

## 8. DISCUSSION

The rewards of intensive archaeological fieldwork over a period of three years along the middle reaches of the River Dee are considerable. A total of 42 fields and over 11,000 lithics representing at least 15 sites (see discussion below, 8.3 ‘Methodologies’) have been recorded. While some of the sites were previously known, others are new, or new to professional archaeologists, and several of the known sites have been found to be bigger than previously understood. This area was clearly significant to the prehistoric populations of eastern Scotland, many generations of whom forged a living here in the millennia following deglaciation. The work described here is significant not just for the light it throws on the early prehistoric populations along the River Dee but also for the methodology by which the Mesolithic Deeside community archaeology group has been able to add to archaeological understanding. Both aspects will be covered in this section, which has been divided into five main sections:

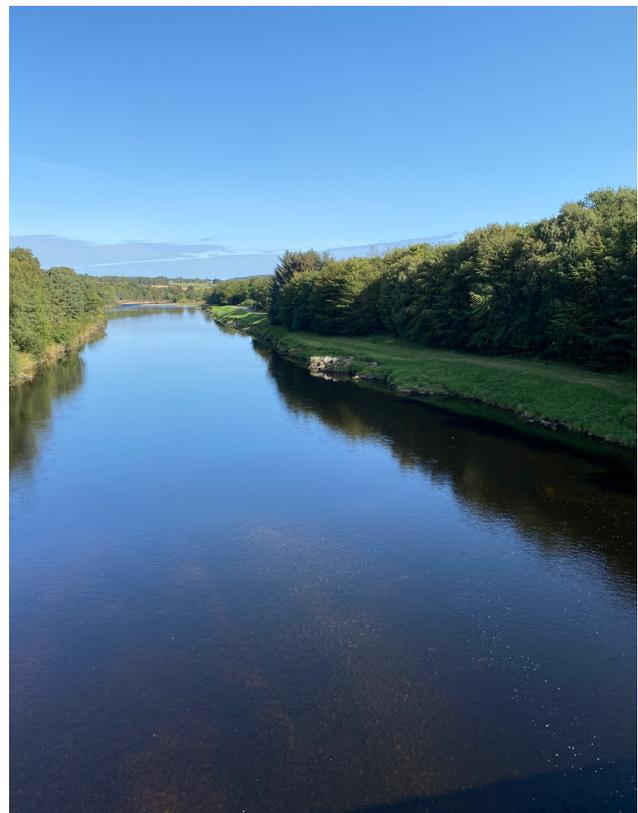
- discussion of the fieldwork results, interpretation and management of the local archaeology;
- discussion of the contribution of community archaeology;
- reflective discussions of the methodologies of fieldwalking;
- overview of the contribution of the archaeological results to wider understandings of the prehistoric communities of the area;
- thoughts on future work.

### 8.1 Archaeology: living in prehistory along Mid Deeside

The River Dee (Illus 8.1), like all Scottish Highland rivers, has always been a dynamic system with a course that alternates between long wandering gravel-bed reaches, where the watercourse can move across the entire valley floor until restricted by older terraces and floodplains, and gorges where the path of the river is constrained by bedrock or till so that the valley floor is narrow and floodplains few. The entire system has always been provoked into rapid change by major floods, probably clustered

in times of climatic change but unpredictable in timing and ferocity. Living alongside, or using, the river in prehistory required a careful understanding of the impact of weather and the seasons on local conditions and landforms. Settlement location depended on many factors, including the likely duration of habitation, nature of activity, size of community and time of year. Human requirements also varied through time.

The earliest groups recorded by the present study to make use of the area are likely to have arrived some time during or immediately after the 13th millennium BC, within the climatic amelioration of the Late Glacial Interstadial, after deglaciation of the Scottish ice sheet. They encountered a landscape that was still in flux. The interstadial lasted some 1,700 years and was a period of dynamism and variability. Fluctuations in temperature and other conditions meant that while the landscape might have appeared stable from one generation to the next, the communities who made their homes here had to be flexible and resilient. The hills and valleys of lower Deeside were open landscapes. The river occupied a shallow course across a wide gravel floodplain, interspersed with stretches where it was



**Illus 8.1** The River Dee downstream of East Park



**Illus 8.2** Artist's reconstruction of a group of Late Upper Palaeolithic hunters in pursuit of reindeer in the spring

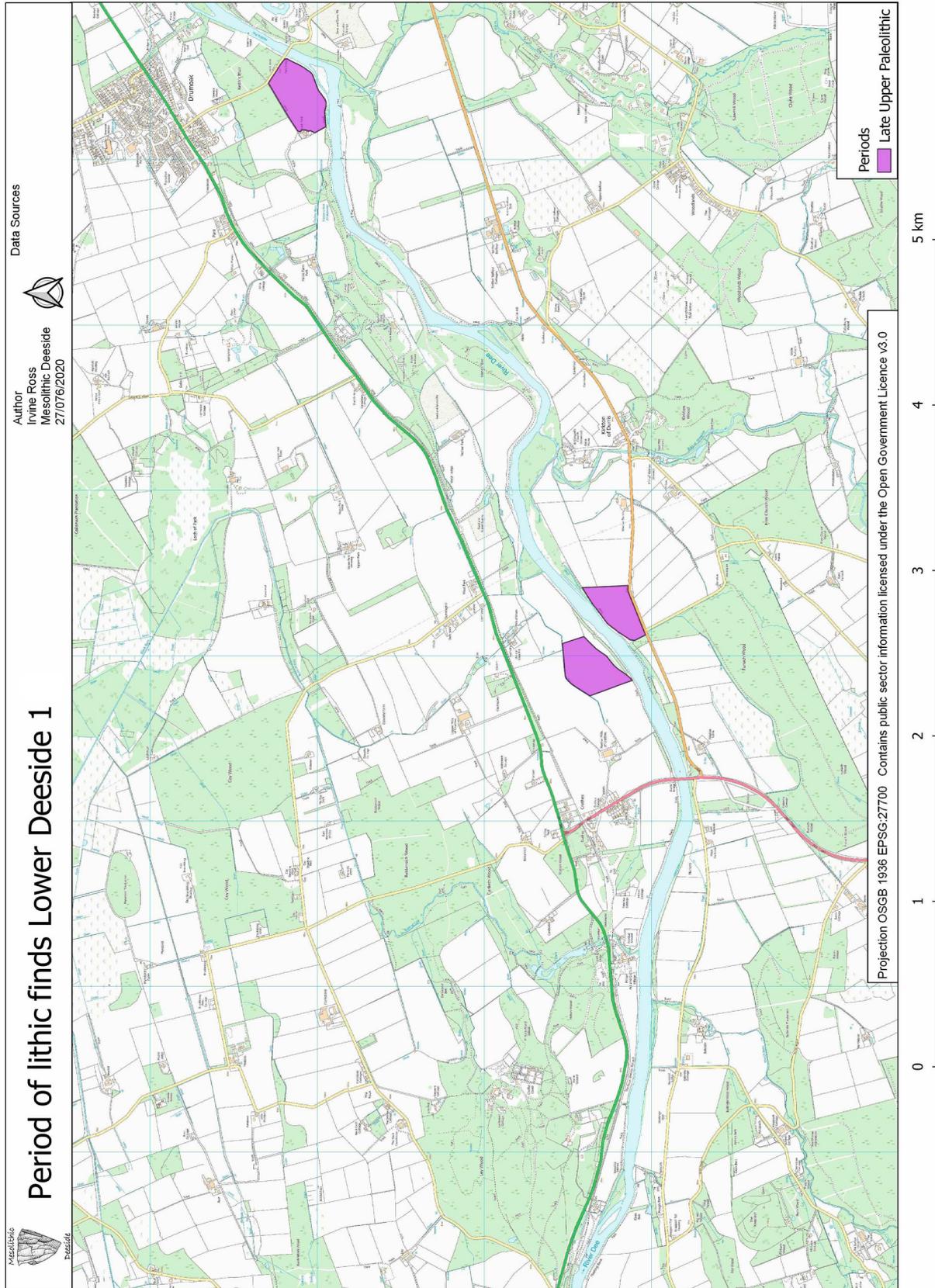
confined by local bedrock or till. Long periods of dynamic equilibrium as it flowed across this surface were interspersed with episodes of erosion as it cut lower to leave a particular terrace behind. Three main terraces have been recognised from this period, comprising the Lochton Terrace some 15.5–17m above the present river surface, the Maryfield Terrace *c* 9.5–11m above the river, and the Camphill Terrace (4–5m above the river). Late Upper Palaeolithic lithic assemblages have been recorded on the lower two terraces at East Park and Nethermills Farm, suggesting that these surfaces were in existence by *c* 13,000 BC.

The warmer interstadial temperatures fell with the advent of the Younger Dryas (*c* 11,000 BC to *c* 9700 BC), at which point glacial conditions are likely to have returned in the Cairngorm massif. At this time increased aridity boosted soil erosion, plant communities diminished, and the productivity of lakes and rivers dropped. So far, very little evidence has been found for human activity across Britain during the Younger Dryas and there is no definitive evidence within the research area, though some of the sites may have been occupied on occasion. At the end of this period, mixed woodland cover soon developed. Behind the river, local lochs, such as the Loch of Park, and smaller watercourses facilitated both movement through the wooded landscape, and settlement, in addition to presenting increasing opportunities for the gathering of varied resources.

The first Late Upper Palaeolithic populations (Illus 8.2) comprised exploratory groups building their knowledge of the area (previous populations may well have existed but to date no archaeological trace has been recognised). Exploratory groups required shelter and viewsheds, fresh water, transport and access to the varied hinterland, a variety of resources for food and other necessities, and a measure of security from predators. They have left little archaeological footprint, we have few finds from this period, and, to date, no in situ Late Upper Palaeolithic features (such as hearth sites), have been recorded in the research area. The material recovered by Mesolithic Deeside adds to Late Upper Palaeolithic evidence that is emerging along the river at sites such as Milltimber (Dingwall et al 2019b) and Standingstones (Ballin 2019) and is recognised through distinctive forms of retouched pieces, specifically blade end scrapers and tanged or

shouldered points. It comprises material from three sites in particular, all within a 4 kilometre stretch of the river (Illus 8.3). There is a group of blade end scrapers from East Park as well as a large crested blade, all found within close proximity to each other, inside the wider scatter. In addition, the material from East Park included a fine shouldered point and a *bec*. There were also blade end scrapers at Wester Durris 1 and Nethermills Farm 4, and a second shouldered point was found during test pitting at Nethermills Farm 4. Evidence for flint knapping from this period is difficult to identify within the large multi-period flint scatters at Nethermills Farm 4 and East Park, but both have evidence for crested blades, opposed-platform blade cores and core preparation debitage, all of which may demonstrate early prehistoric flint working. Just to the west of these sites, re-analysis of the lithic assemblage from Birkwood (Paterson & Lacaille 1936) has revealed possible Late Upper Palaeolithic elements including large burins (Ballin, pers comm).

Despite the lack of in situ Late Upper Palaeolithic sites, it is interesting to note that many of the putative artefacts from this period are made of a fine grey banded flint that is not found among assemblages with more recent characteristics. This flint may well have been imported from further afield, possibly as far afield as Doggerland, or even mainland Europe. Although as yet this interpretation lacks quantifiable proof and is thus speculative so that the dangers of a circular argument are ever present, it is a pattern of lithic procurement that has been discussed elsewhere for the Late Upper Palaeolithic in Scotland, for example at the site of Howburn in South Lanarkshire (Ballin et al 2018: 17–22). Indeed, it is precisely the sort of behaviour that would be expected from an exploratory community still uncertain about the world through which they are moving and where the resources essential to survival, such as knappable stone, would be carefully conserved until suitable local materials were identified. Over time, as people grew more familiar with the territory, different environments could be exploited and other, more local, resources, would have come into use. This period lasted for some 1,700 years and was highly dynamic; information from elsewhere in the UK and northern Europe indicates the ability of groups to adapt their lifestyle and technology to changing local conditions (Pettitt & White 2012: 469–501).



Illus 8.3 Sites with Late Upper Palaeolithic finds

Moving from the Late Pleistocene into the Holocene, there is plentiful evidence relating to Mesolithic activity (Illus 8.6) from most of the sites in the study, though it is particularly prevalent around the Crathes/East Park area. By this period annual temperatures had risen and conditions were more stable, although there was some fluctuation, notably short-lived downturns around 7300 BC (Hoek & Bos 2007; Lang et al 2010; Crombé 2017), 6200 BC (Alley et al 1997; Seppä et al 2007) and 4200 BC (Karlen & Larsson 2007; Tipping 2010). Mixed woodland was able to develop, with some open cover. The active terrace surface for much of the Mesolithic comprises a wide gravel surface, known as the Camphill Terrace, *c* 4–5m above the surface of the present river, and visible at many of the archaeological sites such as Nethermills Farm (Illus 8.4). Peat-filled palaeochannels associated with the Camphill Terrace in many locations indicate that drier ‘islands’ were interspersed with active

river channels along the damp valley floor (Illus 8.5), though, throughout the period, conditions became drier. This was an attractive region for hunter-gatherer communities. Resources are likely to have been varied and plentiful and facilitated year-round resilience. The river, and associated watercourses, facilitated movement across the region as well as access to a hinterland comprising different environments: from the uplands, and on to the rest of the Scottish glens and highlands, across the lowlands to the coastal plain and the sea. Along the Dee, most sites are unlikely to have been occupied year-round, but it is likely that many were returned to on and off throughout the long period of the Mesolithic.

The lithic evidence for Mesolithic activity focuses on classic microlith types as well as other tools. It is, characteristically, related to knapping techniques making use of local, or near-local, raw materials and focused on the manufacture of blades, designed



**Illus 8.4** Terracing visible in the fields at Nethermills Farm NM2 and NM3. The main, Camphill, Terrace lies in the centre of the photograph with the Maryfield Terrace surface above it and the Maryculter Terrace below



**Illus 8.5** This view of the River Dee at Dinnet gives an idea of the nature of the watercourse that those who lived alongside the river in the 6th millennium BC may have encountered. In times of normal flow, the river occupied a main channel with smaller waterlogged side channels and a damp riparian land surface. Birch woodland and birch and oak forests would have been common along the banks, though the canopy was open and there were small natural clearings (here represented by the modern fields in the background). Tree cover on the distant hills is likely to have been denser

either for use as they are or for modification into a range of recognisable pieces. Lithic assemblages such as this come from Mesolithic sites across Scotland where they are associated with in situ deposits, radiocarbon determinations and detailed archaeological analysis (see Murray et al 2009; Warren et al 2018; Dingwall et al 2019a; and Wickham-Jones et al 2020, for a selection of other Mesolithic sites along the River Dee). Given its derivation from fieldwalking and test pitting, the material from Mesolithic Deeside is not as tightly constrained in time, nor has it been analysed in such depth as excavated material. Nevertheless, it is

possible to make parallels with excavated material and draw some useful interpretation relating to the Mesolithic communities of the area.

In general, Mesolithic material across Scotland is often divided into 'broad' and 'narrow' blade industries. While roughly self-descriptive (broad-blade industries tend to measure over 8mm, narrow-blade industries are narrower, Zetterlund in Wickham-Jones 1990: 73; ScARF 2012a), the meaning of this overtly typological division is still a matter of debate. In England it is traditionally assigned a chronological meaning, by which broad-blade industries (Early Mesolithic) pre-date narrow-blade (Late Mesolithic) material (Jacobi 1976). This has not been upheld where relevant dates have been procured in Scotland because of the often surprisingly early occurrence of narrow-blade material (for example, Saville 2008; Wickham-Jones et al 2020), and current debate highlights the early introduction of narrow-blade industries into north-east Britain (Waddington et al 2017). Recent typo-technological work suggests that an earlier, broad-blade, Mesolithic does exist in Scotland, though as yet absolute dates are lacking and only a few sites have been recognised (Ballin & Ellis 2019). Both the dating and geographical spread of broad-blade sites in Scotland thus remain unclear (ScARF 2012a) and, at the time of writing, interpretations other than simple chronological change remain open to analysis, including the possibility of a grey scale of gradual technological change as communities adapted to the new lifestyles both demanded and rendered possible by a changing world (Conneller et al 2016). The Mesolithic Deeside assemblages are interesting for the inclusion of broad-blade material on some sites, though all are predominantly narrow-blade and, given their derivation as scatter sites, the relationship of the broad-blade material to the narrow is unknown. A particular scatter of broad-blade material comes from the site at East Park, though the assemblage here is also more numerous and thus likely to be more diverse. It should be remembered that the Mesolithic component of most sites is likely to derive from several activity episodes spread across a considerable period of time.

Most of the evidence for Mesolithic activity comprises extensive spreads of lithic material resulting from intensive blade production: cores,



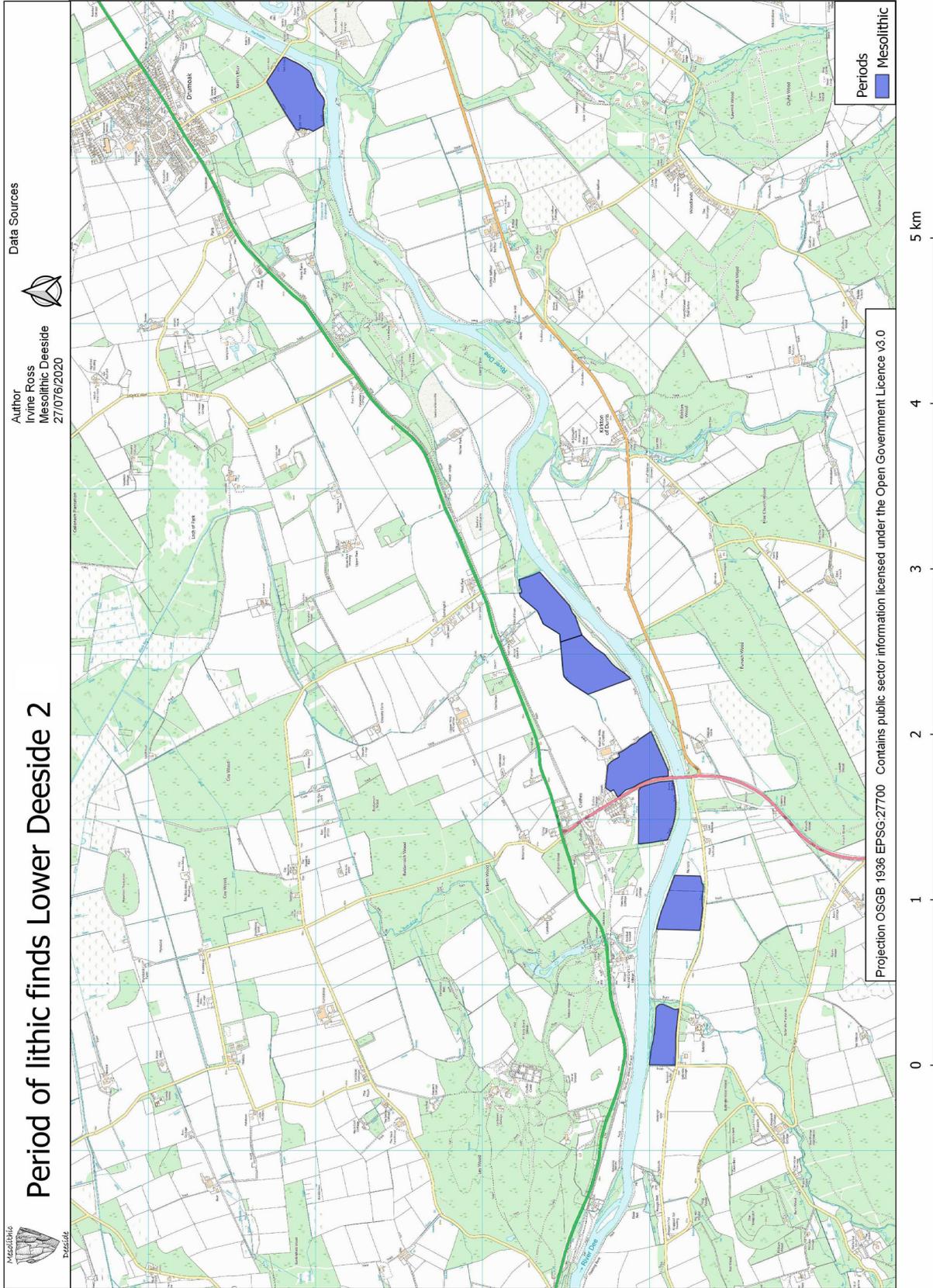
**Illus 8.6** Artist's reconstruction of a typical Mesolithic settlement alongside the river

blades, and accompanying debitage. Much of this relates to the production of narrow blades and narrow-blade microliths of which many were recovered, though not, perhaps, as many as would be expected from excavation. Lithic resources are assumed to be relatively local. Pebble nodules would have been available at the coast, but there were also deposits in the glaciofluvial gravels of the region. The biggest, and best-known, flint source of north-east Scotland occurs within the Buchan Ridge Gravels about 60km north of the Dee, where pebble nodules were plentiful, but small pockets may possibly occur within more local gravels. The presence of debris from the knapping of large pebbles at Nethermills Farm raises an interesting point regarding the sourcing of raw materials, whether brought to site from 60km away or more locally. Saville noted some Mesolithic activity at Den of Boddam in his fieldwork in Buchan, though most of the extraction there occurred in the Neolithic (Saville 2011). The possibility that the remains of earlier activity may have been scavenged for raw material should also be remembered. Ballin suggests the reworking of larger Late Upper Palaeolithic artefacts at Milltimber as a source of raw material in the Mesolithic (Ballin 2019: 42). This focus on analysis of the stone tools belies the wide range of activities that would have been involved in daily life, most of which left little explicit evidence (Illus 8.6).

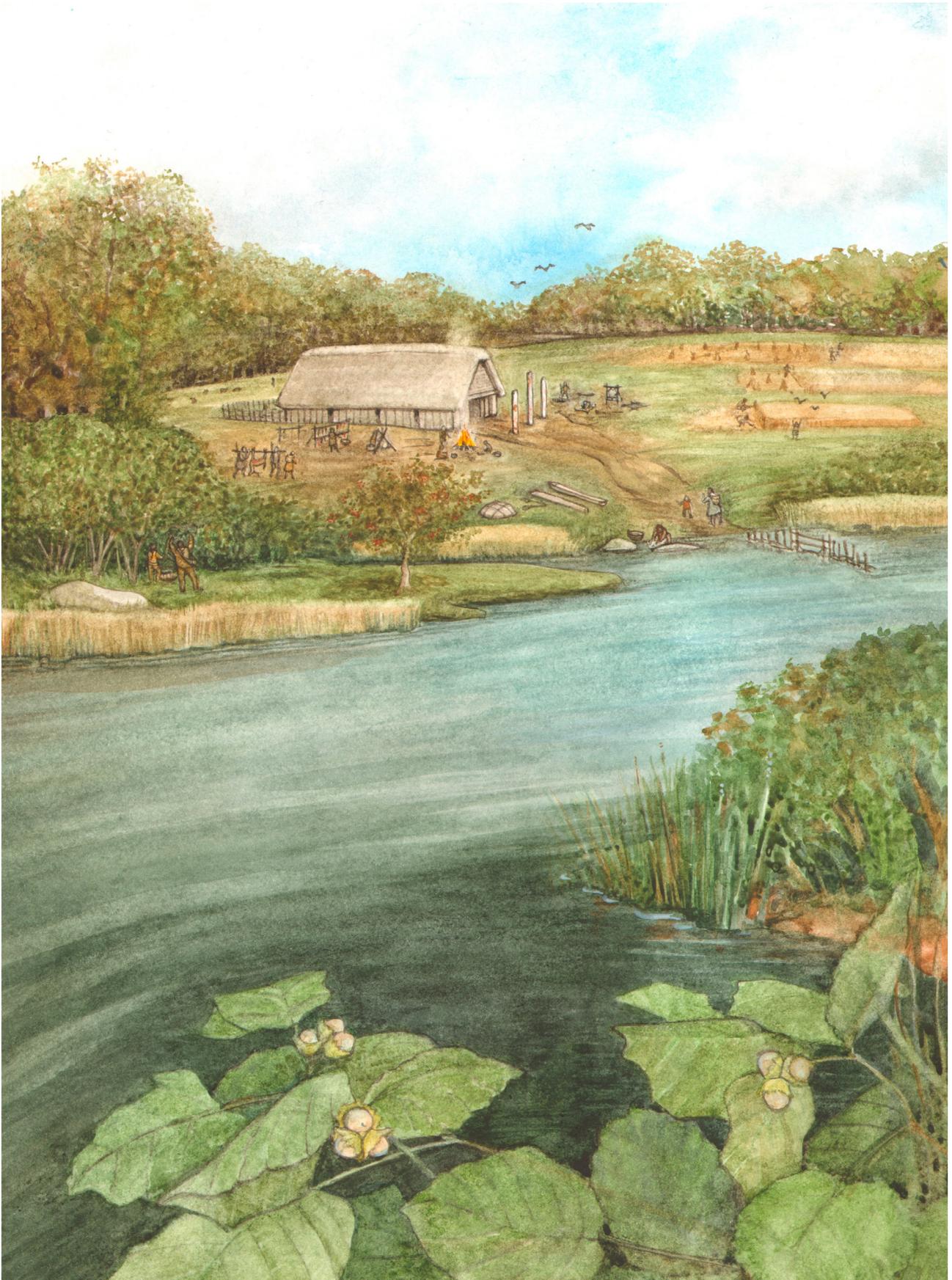
Activity locations of particular significance in the Mesolithic include the northern bank of the river at Nethermills Farm, Crathes, around Durris Bridge; and East Park, also on the north bank, and beside Park Bridge (Illus 8.7). These sites sit mainly on the Camphill Terrace, the surface of which provided 'islands' between the river channels that were dry and suitable for settlement. Activity is likely to have taken place over several millennia as a series of repeated visits for various reasons. These may have been both connected and unconnected, thus building up a palimpsest of archaeological evidence that is difficult to untangle. The focus of both locations at crossing points of the river may well be of significance. Fraser (1921: 94–127) notes a number of fords and ferry locations along this stretch of the Dee; they are historic features, recorded on many older maps (for example, Robertson's Topographical and military map of the counties of Aberdeen, Banff and Kincardine, 1822, in the National Map Library, EMS.s.46A).

By the early 4th millennium BC farming was established in Scotland, and the significance of the Dee Valley as a corridor that facilitated both agriculture and movement among the early farmers of the time has been noted by many (for example, Murray et al 2009; Dingwall et al 2019b). Terrace surfaces such as the Camphill Terrace, which would have been dry or drier by this time, with fertile, newly developed soils, were highly suitable for the requirements of the pioneering farming communities as they moved along the river. These terraces were easily accessible from the river and space could be created for animals and crops. While the pollen evidence at Nethermills Farm documents traces of woodland clearance, an increase in grassland, and disturbed ground (Ewan 1981), there is less information relating to the state of the river at the time. It is thought likely to have occupied a channel roughly matching that of today, which had become stable, confined against till on the right bank. The region still incorporated bodies of water such as the Loch of Park, and there were areas of fen and peat bog, as well as many small burns that criss-crossed the land, flowing down to the River Dee.

Archaeological evidence indicates that farming was practised in the Early Neolithic at several sites along the Dee (Warren Field, Crathes: Murray et al 2009; Balbridie: Ralston 1982; Garthdee Road: Murray & Murray 2014; Milltimber: Dingwall et al 2019b). The success of these settlements necessitated some woodland clearance (Illus 8.8): the cleared area around the Crathes hall may have been a kilometre or so (Tipping et al 2009). Crops of bread/club wheat and naked barley were grown and weeds of cultivation, of course, have been recorded (Tipping in Dingwall et al 2019b: 49). While the Early Neolithic hall at Warren Field, Crathes, lies above the main terrace surfaces away from the river, the Camphill Terrace seems to have held particular attraction for the farming communities. A particular focus of Neolithic activity from the present study lies on this surface along the south bank of the river where the spreads from Balbridie and Wester Durris occupy a series of fields. To the east of these sites lie the adjacent fields of Cairnballoch, and Nether Balfour where the Neolithic activity runs on to the higher surfaces of the Lochton Terrace and Lochton Sand and Gravel (Illus 8.9 & 8.10). In practice it is likely that these spreads comprise the



Illus 8.7 Principal sites with Mesolithic finds



**Illus 8.8** Artist's reconstruction of a typical Early Neolithic settlement alongside the river

remains of several episodes of occupation. While excavation at Balbridie revealed an Early Neolithic hall (Ralston 1982), the lithics from Wester Durris and Nether Balfour suggest more of a Late Neolithic focus. Further back from the river, Candieshill has elements that might be Early Neolithic, as does Heughhead.

Interestingly, specifically Early Neolithic stone tool types, such as leaf-shaped points, were not common among the assemblages, only occurring in the spread between Balbridie and Nether Balfour. Rather than conclude that Early Neolithic sites are absent, however, it is worth noting that much Early Neolithic material is indistinguishable from other periods (in particular knapping debris, including the introduction of bipolar working on some sites (Warren 2009: 102), and retouched pieces such as scrapers). Furthermore, while the straightforward association of leaf-shaped points with activities such as hunting is overly simplistic, it might not, perhaps, be surprising to find that the material culture left by those who settled along the fertile terraces of the river focused on activities such as farming that left a different suite of artefacts.

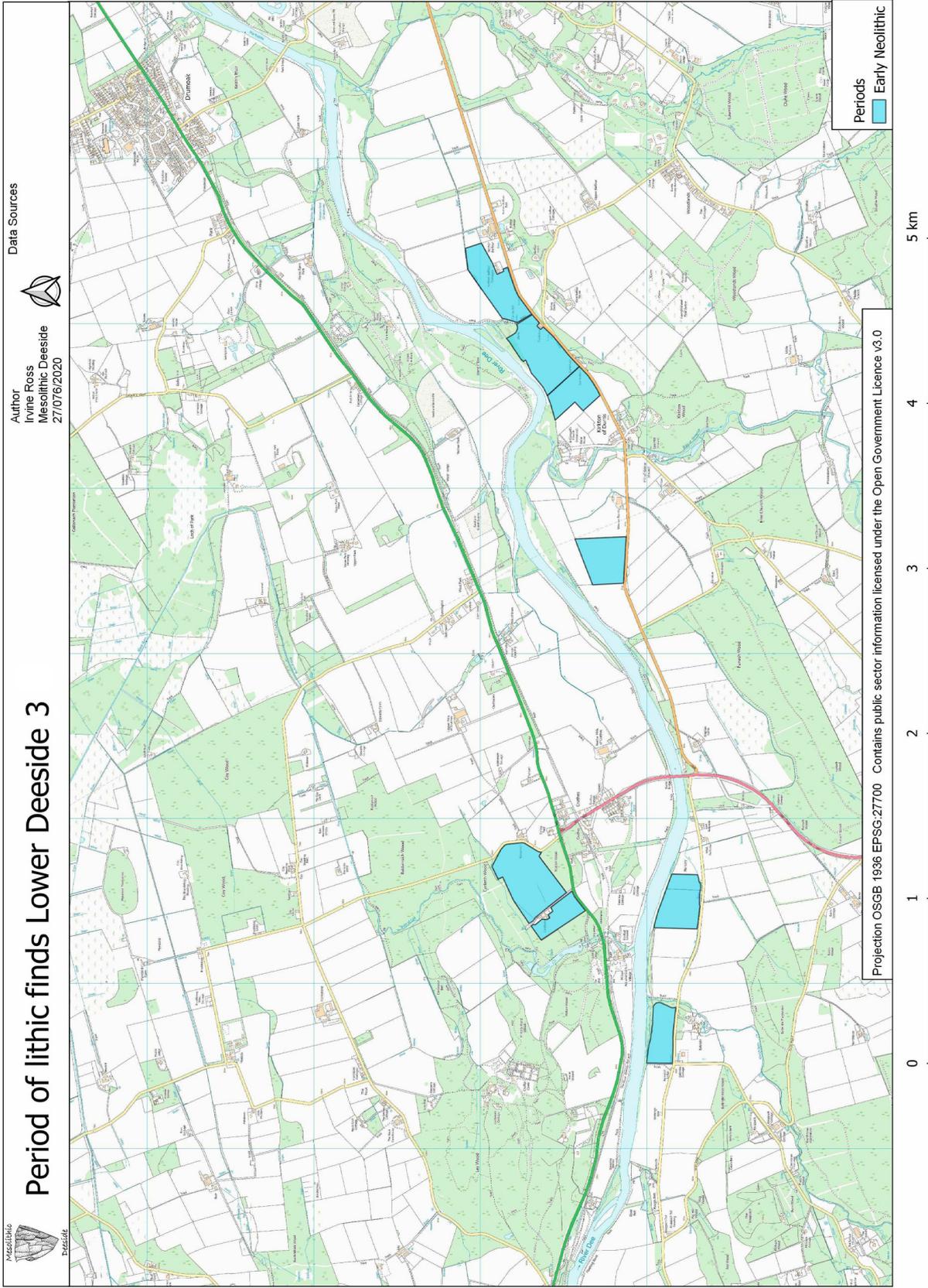
Activity after the Early Neolithic was different. The local environment of the valley and the river changed little, but, archaeologically, timber hall structures such as those at Warren Field or Balbridie were abandoned and burnt (Murray et al 2009), succeeding generations of farmers dispersed, and the evidence suggests that smaller houses were favoured (Sheridan 2013; Murray & Murray 2014; Dingwall et al 2019b). Recent meta-analyses (for example, Shennan 2018) have argued that the Early Neolithic population 'boom' was followed after *c* 3200 BC by 'bust' and population shrinkage, though others have suggested a more nuanced picture (Bishop 2015). There are traces indicative of Late Neolithic activity close to the present river along both banks around Crathes, and on the higher terrace surfaces at Candieshill and Park Smiddy (Illus 8.10). Late Neolithic sites also occur upstream at Heughhead, Kincardine O'Neil and Potarch. Given the lack of excavation, the details of these sites and the precise activities they represent remain to be investigated.

Late Neolithic flint working among the Mesolithic Deeside sites is evidenced by some specific lithic types such as multi-platform and disc cores, flakes and blades with dihedral platforms,

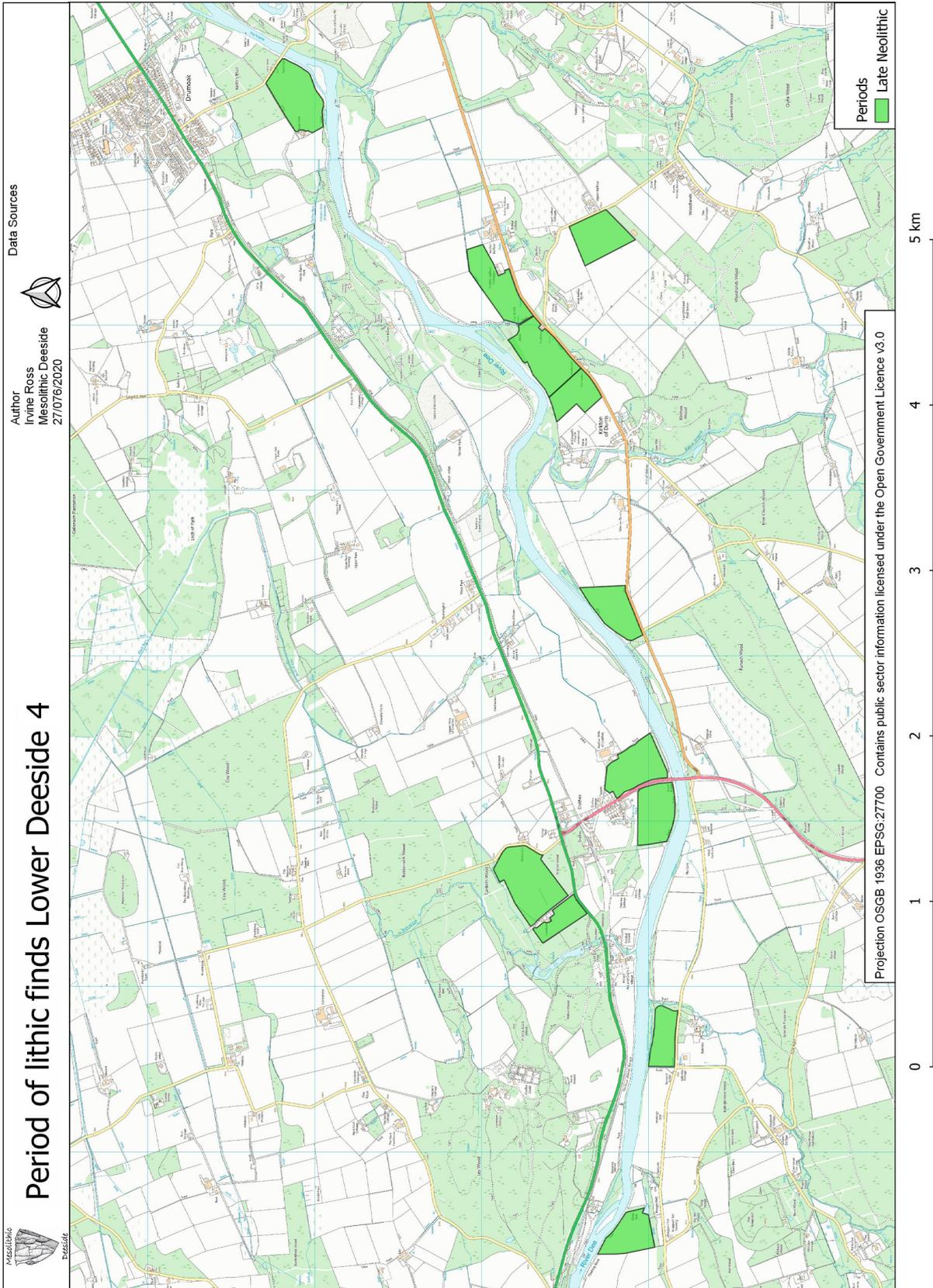
and some retouched forms such as knives, scrapers and invasive flaking. This is present across most of the fieldwalked sites. Just how much of the other debitage can be attributed to activity in this period is not clear but bipolar working and the reworking of earlier material is a feature of many Late Neolithic sites and has been observed among the study sites. A distinctive grey, homogeneous flint, used for some of the assemblage at Heughhead and East Park, may provide some evidence for the diversification of raw material procurement in the Late Neolithic. Elsewhere in Scotland it has been suggested that in the Late Neolithic flint similar to this was imported from further down the east coast, as far as Yorkshire (ScARF 2012b), though without specific sourcing confirmation this remains speculative. Nevertheless, more diversity of flint is certainly seen in the Late Neolithic assemblages and it is interesting that it is at this time that extraction at Den of Boddam, to the north, intensifies to include shallow pit mines (Illus 8.11; Saville 2011).

Late Neolithic activity covers a wider area than the Mesolithic and is present further inland, on the higher and older terrace surfaces, as well as close to the present river. Movement, though probably still heavily dependent on the river, is likely to have expanded to include the development of more permanent routeways across country, opening up the wider region and linking the farming settlements of the Dee with families further afield. Relict gravel surfaces lying between the poorly drained areas would have facilitated both settlement and travel over land. Elsewhere across the UK, studies of animal and human bone have been interpreted as indicating a high degree of mobility (Parker Pearson 2015; Madgwick et al 2019, 2021), though the scale of the interpretations is not without controversy (Barclay & Brophy 2020).

Moving into the Bronze Age (Illus 8.12), while specifically Bronze Age lithics are rare among the collection under scrutiny, individual examples do occur on several sites (Illus 8.13) and the ubiquity of much Bronze Age flintwork means that a Bronze Age presence along the river cannot be discounted. It is likely that some activity at least continued, and that further Bronze Age elements are hidden within the generally multi-period assemblages. The fields at Wester Durris, Nether Balfour and Upper Balfour all have lithic elements such as



Illus 8.9 Principal sites with Early Neolithic finds



Illus 8.10 Principal sites with Late Neolithic finds



**Illus 8.11** Den of Boddam: the surviving hollows that indicate the location of individual pits used for the extraction of better-quality flint nodules from the gravel deposit in the Late Neolithic may be seen in the band of rough ground at centre

strike-a-lights, spokeshaves and knives that suggest Bronze Age activity and these are also to be found at Nethermills, East Park and Cairnballoch. Bronze Age communities were not absent from the River Dee (Illus 8.13; Ginnever & van Wessel 2019).

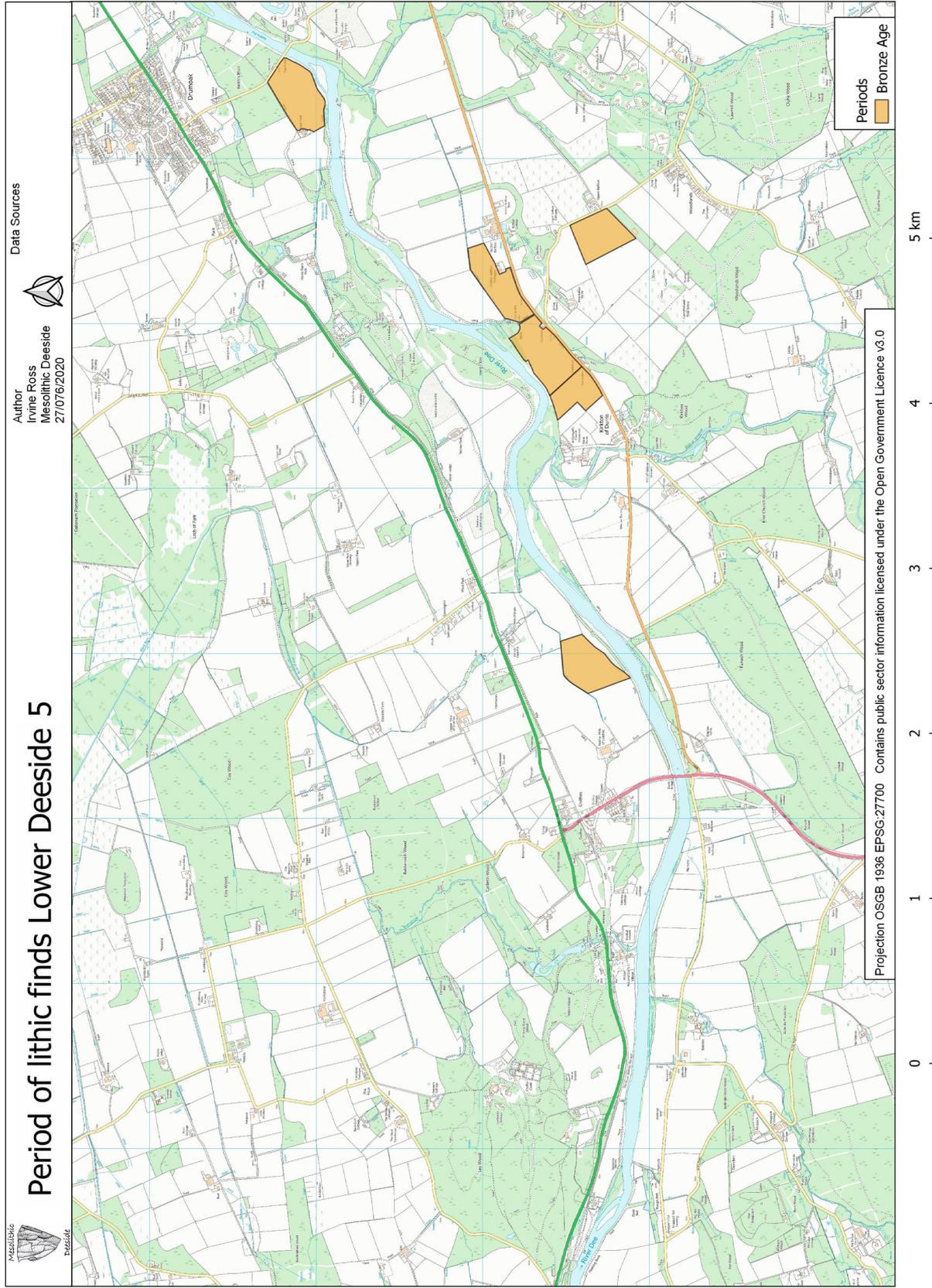
## 8.2 The contribution of community archaeology

This report represents a considerable body of archaeological work that has been undertaken by a community group (Illus 8.15). While community archaeology has a respectable heritage (Marshall 2002), and dedicated publications (for example, *The Journal of Community Archaeology and Heritage*), the contribution of community work to archaeological understanding and management is often overlooked (it could be argued that the literature, as with this volume, tends to focus on the contributions that are recognised; for example, Jameson & Musteață 2019). Although the lack of professional training and experience may seem daunting to some

archaeologists, there are distinct advantages to working with a more diverse skills base. Professional archaeologists tend to follow tried and tested methodologies (according to the exigencies of funders' requirements, commercial constraints, archaeological efficiency and time management); the members of a community group often have different approaches that can lead to other ways of working. Mesolithic Deeside is linked to (and thus able to draw upon advice from) a number of archaeological professionals, but organisation, drive and 'footwork' come mainly from people who do not rely on archaeology for a living. Nevertheless, the members of Mesolithic Deeside hold considerable archaeological experience and the deployment of a community group for targeted study such as that reported upon here has considerable benefits. Members comprise both a core group with a pre-existing interest in the prehistory of Deeside and others who have been recruited at local events, such as lectures and exhibitions. Groups such as this tend



**Illus 8.12** Artist's reconstruction of a typical Bronze Age community beside the river, seen in summer



Illus 8.13 Principal sites with Bronze Age finds



**Illus 8.14** General view of the River Dee at Crathes. The fisherman in middle distance emphasises the ongoing resource value of the watercourse, and also the shallow nature of the river at this point today

to have time to investigate sites over a number of years. They are on hand to make repeated visits to fields for fieldwalking, something that has been found to be of particular value for lithic scatter sites (Wickham-Jones 2020b). They are also able to investigate all sites, not just those likely to yield significant numbers of finds or information of other archaeological value. While decision-making is driven by the wider core group rather than an archaeological specialist, it is thus possible to build a more complete picture of human activity across a region (see 8.4 ‘Overview: source to sea – early prehistoric communities along the length of the River Dee’).

The inclusion of members with varied experience and skill sets means that novel methods of analysis (for example, finds replication; 3D imaging; detailed statistical and spatial analysis) can be considered and applied, as well as different methods of presentation.

Most community volunteers are also keen to expand their own archaeological skills and understanding, turning any exercise into an opportunity for knowledge transfer. The inclusion of school groups on fieldwork projects, where practical, not only helps to spread basic understanding of archaeology but can help to build resilience relating to the future significance of the discipline. School pupils were involved in both the East Park and the Heughhead projects, and the Aberdeen Young Archaeologists Club participated in some of the fieldwalking and in the excavation at Heughhead. Test pitting at Nethermills Farm was undertaken in conjunction with the Department of Archaeology at the University of Aberdeen and included many students, drawn from archaeology and other disciplines. Outside of the practical programme, the fieldwork as a whole is presented by members of the group in lectures and demonstrations at a variety of local events (Illus



**Illus 8.15** Mesolithic Deeside at work

8.16), such as agricultural shows (thus building team skills in public speaking and presentation as well as local interest). The core funding for Mesolithic Deeside for one year was obtained from the National Lottery Heritage Fund, which seeks to involve a wider range of people in heritage, and this aim can indeed be said to have been achieved alongside the many valuable archaeological outcomes. In other years it has been necessary to pull together a variety of smaller grants to achieve the financial support necessary.

In common with any professional project, successful community archaeology requires meticulous record keeping and archiving. Given the possibility that individual projects may last for many years and involve many different personalities, careful project management is vital. If the results are to be fully understood and integrated into general archaeological interpretations, it is important that finds analysis and recording are undertaken as soon as possible after fieldwork

(this applies to any professional project as well). Finding and recording sites must go hand in hand. By employing a lithic specialist, Mesolithic Deeside was able to produce a prompt record of material discovered. Using the local skills of the group the lithic catalogue was then transferred to site distribution maps which served to maintain group enthusiasm and could be played into fieldwalking strategy as work progressed. Training days have also served to increase the relevant skills and confidence of members, though work still takes place under the supervision of the specialist. Many fieldwalking projects struggle as results are not processed in tandem with fieldwork, leaving no sense of the archaeological achievement over time and, as finances dwindle, production of the final report can be problematic. Within this particular project, it has been possible for a professional archaeologist to lead production of the report, but it should be emphasised that individual sections rely heavily on the material supplied by the different collaborators,



**Illus 8.16** The Mesolithic Deeside stand at the Banchory Show, 2018

a mix of professional and non-professional archaeologists. It is easy to be enthusiastic about fieldwork; the ordering of records and compilation of a final report are often more daunting tasks, but should always be considered from the outset in any project, whether professional or community driven.

### 8.3 Methodologies

#### 8.3.1 Methodologies: site selection and the nature of fieldwalked assemblages

Although it is true to say that fields were selected partly on the basis of their potential for archaeological material, it is remarkable that to the end of 2019 every site walked has yielded at least some finds (one site only yielded a single lithic). There are, however, issues relating to the representative nature of any fieldwalked assemblage. This is the subject of a separate study examining the build-up of lithic information from the sites

at Nethermills Farm fields 3 and 4 over the many different fieldwalking projects that have taken place there since the 1970s (Wickham-Jones in prep). The possibility that an element of unconscious bias may have affected the recovery of the individual elements of an assemblage has been discussed above (see 7.2.3 ‘Lithic discussion’), though it should be noted that this has not impacted on the overall representative nature of distinct sites. Nevertheless, the differences in microlith numbers from different recovery techniques at Nethermills Farm 4 are telling (Table 8.1). Given the small size of most microliths, and the fact that many of the Mesolithic Deeside pieces are fragmentary, the recovery of any microliths during fieldwalking is impressive. Fifty-four microliths were recovered by Mesolithic Deeside in their fieldwalking to 2019.

Of course, fieldwalking rarely affords 100% coverage of the surface of any field, and a significant debate surrounds the ideal transect width to provide

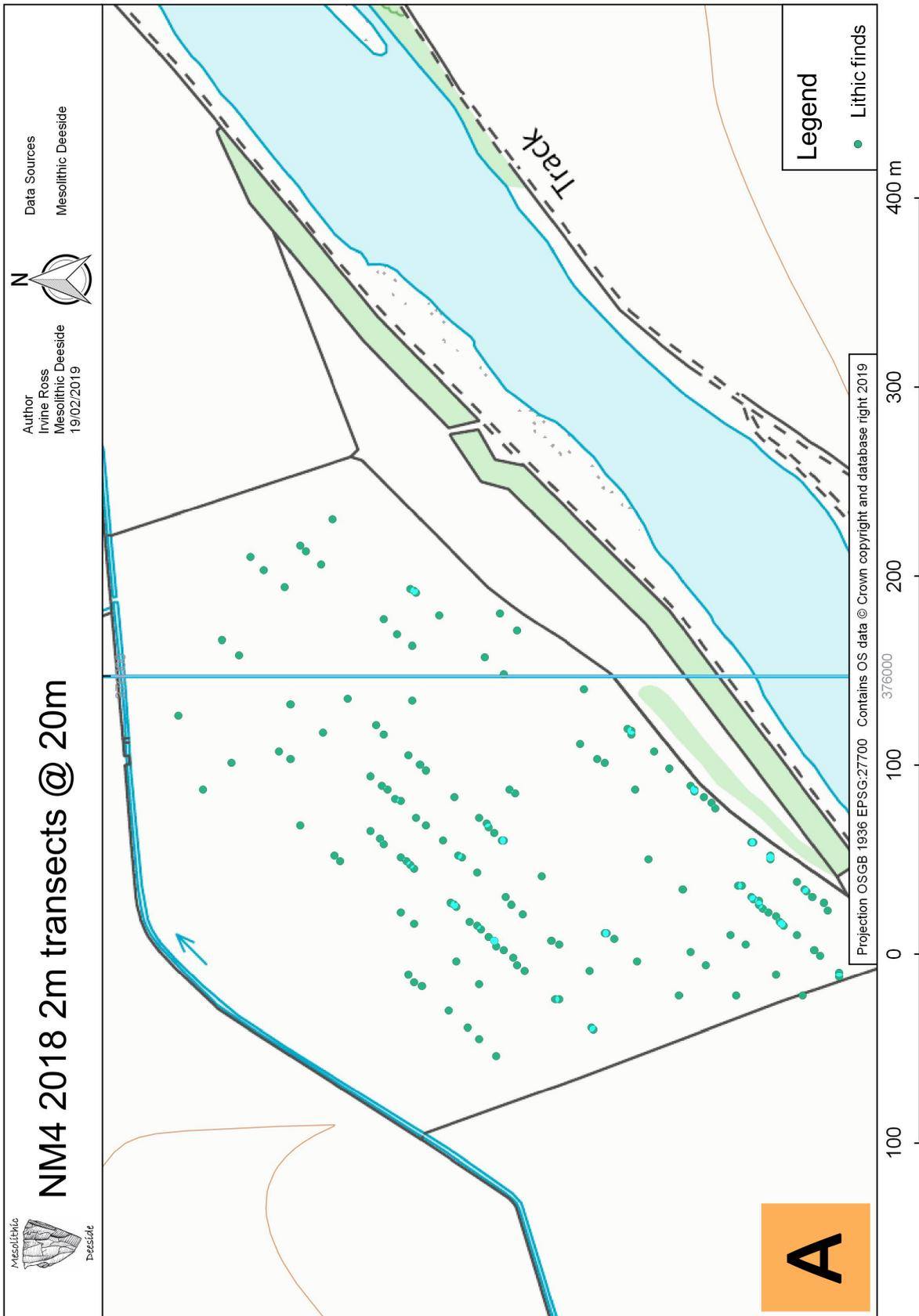
**Table 8.1** Nethermills Farm 4: the recovery of microliths. NB: this includes material recovered prior to the Mesolithic Deeside fieldwalking

Recovery method	Number of microliths (percentage of the total assemblage by method)	Total assemblage size
Excavation	1,147 (4%)	c 30,000
All fieldwalking	134 (1%)	10,829
Mesolithic Deeside fieldwalking	17 (0.5%)	3,293
Test pitting	1 (0.2%)	433

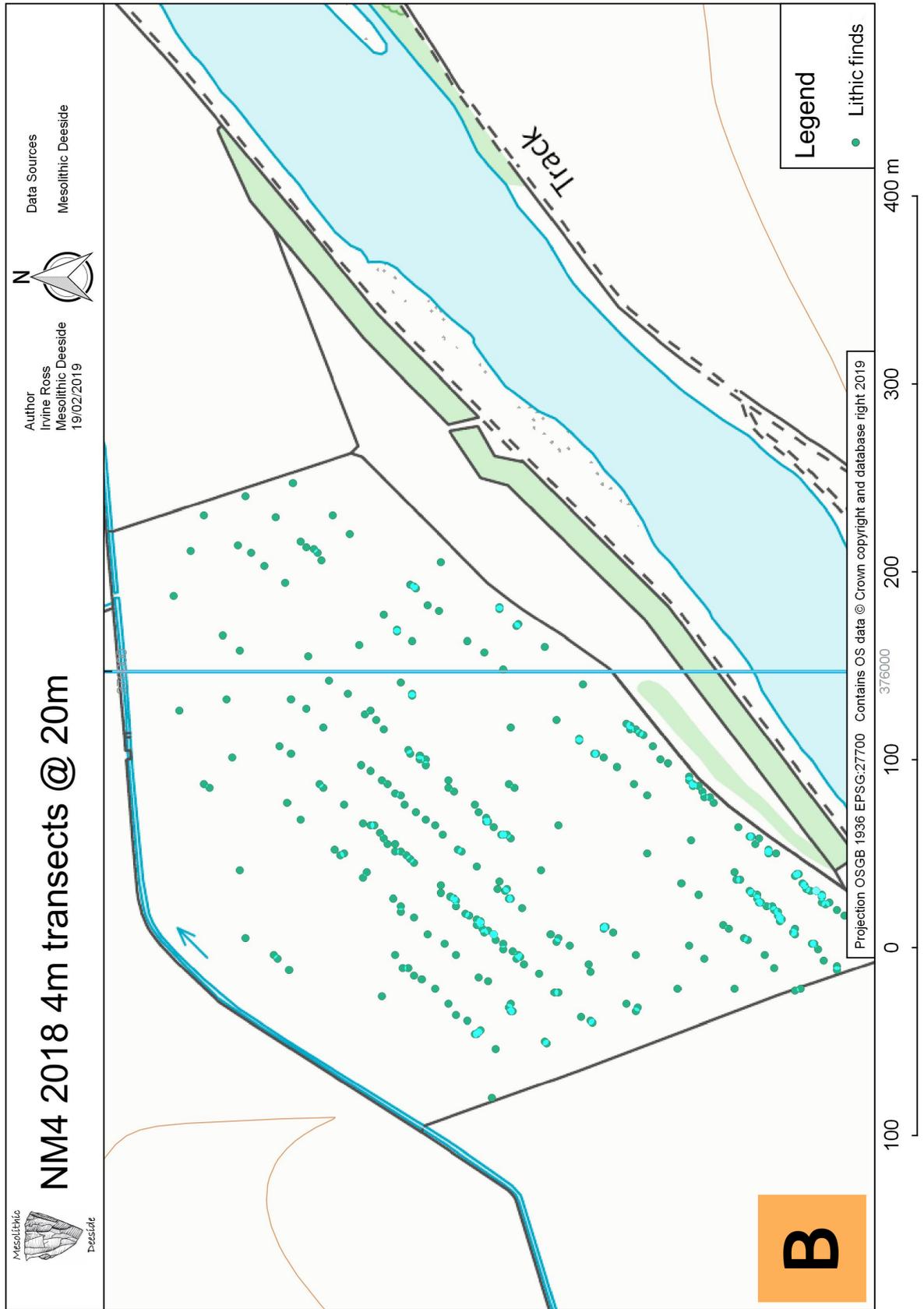
representative information regarding archaeological material on the surface of the ploughsoil. This is not just a matter of archaeological efficacy; it is also related to wider group aims. In common with many community groups, Mesolithic Deeside serves an important social function and thus in most cases team members worked at 2-metre distance from each other, allowing fields to be walked in 2-metre transects while members could still communicate up and down the line. This method provides detailed coverage of the field surface but can be slow. Other groups have preferred greater transect widths, up to 20m apart, and still obtained useful results (for example, Phillips in Bradley 2005: 87–97). Analysis by Mesolithic Deeside considered a prolific field, Nethermills Farm NM4, and plotted firstly those finds that would have been captured by single walkers covering 2m strips (1m either side of the walker) and walking 20m apart, and secondly by pairs of walkers still 20m apart but covering 4m strips. This showed that wider transect widths would still have recognised the individual concentrations, and, where sites were more prolific, it would be possible to highlight areas of greater finds density (Illus 8.17). While this method would have required less time per field, finds numbers, and thus detail, dropped. Individual elements relating to the period spread would have been reduced. There are certainly advantages to wider transect widths for prospection, to be followed up by more detailed walking where necessary. Nevertheless, there are also disadvantages: the impact of wider spacing on less prolific fields has yet to be investigated; group members are more

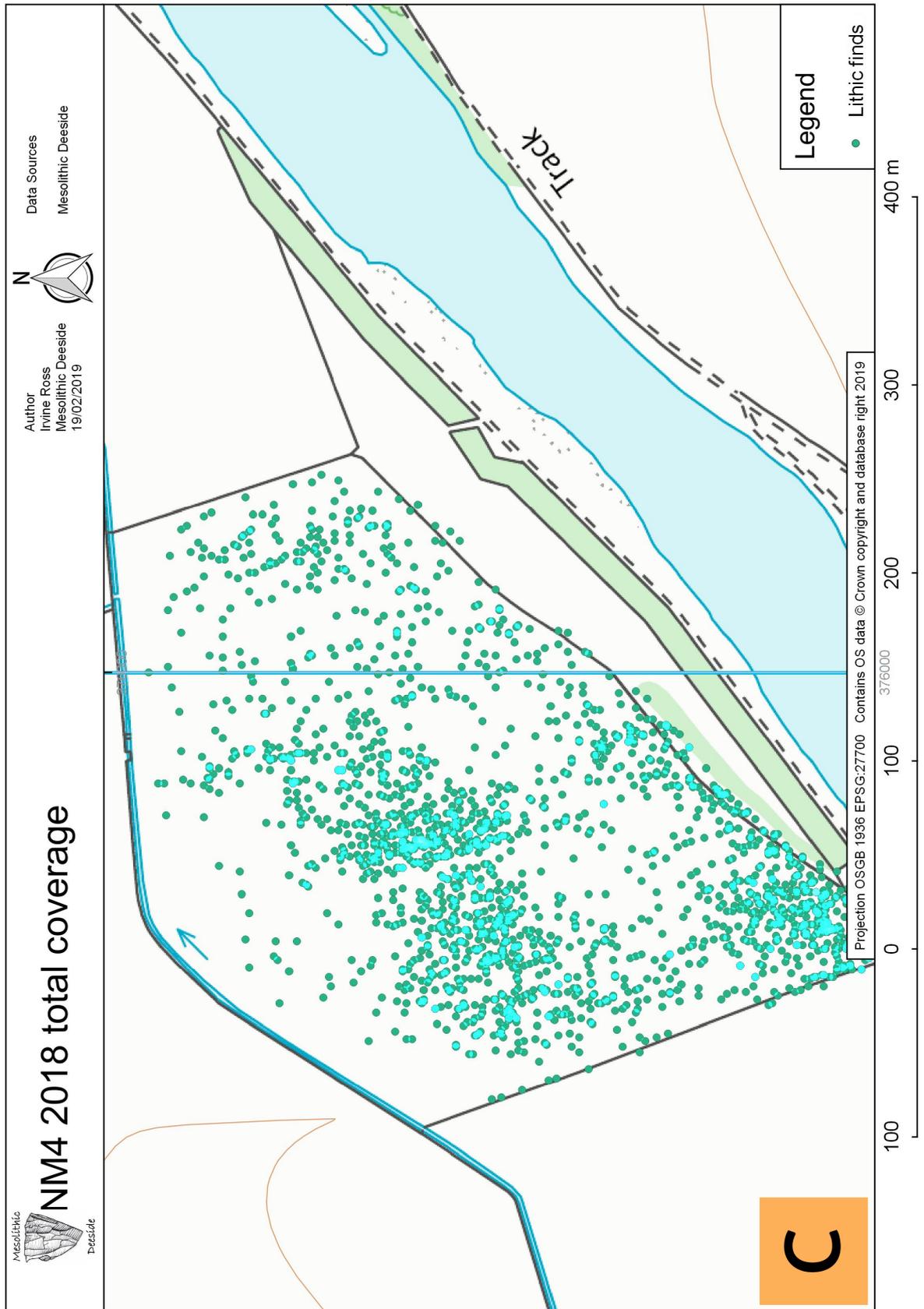
isolated during walking; and the training of less experienced members becomes more difficult. The ideal transect width is based on a variety of elements that incorporate both the social and the archaeological aims of the project and the group concerned (Illus 8.18).

Some issues arise because of the number of years over which a project has taken place. The definition of sites and their component fields was an interesting element of this. The present field pattern is obviously a modern construct of little relation to the prehistoric population of any area, and over time boundaries can change. Some fields changed shape and name from one season to the next. In addition, as knowledge of the lithic scatters built up over the years, a single prolific field was often found to adjoin another prolific field (Illus 8.19). Should this be recorded as a single site, or multiple sites? The decision is complicated by the way in which archaeologists themselves define a site in multiple ways: to indicate a place for archaeological investigation; a locus of repeated prehistoric (or historic) activity; and the location of a single episode of ancient activity. The work of Mesolithic Deeside (and previous fieldwalking in the area) has identified a number of large-scale lithic spreads which may cover several fields and include many sites – as at Nethermills Farm, Crathes, at Upper Balfour, Kincardine O’Neil, or around Wester Durris. Project records, field numbering and correlation were complex businesses and systems have been refined with time.



Illus 8.17 Plots of the projected lithic densities from Nethermills Farm NM4 2018 if walked at varying transect widths. A 2m strips at 20m apart; B 4m strips at 20m apart; C 2m strips at 2m apart







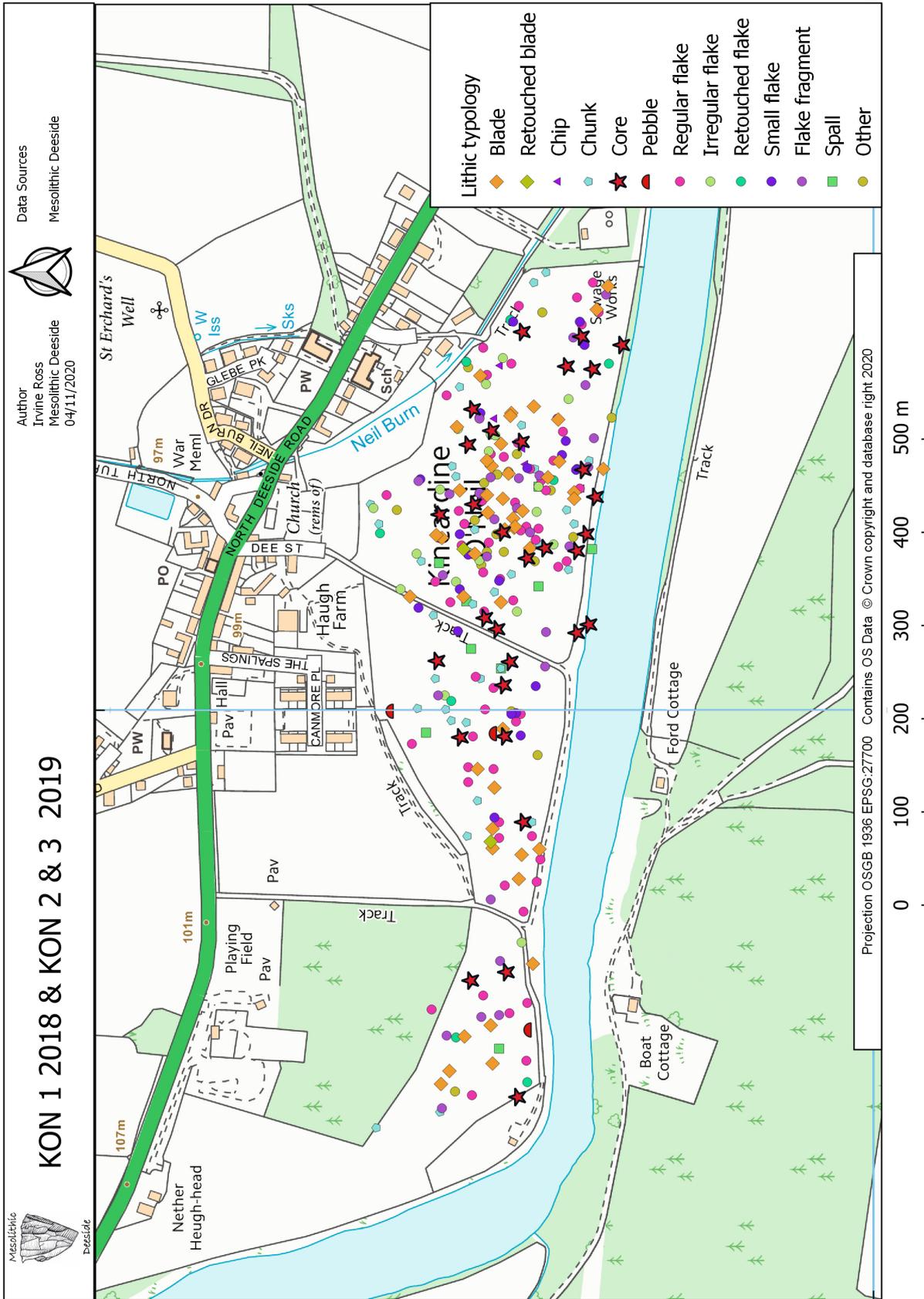
**Illus 8.18** Typical 2m spaced walkers during fieldwork

### 8.3.2 Methodologies: archaeological survival and site significance

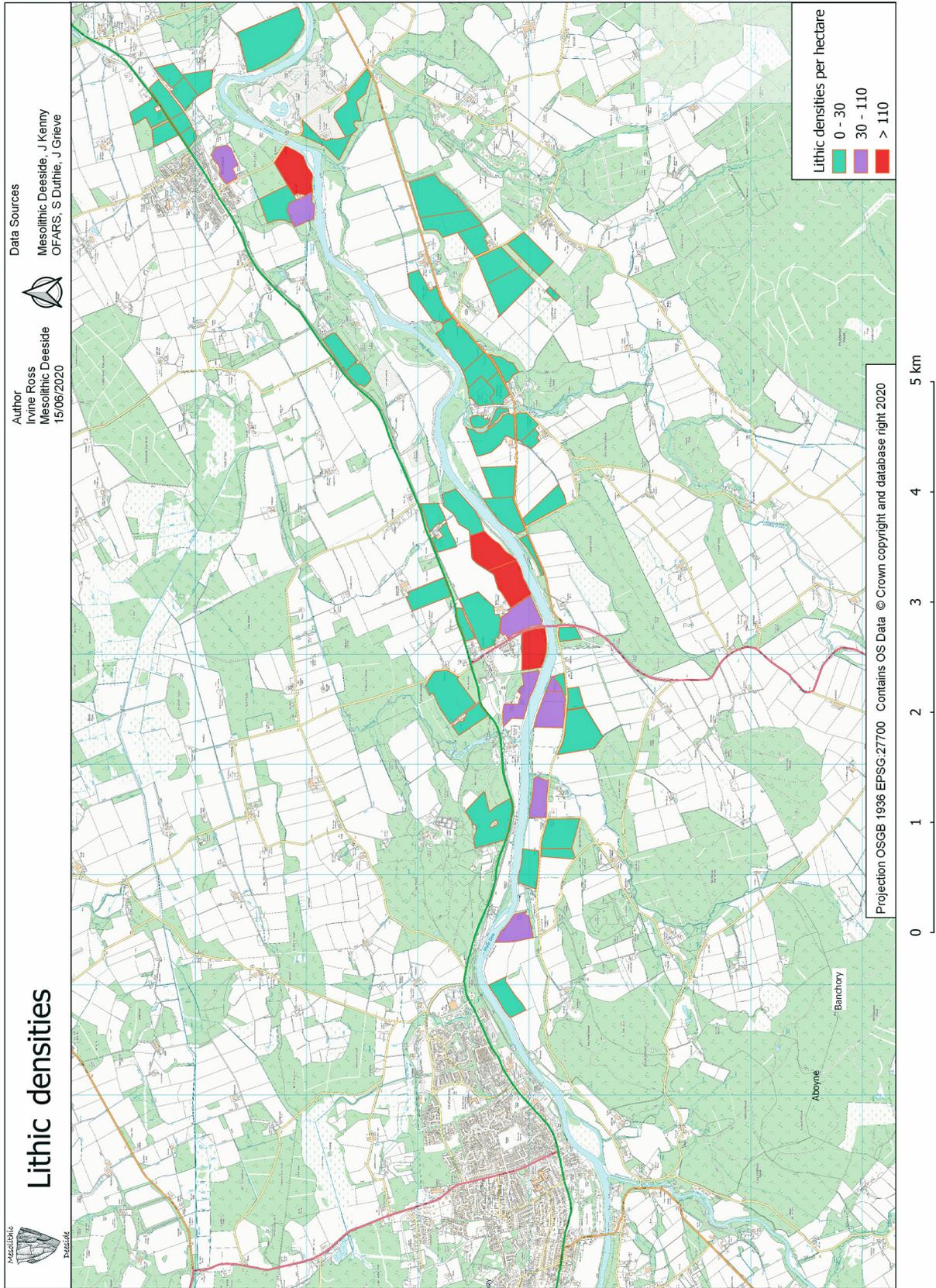
Sites identified by fieldwalking survive in the ploughzone. The presence, or absence, of stratified archaeological material on each site remains unknown without test pitting or excavation. At Nethermills Farm excavation demonstrated the survival of archaeological features in the subsoil in the early 1980s, but by 2019 most of these had disappeared, presumably destroyed by ongoing agricultural activities. Recent small-scale excavations at East Park and Heughhead were less conclusive; though in situ contexts were not discovered at either site it could be argued that test pitting elsewhere on site (away from the railway line at Heughhead and on a higher terrace at East Park), might be more rewarding. While the impact of ongoing agriculture on the archaeology along the Dee should not be underestimated, the lithic scatters themselves still offer plenty of

information about the prehistoric inhabitants of ancient Deeside.

There is considerable difference in lithic density among the sites (Illus 8.20). While some of this can, no doubt, be explained by the intensity of archaeological work that has taken place over the years, as at Nethermills Farm 4, it is not the only explanation. Excavators and analysts have long noticed the apparent profusion of lithics on Mesolithic sites (discussed in Warren 2007; and for an example see Wickham-Jones 1990) as opposed to the careful curation of a Bronze Age site (for example, Ritchie & Welfare 1984), but, given that most of the sites reported here are multi-period, other processes must be involved. Indeed, the existence of several fields with fewer than ten pieces raises questions of archaeological significance and the definition of an archaeological site. Two issues have particular relevance to the earliest settlement of the landscape around the River Dee.



**Illus 8.19** Lithics from the different fields at Kincardine O'Neil combine to indicate the existence of a single archaeological site, itself comprising the locus of separate episodes of human activity in prehistory



**Illus 8.20** The varying lithic densities of the sites walked between Banchory and Dalmaik. Note that some sites such as NM4 have been walked more than once

Firstly, the exigencies of exploration and colonisation mean that the earliest groups to visit the area are likely to have left little archaeological footprint. In the present case, these groups, known today as Late Upper Palaeolithic, arrived at the end of the last glaciation as the landscape was opening up. Three of the Mesolithic Deeside sites yielded Late Upper Palaeolithic material and they are joined by finds from other sites in the area such as Milltimber and Standingstones (Dingwall et al 2019a). The particular problems of locating and interpreting the archaeology of exploratory periods like this are not unique to Scotland and have been well discussed elsewhere (Rockman & Steele 2003; Fuglestad 2012; Owen 2015). Just because a site is not represented by large numbers of finds, this does not necessarily mean that it is not significant. Quite apart from the fact that the significance of any location in prehistory is unlikely to have relied on the numbers of stone tools discarded there (Bird et al 2016), in the case of the Late Upper Palaeolithic, the rarity of sites across Scotland means that any find is highly significant to archaeology today.

Secondly, there are issues of human activity and the definition of an archaeological site. While archaeologists focus on sites, the people of the past did not operate in discrete boxes; their behaviour took place across the landscape. There is, thus, a geographic gradation of detritus relating to any activity. Centres, known as sites, are likely to contain the highest density of detritus (in this case lithic assemblages), but it is unlikely to stop completely between centres. In order to understand this human behaviour, therefore, it is important to record and investigate the less prolific areas of lithic material as well as the higher-density spreads. This has long been an issue for archaeologists, and it is, of course, complicated by the geomorphological and other taphonomic processes that also impact on archaeological survival. Foley considered it, very eloquently, in 1981 (Foley 2009). Archaeology, of necessity, focuses on clearly defined sites with large numbers of finds, but those with fewer finds are likely to be just as interesting (and significant) in terms of ancient human behaviour. How to investigate and interpret the less clearly defined site, where a handful of lithics may be the only indication of prehistoric activity, is more of a problem, but through the work of Mesolithic Deeside we are, at least, able to record them.

Higher-density sites are, thus, significant, both in terms of archaeological resource and past human behaviour. Nevertheless, it is perhaps through examination of the lower-density sites that Mesolithic Deeside offers a real contribution towards interpretation of the behaviour of the prehistoric communities in the area. These are the places through which people passed – the routeways, overnight stops, hunting blinds, kill-site butchery areas – all the little everyday places that completed the web of human activity. Although more detailed investigation would be necessary in order to pinpoint specific uses like these (if, indeed, it is ever realistic), it is only by recording as wide a variety of archaeological remains as possible that we can really consider past human activity across the whole landscape.

### 8.3.3 Methodologies: the contribution of test pitting and excavation to management policies

The lithic scatter sites of Deeside comprise a considerable archaeological resource. Fieldwalking can reveal relevant information relating to date and possible activities, but in order to assess archaeological preservation and thus make decisions regarding site significance and management, further detail is needed. With this in mind, and in consultation with the Local Authority Archaeologist, three of the sites in the present study have been test pitted or excavated. The overall reasoning behind each exercise was slightly different, but the results were similar.

The field at Nethermills Farm 4 is well known as the location of previous fieldwork and excavation which highlighted its potential as a Mesolithic site (Wickham-Jones et al 2017). Test pitting was undertaken to assess the continued survival of in situ archaeological remains some 40 years after the original excavation (illus 8.21). Though it is clear that much lithic material survives in the ploughsoil here, features such as those recorded by Kenworthy were not encountered; indeed, no clear Mesolithic features were found with the exception of one shallow pit which yielded a 7th-millennium cal BC date (SUERC-93093, 7868±31 BP; SUERC-93097, 7887±31 BP). Continued agriculture, together with increasingly frequent flooding, have taken their toll of preservation. With regard to land management



**Illus 8.21** Nethermills Farm, NM4: general view of test pitting. The land rises to the higher, Maryfield, Terrace in the background of the photograph

purposes, such as new development or forestry planning, the archaeological value of this particular field is, therefore, lower today than it was in the 1980s.

At East Park, test pitting was focused on examining the possibility of preserved archaeology below a particularly productive lithic scatter discovered during fieldwalking across one side (the lowest riverine edge) of the field. In the event, no prehistoric features were discovered, and, while an assemblage of just over 300 lithics was recorded, fieldwalking across the rest of the field, together with geoscience work, has since revealed a complex site formation process in which colluviation has played some part. Further test pitting across the rest of the field on the higher terrace surfaces, would, thus, be of use to assess the possibility that archaeological features have been preserved here.

Initial excavation at Heughhead took place early in the project. The site was chosen on the basis of a lithic assemblage recovered some years previously, together with fieldwalking by Mesolithic Deeside. The excavation revealed that the part of the site chosen for examination had been disturbed by the construction of the Deeside Railway and the A93 road, both of which lay just to the north of the trenches. While a lithic assemblage was recovered, there were no in situ features. Nevertheless, the

collection from the field immediately to the north of the road suggests that test pitting here might help to elucidate the history of the site.

While the test pitting and excavation have not, so far, resulted in the discovery of in situ archaeology, it did help to confirm the depth of time represented by the archaeology at these sites. The recovery of a possible shouldered point at Nethermills Farm 4 is of particular interest as it adds weight to other hints of Late Upper Palaeolithic activity here, such as the tanged point fragment found during Kenworthy's excavation. Late Upper Palaeolithic material, including another shouldered point, was also present at East Park, though none was discovered at Heughhead. In addition, the finds from all three sites included Mesolithic and Neolithic material. All three sites are of considerable significance for our understanding of the prehistory of the River Dee, and indeed Scottish prehistory, and the possibility of further targeted investigation at East Park and Heughhead has been noted. Other sites that might reward test pitting have been identified, including Potarch, where the lithics coincide with a series of circular anomalies visible on satellite images such as Google Earth, and Kincardine O'Neil on the Camphill Terrace.

Test pitting and excavation have undoubtedly provided a positive experience and the results

help to refine strategies for understanding and managing the archaeological resources in the region. They provided additional detail of the contents of individual assemblages, information relating to the site formation was gathered, and an assessment of preservation became possible. In addition, the active inclusion of school groups and students in the fieldwork process undoubtedly helped to build resilience for the future of the local archaeology, while the arrival of numerous visitors to site increased awareness of the past communities and a number of possible new sites in the area were notified to the team.

#### **8.4 Overview: source to sea – early prehistoric communities along the length of the River Dee**

##### 8.4.1 Hunter-gatherers

The lithic scatter sites recorded here add to a growing body of information relating to the early communities who lived in the wider area, in particular along the length of the River Dee in early prehistory. It helps to complete the picture of life across the millennia from deglaciation to the arrival of metalworking communities as recorded along one of Scotland's major watercourses, from the present coastlands (within the bounds of the City of Aberdeen) to the headwaters of the river. This is a significant insight into the dynamic networks of human activity across different ecozones and as they developed through time. It provides testament to the way in which human behaviour was not acted out on individual sites alone, but rather as part of a continuum across the landscape. As such the sites recorded by Mesolithic Deeside do not stand alone, they complement the work of many others, and no doubt more material will be found in years to come.

Late Upper Palaeolithic sites are still relatively scarce along the course of the river, given that the period covers some 1,700 years. Despite the relative stability of the perceived archaeology due to the generalised typo-technological analysis by which these groups are identified, some variability in lifeways, and thus archaeological remains, might be expected. Initially exploratory, subsequently colonising, and only later in the period settling into territories, the earliest groups had perhaps worked their ways northwards from the shores of Doggerland and brought some lithic and other

resources with them (Ballin & Wickham-Jones 2017). Later, as the landscape became more familiar and knowledge of local materials grew, so it was possible to settle into different routines adapted towards familiar and more reliable facets of the regional terrain. The Dee facilitated access inland across a largely open landscape, but population numbers are likely to have been small, the passage across the land was light, people left little trace, and the archaeological evidence is infrequent. To date, in the area under investigation, sites have only been recognised along the middle reaches of the Dee, but it is likely that Late Upper Palaeolithic lithics have gone unrecognised in previous archaeological work. This, is, of course, merely a reflection of the state of knowledge at the time the work took place, but it is notable that Late Upper Palaeolithic material is an increasingly frequent component of recent field investigations further down the river (Dingwall et al 2019a), suggesting that more sites await discovery and recognition. In the headwaters of the river, the absence to date of Late Upper Palaeolithic material may be related to difficulties of prospection and site recognition in the upland terrain, though there is clearly scope for further investigation.

Mesolithic sites have been recorded within the bounds of the City of Aberdeen and surrounding areas. Canmore and the Aberdeen City Historic Environment Record both record a shell midden site of Mesolithic aspect containing periwinkle, limpet and mussel shells together with some mammal and fish bones, excavated on the '25 foot' raised beach at Nigg Bay in the early 20th century, but without any precise location (Canmore NJ90SE 8, HER NJ90SE0008; Reid 1912). Kenworthy discusses the evidence for a 'short-term hunting camp' at Green, as well as other, more isolated, finds of Mesolithic artefacts in the city (Kenworthy in Murray 1982: 20, 49, 89, 91–3, 200–8, 212–16). Saville discusses remains from two city locations in detail and notes that small numbers of finds came from five others. He comments that Mesolithic evidence within the city tends to be 'sporadic and disparate' (Saville in Cameron & Stones 2001: 259–61). In keeping with the circumstances at the time of these excavations, it is true to say that Mesolithic Aberdeen has not received the attention it might have were the investigations to take place today, but it is useful to be able to record a Mesolithic presence on the higher

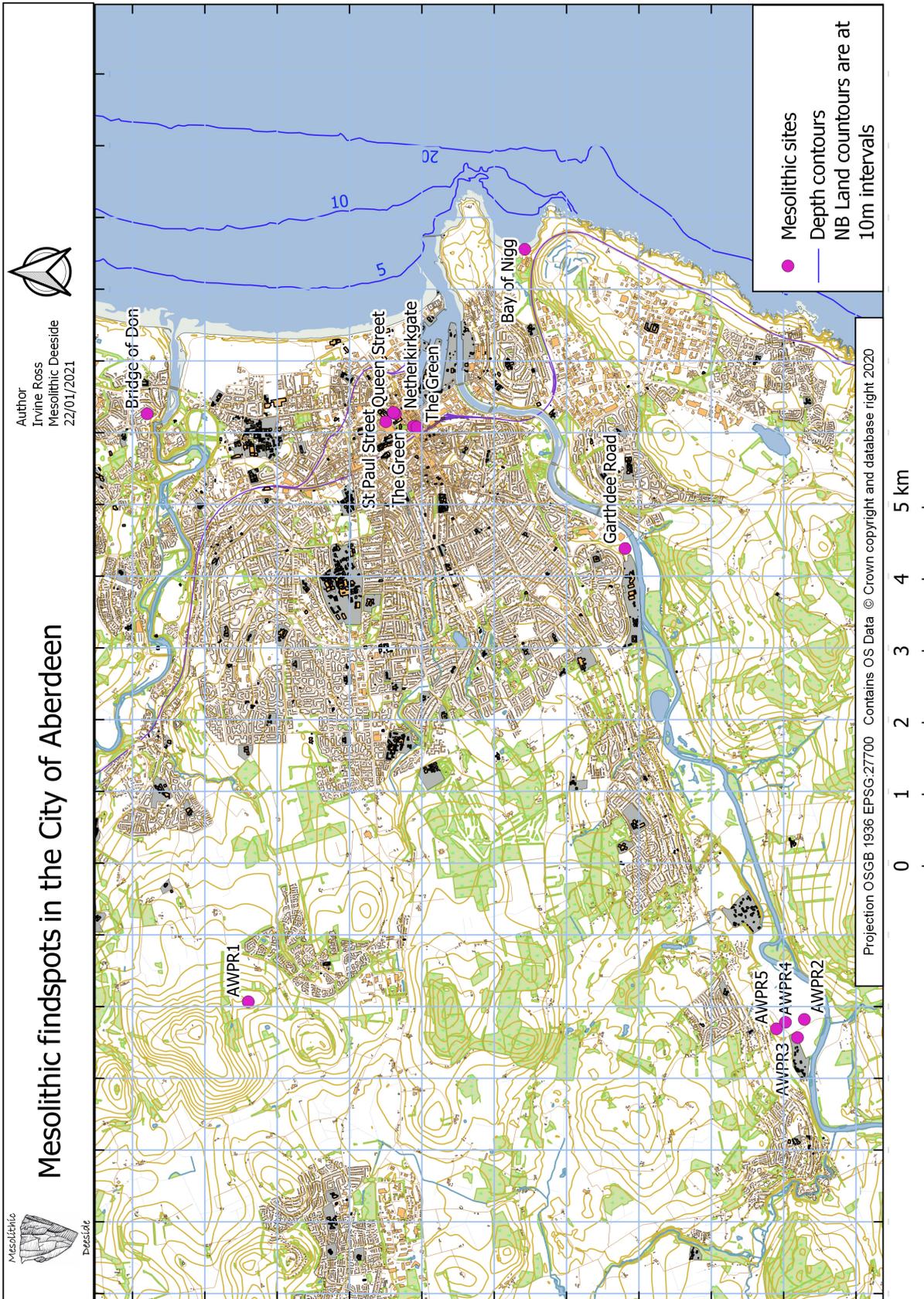
land to the north of the mouth of the River Dee (Illus 8.22). There is less evidence around the mouth of the River Don, but an unpublished document in Marischal Museum provides useful detail of an assemblage of several hundred worked flints collected in the gardens of a newly built housing estate on higher land immediately to the north of the river in the 1930s and 1950s. The assemblage was classified as Mesolithic by Douglas Simpson of Aberdeen University and is housed in the museum, where it is currently being reassessed and has been found to contain mainly Neolithic and Bronze Age material with a small Mesolithic component (Jacob Metson, pers comm). Both the Dee and the Don would have provided attractive environments for Mesolithic communities and there is clearly evidence that they were exploited at this time. Further north, estuaries such as the Ythan, where there is abundant evidence for Mesolithic activity (Warren 1999), perhaps give a more accurate (less disturbed by modern development) glimpse of the way in which the mouths of large east-coast rivers such as the Dee were desirable locations for Mesolithic occupation.

West of the city boundaries, the evidence for Mesolithic activity is consolidated by the recent work on the Aberdeen Western Peripheral Route (AWPR on Illus 8.22) and the findings of several Mesolithic sites such as Milltimber (AWPR 2–5 on Illus 8.22; Dingwall et al 2019b) which included pit-traps for hunting as well as fence lines and a lithic scatter. Geographically, this work blurs nicely into the evidence provided by Mesolithic Deeside for Mesolithic activity along the Dee. A comprehensive range of sites has been recorded alongside the river from the present coast, as far west as Heughhead, where the evidence begins to thin as the river enters the foothills of the Cairngorms, though Kenney notes several lithic scatters of Mesolithic aspect in this area in her research (Kenney 1993).

Nevertheless, fieldwalking by Mesolithic Deeside, together with earlier campaigns such as the work of Grieve, OFARS and Kenney, has focused on the River Dee. This has undoubtedly created a ‘honeypot’ of finds that serves to bias interpretation, so that more investigation is needed away from the river. The upland evidence for Mesolithic occupation from Standingstones (van Wessel 2019) is a valuable corrective to current interpretations, as is the work of Phillips and colleagues (Phillips in Bradley 2005:

87–97). Their project, further back from the river, some 6km to the north of Aboyne, recorded many fields with lithic collections in the Howe of Cromar around Tarland, though it was noted that only a small number included Mesolithic material (Phillips in Bradley 2005: 87–97).

Along the length of the Dee it has, therefore, been possible to build a more complete picture of the human inhabitation of the landscape in earlier prehistory. This includes not only the big sites but also smaller sites that are apparently (to us) of less significance. While some sites, such as Nethermills Farm NM2 and NM4, and East Park, appear to indicate a desire to be close to the river itself, other sites, such as Warren Field, illustrate the attractions of a location slightly further back. Excavated sites bring some indication of the variety of activities that made up everyday life as at Warren Field (Murray et al 2009) and Milltimber (Dingwall et al 2019b), while the fieldwalking reminds us of the extent of ground across which these early communities ranged. The present survey adds to the work of Paterson (Paterson & Lacaille 1936) and Grieve to suggest an extraordinary concentration of finds in the fields between Banchory and Drumoak; there are few locations in this stretch of the river without evidence of Mesolithic activity. West of Banchory, fieldwalking and test pitting at Heughhead and Kincardine O’Neil have extended the extent of inhabitation. The field at Potarch shows that people gathered on limited areas of floodplain even in deeply incised bedrock gorges. The rapids of Jock Young’s Leap at this point have topographic parallels at the Chest of Dee west of Braemar (Wickham-Jones et al 2020), both locations where salmon (as well, presumably, as Jock Young) leapt in spectacles that still attract interest today. Into the Cairngorms, recent fieldwork by the Upper Dee Tributaries Project (Fraser et al 2020) has revealed a number of sites, including specialised activity camps (Warren et al 2018), possible riverside base camps (Wickham-Jones et al 2020) and smaller more ephemeral findspots (Fraser et al 2020). These sites focus on two valleys: that of the Geldie Burn and that of the Upper Dee above White Bridge (Illus 8.23). Survey in these areas is not without challenges, but these sites demonstrate clear rewards (Wickham-Jones et al 2020) and the continuation of Mesolithic activity into the highlands.



Illus 8.22 Mesolithic findspots in the City of Aberdeen. Two separate excavations have been recorded at Green



**Illus 8.23** The confluence of the River Dee and the Geldie Burn just to the east of the excavation site at Chest of Dee in the Cairngorms. The excavation site lies along both banks of the Dee (on the right); project vans can be seen in the centre of the photograph

Though it has not, yet, been possible to relate any single site directly to another, the picture is one of communities living within and moving across the landscape and making use of the river in all its variety. The full length of the watercourse offers a wide range of terrain and ecological niches for those who live along its banks. The River Dee had much to offer a mobile population from the drier areas of the terrace floodplains to the turbulent waters where bedrock rises to the surface, from the coastal dunes and saltmarshes through the verdant woodland of the middle reaches and up into the montane environments of the hinterland. The archaeology suggests that all niches and resources were explored and utilised. The river clearly facilitated both movement and settlement. At present, it is interesting to note that activity in the Mesolithic tends to focus along the corridor formed by the river and its terraces. Fieldwork further away from

the river around Tarland recorded less Mesolithic material, though this remains to be tested elsewhere.

#### 8.4.2 Farmers

With the introduction of farming the requirements of local communities changed. Settlements needed to support year-round occupation, and issues of fertility and soil cover came to the fore. Supporting activities were not completely abandoned, however, and the scatter of smaller findspots continues. Neolithic finds in the City of Aberdeen tend to comprise records of artefacts, such as a polished axehead and other stone tools found at Dyce (Canmore: NJ81SE21; NJ81SE22. HER: NJ81SE0017; NJ81SE0027). While the two monographs recording excavation in the city over the last 50 years do not discuss possible Neolithic finds, this is more likely to reflect 20th-century archaeological priorities rather

than prehistoric actuality (Murray 1982; Cameron & Stones 2001). Farming communities were certainly making use of the fertile lands alongside the river. More extensive Neolithic remains have been recorded around the western periphery, for example at Milltimber (Dingwall et al 2019b) and Garthdee Road (Murray & Murray 2014) and the record continues further upstream at Balbridie (Ralston 1982; Reynolds 1980) and Warren Field, Crathes (Murray et al 2009). To the west, Neolithic sites are less frequent, though they do exist (Kenney 1993), and the Howe of Cromar fieldwork around Tarland yielded several lithic scatters, primarily of Late Neolithic aspect, further away from the river (Phillips in Bradley 2005). The attraction of recent alluvial soils on the lower river terraces for the earliest farmers has been noted above, and by the Late Neolithic evidence for human activity is more widespread, in the form of more varied types of site such as the Recumbent Stone Circles which complement the lithic scatter sites (Bradley 2005). By this point, woodland clearance was more established and the human impact on the land would have been more obvious in the form of fields, boundaries and trackways, as well as settlements and monuments. Up in the Cairngorms, there is, however, evidence for a continued human presence at this time at sites like Chest of Dee (Wickham-Jones et al 2020). It may well be that activities such as hunting and the collection of other resources continued to be important here, and of course the mountain routeways also offered access to communities elsewhere across the highlands of Scotland.

The River Dee was clearly a major focus of human activity over extended periods of early prehistory and the role of the Mesolithic Deeside sites in adding substance and detail to this picture of the communities along the river at the time is significant.

### 8.5 Further work

While the lithic scatter sites along the river are prolific, interpretation has to be cautioned by the lengthy chronological and geographical spread of the sites and it should, furthermore, be noted that given their derivation from ploughsoil, few assemblages are strictly *in situ*. The lessons for

future archaeology are subtle. While the excavation at Nethermills Farm in the early 1980s did record preserved Mesolithic features, test pitting in field NM4 suggests that continued intensive agriculture and ongoing natural processes in this location mean that stratified prehistoric features no longer survive here. This is likely to be the case on many other sites. At Heughhead, archaeological features in the area examined had been disturbed by 19th-century infrastructure, and wider test pitting across the main body of the site is clearly necessary to assess archaeological survival both here and at East Park. Test pitting is a relatively quick and cheap method of assessment, of considerable use to progress the acquisition of more detailed archaeological information from lithic scatter sites (Wickham-Jones 2020b). Other sites that would repay test pitting in order to investigate archaeological survival and significance include Balbridie (where recent reassessment has identified possible Late Upper Palaeolithic material), Birkwood (with Mesolithic potential), and Potarch (where the lithics occupy an interesting location that also incorporates a series of circular anomalies), as well as Kincardine O'Neil (possibly a predominantly Neolithic site).

It should also be noted that research to date (both by Mesolithic Deeside and earlier projects) has focused on the Camphill Terrace as the most prolific for lithic material. Finds do occur on higher terraces, however, often (but not always) in less dense concentrations. Given the complex nature of terrace formation and the geomorphological processes that have shaped the terraces through time, and the way in which the deposits on one surface are linked to those on another, a focus for future research on fieldwalking, test pitting and sediment analysis of higher surfaces, such as the Maryfield Terrace, would be beneficial even where initial prospects for artefact-rich sites may not be great. The true nature of the Camphill Terrace and its archaeology cannot be understood in isolation. Material from earlier periods such as the Late Upper Palaeolithic may well lie buried under greater depths of sediment in other locations.

The identification of the full extent of the earliest prehistoric activity along the river is blurred to a great degree by the later extensive spreads of lithics from Late Mesolithic activity. We cannot yet say whether the Late Upper Palaeolithic lithics are from

short or long-term occupations, and whether, or to what extent, they made use of local sources of gravel flint in addition to the imported flint evidenced among their assemblages. We remain unsure how to characterise the very earliest Mesolithic activity, and the transition from Late Upper Palaeolithic to Early Mesolithic remains opaque across the whole of Britain (Conneller et al 2016). Excavation of stratified archaeology remains the only means to untangle the traces of the hunter-gatherers of these different periods within the local landscape, but to date none of the sites under investigation can be categorised as solely Late Upper Palaeolithic. While the undifferentiated nature of many of the lithics means that on most sites it is impossible to pick out specific activities from separate periods, only through more detailed investigation will the sites that we need be found. The identification and excavation of in situ Late Upper Palaeolithic material remains a high priority for Scottish archaeology and the number of sites with such elements in this stretch of the River Dee means that it holds significant potential for this work. One possible avenue of investigation to target varied hunter-gatherer activity sites might be to work from detailed research on the nature of the land and prospect the margins of infilled lakes such as the Loch of Park. Work across Europe indicates that these were attractive locations for hunter-gatherer settlement.

The value of the research reported here lies in the number and variety of sites, in both chronological

and spatial terms. While early prehistoric sites remain, in general, under-reported across Scotland, comprehensive survey work such as this shows that it is a situation that can be rectified. The problems of locating and managing archaeological remains relating to early prehistory (Late Upper Palaeolithic, Mesolithic, Neolithic), when much prospection is based on walkovers or surveys of upstanding sites, are recognised by the Scottish Archaeological Research Framework (ScARF 2012a). In order to increase understanding of any lithic scatter site, test pitting is recommended (Wickham-Jones 2020b). All of the locations listed here would merit further examination in advance of destructive development such as housing or infrastructure, and many of the sites are likely to hold considerable significance for archaeological research even in the absence of planned destruction. While the vagaries of soil depth, taphonomy and agriculture make test pitting an important process with regard to the assessment of the archaeological significance of any field, where in situ material is found to survive, the detailed excavation of a selection of sites would serve to address some of the gaps in our understanding of a crucial period of Scottish prehistory. While it is true to say that the extensive survey reported here has served to contextualise earlier focused excavation (at sites such as Balbridie and Nethermills Farm), it is also important to remain aware that focused excavation serves to contextualise broadscale survey.