

# Raasay 5:

## SE Raasay



The spectacular view of the east coast of Raasay from the Sorley MacLean memorial cairn on the North Fearnas to Hallaig path reveals much of the island's main geological units. Rubha na Leac, the promontory NE of the cairn, is composed of Triassic Stornoway Formation strata; the middle distance crags, with its waterfall where the Hallaig Burn enters the sea, are formed of Lower Jurassic Ardnish Formation strata; the high cliffs beyond are formed of Middle Jurassic Druim an Fhuarain Sandstone Member strata; in the distance the low-lying ground is composed of the Archaean basement Lewisian Gneiss Complex, overlain by Late Proterozoic ('Torridonian') strata. The flat-capped summit of Dùn Caan, at 444m OD, is an outlier of the Paleocene Skye Lava Field.

**Aspects covered:** Triassic (New Red Sandstone) Stornoway Formation terrestrial conglomerates, sandstones and calcretes; Breakish Formation marine sandstones with concretions, limestones and siltstones; Lower Jurassic Ardnish Formation marine sandstones and siltstones; Lower Jurassic Scalpay Sandstone Member marine sandstones; Middle Jurassic Druim an Fhuarain Sandstone Member shallow marine cross-bedded sandstones; Pabay Shale Formation marine shales and siltstones with concretions; the Hallaig and Beinn na Leac landslips; Devensian till.

**Route:** [North Fearnas](#) - [An Leac](#) - [Sorley MacLean memorial cairn](#) - [Rubha na Leac](#) - [Loch na Leac](#) - [Hallaig Burn](#) - [Hallaig](#) - [Creag nan Cadhaig](#) - [Beinn na Leac](#) - [Allt Fearnas](#) - (return [North Fearnas](#)).

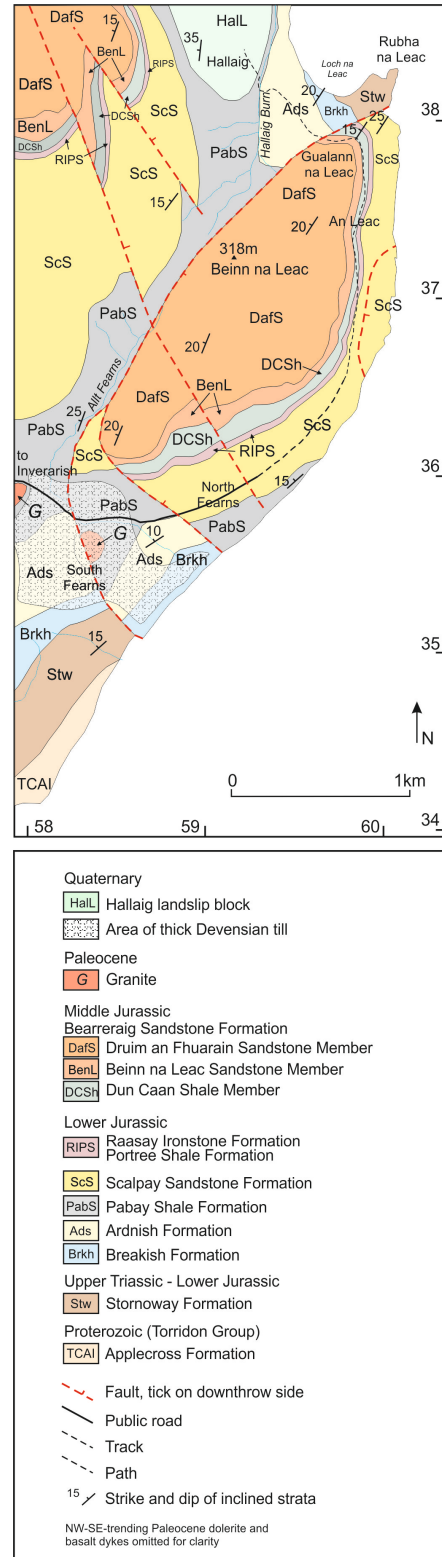
**Distance:** 10 kilometres (6 miles).

**Time:** 7 hours.

**General comments:** This excursion includes coastal exposures of a wide range of Triassic and Jurassic strata deposited in contrasting non-marine and marine environments, together with relatively recently active landslips, and Devensian tills. Locality 3 involves coastal exposures and therefore requires low tide conditions. The top of the Hallaig Waterfall is not easily accessed, and

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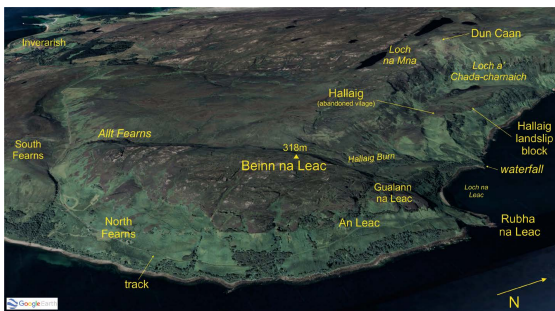
the coast at its base is not passable except during low Spring tides. The excursion route includes the abandoned village of Hallaig, the result of land clearances and mass emigration by unscrupulous landowners more interested in the perceived profits of sheep farming than of the wellbeing of the natives of Raasay.



**Figure Raasay 5.1:** Simplified geological map and key for SE Raasay.



**Figure Raasay 5.2:** Annotated Google Earth® image of SE Raasay.



**Figure Raasay 5.3:** Annotated oblique Google Earth® image of SE Raasay.

From [Inverarish](#), take the minor road to Fearnas (Na Feàra) (5km; 3 miles), leaving The North Pole for another day.



**Figure Raasay 5.4:** The route to Fearnas.

Parking is available at the end of the public road at [North Fearnas](#). Follow the excellent track NE towards [Hallaig](#) (signposted).



**Figure Raasay 5.5:** The track to Hallaig.

For the first part of this inland route to [Rubha na Leac](#), there is very limited rock exposure of the Scalpay Sandstone Formation, better exposed along the coast and to be seen later in the excursion. To the NW (left), forming the coast-facing cliffs, are excellent exposures of the Middle Jurassic Druim an Fhuarain Sandstone Member. These gently-inclined, thinly-bedded shallow marine sandstones constitute one of the thickest Jurassic sequences in the Hebrides Basin. Common features include: cross-bedding, ripple lamination, siltstone and mudstone drapes on cross-beds, and carbonate concretions. A marine environment of deposition is confirmed by the fauna of ammonites, belemnites, bivalves and brachiopods. Wood fragments indicate proximity to a shoreline, whereby such material was transported into the basin. More complete exposures of these strata, although not easily accessed, are dealt with in **Excursion Raasay 2**. However, the view from the path is instructive.

Continue along the track towards [Rubha na Leac](#). At the northern end of these inland cliff exposures, evidence for their instability takes the form of a significant rock pillar with a large fissure separating it from the main cliff face. Views of such fissures will be encountered later in the excursion and the overall nature of this landslipped mass will be more obvious.



**Figure Raasay 5.6:** Eastward-facing inland cliffs of the shallow marine Middle Jurassic Druim an Fhuarain Sandstone Member (Bearerraig Sandstone Formation), between the Hallaig track and the summit of Beinn na Leac.



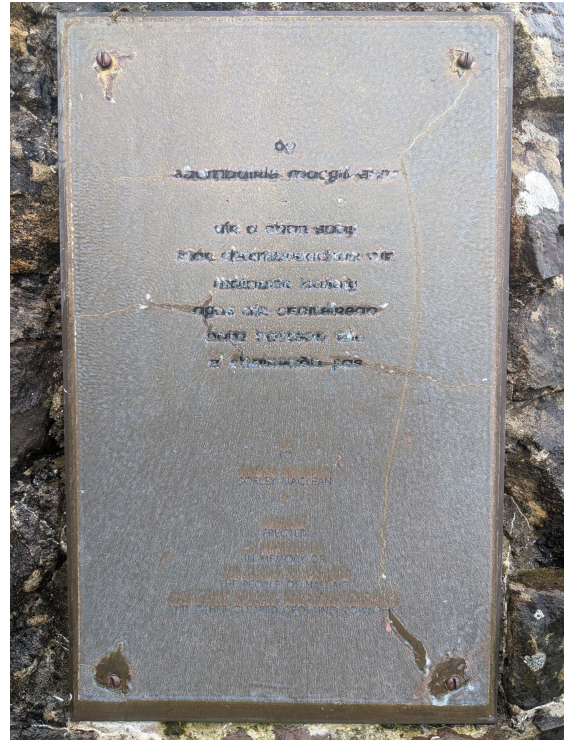
**Figure Raasay 5.7:** Detail of the eastward-facing inland cliffs of the shallow marine Middle Jurassic Druum an Fhuarain Sandstone Member (Barreraig Sandstone Formation), between the Hallaig track and the summit of Beinn na Leac. Note the distinctive style of weathering of parts of the section due to its carbonate content.



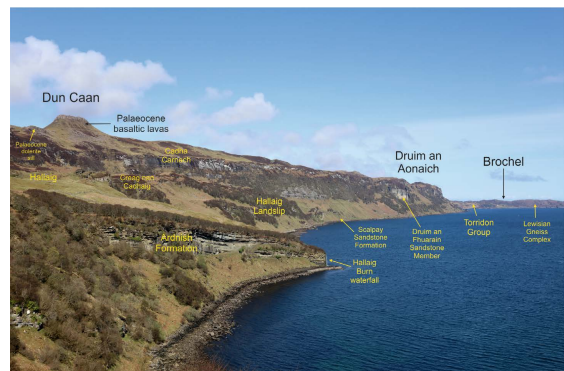
**Figure Raasay 5.8:** Rock pillar of the Middle Jurassic Druum an Fhuarain Sandstone Member (Barreraig Sandstone Formation), between the Hallaig track and the summit of Beinn na Leac. The overall instability of this rock unit within the Beinn na Leac Landslip is more obvious when seen in plan view between Gulann na Leac and Beinn na Leac.

Continue north to the [Sorley MacLean memorial cairn](#), celebrating the Gaelic poet. The words of his best loved poem about the abandoned village of [Hallaig](#), here visible to the NW, are reproduced in Gaelic and English.

From the cairn, one of the iconic views of Raasay reveals much of the geology of the east side of the island.



**Figure Raasay 5.9:** The Sorley MacLean memorial cairn plaque, in memory of the people of Hallaig and other cleared crofting townships.



**Figure Raasay 5.10:** The east section of Raasay, viewed towards the north from the Sorley MacLean memorial cairn. The main stratigraphic units, geological features and locations are labelled in the upper image.

Here, two Jurassic sequences of the Hebrides Basin form prominent topographic features: the Lower Jurassic Ardnish Formation and the Middle Jurassic Druim an Fhuarain Sandstone Member of the Berreraig Sandstone Formation. Other formations are present, but do not have significant topographic expressions. In the distance, the Lewisian Gneiss Complex and overlying Late Proterozoic ('Torridonian') strata crop out at [Brochel](#) (and beyond).

The Hallaig Landslip is a rotational collapse involving strata from the Pabay Shale Formation (on the coast) up to the Druim an Fhuarain Sandstone Member of the Berreraig Sandstone Formation (east of [Loch a' Chada-chàrnaich](#)). The position of these strata can be determined in the northern part of the landslip, whereas further south (in the area around [Hallaig](#)) the make-up of the landslip is chaotic. Strata within the landslip dip at anomalously steep values, up to 50° to the west, and there are deep and open (potentially dangerous) fissures. The detachment (décollement) surface is within shales of the Pabay Shale Formation. Strata of the Ardnish Formation, north of the [Hallaig Waterfall](#) are unaffected by the landslip. The landslip most likely dates to the beginning of the Holocene Epoch and is still active, based upon the multiple fresh escarpments preserved north of [Hallaig](#).

Proceed downhill to the coastal exposures of the Triassic (New Red Sandstone) Stornoway Formation at [Rubha na Leac](#).



**Figure Raasay 5.11:** Triassic (New Red Sandstone) Stornoway Formation conglomerates, sandstones, siltstones and caliche deposits of Rubha na Leac.



**Figure Raasay 5.12:** Triassic (New Red Sandstone) Stornoway Formation conglomerates, sandstones, siltstones and caliche deposits of Rubha na Leac.

**Locality 1** [\[NG 5998 3823\]](#):

The sequence of Stornoway Formation strata at [Rubha na Leac](#) is bound by a fault to the SE, the main fault of the Beinn na Leac Landslip. To the west it grades up into the shallow marine Lower Jurassic Breakish Formation strata.

The sequence comprises breccias/conglomerates, sandstones, siltstones and calcretes deposited in a paired alluvial fan – floodplain system.

The coarse-grained lithologies, typically poorly sorted sheet-like breccias and conglomerates, formed as aprons in an alluvial fan system and contain a wide range of clast lithologies, including basement gneiss (Lewisian Gneiss Complex), Late Proterozoic ('Torridonian') sandstone and siltstone, and Lower Palaeozoic (Cambro-Ordovician) dolostone and sandstone ('quartzite') (neither seen *in situ* on Raasay). Where the clasts are angular (typical of a breccia) and lack a support framework and 'float' in a fine-grained (silt to mud grade) red-brown matrix, they are, most likely, the product of a mudflow mechanism of transport. Where the clasts are more rounded (typical of a conglomerate) and form a touching framework, with interbedded cross-stratified sandstones, they are, most likely, the product of a high energy stream flood mechanism of transport.

Rarer finer-grained lithologies, sandstone, siltstone and mudstone, formed in a floodplain system and range between cross-stratified pebbly sandstones typical of a braided river system, and laminated siltstone-mudstones deposited from suspension in the overbank environment.

Distinctive brown-orange calcretes (caliches; concretionary carbonate deposits; carbonate-cemented soils) are analogues to present-day caliches formed in a semi-arid (terrestrial) floodplain environment. Various textures, including breccia, pisolitic (concretionary grains) and laminated facies, indicate they formed during diagenesis at or near the (Earth's) surface by downward-percolating surface water, with the development of non-tectonic fractures. At their simplest, the calcretes comprise an accumulation of authigenic carbonate, i.e. nodules, angular masses ('breccia'), sheets and pipes, that have formed *in situ*. Where the calcrete has a brecciated appearance, the texture can be attributed to minor amounts of disruption or rotation of the secondary carbonate (i.e. essentially formed *in situ*). The host to this carbonate can be any of the other lithologies outlined above, although typically the finer-grained material (sand and silt grade). The carbonate typically fills pore space (more common deeper in the profile) or partially replaces original grains (shallower in the profile). The pisolitic variant typically occurs as laminae or bands of coated grains and are typically silicified. In any one bed, the amount of carbonate typically increases towards the top. The source of the carbonate can be attributed to wind-borne fine-grained sediment (loess) or dissolved in rain-

water. With time, the carbonate front migrates downwards. Calcretes can be polygenetic, forming in discrete episodes. Laminated variants form when downward percolation is inhibited. Intermittent sedimentation can occur during calcrete formation.

Within the sequence at [Rubha na Leac](#), the following generalisations can be made: the sequence is close to horizontal, best defined by the sandstones; the interleaved character of the sequence, dominated by conglomerate and sandstone, indicates periodic changes in the depositional environment at any one location within the system; the conglomerates formed within a high-energy braided stream system; clast size is variable, with the largest up to 30cm across; clast-supported textures are common; the dominant clast lithologies are of Torridonian sandstone and siltstone, Cambro-Ordovician sandstone ('quartzite') and dolostone, with material from the Lewisian Gneiss Complex and the Moine Supergroup (mainly schist) much less common; up sequence the amount of conglomerate lessens and there is a concomitant increase in the amount of sandstone/calcrete; the carbonate-dominated soil-forming (pedogenic) calcretes are best developed in the floodplain sandstones; Paleocene intrusions, including a prominent dyke, cut these strata and, of interest, cannot be traced across the fault to the south, the Beinn na Leac Fault, that defines the Beinn na Leac Landslip (see Locality 4, below).

Below, are images that capture a variety of the features within the c. 80m thick sequence at [Rubha na Leac](#). Paleocene minor intrusions, including one significant NW-SE -trending dolerite dyke of the Skye regional swarm, disrupt the sequence.



**Figure Raasay 5.13:** Poorly-sorted, lensoid bodies of conglomerate with interbedded discontinuous layers of red sandstone. Pole c. 1m long.



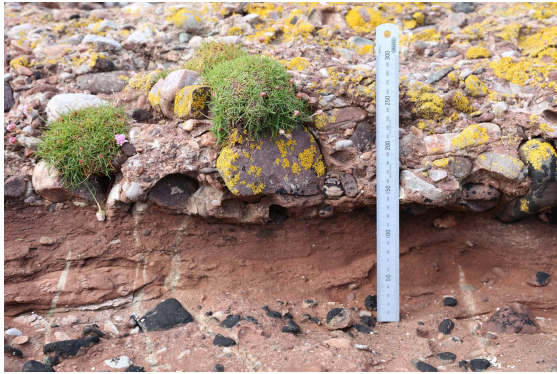
**Figure Raasay 5.14:** A pale laminated pebbly channel sandstone overlain by unsorted beds of conglomerate separated by a layer of red sandstone containing cobbles. Ruler 30cm long.



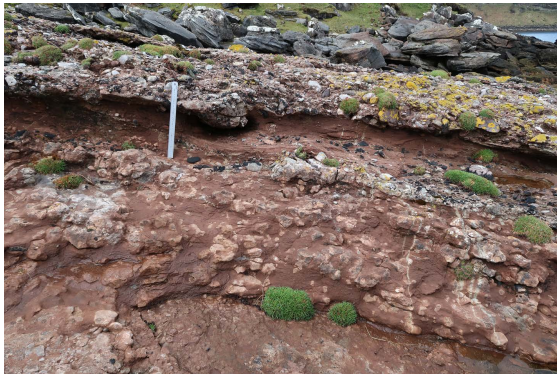
**Figure Raasay 5.15:** Bedding surface with close-packed, randomly-oriented cobbles and angular fragments of pale Cambro-Ordovician sandstone/quartzite, coarse- to medium-grained red ('Torridonian') sandstone, banded gneiss, and pale (inweathered) Cambro-Ordovician dolostone, all set in a pale coarse sand matrix. Ruler 30cm long.



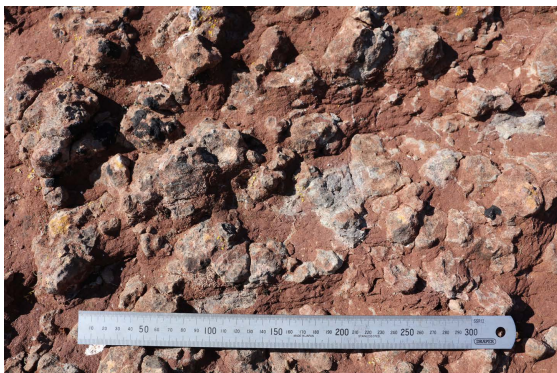
**Figure Raasay 5.16:** Bedding surface with close-packed, randomly oriented cobbles and angular fragments of pale Cambro-Ordovician sandstone/quartzite, coarse- to medium-grained red ('Torridonian') sandstone, banded gneiss, and pale (inweathered) Cambro-Ordovician dolostone, all set in a pale coarse sand matrix. Ruler 30cm long.



**Figure Raasay 5.17:** Brown-orange (authigenic) carbonate-dominated calcrete with diffuse veins of less oxidised material, overlain by very poorly sorted conglomerate dominated by close-packed, randomly oriented cobbles and angular fragments of pale Cambro-Ordovician sandstone/quartzite and coarse- to medium-grained red ('Torridonian') sandstone. The calcrete matrix is medium to coarse sand grade. Ruler 30cm long.



**Figure Raasay 5.18:** Brown-orange (authigenic) carbonate-dominated calcrete with breccia-like texture and diffuse veins of less oxidised material, grading up into a laminated variant with dispersed cobbles; locally the cobbles form discrete thin layers. The calcrete matrix is medium to coarse sand grade. Overlying the calcrete with a sharp contact is a very poorly sorted conglomerate dominated by close-packed, randomly oriented cobbles and angular fragments of pale Cambro-Ordovician sandstone/quartzite and coarse- to medium-grained red ('Torridonian') sandstone. Ruler 30cm long.



**Figure Raasay 5.19:** Brown-orange (authigenic) breccia facies calcrete with randomly-oriented angular fragments of pale (less oxidised) material in a more oxidised medium to coarse sand grade matrix. Ruler 30cm long.



**Figure Raasay 5.20:** Brown-orange (authigenic) breccia facies calcrete with randomly-oriented angular fragments of pale (less oxidised) material in a more oxidised sand grade matrix. Note the left-of-centre pale 'fragment' with a preserved thin (c. 1cm) layer of coarse sandstone, and the irregular (anastomosing) boundaries between the pale and darker (more oxidised) materials. Ruler 30cm long.

From [Rubha na Leac](#), follow the coast south around the small embayment and across the unexposed Beinn na Leac Fault (associated with the Beinn na Leac Landslip) to the coastal crags of pale bedded sandstone of the Lower Jurassic Scalpay Sandstone Formation. The throw of the fault is at least 250m. Boulders on the beach can be slippery.

**Locality 2 [\[NG 5996 3795\]](#):**

The Lower Jurassic shallow marine Scalpay Sandstone Formation consists of a (difficult to access) somewhat monotonous sequence of coarsening-upwards calcareous silty sandstones and sandy siltstones, together with sandy limestones and (at least) two laminated mica-rich shales with shell fragments, indicating periodic changes in environment of deposition. Cross-stratification of the dominant sandstones and siltstones indicate tidal or storm influences upon deposition. Post-depositional calcareous concretions ('doggers'), up to 2m across, are common at specific levels within the sequence. Fossils are uncommon in the dominant sandstones and siltstones, although some beds contain a significant quantity of the bivalve, *Pseudopecten*. Some bivalves are in life position. Stratification of the sequence includes sandy limestones forming small channelised bodies. Localised bioturbation is common. The sequence here is capped by an inaccessible, thick, homogeneous sandstone.



**Figure Raasay 5.21:** The view south from Rubha na Leac, with brown-orange Stornoway strata in the foreground, beyond which, on the south side of the unexposed Beinn na Leac Fault, is the pale-weathered Scalpay Sandstone Formation. In the far distance, right of centre, are the crags of Gualann na Leac, composed of the Middle Jurassic Druim an Fhuarain Sandstone Member.



**Figure Raasay 5.22:** Lower Jurassic Scalpay Sandstone Formation marine sandstones and siltstones. View is towards the north.



**Figure Raasay 5.23:** Detail of laminated Lower Jurassic Scalpay Sandstone Formation marine sandstones and siltstones. Pole c. 1m long.

Return along the coast to [Rubha na Leac](#) and follow the coastline around the bay to the west ([Loch na Leac](#)). Here, Lower Jurassic strata crop out along the coast and form the cliffs north to the spectacular [Hallaig Waterfall](#) (only passable during low Spring tides) and beyond, where they are obscured by the Hallaig Landslide. Two formations are recognised: the lower, the Breakish Formation, comprising limestones, sandy limestones, siltstones and mudstones; and the upper, the Ardnish Formation, dominated by sandstones with minor siltstones and mudstones.

#### **Locality 3** [\[NG 5983 3813\]](#):

The transition from the terrestrial Triassic Stornoway Formation strata into the marine Lower Jurassic Breakish Formation is not exposed. The lowest beds in the latter are micritic limestones with thin interbedded layers of shale, exposed on the west side of (the bay of) [Loch na Leac](#), backed by a raised beach. Local poor exposure causes gaps in the sequence, with the next obvious beds being of bioturbated calcareous sandstone with interbedded limestones and shales with poorly preserved bivalves and gastropods.

The sequence here is disrupted by a Paleocene dolerite sill, locally transgressive, resulting in a minor amount of thermal (contact) alteration of the host strata. Beyond (up-sequence), the sequence comprises interbedded limestones and shales, partially covered by recently landslipped material.

Behind (south of) the raised beach at [\[NG 5962 3809\]](#), limestones form a ledge below an overhang and contain layers rich in oyster shells. The bed forming the overhang is a bioturbated (nodular) limestone. The overlying bioturbated limestones are oolitic with shell fragments.



**Figure Raasay 5.24:** Cross-bedded, coarse-grained, calcareous sandstones of the Breakish Formation, Loch na Leac. Pole c. 1m long.



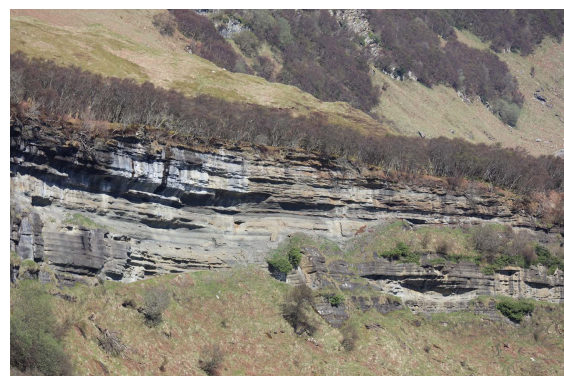
**Figure Raasay 5.25:** Careous-weathered sandstones of the Breakish Formation, Loch na Leac. Pole c. 1m long.

The overlying Lower Jurassic Ardnish Formation, dominated by calcareous marine sandstones interbedded with silty shales, contains the distinctive oyster, *Gryphaea arcuata* ('Devil's toenails'). It commences north of c. [\[NG 5954 3818\]](#). Continue north along the shore towards the [Hallaig Waterfall](#). Here, the Ardnish Formation comprises interbedded bioturbated (with the recognisable trace fossils *Thalassinoides* and *Rhizocorallium*) calcareous sandstones and silty shales with abundant *Gryphaea arcuata* and rare ammonites.

Access to the sequence north of the waterfall requires returning towards [Rubha na Leac](#), gaining the path to [Hallaig](#) and accessing the shore north of the waterfall. Only at low Spring tides can direct access be made and should only be undertaken when calm sea conditions permit. The sequence north of the waterfall is similar in character and need not be visited unless of particular interest.



**Figure Raasay 5.26:** Ardnish Formation strata south of the Hallaig Waterfall. View is towards the NW from the Sorley McLean memorial cairn on the Hallaig path.



**Figure Raasay 5.27:** Detail of the Ardnish Formation strata south of the Hallaig Waterfall. View is towards the NW from the Sorley McLean memorial cairn on the Hallaig path.



**Figure Raasay 5.28:** Detail of the Ardnish Formation strata south of the Hallaig Waterfall, with massive and laminated sandstones and siltstones. View is towards the NW from the beach.





**Figure Raasay 5.29:** The lower exposed part of the Ardnish Formation strata on the west side of Loch na Leac, comprising interbedded calcareous sandstones and siltstones. Pole c. 1m long.



**Figure Raasay 5.30:** Loose block of calcareous sandstone with abundant fragments of disarticulated *Gryphaea arcuata*. West side of Loch na Leac. Pole c. 1m long.

Return, uphill, from [Loch na Leac](#), to the [Sorley MacLean memorial cairn](#) and follow the (sometimes boggy) path through the first of two sections of birchwood, across the open ground and through the second section of birchwood. Beyond, the path crosses the [Hallaig Burn](#) (with poor exposures of dark marine Pabay Shale Formation strata, better seen later in the excursion) and, c. 200m beyond (to the NW) enters the abandoned (in 1854) settlement of [Hallaig](#). The large [drystone wall enclosure](#) was constructed by robbing the houses of their walls, thus ensuring that they could not be returned to and reoccupied. A sad sight, indeed. Depending upon lighting conditions and direction of view, the [lazy beds](#) constructed for the growing of crops are obvious, comprising parallel ridges of soil, peat and desalinated seaweed.

Much of the village area is underlain by Scalpay Sandstone Formation and Pabay Shale Formation strata, sandstones and shales, respectively. Multiple movements on fissures associated with this complex zone of landslipped material has resulted the difficult-to-predict juxtaposition of the sandstones and shales. Many

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of the open fissures are obvious, for example at the southern end of [Creag nan Cadhaig](#), directly north of the elongate footprint of one of the [dismantled buildings](#). Other fissures are less obvious, being partly masked by vegetation, and care must be exercised.



**Figure Raasay 5.31:** The hummocky hillside at Hallaig, underlain by disrupted blocks of sandstone and shale, with open fissures, of the Hallaig Landslip. In the distance is the lava-capped summit of Dùn Caan. View is towards the NW. In the foreground is the stone enclosure, constructed from the original dwellings.



**Figure Raasay 5.32:** Open fissures of the Hallaig Landslip, NW of the ruins of Hallaig, at the southern end of Creag nan Cadhaig. View is towards the NW. Ruins of elongate dwelling in the foreground.

At this point in the excursion there are two choices. The first is to return to [North Fearnas](#) by the outward route, via the [Sorley MacLean memorial cairn](#). Alternatively, if time and energy levels permit, gain the high ground above (west of) [Hallaig](#), but staying below the obvious [steep crags](#) of Scalpay Sandstone Formation strata at c. 280m OD. Thereafter, head south towards [Beinn na Leac](#), then contour clockwise at c. 250m OD, into the north side of the through valley occupied by the [Hallaig Burn](#) and the [Allt Fearnas](#), underlain by the Pabay Shale Formation.

This route provides excellent views of the large landslipped mass of [Beinn na Leac](#) (Gaelic: *Hill of the slabs*), composed of Middle Jurassic Druim an Fhuarain Sandstone Member strata. The main detachment surface, the Beinn na Leac Fault, parallel and close to the [Hallaig Burn](#) and the [Allt Fearnas](#), forms an obvious trench on the SE side of the two watercourses, in places devoid

of exposed rock and blanketed by a long ridge of talus formed during paraglacial activity (i.e. due to ice retreat) leading to periglacial processes (solifluction; downslope transport of material). Elsewhere the trace of the fault is littered with large slabs of sandstone.

The view of the NE end of the landslip, at [Gualann na Leac](#) (c. [\[NG 5964 3778\]](#)), illustrates the complexity of the landslip, with deep fissures separating coherent parts of the landslip. The rock pillar at [Gualann na Leac](#) suggests continued instability and potentially relatively recent movement(s).



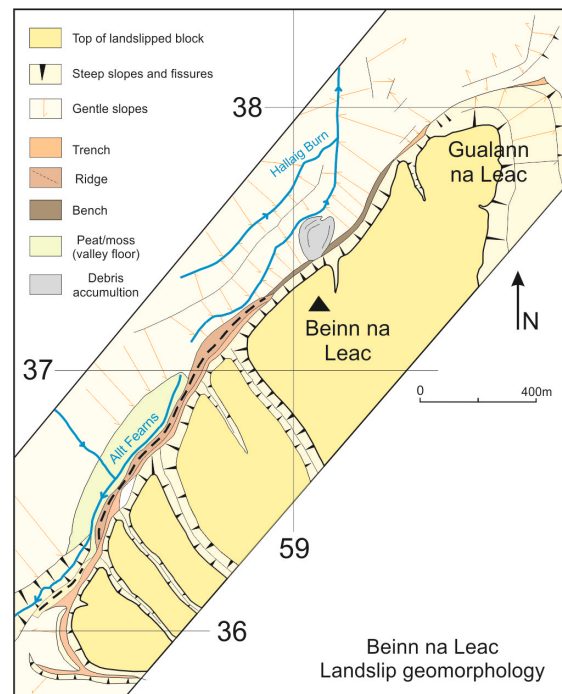
**Figure Raasay 5.33:** Talus blanking the trace of the Beinn na Leac Fault, defining the NW edge of the Beinn na Leac Landslip. View is towards the SE, across the Hallaig Burn - Allt Fearnas drainage system.



**Figure Raasay 5.34:** Trace of the Beinn na Leac Fault, defining the NW edge of the Beinn na Leac Landslip, littered with blocks of sandstone of the Druum an Fhuarain Sandstone Member. View is towards the NE, on the SE side of the Hallaig Burn - Allt Fearnas drainage system.



**Figure Raasay 5.35:** Large disrupted blocks of sandstone at Gualann na Leac, at the NE end of the Beinn na Leac Landslip. View is towards the SE from south of Hallaig. In the distance are the Crowlin Islands and, beyond, SE Skye and the Scottish Mainland.



**Figure Raasay 5.36:** Geomorphology map for SE Raasay.

Within the relatively coherent landslipped block, strata dip towards the NW at c. 15°, although, locally, highly variable. To the NW of the fault are poorly exposed strata of the Pabay Shale Formation, best exposed in the Hallaig Burn and the Allt Fearnas (see below).

The Beinn na Leac Landslip collapsed towards the SE, into the glacially-scoured trough off the Raasay coast. Initiation of the landslip was most likely due to the removal of material when the trough was formed. The block did not appreciably rotate and remained essentially coherent, albeit with significant fissures.

In the SW part of the landslipped block, two branch faults are recognised. Relative timing of movement of these branches and landslip formation can be determined from their relationship with Devonian tills (see below). The

branch to the SW is partially blanketed by undisturbed Devensian till (and Holocene peat), indicating movement only prior to till deposition, possibly due to the presence of offshore glacial deposits blocking any subsequent (later) movements. The branch to the NE is not covered by till and most likely had movements in post-Devensian times (during the Holocene; from 11.7 ka, onwards), as also suggested by disrupted deposits of scree.

Striations on the sandstone due to the Devensian glaciation(s) have a SE-NW orientation, parallel to the Beinn na Leac Fault.

The most instructive and spectacular of the NW-SE -trending steep-sided fissures within the landslip is located towards the SW end of the landslip at c. [\[NG 5850 3619\]](#). To access this fissure, cross the [Allt Fearnas](#), close to the [watershed](#), i.e. not further downstream, where the steep-sided nature of the riverbanks makes crossing difficult. Continue SW, with the [Allt Fearnas](#) to your right and the sandstone-dominated [hillside of Beinn na Leac](#) to your left. The obvious NW-SE -trending fissure comes into view, forming a significant trench, which should be treated with respect. Do not enter the fissure system and stay away from its edge. Be aware that other fissures are present, both large and small, that may be concealed by vegetation and partially capped by unstable blocks of sandstone.



**Figure Raasay 5.37:** Major NW-SE -trending fissure within the SW part of the Beinn na Leac landslip. View is towards the east.



**Figure Raasay 5.38:** Detail of major NW-SE -trending fissure within the Beinn na Leac landslip. View is towards the east.



**Figure Raasay 5.39:** Detail of major NW-SE -trending fissure within the Beinn na Leac landslip.



**Figure Raasay 5.40:** Detail of major NW-SE -trending fissure within the Beinn na Leac landslip. Fissure depth is in excess of 20m.

Return to the steep-sided SE bank of the [Allt Fearnas](#) and head downstream (towards the SW). Along much of its length, the river has excellent exposures of Pabay Shale Formation strata, where the river has formed a relatively steep and easily eroded gorge. There are no significant exposures of the shale away from the river. Access the stream bed where safe to do so.

These dark, fissile (mica-rich), marine shales and siltstones contain abundant bivalves, gastropods, brachiopods and ammonites. Bands of pale-weathering carbonate concretions are relatively common. These strata are disrupted by several irregular Paleocene basaltic intrusions, with only minor localised thermal alteration of the shale and siltstone country-rocks.



**Figure Raasay 5.41:** General view of the Pabay Shale Formation in the Allt Fearn. View is towards the NE, with the lower slopes of Beinn na Leac in the right-hand-side background.



**Figure Raasay 5.44:** The oyster, *Gryphaea arcuata*, within Pabay Shale Formation strata in the Allt Fearn. Coin c. 24mm across.



**Figure Raasay 5.42:** Discontinuous bands of pale-weathering carbonate concretions within the Pabay Shale Formation on the NW bank of the Allt Fearn.



**Figure Raasay 5.45:** Intersecting Paleocene dyke and inclined sheet of dolerite within Pabay Shale Formation country-rocks in the Allt Fearn. View is towards the east.



**Figure Raasay 5.43:** Detail of pale-weathering carbonate concretions within the Pabay Shale Formation on the NW bank of the Allt Fearn.

Continue SW to the public road and thence east to [North Fearn](#) at the beginning of the Hallaig track. *En route*, note the thick accumulation of Devensian till exposed on the far (south) side of the [Allt Fearn](#), which here runs parallel to the road.



**Figure Raasay 5.46:** Thick accumulation of Devensian till on the south side of the Allt Fearn where it runs parallel to the public road.

End of excursion.