may be found in Sandwood Loch and the Abhainn an t-Srathain when conditions are suitable. Numbers of salmon and sea trout found in Sandwood Loch and Abhainn an t-Srathain are limited by the nature of the outfall from Sandwood Loch to the sea which is infrequently of a depth great enough for the passage of migrant fish. There are reports of substantial numbers of salmon being netted in the past off-shore near to the outflow of Sandwood Loch. Sea trout have been known to reach Loch Càrn Mharasaid through Allt an Lòin Bhàn. Arctic charr (*Salvelinus alpinus*) were recorded in Loch na Gainimh in 1994 but subsequent records are unconfirmed (Morrison (1996) pers. comm.).

The marine/estuarine form of three-spined stickleback (*Gasterosteus aculeatus*) has been observed in dune slacks within the Sandwood Bay dune-system. European eels are present in all systems; these are now a BAP species due to huge declines. Salmon and sea trout are also present.

Invertebrates

Dragonflies & Damselflies

Common hawker	<i>Aeshna juncea</i>
Golden-ringed dragonfly	<i>Cordulegaster boltonii</i>
Four-spotted chaser	<i>Libellula quadrimaculata</i>
Common/Highland darter	<i>Sympetrum striolatum/nigrescens</i>
Black darter	<i>Sympetrum danae</i>
Emerald damselfly	<i>Lestes sponsa</i>
Common blue damselfly	<i>Enallagma cyathigerum</i>
Large red damselfly	<i>Pyrrosoma nymphula</i>
Blue-tailed damselfly	<i>Ischnura elegans</i>

Orthoptera - Grasshoppers

Only the meadow grasshopper (*Chorthippus parallelus*) has been recorded; it is numerous in the peatlands and wet heath areas. Other species may occur.

Dermaptera - Earwigs

Forficula auricularia has been recently recorded.

Hemiptera - True Bugs

Twenty species of hemiptera have been recorded on Sandwood Estate.

Ten species of heteroptera (Plant bug) have been recorded in Oldshorebeg, six recorded in Loch na Larach and twelve recorded in Sheigra (Moran, 1991).

Lepidoptera - Moths and Butterflies

During a survey carried out by ITE in 1979 on the machair of Sheigra-Oldshoremore SSSI and Sandwood Estate, twenty-seven species of moth were recorded. There is currently inadequate up to date information for these and other sites on Sandwood Estate. An Oleander hawk moth was found in Sheigra and now resides in Inverness Museum!

The following butterfly species occur on Sandwood Estate

Large white	<i>Pieris brassicae</i>
Green-veined white	<i>Artogeia rapae</i>
Common blue	<i>Polyommatus icarus</i>
Red admiral	<i>Vanessa atalanta</i>
Painted lady	<i>Cynthis cardui</i>
Small tortoiseshell	<i>Aglais urticae</i>
Meadow brown	<i>Maniola jurtina</i>
Scotch argus	<i>Erebia aethiops</i>
Large heath	<i>Coenonympha tullia</i>
Small heath	<i>Coenonympha pamphilus</i>
Small white	<i>Pieris rapae</i>
Small pearl-bordered fritillary	<i>Boloria selene</i>
Dark green fritillary	<i>Argynnis aglaja</i>
Grayling	<i>Hipparchia semele</i>

Diptera - True flies

Rhingia campestris recorded in Loch na Larach and *Syrphus ribesii* recorded in Sheigra (Moran, 1991).

Hymenoptera – Bees, wasps, ants, sawflies etc.

There are seven species of bumblebee known to be present on Sandwood Estate.

White tailed bumble bee	<i>Bombus lucorum</i>
Great yellow bumble bee	<i>Bombus distinguendus</i>
Northern white tailed bumble bee	<i>Bombus magnus</i>
Red tailed bumble bee	<i>Bombus lapidarius</i>
Heath bumble bee	<i>Bombus jonellus</i>
Small garden bumble bee	<i>Bombus hortorum</i>
Moss carder bumblebee	<i>Bombus muscorum</i>
Common carder bumblebee	<i>Bombus pascuorum</i>

The great yellow bumblebee (*Bombus distinguendus*) is a rare Biodiversity Action Plan species first recorded by Murdoch MacDonald in 1999. Its presence has been recorded in Oldshoremore, Polin and Blairmore. It is associated with the sand dunes and machair.

Another rarity is the red tailed bumble bee (*Bombus lapidaries*); a single queen was discovered in on the machair in Oldshoremore in 1999. The range of the red tailed bumble bee has been extending northwards from the south of Scotland for a number of years, but was thought not to extend far beyond Inverness.

The burrowing sand bee (*Colletes succinctus*) is commonly found at Sandwood Bay.

Coleoptera - Beetles

Fifty-two species are listed (ITE, 1979).

Araneae - Spiders

Twenty-three species are listed (ITE, 1979).

Araneus diadematus particularly numerous on rushes and ragwort (Moran, 1990).

Mitopus monio is a widespread and commonly found harvestman (Moran, 1990).

Mollusca - Land Snails

Cochlicella acuta (pointed snail), *Hellicella itala* (heath snail) and *Capaea hortensis* (white-lipped, banded snail) are all found on sandy areas. The heath snail is particularly numerous on the machair. Little is known about other species.

Annelida - Worms (Hirudinae - leeches)

The European medicinal leech (*Hirudo medicinalis*), UKBAP species, has been recorded on Sandwood Estate (Loch Poll a' Mhurain), but its present status is uncertain. This species is now considered to be threatened in Britain. The horse leech (*Hortensis* sp.) is common in some lochs.

Appendix viii Social and Cultural Information

Archaeology and history

Members of the Association of Certified Field Archaeologists (ACFA) carried out surveys in July 1998 and in July 2002. The first survey has been published in a paper edited by James Waterton (1999).

The two surveys have covered a great number of the more obvious archaeological features and landforms on Sandwood Estate, including Bronze Age ruins and field systems in the Sandwood Bay area, two sets of shielings and isolated ruins, the Sandwood House area and specific sites in around the settlements.

Of particular interest is the appearance of a hearth, potboilers, broken pottery and bones in the face of an eroding dune facing the seaward end of Sandwood Loch. The natural erosion of the face reveals bit by bit an unfolding tale of the past. The pottery has been aged at between 2,500 to 3000 years old and is thought to be pictish.

An arrowhead, beautifully made of shard stone, was found in 2002 near to Sandwood House.

The HRC archaeological sites and monuments record lists a number of mounds alleged to be cairns, north of Loch na Gainimh.

The remains of shielings exist beside the Abhainn an t-Srathain (NC 271601) and beside Loch Càrn Mharasaid (NC 240 586). There is evidence of depopulation and old exclosures in many areas along the coast and around the present township area.

At the western end of Am Meallan (NC 195587) there is a disused graveyard (Cladh Eilean na h-Aiteig). Adjacent to Sandwood Estate, at Oldshoremore (NC 208589) there are remains of a water powered mill, a scheduled monument, which closed down in 1928.

A detailed survey of the history of the land use and socio-economics of Sandwood Estate was commissioned by the John Muir Trust and undertaken over three years. The results are recorded in *The Sandwood Estate, 1800 – 2000. Land-use History, society and economy* by Fiona Young (2001).

Landuse

Agriculture

Predominantly sheep and cattle grazing by individual crofters on in-bye and common grazing. The John Muir Trust has little, if any influence over the movement/grazing of stock. We do encourage uptake of appropriate environmental schemes and have made grant aid available to cover the cost of initial audits for such applications as well as running occasional workshops for new schemes.

The overall grazing density by sheep on Sandwood Estate is approximately 30 animals per square kilometre. The most extensively grazed areas are on the coastal areas. Grazing in the peatlands is not considered to be of great value and sheep are not deliberately shepherded into this area.

Cultivation and growing crops, traditionally carried out on the machair is now carried out by very few, and hay cutting, a feature of crop rotation is also now very rare.

Muirburn

In recent years muir burning has not been carried out on Sandwood Estate and there is an informal agreement with graziers regarding this.

Following a fire incident in 2002 when a muir burn got out of control on Keoldale Estate, The John Muir Trust has an informal agreement with estate that no burning will be carried out.

Peat cutting

Small scale peat cutting by hand for fuel is a right of crofters and only carried out by few within Sandwood Estate community. In Oldshoremore, cutting continues South of the peat road (NC220585) and near to Loch Aisir Mor (NC215590). In Oldshorebeg cutting takes place mostly at the end of the Polin peat-road (NC210603). In Sheigra a small amount of cutting continues near the end of the peat-road (NC196618).

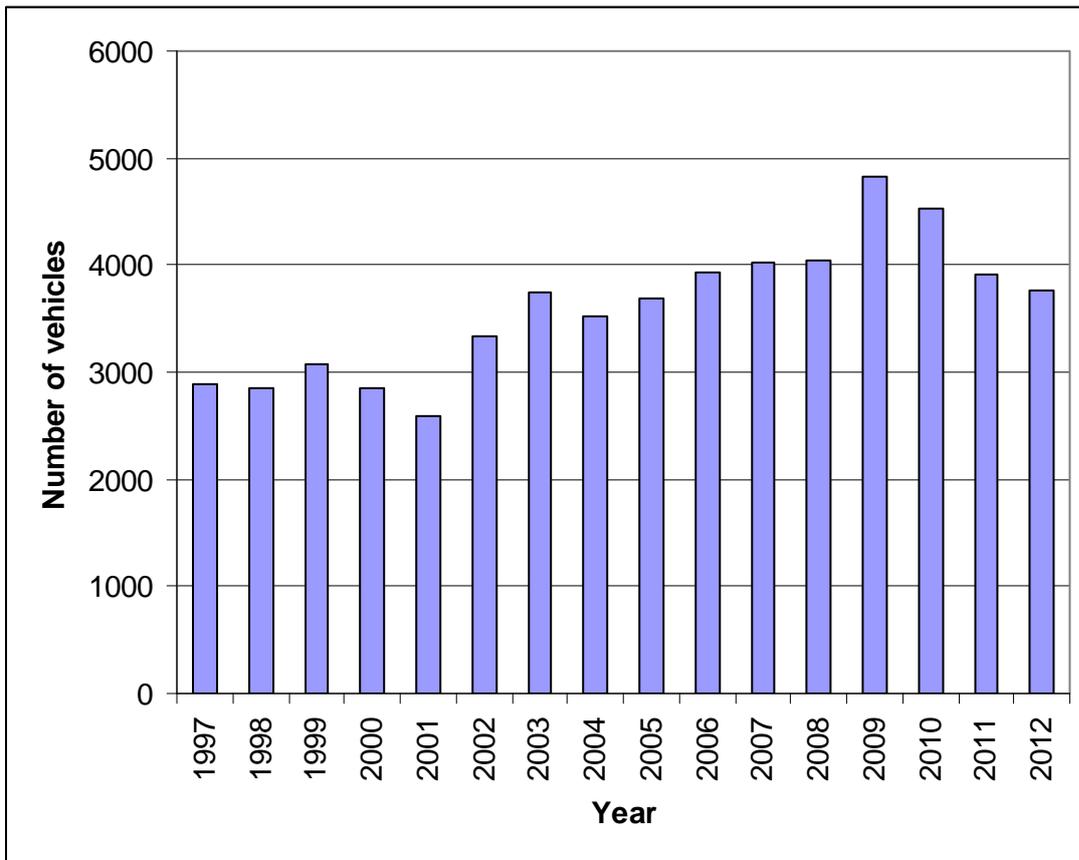
Recreation

Walking

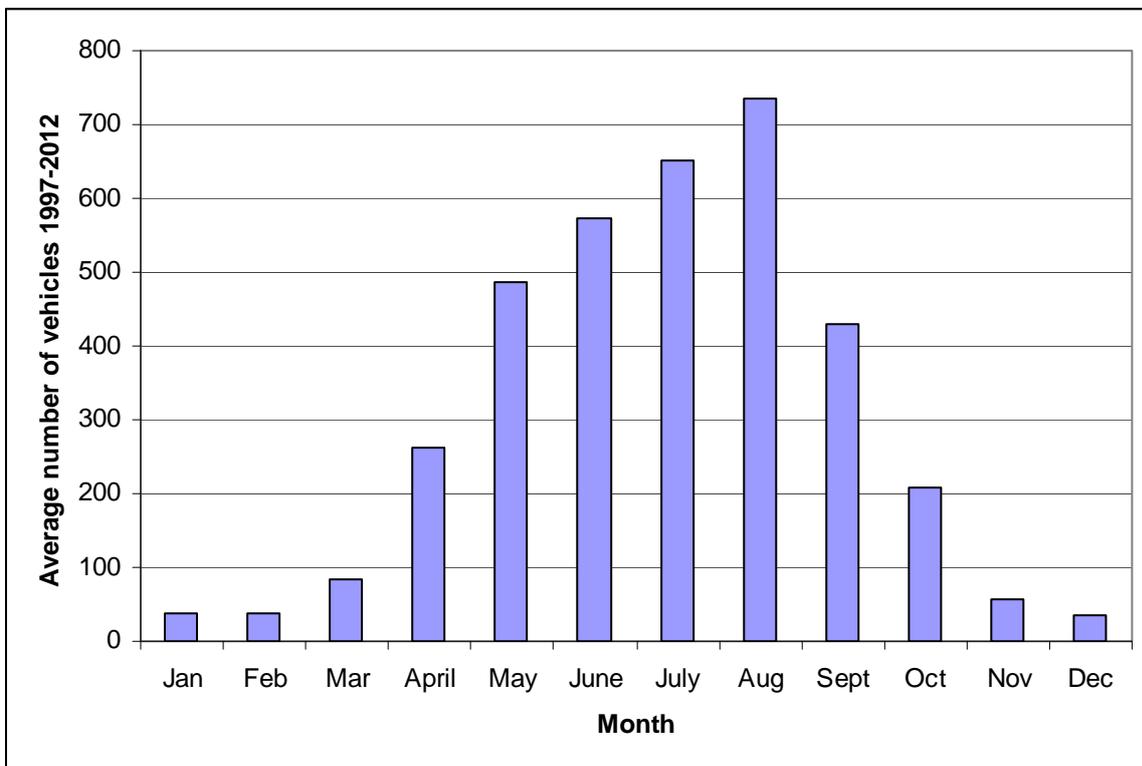
Walking is one of the main attractions for visitors to Sandwood Estate. Some paths, such as Blairmore or Sheigra to Sandwood Bay which are part of the Cape Wraith Trail, are described in a great number of tourist guide books. There are many other areas of interest to the more adventurous, such as the hills to the east of Sandwood Estate and the route between Gualin House, along Strath Shinary to Sandwood Bay.

The parking area in Blairmore has provided an opportunity for estimating numbers of people walking to Sandwood Bay since the installation of a people counter. Since 1996 the maximum number of vehicles in the car park has been recorded every day by the MacLeod family.

Total number of vehicles counted in Blairmore parking area



Average number of vehicles counted per month in Blairmore parking area



Rock Climbing

Rock climbing takes place on the coastal cliffs between Bagh Sheigra and Cnoc an Staca (with over 43 named routes recorded). The imposing 60 m sea stack, Am Buachaille, just south of Sandwood Bay is a major attraction to climbers by offering an exciting introduction to the variety in quality of the rock being made up of many layers of contrasting types of Sandstone . The Lewisian Gneiss cliffs at the Northern end of Sandwood Bay are becoming increasingly popular. Unauthorised vehicular access is prohibited and policed by staff.

Fishing

Fishing of the inland lochs is popular amongst many of the visitors to the area and to residents alike. There is also considerable outside interest in fishing on Sandwood Estate. Permits for fly fishing are distributed from the local hotels and the Conservation Manager. Salmon and sea trout fishing occurs on Sandwood Loch (NC228642) and Strath Shinary (NC246610). Brown trout are fished on many of the lochs but are rarely found to be of any great size. Records are infrequent despite efforts by permit distributors to encourage catch reports. A fishing policy is currently being drawn up.

Water Sports

Visitors use the area for off-shore diving, frequently off Bagh Sheigra. There is also infrequent, though increasing, sea-kayaking and surf-boarding in the area. Sandwood Bay has become increasingly well known to surfers.