
Excursion 13 Bracklinn Falls, Keltie Water

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Purpose: To examine rocks of the Arbutnott–Garvock Group exposed in the Keltie Water in the vicinity of Eas na Caillich and the Bracklinn Falls; to look at the impact of the rocks on the landscape, including waterfalls and crags.

Logistics: This day excursion starts from Callander (facilities available) via the A84 from Stirling. Park on the Braeleny road (gated in places) by the track leading to the bridge at Eas na Caillich, [NN 6382 1005]. **Waterproof footwear with good grip is essential.**

Maps: OS 1:50,000 Sheet 57 Stirling; OS 1:25,000 sheets 366 Stirling & Ochil Hills West and 368 Crieff; BGS 1:50,000 Sheet 39W Stirling; locality map (Figure 13.1).

On the SE side of the Highland Boundary Fault, the Keltie Water crosses Lower Devonian strata on the NW limb of the Strathmore Syncline (Figure 13.1). The lava flows at the base of the exposed succession and the immediately overlying volcanoclastic boulder conglomerates belong to the Craig of Monievreckie Conglomerate Formation. This formation interdigitates with and is overlain by finer grained sedimentary rocks belonging to the Ruchill Flagstone Formation. The highest strata, seen from the Bracklinn Falls, belong to the Strathmore Group, the highest part of the Lower Devonian sequence in the Strathmore Syncline (Armstrong & Paterson, 1970). The strata generally dip steeply SE throughout the section, except locally where they are vertical or overturned to dip at high angles to the NW. The lavas and associated sedimentary rocks are close to the Highland Boundary Fault and are affected by several other faults.

The oldest Devonian rocks in the Keltie Water section lie in a lens bounded to the NW by the Highland Boundary Fault and to the SE by the Eas Dearg Fault. Between the two faults, the succession consists of more than ten basic lava flows, and is at least 300 m thick. Intercalations occur throughout the lens of reddish purple mudstone, purple sandstone and conglomerate, the last two being composed of lava clasts. However, the traverse in the Keltie Water starts south of the Eas Dearg Fault, where the section is largely in Craig of Monievreckie Conglomerate with some lava near the base.

Locality 13.1 [NN 6398 1005] Eas na Caillich: Ruchill Flagstone Formation with interbedded conglomerates

Park on the Braeleny road at the track leading down to the bridge at Eas na Caillich, then walk down to the bridge. The conglomerates at the small gorge of Eas na Caillich (**approach with care**) are well displayed and occur as interbedded units within the Ruchill Flagstone Formation. The conglomerates at the bridge contain mixed clasts, including vein quartz, quartzite, lava and other Highland-derived rocks (Plate 13.1). In addition there are beds of massive sandstone. This part of the section is normally accessible, except in flood conditions. Cross the bridge and take the small path south along the edge of the gorge. A boulder conglomerate (interdigitated Craig of Monievreckie Formation), composed almost entirely of lava clasts, forms the Eas na Caillich waterfall but is not accessible. Its base is marked by a small cave in the west bank. This type of conglomerate was probably deposited on an alluvial fan emerging from a volcanic landscape in a very high-energy environment.

Follow the path south to view the waterfall (Plate 13.2) and the Ruchill Flagstone Formation (800–900 m thick), which is well exposed for 500 m south of Eas na Caillich. It consists of purple, grey or brown flaggy cross-bedded sandstones, which are mainly fine or medium grained but contain coarse-grained pebbly bands. Some purplish- or reddish-brown siltstone and mudstone are also exposed and have collapsed in a rock fall. The coarser sediments were probably deposited in channels within a braided river system, the finer ones were overbank or floodplain deposits.

Locality 13.2 [NN 6420 0970] Callander Craig Conglomerate Member

Leave the river side and take the forest track southwards towards the Bracklinn Falls. At a junction with a track going off on the east side, there is a small bluff exposing this member, which also forms the striking cliffs of Callander Craig, north of the town and west of the Keltie Water. It is finer grained than those already described (that are composed of lava clasts) and contains rounded to subrounded quartz, quartzite and lava clasts. These clasts are mostly up to 10cm across.

Locality 13.3 [NN 6419 0928] to [NN 6445 0896] Ruchill Flagstone Formation

At [NN 6419 0928] there is an extended section beside the forest track, consisting of conglomerate, sandstone, purplish mudstone and siltstone. At the north end of the section, the finer grained beds show examples of mud cracks, linguoid ripples, oxidised and lustrous plant remains, and possible rain pits and trails (Plate 13.3). The section ends at [NN 6445 0896], at the south end of the wood, close to a gate. Following the downhill footpath southwards, glacial striae may be seen on the face of conglomerate beds at [NN 6449 0875]. These are matrix-supported quartz conglomerates with subangular clasts up to 10 cm across. Looking upstream, note the large boulders in the river bank and in the channel, the result of a major flood in 2004 that washed away the previous footbridge. Nearby, at [NN 6453 0868], glacial till overlain by coarse gravel is exposed in an eroded cliff on the opposite bank (Plate 13.4). From here it is a short walk to the Bracklinn Falls.

Locality 13.4 [NN 6455 0844] Bracklinn Falls: Bracklinn Falls Conglomerate

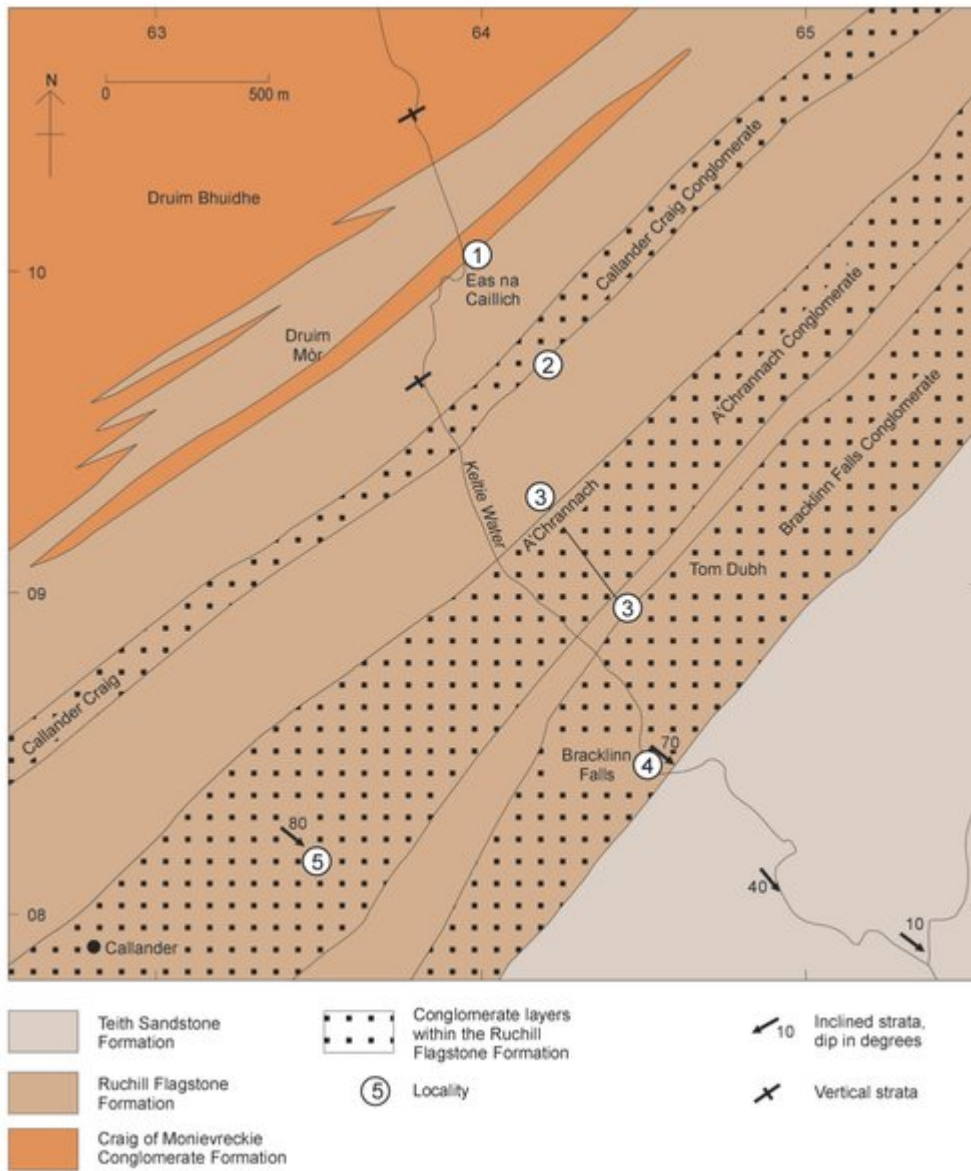
The youngest conglomerate member of the Ruchill Flagstone Formation is well exposed at the Bracklinn Falls. Here, it consists of interbedded sandstones and conglomerates with minor beds of red mudstone, dipping 70° to the SE. They can be examined closely at the top (northern) end of the gorge above the falls, which **must be approached with extreme care (Plate 13.5)**. Here on the east bank, features such as ripple marks and burrowing traces can be seen in the finest beds. Crossing the footbridge to the west bank, features visible at the top end of the section include rare way-up indicators, such as minor erosive channel bases. Also present are concretionary limestone nodules, indicating a semi-arid climate with seasonal variation in rainfall. Below the falls, the Keltie Water flows through Bracklinn Glen for nearly 1 km. The alternating purple and brown sandstones and mudstones belonging to the Teith Sandstone Formation are almost continuously displayed, locally in cliffs, but the traverse is difficult and **not recommended**. The dips to the SE gradually decrease in that direction from 70° to 30° as the broad axial zone of the Strathmore Syncline is approached.

Locality 13.5 [NN 6348 0817] South of Cnoc Dubh

Proceed to the public car park for Bracklinn Falls. The Ruchill Flagstone Formation is abruptly succeeded by a thick (900 m) sequence of quartz conglomerates and pebbly sandstones, with clasts rarely up to 15cm across. These conglomerates are exposed in and around an old quarry [NN 6348 0817] to the SE of the road south of Cnoc Dubh. They and the pebbly sandstones show more evidence of bedding than the volcaniclastic conglomerates of the Craig of Monievreckie Formation and display cross-bedding in places. Some of the conglomerates show matrix-supported clasts, up to 4 m across. The sequence also includes beds of siltstone and mudstone, some of which can be visually traced along trough-like hollows in the massive conglomerate exposures on the SW slopes of A' Chrannach and Tom Dubh, on the east bank of the Keltie Water (between Localities 13.3 and 13.4). All of these sedimentary rocks were probably deposited in braided river systems, including the horizontally laminated finer grained ones on the more distal parts of flood plains.

For good exposures of these conglomerates, walk on the road down to the old railway bridge below the golf course. On the right, in the cutting on the cycle path, the best exposures are in the cliff face under the former stationmaster's house [NN 6330 0775].

[References](#)



(Figure 13.1) Geological map of the area around the Keltie Water between Eas na Caillich and Bracklinn Falls, Callander, showing localities for Excursion 13. Adapted from Francis et al. (1970, fig. 9).



(Plate 13.1) Locality 13.1. Vertical beds of conglomerate and sandstone in the Ruchill Flagstone Formation, bridge over the Keltie Water, Eas na Caillich.



(Plate 13.2) Locality 13.1. Waterfall and gorge in Craig of Monievreckie Conglomerate Formation interbedded in Ruchill Flagstone Formation at Eas na Caillich.



(Plate 13.3) Locality 13.3. Steeply dipping overturned red mudstones and sandstones of the Ruchill Flagstone Formation beside forest track on east side of Keltie Water.



(Plate 13.4) Locality 13.3. Glacial till and overlying boulder gravel, Keltie Water west bank.



(Plate 13.5) Locality 13.4. Vertical beds of sandstone and conglomerate (Ruchill Flagstone Formation) at Bracklinn Falls, Keltie Water.