Sites within the Middle Findhorn Valley and across the Dulnain-Findhorn catchment divide

Highland Boath

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The zone of confluence between ice that flowed across the uplands, northwards and north-eastwards from the Great Glen, Monadhliath and Grampian Highlands, and the ice that flowed into the Moray Firth and along the coastal lowlands, changed position as the relative strengths of flow waxed and waned (see **Introduction to Glacial History**). The evidence from Highland Boath [NH 885 448] and the adjacent area suggests that during the late stages of glaciation, Moray Firth ice was the more active, laying down suites of lateral moraines and extensive spreads of moundy and kettled outwash gravel, whilst the ice sourced more directly from the uplands decayed (Fig. 12).

The moraine and ice-marginal drainage channel at Highland Boath [NH 889 449], at about 270 m OD, formed at the southern limit of late-stage, active Moray Firth ice in this area. They form part of an extensive group of NE-SW lateral moraines and drainage channels that step down in elevation northwards towards the coastal lowlands. These features formed sequentially at lower elevations at the southern margin of the Moray Firth ice. Similar moraines and channels, associated with ribbon eskers, occur at higher elevations (c. 320m OD) farther west, between Saddle Hill [NH 788 435] and Beinn Bhuid Bheag [NH 791 423] (Fig. 14). These features, together others situated to the south of Dulsie Bridge (Fig. 12), formed earlier, possibly before a limited readvance of Moray Firth ice formed the features at Highland Boath.

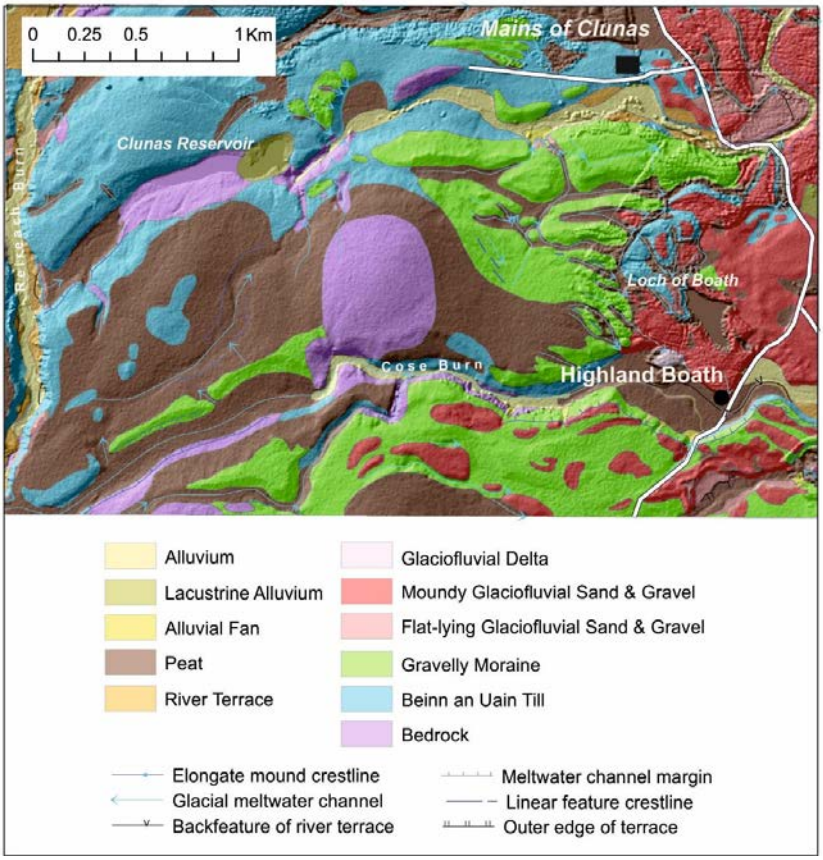

Figure 104. Lateral moraines, ice-marginal glacial drainage channels and kettled spreads of glaciofluvial sand and gravel around Highland Boath. Simplified BGS mapping draped on a surface model built from NEXTMap Britain 5 m topographic data.

The landforms at Highland Boath are the most easily accessible of the features associated with the possible late-stage readvance of Moray Firth ice (Fig. 104). The site lies some 8.2 km along the uncategorized road that runs south-eastwards from Cawdor [NH 846 500] towards Drynachan [NH 865 397]. There is room to park vehicles, off the road, near to the entrance to a small disused gravel pit on the western side of the road [NH 889 449]. This provides a good view of a large east-west-trending moraine ridge and ice-marginal channel that is now drained by the Cose Burn (Fig. 105). The steep northern flank of the ridge, which rises up to 25 m above the floodplain of the Cose Burn, was

probably formed in contact with the ice, but the slope has been steepened by glaciofluvial and postglacial fluvial erosion. The southern margin of the morainic deposits is much more diffuse, with minor ridges merging with mounds of bedded glacial sand and gravel typically rising to c. 5 m above the surrounding land surface. Exposures in the top of the moraine indicate that is composed, at least in part, of poorly stratified sandy cobble and boulder gravel.

Figure 105. Lateral moraine ridge on the southern side of the ice-marginal drainage channel now occupied by the Cose Burn, looking south-east from Balmore [NH 891 451].

Figure 106. Cryoturbated fabric within kettled glacial outwash gravels exposed in the disused Highland Boath pit in 1999. Spade 0.9 m long.

Exposures in the disused gravel pit in 1991 (Fig. 106) showed the contorted stratification of the sand and gravel, with possible ice-wedge casts developed in its upper parts. Over-steepened bedding, within the gravels, suggests deposition in association with buried blocks of ice. This is supported by the widespread occurrence of peat-filled kettleholes nearby, the largest of which is occupied by the Loch of Boath (Fig. 104).

The Clunas ice-marginal drainage channel, which occurs c. 1.5 km north of Highland Boath (Fig. 104), is largely cut into semipelitic bedrock to a depth of up to c. 30 m. Its course intersects the valley of the Riereach Burn and the drainage channel cuts into the complex glacial sequence exposed in that valley (see **Dalcharn**, Fig. 81), recorded by Merritt and Auton (1993).

The sand and gravel exposed in the disused pit at Highland Boath is typical of the moundy and kettled outwash that covers many of the interfluves on the southern flank of the upland between Nairn and Forres. Regional mapping suggests that glacial drainage along the Findhorn derived from upland ice cut through parts of this outwash sequence once ice in the Lower Findhorn decayed. Unfortunately, most of the kettled sand and gravel is concealed by thick coniferous forestry. Consequently, both landforms and exposures are difficult to examine. However, good access is available to examine these features along walking tracks through a forestry plantation on the outskirts of Forres. This forestry plantation covers c. 0.5 km of ground to the west of the Burn of Mosset (in the north-western quadrant of National Grid Square NJ 04 57). Here, good examples of kettleholes occur within an area underlain by ice-contact gravels that form mounds up to 20 m high and can be examined in numerous small exposures throughout the area.