

## Three forts on the Tay





# Three forts on the Tay: excavations at Moncreiffe, Moredun and Abernethy, Perth and Kinross 2014–17

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Cover: An aerial view of Moredun fort on Moncreiffe Hill, taken in March 2015, with three circuits of fortification, and the annexe to the left, revealed by the raking light (© Crown Copyright: HES).

Back Cover: The proposed reconstruction of Castle Law, Abernethy, with its dramatic setting overlooking the Rivers Earn and Tay. Initial excavations in the 1890s revealed massive timber-laced walls, and high status finds and became the type-site of Childe's 'Abernethy Complex' (artist: Chris Mitchell).



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But this is usually the form of all the Gallic walls. Straight beams, connected lengthwise and two feet distant from each other at equal intervals, are placed together on the ground; these are mortised on the inside, and covered with plenty of earth. But the intervals which we have mentioned, are closed up in front by large stones. These being thus laid and cemented together, another row is added above, in such a manner, that the same interval may be observed, and that the beams may not touch one another, but equal spaces intervening, each row of beams is kept firmly in its place by a row of stones. In this manner the whole wall is consolidated, until the regular height of the wall is completed. This work, with respect to appearance and variety, is not unsightly, owing to the alternate rows of beams and stones, which preserve their order in right lines; and, besides, it possesses great advantages as regards utility and the defence of cities; for the stone protects it from fire, and the wood from the battering ram, since it [the wood] being mortised in the inside with rows of beams, generally forty feet each in length, can neither be broken through nor torn asunder.

*Caesar's Gallic War 7:23*



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# 1. Introduction

David Strachan

*I could almost regret that the Society have undertaken the excavation of Roman 'Camps' in preference to our Native Forts. The secrets that lie beneath the ruins of the Caterthuns, Dunsinnan, and hundreds of other native fortresses, are no less worthy of being brought to light than the relics left behind by the Romans.*

Christison 1900a: 12

## 1.1 Background to the project

The sentiments expressed by David Christison, leading light in early Scottish fort studies, illustrate how far our approach to the subject, and archaeology in general, has developed over the last 120 years. Less than 20 years earlier, Joseph Anderson's Rhind lecture of 1881 had bemoaned the lacuna of knowledge on the subject, and in response Christison pioneered research. Beginning with his Peeblesshire survey of 1885, by the publication of his own Rhind lectures of 1894, *Early Fortifications in Scotland*, he had created one of the most comprehensive datasets in Scotland (Christison 1898). In doing so, he also importantly recognised that understanding could only be improved through excavation (Christison 1898: 386). In the Tay estuary area, he was instrumental in two important excavations, encouraging exploration of Castle Law, Forgandenny by Edwin Weston Bell in 1892 (Bell 1893: 16; ID 26583), and completing and recording the important 'amateur' excavations at Castle Law, Abernethy (Christison and Anderson 1899).

Now some 120 years since these seminal studies, both sites have been revisited by modern excavators and there is something of a renaissance in Scottish fort studies. In the wider Tay region alone, and reported here, are the first excavations at two forts on Moncreiffe Hill, as well as re-excavation of Castle Law, Abernethy, while an extensive programme of excavation was also carried out by Glasgow University along lower Strathearn, to the west of the Firth of Tay, including re-excavation at Castle Law, Forgandenny (Poller forthcoming). Further north on the River Tay, the King's Seat, Dunkeld, has since been explored for the first time (Strachan *et al.* forthcoming; ID 27172), and Broxy Kennels (ID 26737), just north of Perth, has been fully excavated in advance of development. Further afield, research by Aberdeen University has contributed significantly to understanding in north-east Scotland (Noble and Evans 2019) while excavation is ongoing at selected forts further south (Gordon Noble

*pers comm*). The results of the excavations presented here, therefore, will contribute to what is becoming a relatively well studied part of Scotland in fort terms - an apt testimonial to Christison and Bell and their early work at both 'Castle Laws'.

The River Tay and its estuary, the Firth of Tay, has been an important hub for transport and communication since at least the Bronze Age (Strachan 2010). The hills surrounding it host an important concentration of forts (Lock and Ralston 2017) found to the south-west and south of the estuary along the Ochil Hills, and along the Sidlaw Hills to the north, and the three sites reported here belong to this 'Tay estuary group' (Figure 1.1). They comprise: Castle Law, Abernethy, where the Victorian excavations (Christison and Anderson 1899) have been widely discussed (Childe 1935a and b; Cotton 1954; Piggott 1965; Feachem 1966); and the twin forts on Moncreiffe Hill, the larger of which, Moredun, has for over half a century been mooted on morphological grounds as a potential 'nuclear' fort of early medieval date (Feachem 1955: 79-80; Alcock *et al.* 1989: 206-7; Alcock 2003: 189). Prior to the Glasgow University project of 2007-15, however, none of the Tay estuary group had been radiocarbon dated and considerable uncertainty remained about their date, and how, or if, they were related.

The potential for a programme of research to contribute to understanding of the group was recognised by the author during the development of the *Tay Landscape Partnership* (TayLP) scheme in 2010. Led by Perth and Kinross Heritage Trust, this £2.6 million initiative celebrated the unique natural and cultural heritage of the inner Tay estuary by conserving, restoring, and improving physical and intellectual access to a wide range of heritage features. Building on the popularity and success of previous community-based archaeological research projects by the Trust (Strachan 2013 and Strachan *et al.* 2019), the *Hillforts of the Tay* project was proposed to bring social and educational

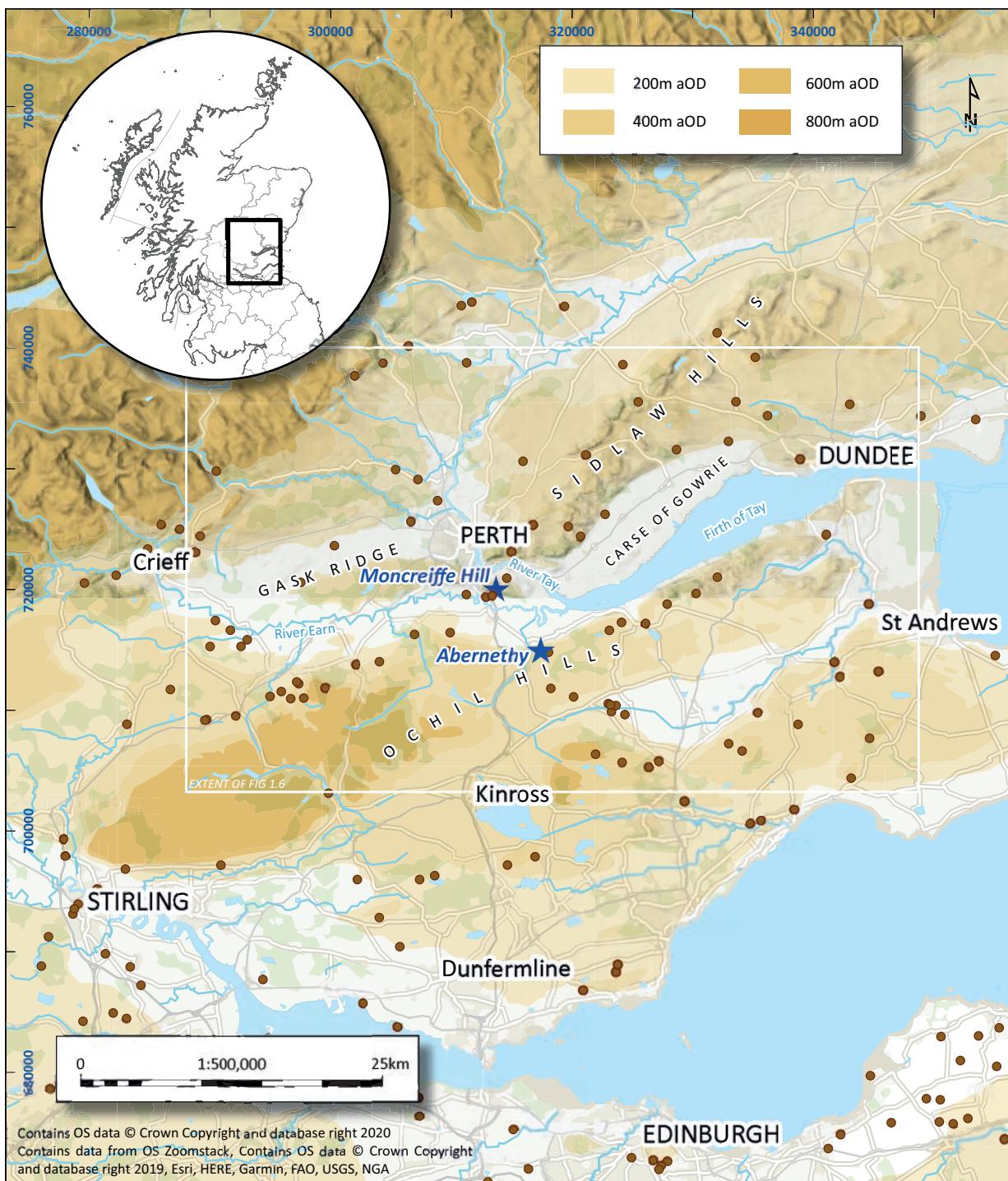


Figure 1.1: The central east coast of Scotland showing Moncreiffe Hill, Abernethy, sites from the *Atlas of Hillforts of Britain and Ireland* (Lock and Ralston 2017) and the extent of Figure 1.6 in white.

benefit, better understanding through much needed research, and improved management of the sites. The basis of the programme was the recognition that while these distinctive landmarks were often visited by the public, very little was known about them. Support for the proposal was confirmed through community consultation over 2011, with 33% of those responding

expressing an interest in participating in archaeological excavations and surveys. In addition, considerable potential for beneficial engagement with schools was recognised.

In addition to non-intrusive surveys, the *Hillforts of the Tay* included excavations at the three forts: Moncreiffe



Figure 1.2: Some of the 338 project volunteers with staff from Perth and Kinross Heritage Trust and AOC Archaeology Group in 2017 (George Logan/PKHT).

(2014–15); Moredun (2015–17); and Castle Law, Abernethy (2017). It transpired to be by far the most popular *TayLP* project in terms of community engagement, involving around 70% of all volunteers engaged within the entire scheme. Castle Law, Abernethy alone involved 38 individuals over 10 days, totalling 108 volunteer days, while those on Moncreiffe Hill, carried out over four years and including three, month-long seasons on Moredun, engaged 338 individuals totalling 1592 volunteer days (Figure 1.2). The project successfully fulfilled the *TayLP* objectives for social and educational benefit: bringing the local community together, with participants from further afield, to learn new skills in walkover and geophysical survey, excavation, and archival research. The project also engaged over 400 young people from 14 schools and uniformed groups, both in the field and in the classroom, and countless more through digital outputs. Reconstruction artwork in both traditional and digital virtual reality (VR) media was central to the interpretation provided to improve understanding by residents and visitors alike, through presentations, interpretation panels, a booklet, leaflets, and a website ([www.taylp.org](http://www.taylp.org)). In summary, the project succeeded in its ‘citizen science’ objective, to bring together members of the public to learn while engaging in meaningful research that has enhanced our understanding of Scotland’s past.

The project should also be seen against the background of (hill)fort research across the rest of the UK. The last two decades have seen excavation programmes in advance of development (e.g. Allen *et al.* 2009; Pettitt and Hession 2019), through university research, and through community archaeology projects. The latter

has included programmes of excavation through other Landscape Partnerships schemes, for example on multiple sites on the Clwydian Range (Griffith 2011) and the Cheshire Ridge (Garner 2016), and at individual sites elsewhere, such as Castle Hill, Oxfordshire (Allen *et al.* 2010). In Scotland these include Dun Deardail, Highland, through the *Nevis Landscape Partnership* (Cook, M.L. *et al.* forthcoming; ID 23727); East Lomond, Fife, through the *Living Lomonds Landscape Partnership* (O’Grady 2015; ID 29881); and most recently at Dunmore (ID 24375) and Auchentlaich (ID 24330) for the *Callander’s Landscape* partnership (MacIver and Douglas forthcoming). Most relevant to our project, however, is the University of Glasgow *Strathearn Environs and Royal Forteviot (SERF)* project, carried out over 2006–16, which included excavation at ten forts around lower Strathearn (Poller forthcoming). These, and the work at East Lomond are discussed further below. Finally, the *Atlas of Hillforts of Britain and Ireland* online database, compiled by researchers from the universities of Edinburgh, Oxford and Cork (Lock and Ralston 2017) was published during the life of the project and has proved an invaluable tool for analysis (Lock and Ralston 2019; Romankiewicz *et al.* 2019; Lock and Ralston 2022). In both formats it is hereafter abbreviated to the *Atlas of Hillforts*.

## 1.2 Topography, geology and rivers

### Topography

Both the River Tay and the Firth of Tay are a key features of Scotland’s east coast geography. The estuary cuts inland 35 km from the coast, while its principal rivers, the Earn and the Tay, divide its hinterland to the west

and north-west respectively (Figure 1.1). As waterways they are the dominant natural lines of communication in the area, providing access to the sea from deep within the interior and *vice versa*. Conversely the estuary impedes terrestrial passage north and south, from Fife on its southern shore to Perthshire and Angus on the north (Strachan 2010: 19–26). All three excavations are on hills surrounding one focal point in this landscape: the confluence of the Rivers Tay and Earn at the head of the estuary near Carpow.

The estuary is overlooked on the south by the Ochil Hills (on which Castle Law, Abernethy is located) and on the north the Sidlaw Hills. Both these ranges rise to 200–300 m OD and form well-defined boundaries along the sides of the estuary. The low-lying ground at the foot of the Sidlaws, known as the Carse of Gowrie also continues west of the estuary into Lower Strathearn, along the flat bottom of which the River Earn meanders with its numerous oxbows. Here the Ochils extend westwards to form the southern flank of the valley, while on the north it is bounded by the Gask Ridge. Hence, the character of the landscape eastwards to the head of the estuary is one of a funnel, opening away to the coast, with flat expanses of the estuary and the Carse of Gowrie framed to the horizon by the Ochils and the Sidlaws (Figure 1.1). Moncreiffe Hill is the dominant feature at the confluence of the rivers at the west end of the estuary. It rises from around 50 m OD to a height of 223 m OD on the long tongue of land, formed by the

meeting of the Rivers Tay and Earn, called the Rhynd. This key geographical location provides control over both rivers, and crowned by its twin forts, the hill dominates and over-shadows the confluence of the rivers and is a prominent landmark from much of the estuary (Figure 1.3).

### **Solid geology**

The estuary is formed of Quaternary deposits overlying Early Devonian andesitic lavas and related sedimentary rocks. These sit within a ‘rift’-like valley formed by ancient movements of the North and South Tay Faults. These fault-lines are roughly manifested in the topography in the southern and northern flanks of the Sidlaws and Ochils respectively. Both the Ochil Hills and Sidlaw Hills are composed of Early Devonian volcanic rocks known as the Ochil Volcanic Formation: a largely pyroxene-andesite igneous bedrock. To the south-west, Moncreiffe Hill is part of the formation of the Sidlaws, created by the narrow valley containing River Tay at Perth.

Both the low ground of Strathearn and the Carse of Gowrie are underlain by down-faulted Upper Devonian and Lower Carboniferous sedimentary rocks, which are largely concealed by thick Quaternary deposits. To the north-west, the Scone Sandstone Formation was also formed in the Early Devonian, while the Glenvale Sandstone Formation formed as a sedimentary bedrock



Figure 1.3: Moncreiffe Hill dominating head of the Tay estuary: a late 19th-century view from Newburgh (Culture Perth and Kinross Local and Family History).

between 383 and 359 million years ago during the Late Devonian Period (Figure 1.4). These different sandstone formations are subgroups of the Devonian age Old Red Sandstone (British Geological Survey 2023).

Both Moncreiffe Hill and Castle Law, Abernethy are of the Ochil Volcanic Formation, however the fact that they are also on the edge of the Glenvale Sandstone Formation is significant (Figure 1.4). The Glenvale Sandstone Formation includes brown-, red-, purple- and cream-coloured feldspathic sandstones, commonly containing bands of red siltstone and pebbles of silty mudstone (British Geological Survey 2020; 2023). The walls of Castle Law, Abernethy, and Moredun on Moncreiffe Hill, were found to include significant amounts of red/purple sandstone in their construction, occurring in large blocks in such numbers as to rule out glacial deposition. As they are not geologically *in situ* and so cannot be identified as being of Glenvale Formation with certainty, they are referred to throughout the remainder of this volume as Old Red Sandstone. It is considered very probable that the material was sourced relatively locally to the forts, at the foot of Moncreiffe Hill to the south and the foot of Castle Law, Abernethy to the north, below a height of c. 30 m above OD. It is of interest that significant amounts of Old Red Sandstone

were used, in a similar fashion, in the construction of Castle Law, Forgandenny (Tessa Poller *pers comm*), to the west of Castle Law, Abernethy.

### Drift geology

The area was glaciated on numerous occasions over the Quaternary resulting in significant landscaping by both glacial processes and sea level change. Some of the ice-moulded features probably owe their form to the accumulated effects of more than one glaciation. All the evidence of glacial striae, erratics and drumlins shows that late-Devensian ice, advancing from the West Highlands, fanned out over east central Scotland and moved eastward across this area. Glacial deposits appear to relate exclusively to the last (Devensian) glaciation about 30,000 years ago, when till composed of a melange of clay, silt, sand and stone, was extensively laid down. From about 20,000 years ago, during the retreat of the ice, meltwaters deposited spreads of sands and gravels, mainly near the ice-margins. The emergence of high ground confined active glaciers to the major valleys for a further period. Marine deposits were also laid down during the glacial retreat and now occur well above present sea level as a consequence of glacio-isostatic readjustment. A series of shorelines

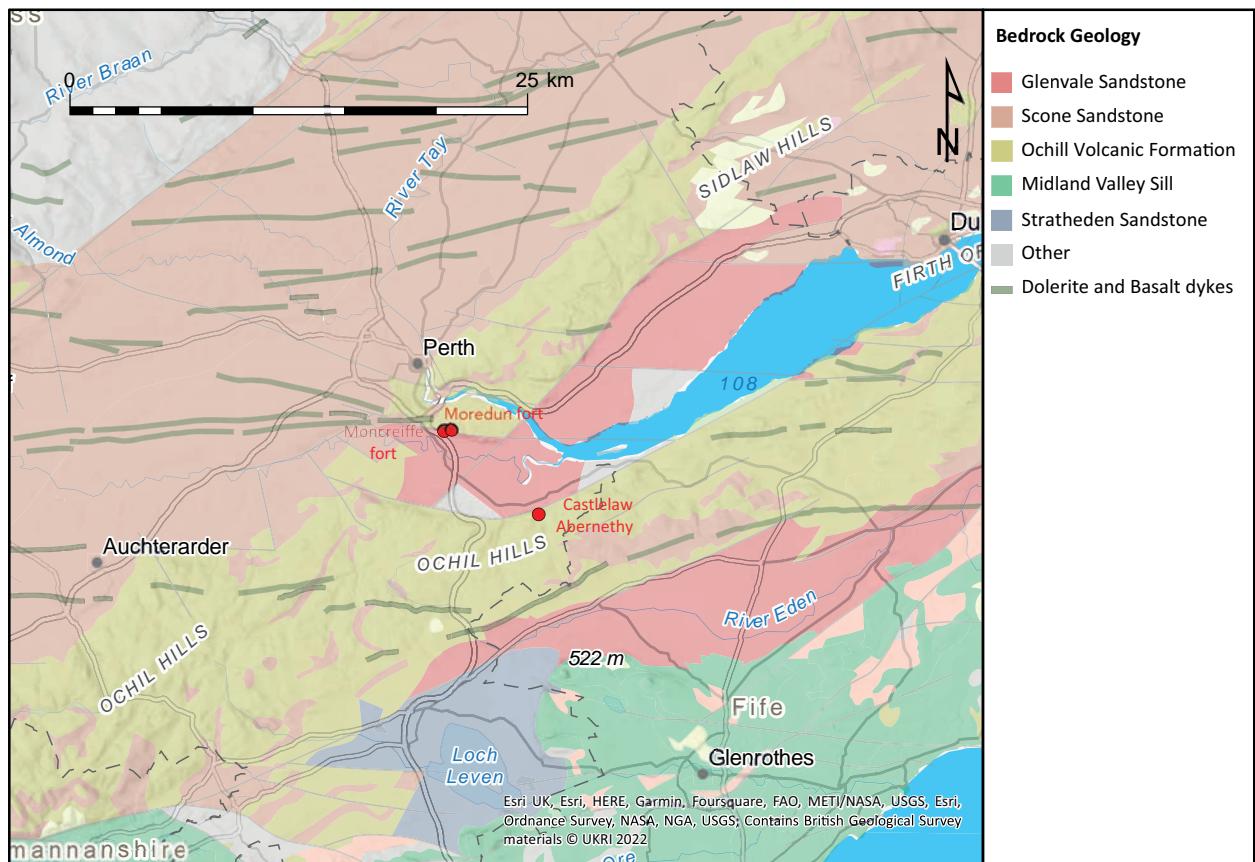


Figure 1.4: The solid geology of the area showing all three sites occurring on outcrops of the Ochil Volcanic Formation above Old Red Sandstone deposits of the Glenvale Formation (Contains British Geological Survey materials © UKRI 2023).

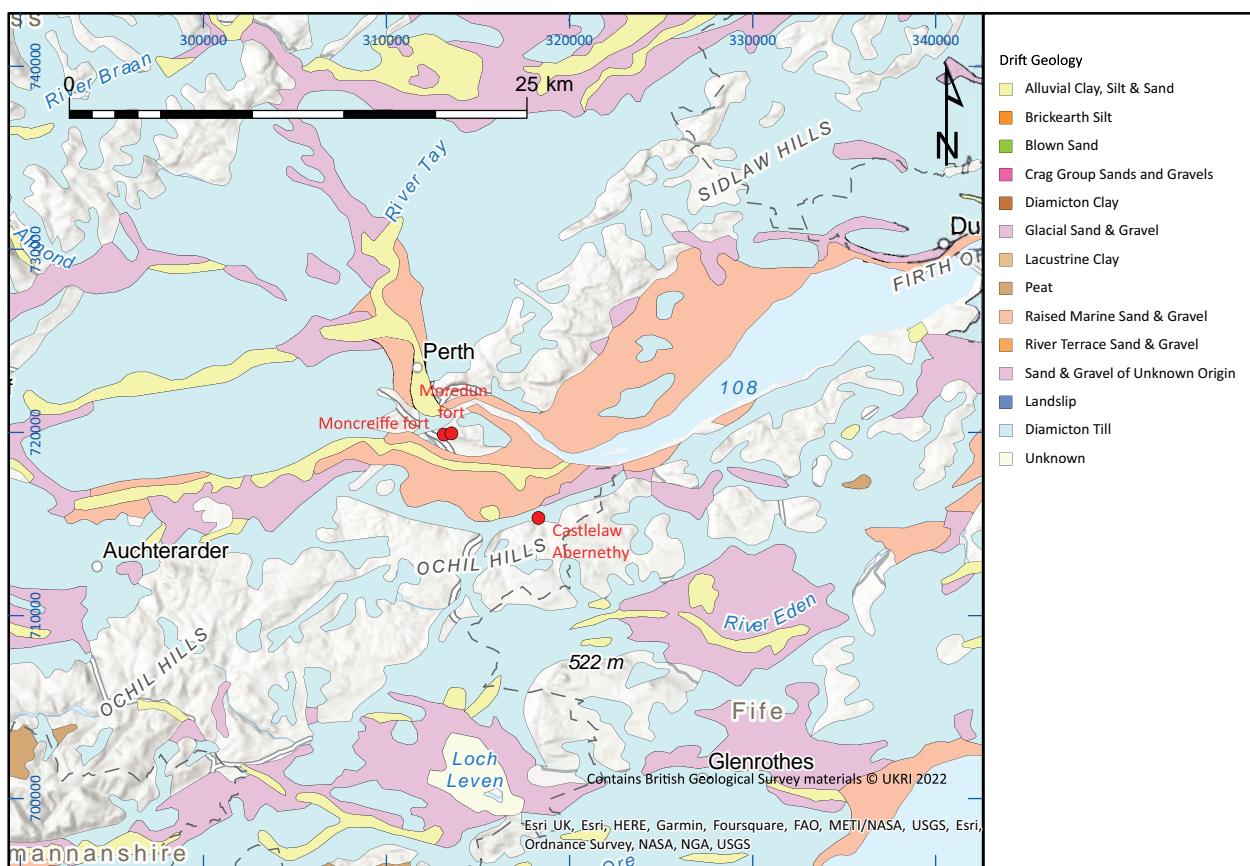


Figure 1.5: Complex drift geology with mainly glaciogenic sand and gravel overlain by late glacial estuarine deposits at more than one height level, fronted on the lower ground by latest Devensian pink silts and sands. These are partially buried by the Holocene carse clay deposited at the highest level of post-glacial sea level rise (Contains British Geological Survey materials © UKRI 2023).

(notably visible along the southern edge of Strathearn up slope of Aberargie and Abernethy) mark the stages of this recovery. Around 15,000 years ago, when final clearance of ice was achieved, the local sea level was over 40 m higher than present.

The sea fell below present level during the re-advancement of glaciers in the west of Scotland between 12,800 and 11,600 years ago. Subsequently the sea rose, but a later fall resulted in a peat layer formed c. 8,000 years ago, while a later marine transgression culminating c. 6,000 years ago, c. 10 m above present levels, deposited the widespread carselands of Lower Strathearn and the Carse of Gowrie (Strachan 2010: 19). Subsequently the sea gradually withdrew to its present level. Because of the numerous fluctuations of sea level in late- and post-glacial times, the distribution of drift deposits in the area is highly complex (Armstrong *et al.* 1985; British Geological Survey 2023; Figure 1.5).

### Rivers

The name of the River Tay may derive from either a pre-Celtic or Celtic root, such as *ta-* or similar. It is

possibly related to the names Thames and Tyne and thought to mean ‘silent one’ or ‘strong one’, or simply ‘flowing’ (Watson 1926: 51; Nicolaisen 1976: 244). It was first recorded by Tacitus as *Taus* in c. AD 98. At 193 km in length the Tay is Scotland’s longest river and the sixth-longest in the UK. Draining much of the lower region of the Highlands, it has the largest catchment in Scotland and the largest freshwater discharge of all rivers in the UK. This has resulted in the regular flooding of Perth, as in 1648 when bridges were lost (Bowler 2004).

The placename Earn is first recorded as *Eirenn* in c. AD 889 and is probably derived from another pre-Celtic or Celtic river name with the root-form *ar-*, indicating flowing water. It is found in other river names, such as the Deveron, and common in parts of France (Peter McNiven *pers comm*). Leaving Loch Earn at St Fillans, it flows east before turning south-east through upper Strathearn at Crieff, before again meandering eastwards through lower Strathearn to join the Firth. A smaller, meandering lowland river in comparison to the broad, shallow and fast flowing Tay, the Earn is also prone to flooding, and its banks are regularly breached after periods of prolonged heavy rainfall.

The combined waters of these two rivers provide the highest freshwater inflow into an estuary in the UK (Pontin and Reid 1975), however the lowest reaches of both rivers are tidal a considerable way inland, an influencing factor in water-transport since prehistoric times. The Earn is tidal to c. 10 km west of the confluence (Strachan 2010: 13), and prehistoric vessels, such as the Late Bronze Age Carpow logboat, very likely used the tides to ferry people and goods inland from the estuary and back (Strachan 2010: 172–177). The Tay is tidal to the confluence of the River Almond, c. 5 km north of Perth, a factor in the location of Bertha Roman fort (Woolliscroft and Hoffmann 2006: 147), while the Roman fortress at Carpow, was a base for seaborne invasion (Dore and Wilkes 2000: 570). Such sites illustrate the estuary's strategic importance to deliver goods transported by sea inland over prehistory. The success of Perth as an inland port was to continue throughout the Middle Ages until the Victorian period (Bowler 2004: 21) when it was ultimately eclipsed as Dundee emerged as a port with easier access for larger shipping.

### 1.3 The later prehistory of the area

Without the baseline data of a RCAHMS county inventory, Perth and Kinross has seen surprisingly little regional synthesis. An outline, however, is provided by overviews of prehistoric Tayside (Coutts 1970 and 1971; Stevenson 1999) and Sarah Winlow's (2010) review of the Late Bronze Age environment, settlement and monuments around the estuary. The RCAHMS *South-East Perth* volume (1994), offered an analysis of the archaeology of both the Sidlaw Hills and the Carse of Gowrie, focussed mainly on the dense cropmark record. This revealed numerous unenclosed and enclosed settlements, a distinctive element of which were the interrupted ring-ditches. These were thought to relate to souterrains (underground, stone-built chambers) which are also frequent in the area and indeed form a significant concentration in the national distribution (RCAHMS 1994: 59–68; 70). Most known fortifications were recorded as upstanding structures (RCAHMS 1994: 51–57), but it was difficult to relate them to other settlement sites with any certainty (RCAHMS 1994: 73). The survey did however discover Little Dunsinane broch on the north Sidlaw Hills (RCAHMS 1994: 51; ID 72098), which was to remain the only known broch within Perth and Kinross until the discovery of the example at Castle Craig, on the north Ochil Hills near Auchterarder (James 2011a and b; Poller forthcoming; ID 26048). Interdisciplinary study by Glasgow University has provided a similar level of analysis for the north Ochils (Given *et al.* 2019) as provided by RCAHMS for the Sidlaws. Again, apart from forts, other prehistoric structures are only infrequently visible, and it is argued that the prominence and monumentality of the forts

were used as terrestrial guides for specific routes across the Ochil Hills (Given *et al.* 2019: 96–97). Within the wider region, the majority of forts are found south of the Highland Boundary Fault (Lock and Ralston 2017), and while they do occur in the uplands north of this, the massive-walled monumental roundhouses and crannogs in this area may take their place in a more fragmented, less populated area (Strachan 2013: 114).

### 1.4 Previous fort studies in the area

Figure 1.6 shows the distribution of forts identified in the *Atlas of Hillforts* (Lock and Ralston 2017) highlighting those excavated. The selection criteria and terminology of the wider datasets have been recently reviewed (Halliday 2019a and 2019b) and can be summarised as sites which: take advantage of topography; have enclosing works designed to exclude or impress; and have a minimum internal area of 0.2 ha. If strictly applied, the last of these would have precluded the inclusion of forts such as Castle Law, Abernethy (0.06 ha), but exceptions were made for this and other sites that have played key roles in Scottish fort studies (Halliday 2019b: 68). The local contributions to the evolution of Scottish fort studies can be traced through the series of excavations below. While many remain undated, they serve to introduce the scale and nature of forts in the area and are presented in chronological order to provide a narrative of the history of study.

#### *The 18th and 19th centuries*

While it is possible that earlier excavations by antiquaries have passed unnoticed, the excavation record in the area begins with reference to the inland promontory fort at Hurly Hawkin, Angus, being 'Dug into' before 1794 (OSA 13, Liff and Benvie: 116; ID 32052). Subsequent excavations (Jervise 1866; Taylor 1982) revealed this fort of 0.14 ha, with twin ditches and inner rampart, to have a complex sequence of settlement in which the defences were superseded by a broch and souterrain.

The slightly later excavations at Dunsinane Hill on the Sidlaw Hills were probably inspired by its historical association with Shakespeare's *Macbeth*. With commanding views across Strathmore to Birnam Wood by Dunkeld, c. 22 km to the north-west, this small and heavily defended oval fort remains scarred by James Playfair's excavations of 1799, and those of the landowner Nairne in 1854, which were reported in the second volume of *The Proceedings of the Society of Antiquaries of Scotland* (Wise 1856; Brown 1872; Figure 1.7; ID 30660). The stone wall of its inner citadel (enclosing 0.01 ha) may have been up to 9 m thick and is further defended by two concentric outer ramparts with ditches, while a large outer enclosure takes in a

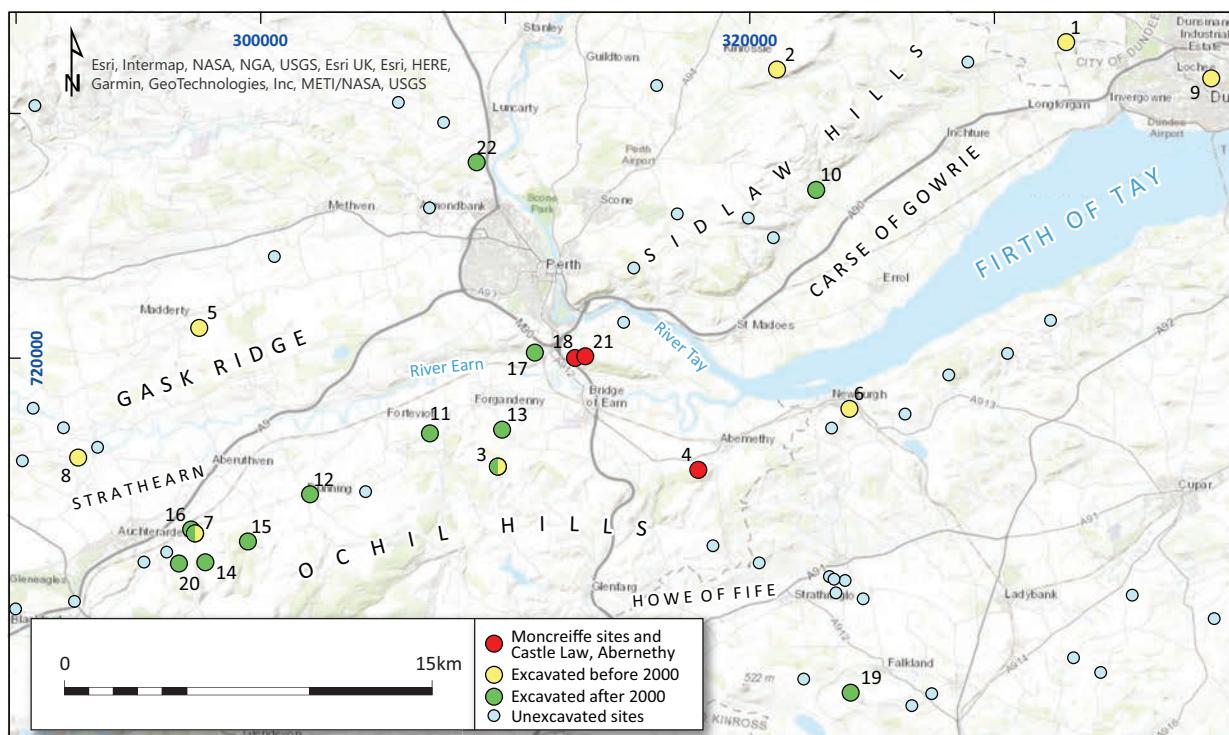


Figure 1.6: Sites from the *Atlas of Hillforts* (Lock and Ralston 2017) showing excavated examples in chronological order: Hurly Hawkin (1); Dunsinane Hill (2); Castle Law, Forgandenny (3); Castle Law, Abernethy (4); Drumharvie (5); Clatchard Craig (6); Castle Craig (7); North Mains (8); Dundee Law (9); Rait (10); Jackschairs Wood (11); Dun Knock (12); Law of Dumbuils (13); Ben Effrey (14); Rossie Law (15); Kay Craig (16); The Roundel (17); Moncreiffe (18); East Lomond (19); Ogle Hill (20); Moredun (21) and Broxy Kennels (22).

lower terrace to the south and smaller outworks may exist to the north and south-west (Lock and Ralston 2017). The reports of the early excavations are difficult to understand, in part due to the use of long slot trenches. They suggest two sunken chambers with corbelled roofs and connecting passages, which may be a misinterpretation of collapsed wall material. Very few finds were recovered but included three human skulls and other bones (Wise 1856: 96–7), a rotary quern and a bronze spiral finger ring (Brown 1872). Small-scale excavation was once again carried out at this intriguing site in 2022 by the University of Aberdeen.

The complex fort of Castle Law, Forgandenny, is of particular interest to this study due to the 1892 excavations by Edwin Weston Bell (1893), recent re-excavation by the Glasgow University (Poller forthcoming), and because its wide-ranging vista across lower Strathearn includes Moncreiffe Hill c. 5.8 km to the north-east. Bell's excavations were prompted by Christison's comment on forts that 'no really satisfactory progress can be made until surface observations have been supplemented by excavations' (Bell 1893: 16). The outer faces of the walls were located and chased in narrow trenches, which were left open to create the distinctive plan still visible on the ground and from the air (Figure 1.8).

The series of forts on its summit includes an elongated, sub-rectangular example of 0.12 ha (fort 1) set within an oval fort of 0.39 ha (fort 2), which itself is within a roughly oval enclosure of 0.93 ha (fort 3) that also encloses a lower terrace to the north-west. In addition, to the south and south-east of the summit, there are at least three lines of ramparts and ditches which may be annexes or outworks. The plan of the inner fort (1) was revealed in its entirety, along with much of that of fort 2 and a small section of fort 3. These revealed that while fort 1 had no entrance break in the line of its wall at ground level, the entrance at the east end of fort 2 had a complex arrangement in which the southern terminal of the wall turned sharply back into its interior. Both forts had massive timber-laced walls with detail of beam sockets in their faces and several small finds, including three cup-marked stones, were retrieved (Bell 1893: 21–22).

Excavations by Tessa Poller in 2013–14 confirmed the nature and scale of the timber-laced walls. That of fort 1 was c. 5.5 m thick and survived to a height of 1.4 m in places, suggesting an original height of at least 3 m, while the wall of fort 2 was up to 4.9 m thick. It was also confirmed that the in-turned wall at the entrance of fort 2 abuts the outer face of the wall of fort 1. The report on the 2013–14 excavations is in preparation



Figure 1.7: 'MacBeth's Castle' on Dunsinane Hill at 310 m OD. Scarred by early excavations, it remains undated, but has been re-excavated in 2022 (photo: D. Strachan 2001 © PKHT).



Figure 1.8: The complex series of forts on Castle Law, Forgandenny, at 275 m OD, range in size from 0.12 ha to 0.93 ha (photo: D. Strachan 2001 © PKHT).

and will hopefully reveal the dating and sequence of construction at the site (Poller forthcoming).

Bell's excavations no doubt inspired the exploration, four years later, of the small fort on Castle Law, Abernethy (Christison and Anderson 1899), which has played a role in Scottish fort studies out of all proportion to its diminutive size. An account of the early discoveries there are presented in Chapter 6.1, but having provided the classic photograph of beam-slots in a timber-laced wall, it later became the type-site of Professor Gordon Childe's 'Abernethy Complex' (Childe 1935a: 193-5, 236-7; 1940: 213-16), represented by a series of forts with massive timber-laced walls which he believed had been built by bands of warrior-farmers arriving from the continent, although there was little evidence for their date.

Around 1899, following the work at Abernethy, the ploughed-out fort of Drumharvie, which first appeared on James Stobie's map of *The Counties of Perth and Clackmannan* (1783; ID 26154), was located and excavated by Alexander Mackie on behalf of Christison (1900b: 119-20; 1901: 37-8, fig 12). The line of the c. 0.27 ha sub-oval enclosure can still be partly traced on the low hillock it occupies, but excavation confirmed dual concentric ditches with traces of internal ramparts. The inner ditch was broader, and a concentric palisade trench lay c. 3 m within its inner lip. They were traced from the north-east, round the north-west to the south-west, the latter forming the easiest line of approach where the ditch terminals of the entrance were found.

#### *David Christison - pioneer of Scottish fort studies*

As we have seen Christison was the stimulus behind many of these early excavations, and without doubt contributed most to the development of Scottish fort studies in the late nineteenth and early twentieth centuries. This was in part through his pioneering surveys, followed by excavation and systematic publication, but also significantly, in that he also produced the first national synthesis of results.

From 1885 through the 1890s he conducted the first serious programme of field-based research into forts and earthworks in Scotland, arguably the first comprehensive survey of forts over such a large area anywhere in Britain. Following his Rhind lecture series in 1894, he published the results as *Early Fortifications of Scotland* (Christison 1898), which became the model for subsequent regional and national analyses (Harding 2012: 35-6). This remarkable volume, with extensive use of plans and fold-out maps, is in many ways the Victorian precursor to the GIS-based online *Atlas of Hillforts* (Lock and Ralston 2017). Indeed, publication of the *Atlas of Hillforts* has been described as the first

occasion since Christison's work that the 'full record of ancient Scottish enclosures has been systematically examined' (Halliday 2019b: 54). In addition to presenting the results of field survey and previous excavations, the work also collated existing records and traditions, was prescient in warning against the assumption that all forts are prehistoric and was critical of the relative neglect of the 'native' sites in preference to Roman remains, a sentiment reiterated in his annual report to the Society of Antiquaries of Scotland in 1900 (Christison 1900a), an extract of which is the epigraph to this chapter.

Two years after his *Early Fortifications* Christison produced his 'tolerably exhaustive account' of *The forts, "camps", and other field-works of Perth, Forfar and Kincardine* (1900b). In this regional analysis, forts were considered under five classes of remains: earthworks; stone forts; sites with little remains; and two categories of 'dubious works', either marked as 'Fort' or 'Camp' on OS maps, or not (Christison 1900b: 46). Within our study area no fewer than 13 forts are described (Figure 1.6), including: Dundee Law (ID 31936), Dron Hill (ID 30626), Evelick (ID 28108), Rait (ID 30457), Carnac (Moredun), Ogle Hill (ID 26068), Ben Effrey (ID 26073), Rossie Law (ID 26046), and Jackschairs Wood (ID 26551). There are also accounts of the early excavations at Dunsinane Hill, at Castle Law, Forgandenny in 1892, and at Castle Law, Abernethy over 1896-98. In addition to providing plans and sections of the latter two sites, he included details of their timber-laced walls and compared them through the illustrations (Christison 1900b: 76, fig 33 and 79 fig 36).

The paper presented a progressive degree of morphological analysis (Christison 1900b: 48 figs 1-11 and 73 figs 29-31) and further promoted the need for scientific excavation methods to provide accurate plans and sections to aid analysis and comparison. Nairne's work of 1854 at Dunsinane (Wise 1856) was described as 'the evil results of unskilled, incomplete and hasty excavations, undertaken too often with the object of proving preconceived theories' (Christison 1900b: 86). In comparison, Christison was the first in Scotland to recognise palisade slots, at the excavations at Orchill and Drumharvie (1900b: 117-120). In his conclusion he considers the sites by their class, considering factors such as frequency, altitude, location, morphology, water supply, finds, and, for the stone forts, the development of fortifications and the structures of the walls. This flurry of local activity ended with the excavations at Inchtuthil, where earlier palisades were also discovered at the small promontory fort, and with a few exceptions the study of forts in Perth and Kinross virtually ceased for a century.

### *The 20th century to the present*

The only investigation in the inter-war years was on Deuchny Hill (ID 28217) in the west Sidlaw Hills, instigated by a stone mortar discovered following a celebratory bonfire to mark the end of WWI. The location was previously known as 'The Seven Airts', as the extensive views apparently offered visibility of seven counties (Boog Watson 1923: 304), which is perhaps why the bonfire was sited there. Boog Watson's survey suggested an oblong fort of c. 0.3 ha, aligned north-west to south-east, and listed a number of small finds, including a stone lamp, hammerstones, and a fragment of a probable shale bracelet (1923: 306–7). Traces of the inner rampart are still visible, but the lines of outer walls he recorded were not found by recent survey as part of the wider project (AOC 2016). It is further considered in Chapter 7.2, 7.3 and 7.7, as it may belong to a distinctive group of oval forts.

No other excavation took place in the areas until after WWII and most of those in the second half of the 20th century were salvage operations. These began with what was undoubtedly the most significant fort loss in the region, that of Clatchard Craig, at Newburgh in Fife (ID 30074), which occupied a very prominent hill overlooking the Tay and controlling the pass of Lindores through the North Fife Hills. Completely quarried away by 1980, this complex site consisted of three enclosures. The innermost of c. 0.18 ha was sub-rectangular and occupied the rocky summit, while the larger, outer enclosures defended a series of lower terraces, the outermost with multi-vallate ramparts. Ministry of Works rescue excavations in 1953–4 and 1959–60, confirmed all phases of enclosure by timber-laced walls to be early medieval in date and recovered high-status small finds (Close-Brooks 1987). While the possibility of a more complex history of construction, including an earlier site, has been suggested (Lock and Ralston 2017), recent C14 dating of archived excavation material has refined the dating further and may suggest all phases were constructed and occupied over a short period of a few generations, ending in destruction by fire in the 7th century AD (Noble *et al.* 2022).

In the south-west of the area, quarrying in 1978 was also responsible for damage to an irregular fort occupying the steep-sided hill of Castle Craig, at the foot of Craig Rossie, near Auchterarder. This destroyed the terminals of two ramparts at the southern end of the fort and exposed pits containing animal bone within the interior (Sherriff 1984). The roughly 2.22 ha site includes a small inner enclosure of 0.06 ha on the summit, which on excavation turned out to be of medieval date. This was constructed over a demolished broch of c. 23 m diameter with walls c. 5 m thick that contained a rich artefact assemblage of the 1st to 2nd

centuries AD, including a Roman bronze patera (James 2011b; Poller forthcoming).

In 1987, the sub-circular bi-vallate fort of North Mains (ID 26000), recorded as cropmarks within a meander of the Machany Water as it joins the River Earn, was partially excavated (Barclay and Tolan 1990). Enclosing an area of 0.2 ha, the fort produced both Bronze Age (1740–1320 cal BC) and Iron Age (390–110 cal BC) dates, and while the excavator suggested the site dated to the former, the later Iron Age date has been suggested as more probable (Lock and Ralston 2017).

The 1990s saw excavation at Dundee Law, City of Dundee, which is arguably the most publicly visible fort in the area, overlooking much of the city and a landmark from across much of the estuary. Adapted in the 16th or 17th centuries as an artillery fortification, it was further disturbed by construction of the war memorial in 1923, which uncovered vitrified stones, and most recently by telecommunications. Mid 19th-century town plans show the artillery fortification set within a c. 0.18 ha sub-rectangular enclosure, and the excavation of 1993 suggested an Iron Age fort with a burnt timber-laced wall and activity in the 1st or 2nd century AD (Driscoll 1995).

The small promontory fort of Rait, on the southern Sidlaw hills, has also been heavily damaged, this time by sand and gravel extraction. Its defences consist of three ramparts with external ditches, the outer of which was revealed by excavation in advance of the most recent quarrying in 2000 (Cachart 2001). The tiny portion of the interior now surviving is deceptive as it may originally have enclosed as much as 0.15 ha.

The arbitrary nature of these development-led interventions contrasts with the Glasgow University *Strathearn Environs and Royal Forteviot* (SERF) project, a decade-long programme of excavation at over ten forts along lower Strathearn and the Ochil Hills. These included: Jackschairs Wood in 2007; Dun Knock in 2008–09 and 2015; Green of Invermay in 2009; Law of Dumbuils (2010); Ben Effrey in 2011 (Figure 1.9); Rossie Law in 2012 (Figure 1.10); Castle Craig (2011–12); Kay Craig (2013); The Roundel (2013); Castle Law, Forgandenny (2013–14); and Ogle Hill in 2015 (Poller forthcoming). Significantly, while the initial results suggest most were built or modified in the Early and Middle Iron Ages, at Rossie Law the earliest evidence for fort construction was from the Late Bronze Age (Given *et al.* 2019: 96). Of relevance to the present report was the discovery of a broch at nearby Castle Craig, and the work at Castle Law Forgandenny, with its massive timber-laced walls. The latter, being located due south-west, directly across the strath from Moncreiffe Hill, is of interest both due to its close proximity, and with respect to the timber-laced



Figure 1.9: The hilltop inland promontory fort on Ben Effrey, at 360 m OD, has three lines of ramparts enclosing 0.21 ha and has produced Early Iron Age dates (photo: D. Strachan 2001 © PKHT).



Figure 1.10: SERF excavations of the oval, uni-vallate hilltop contour fort of Rossie Law c. 2.3 ha at 324 m OD produced Late Bronze Age and Iron Age dates (photo: D. Strachan 2001 © PKHT).

walls, first compared to those at Castle Law, Abernethy by Christison, and for which we have a new comparator at Moredun (Chapter 3.2: The inner oval fort, Wall E).

With the SERF fieldwork complete, research elsewhere has notably included the fort on East Lomond Hill, Fife, by a considerable margin the highest within the study area at 445 m OD. It occupies a conical summit that is such a distinctive landmark in the middle of the Fife peninsula, and is visible from much further afield, including the top of Moncreiffe Hill. A complex series of fortifications includes at least three roughly concentric lines of defence, a substantial outwork on the southwest and a large annexe on the south. The smallest fort, on the summit, with extensive views across the region, encloses c. 0.15 ha and is set within an enclosure of c. 0.34 ha. Both these are contained within a partial enclosure of c. 1.6 ha, which appears to abut the middle rampart on the south-east (Lock and Ralston 2017). The date and sequence of construction of these inner ramparts is not well understood, but a Pictish stone slab with the incised outline of a bull was found within the fort in c. 1920 (Corrie 1926), suggesting that elements of the defences are early medieval in date. In 2014, through the Living Lomonds Landscape Partnership, small-scale excavation within the annexe to the south of the fort identified buildings, evidence of iron-working, and high-status artefacts (O'Grady 2015) and radiocarbon dates from the 1st – 7th centuries AD (O'Grady 2017). Further excavations, carried out in 2017 and 2019, are in the process of publication (Gordon Noble *pers comm*).

Finally, development led research has recently contributed significantly through comprehensive excavation of the multi-vallate oval fort of Broxy Kennel, which was situated on a sand and gravel ridge overlooking River Tay immediately north of Perth. It enclosed c. 0.3 ha and was previously known only from cropmarks, which showed a souterrain across one of the ditches. Initial evaluations produced a small charred-grain assemblage suggesting low level domestic cereal processing spanning the Bronze Age to the Iron Age (Pettitt and Hession 2019). The fort was stripped and fully excavated prior to destruction and publication of the results should help to improve our overall understanding of the development of forts across the region.

In conclusion, the forts of the Lower Strathearn and Tay estuary area (Figure 1.6) are now relatively well-studied, with 32 excavations at 22 of the 57 sites (i.e. 39% sample). Of these, 25 could be described as research driven, including the significant contribution of ten sites studied by Glasgow University, four have been carried out through community heritage initiatives, including the three contained in this report, and three as a result of development, two of which relate to quarrying. While the scale of investigation at each

site has overall been quite small, few areas in Scotland can boast such a concerted effort to explore this key component of the Iron Age landscape.

### 1.5 The nature of the Tay fort group

The distribution of the Tay group within the study area (Figure 1.6) occurs in five geographic areas: the dense concentration along Strathearn and northern Ochil Hills; a less dense cluster along the Sidlaw Hills; the series along the north Fife hills; the dispersed forts of inland Fife (including a small concentration around Strathmiglo); and a dispersed group running from the Gask Ridge north-east to Strathmore.

The distribution of forts has recently been considered through GIS spatial analysis to identify clusters by measuring the distance between pairs of sites at different distance thresholds (Maddison 2022: 367–371). Analysis of Britain and Ireland (Maddison 2019) has been followed by regional analysis which has included the east-central Scotland cluster as one of five comparative case-studies (Maddison 2022: 374–377; figs 8.2 and 8.3). The analysis revealed a strong correlation between clusters and topography and interestingly grouped the Strathearn and northern Ochil Hills group with those in the west Sidlaw Hills, but included Castle Law, Abernethy, with the Lomond Hills group in Fife, rather than with the south Tay estuary group along the north coast of Fife (Maddison 2022: 374–5; fig. 8.2). Further, while analysis identified key large sites, such as Norman's Law (ID 31814), within the north Fife coast group, the overall character of clusters of smaller forts (Figure 1.11) closely tied to the topography of the area, perhaps suggesting anarchic society of autonomous communities proposed by Armit (2019).

Indeed, the internal area of the forts is small and predominantly less than 0.5 ha, including several extremely small examples such as Ogle Hill (0.05 ha), Castle Craig 1 (0.06 ha) and Castle Law, Abernethy (0.06 ha). Only 11 sites were larger than 1 ha and only four larger than 2 ha (Figure 1.11). Using the *Atlas of Hillforts* categories, most were contour forts (66 %), followed by promontory forts (14 %) and level terrain forts (9 %). Most were either uni-vallate (30 %) or of mixed vallation (29 %), with slightly fewer multi-vallate (24 %) and bi-vallate (17 %) examples.

The relative size and morphology of selected forts within a 10 km radius of Moncreiffe Hill is shown in Figure 1.12. The top row shows smaller forts with principally one enclosing line of defence. Notable within this group is Castle Law, Abernethy, which is among the smallest in the area and has a distinctively elongated oval shape, similar to the innermost fort at Castle Law, Forgandenny, and is possibly also at Deuchny Wood. These appear broadly similar to the

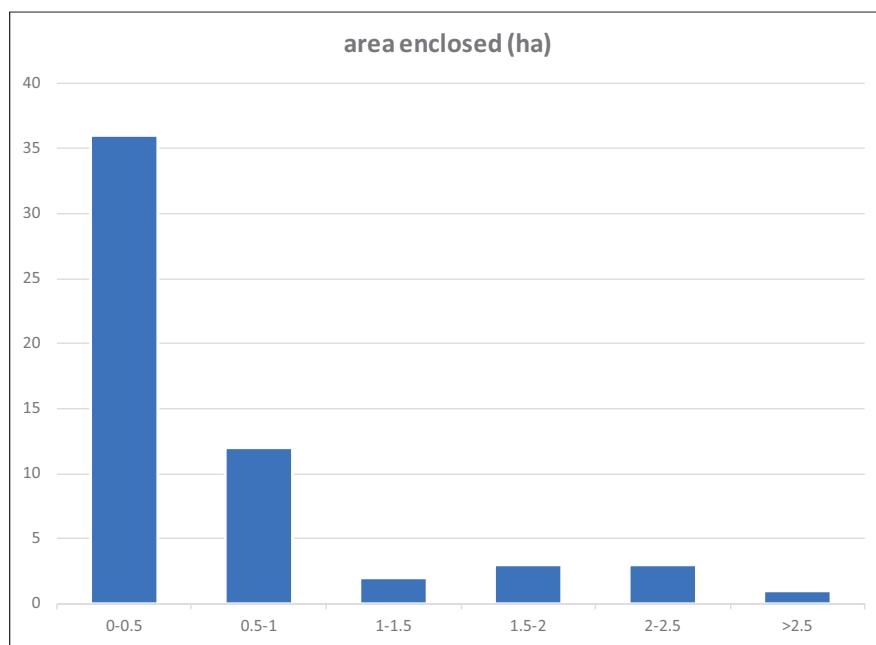


Figure 1.11: The internal area of forts shown in Figure 1.6 based on Lock and Ralston (2017). Note the area of sites discussed in this volume have been refined in GIS: Castle Law, Abernethy (0.06 ha); Moredun 1 (0.15 ha); Moncreiffe Hill (0.2 ha); Moredun 2 (1.2 ha) and Moredun 3 (1.8 ha); see also Figure 7.2.

innermost fort at Moredun, which is symmetrically oval, however is wider in plan rather than elongated. Together they belong to a recognised series of oblong, possibly entrance-less, forts found mainly in north-east Scotland (Feechem 1966; MacKie 1969; Armit 1997; Alexander 2002; Ralston 2006: 151) and are discussed further in the conclusions to Chapters 3 and 6, and more fully in Chapter 7.2, 7.3 and 7.7.

The second row shows multi-vallate forts with irregular curvilinear forms dictated by the terrain, including Moncreiffe and Broxy Kennels. The third row shows a series of more consistently symmetrical oval and sub-oval multi-vallate enclosures, which are also notably of a similar size. The final group consists of larger, complex examples, including Moredun and Castle Law, Forgandenny, in which bigger enclosures often contain smaller forts of the oblong series.

A broadly similar morphological range can be found across the wider study area, ranging from the small, heavily defended promontory fort at Rait, through a series of mid-sized multi-vallate examples to larger uni-vallate enclosures such as Rossie Law (Figure 1.13).

In terms of topographical setting, most sites were found on hilltops or smaller hillocks and knolls, with significant numbers on inland promontories or on cliffs/plateau-edges or scarps (Figure 1.14). In terms of altitude, most occur within 100–300 m OD range, with lesser numbers below 100 m OD and only five above 300 m OD. The sites on Moncreiffe Hill and Castle Law,

Abernethy, all fall within the first category (Figure 1.15).

Clearly chronology is critical in considering the distribution of sites shown in Figure 1.6, and as outlined above, full publication of all the recent work will allow us to better understand this group of forts in due course. It is worth noting that Clatchard Craig and East Lomond have only produced evidence of early medieval construction and activity, however this does not necessarily deny the possibility of earlier forts at these sites.

## 1.6 Wider Iron Age settlement evidence

While only the north-east quarter of the area (Figure 1.6) has seen systematic archaeological survey (RCAHMS 1994), this combined with national and local HER data reveals considerable evidence of other forms of probable Iron Age settlement. This is primarily through an extensive cropmark record in the lowlands, the majority of which consists of possible roundhouses that vary considerably in size and form. These include unenclosed ring-ditches and macula, some of which lie within tightly concentric enclosures (RCAHMS 1994: 43–48). In addition, some of the larger, uni- and multi-vallate enclosures, in both rectilinear and curvilinear forms, may be Iron Age, including small enclosures known as interrupted ring-ditches (RCAHMS 1994: 57–62). Souterrains are also a common component of the settlement record in the area, and while some have been excavated, the majority are known only as cropmarks.

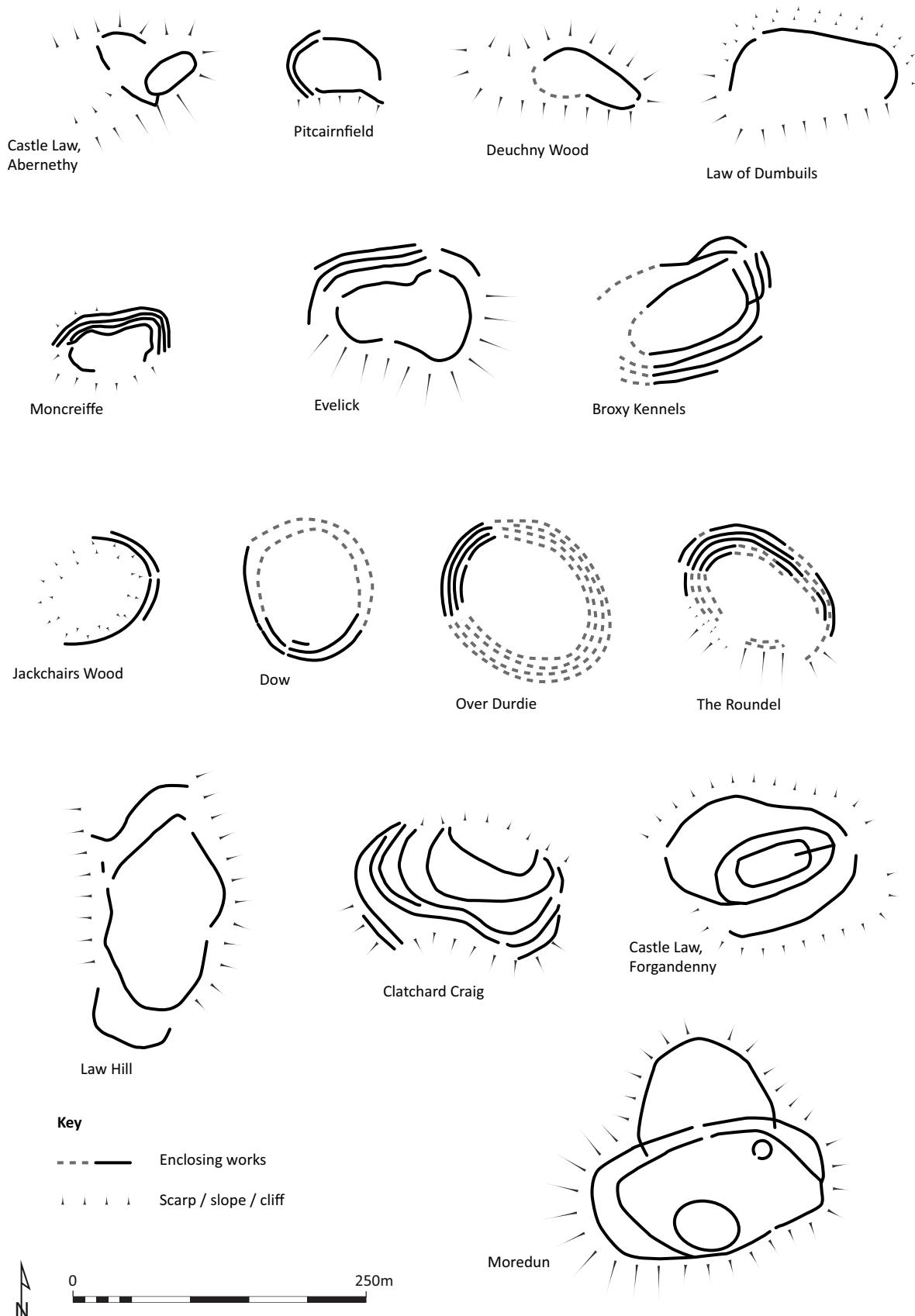


Figure 1.12: Comparative plans of selected forts within 10 km of Moredun fort (including Castle Law, Abernethy, Moncreiffe and Moredun).

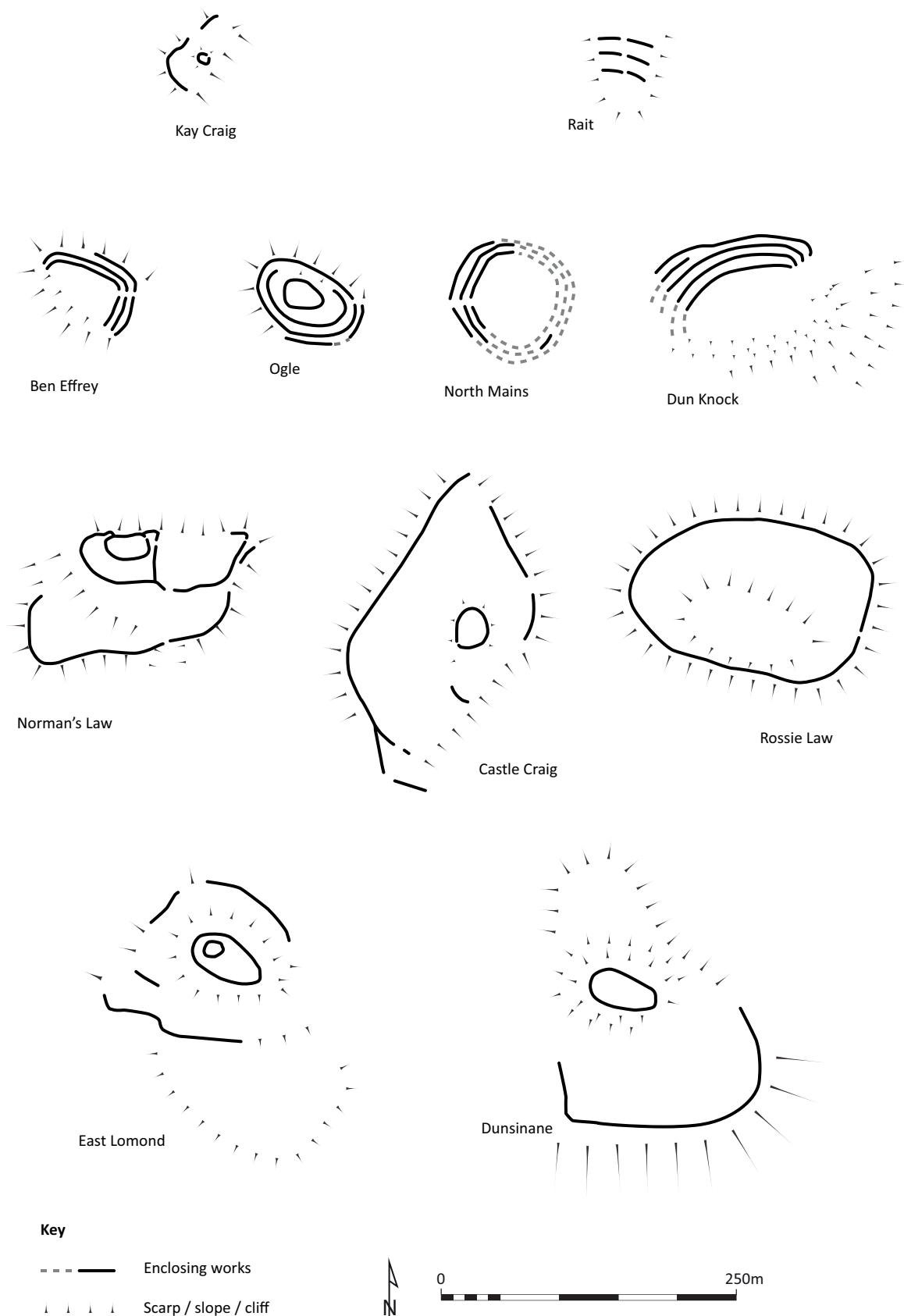


Figure 1.13: Comparative plans of selected forts shown in Figure 1.6 beyond 10 km of Moredun fort.

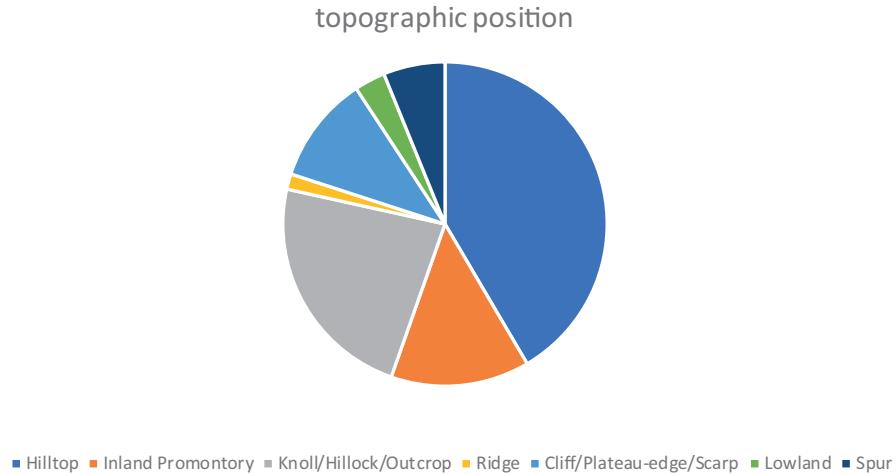


Figure 1.14: Topographic position of the forts shown in Figure 1.6.

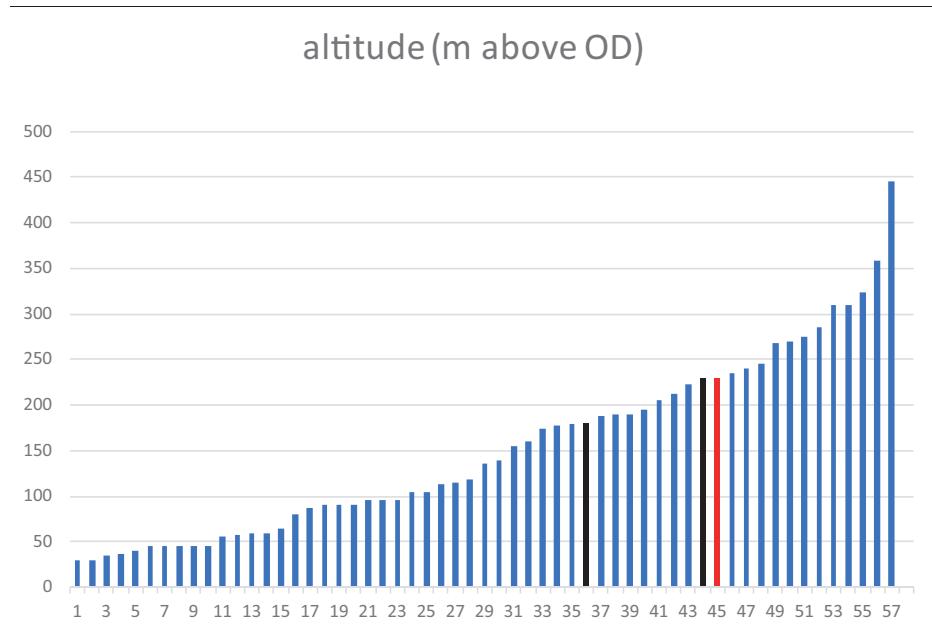


Figure 1.15: The relative heights above sea-level (OD) of the forts in Figure 1.6 with Moncreiffe (36) and Moredun (44) in black and Castle Law, Abernethy (45) in red.

These latter often occur in close proximity to the roundhouses and the interrupted ring-ditches, though their exact relationship remains unknown. Debate continues regarding their use and the degree to which a storage function may have included a ritual dimension, and likewise their relationship to the Roman military campaigns and the dating of their abandonment (Armit 1999; Coleman and Hunter 2002; Halliday 2006).

Apart from the forts, however, there are few earthworks in the uplands of the area that can confidently be dated

to the Iron Age. In addition to the broch found at Castle Craig fort, Auchterarder (Poller forthcoming), a second, unexcavated example has been proposed in the Sidlaws at Little Dunsinane, Collace (RCAHMS 1994: 51; 74). It has been heavily robbed and may have closer parallels in the monumental roundhouses found in the uplands of north-west Perthshire (Strachan 2013). Monumental stone buildings within forts are also known in Angus, to the east of the area: a post-fort broch Hurly Hawkin (Taylor 1982); and a proposed broch within Laws of Monifieth fort (Neish 1862 and 1865; ID 33450), although

Table 1.1: Locational and administrative details of the sites.

SITE NAME	NGR	NMRS	CANMORE	PKHER	Scheduled Monument
Moncreiffe	NO 131 198	NO11NW7	28058	MPK3203	9438
Moredun	NO 135 199	NO11NW23	28025	MPK5232	9440
Castle Law, Abernethy	NO 182 153	NO11NE12	27917	MPK3069	2477

the latter may also have closer parallels with those in highland Perthshire. Large buildings, though less monumental, are also known within forts in the north Fife hills, such as at Glenduckie Hill, near Newburgh (ID 30060). The relationship between these massive stone building forms and the forts is of particular importance with respect to the monumental roundhouse discovered within Moredun fort and described in Chapter 3.2 and 3.4. Radiocarbon dating suggests the Castle Craig broch as a Roman Iron Age structure of the early centuries AD, post-dating both the monumental roundhouse on Moredun and those of the uplands.

Chapters 2.1 and 6.1 present possible Iron Age sites within the environs of each of the forts investigated. As with the forts above, it is recognised that the dates of the majority have not been established. Rather they illustrate a range of site types and locations that may have been relevant to the forts discussed. Many of the unenclosed settlements may prove to be of Bronze Age date, for example, and while the souterrains post-date our period of interest, a number are clearly multi-phased. It is possible some of the sites outlined may represent part of a Late Iron Age expansion in lowland settlement in which the forts played a key role, and the timber-laced oval and oblong forts were at the apex.

## 1.7 Preliminary work

Project development included a desk-based and field assessment of forts around the upper Tay estuary, to identify suitable candidates for excavation (Strachan 2012). A review of their comparative plans showed considerable diversity of form, and recurring themes, such as multiple enclosures and geographical setting. The study highlighted Moredun as a large, complex site on a par with its neighbour, Castle Law, Forgandenny. Topographic survey of six sites was undertaken by Oxford North Archaeology to update and refine previous mapping of earthworks with a view to locating targets for excavation (Figures 2.5; 3.6 and 6.7). Desk-based research confirmed that while some sites were still in woodland, by far the majority were tree-covered on OS 1st edition maps of the 1860s. Tree cover and vegetation control remain the foremost management issues at all the sites discussed.

While the initial plan was for small-scale excavation at between six and eight forts, an advisory group was

established to consider this approach and recommended larger-scale excavation at one or two sites. As a result, Moncreiffe and Moredun were selected, primarily to establish the chronology of the various circuits of defences that are visible at Moredun, and to investigate the relationship between two forts found in close proximity on top of one distinct topographical feature. Excavation at Moredun also offered an opportunity to test the early medieval date previously posited (Feachem 1955: 79–80; Alcock *et al.* 1989: 206–7; Alcock 2003: 189). RCAHMS were approached to re-survey and provide annotated plans for both sites, and while they declined to survey Moncreiffe (Chapter 2.1) an interpretative plan of Moredun was produced in 2014 to inform trenching (Chapter 3.1). Geophysical survey was carried out at both sites by Peter Morris over 2014–15 to further aid the project designs that formed the basis of Scheduled Monument Consent applications (Strachan 2014a; 2014b).

The potential of revisiting the other strong candidate for excavation, Castle Law, Abernethy, fortunately became a reality as resources were made available within the wider TayLP scheme in 2016. Again, RCAHMS contributed a new survey to inform the project design (Strachan 2017b) which led to excavation in 2017.

Details of the sites excavated are shown in Table 1.1.

## 1.8 Research agenda

In addition to the project's community engagement objectives, the overarching research priorities were primarily designed in response to the Scottish Archaeological Research Framework (ScARF 2014a and b) and other recent and ongoing programmes of local research (Strachan 2013; Poller forthcoming) as well as wider discussions on fort studies (such as Collis 2010). The following ScARF research questions for aspects of Iron Age forts (2014a: 6 Enclosed Places) were identified as being of particular relevance:

- 'The lack of dating evidence for enclosed sites is an issue across the board, as it is a severe constraint in understanding them. 'Key-hole' offers the prospect of obtaining at least an outline chronology in an area relatively quickly, but with the caveat that such approaches will inevitably simplify each site sequence and can only produce a first-stage model'

- ‘The lack of evidence for activities within enclosed sites, due to limited work in enclosure interiors, is a severe constraint, as are the difficulties in connecting interior activity to enclosure sequences. Geophysical survey offers a cost-effective approach to assessing enclosure interiors in favourable circumstances’
- ‘why did people choose to inhabit places such as hilltops...? There is a need not only to study the setting of sites but also to try to reach a better understanding of how landscapes were conceived’
- ‘There is no overall picture regarding the role of ‘hillforts’, whether as tribal capitals, (seasonal) meeting places, elite residences, or other functions and it is likely that their role varied across time and space. This impacts directly on social models for the Iron Age; regionally-based diachronic models are a key desiderata’
- ‘What lies behind the diversity of enclosure forms in some areas? A regionally-structured review of the classification and social context of enclosed places is required’

As a result, dating of the construction of the forts was the primary objective. In addition to establishing phasing at multiple enclosure sites, it was hoped the evolution of construction methods, whether stone and earthen ramparts or timber-laced walls, could be identified. A secondary priority was on the nature of entrances and interiors. The site-specific research aims for each excavation are presented at the start of

Chapters 2.2, 3.2 and 6.2. These were revised annually on the basis of the previous year’s results and as all three sites are Scheduled Monuments, consent for excavation was agreed through project designs incorporating these: Moncreiffe (Strachan 2014a; 2015a); Moredun (Strachan 2014b; 2015b; 2016 and 2017a) and Abernethy Law (Strachan 2017b).

In conclusion, the project aimed to contribute to a better understanding of the role, chronology and landscape settings of lowland forts around the Tay estuary. The Perth and Kinross Archaeological Research Framework (ScARF 2022) aims to develop a deeper regional understanding of the forts through both national and regional research priorities. There is significant potential for this through the synthesis of results from the SERF project (Poller forthcoming), development-led projects, and research by the author through the work of Perth and Kinross Heritage Trust. The latter has explored important site-types in the area and focussed on enclosure and settlement c. 1000 BC to c. AD 1000, including excavation of the Iron Age monumental roundhouse at Black Spout, Pitlochry (Strachan 2013) and early medieval Pitcarmick-type buildings in Glen Shee (Strachan *et al.* 2019). Such synthesis may begin to reveal local or regional trends through which to better appreciate the forts of the area. Such regional definition within key areas has been recognised as vital for progressing understanding of forts nationally (Lock and Ralston 2017 and 2022).