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Cover Front: Rosebay Willowherb, *Chamerion angustifolium,* Gowan Hill, Roy Sexton.

Cover Rear: Robert Burns Monument, Stirling, Murray Dickie.

Colour Plates

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THE FORTH NATURALIST AND HISTORIAN

The Forth Naturalist and Historian (FNH) is an informal enterprise of Stirling University. It was set up in 1975 by several University and Central Regional Council staff to provide a focus for interests, activities and publications of environmental, heritage and historical studies for the Forth area, comprising now local authority areas Stirling, Falkirk and Clackmannanshire. Since then the organisation of an annual environment/heritage conference has been an important feature.

The annual Forth Naturalist and Historian has published numerous papers, many being authoritative and significant in their field, and includes annual reports of the weather, and of birds in the locality, plus book reviews and notes. These volumes provide a valuable successor to that basic resource, The Transactions of the Stirling Field and Archaeological Society, 1878-1939.

Four year contents/indexes are available, and selected papers are published in pamphlet form, while others are available as reprints. In addition, a 230 page book Central Scotland – Land, Wildlife, People, a natural history and heritage survey, was produced in 1994 and is available in the form of a CD-Rom, Heart of Scotland's Environment (HSE).

Other FNH and associated publications still in print include – Mines and Minerals of the Ochils, Airthrey and Bridge of Allan, Woollen Mills of the Hillfoots, The Ochil Hills – landscape, wildlife, heritage – an introduction with walks, Alloa Tower and the Erskines of Mar, and the Lure of Loch Lomond a journey round the shores and islands. Several of these are in association with Clackmannanshire Field Studies Society.

FNH publications are listed on the internet British Library (BLPC) and by booksellers e.g. Amazon, Bol, Barnes and Noble. Offers of papers/notes for publication and of presentations for conference are ever welcome. Visit the website for instructions to authors.

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Report on the Forth Naturalist and Historian Conference,
Saturday 9th November, 2019

Natives, Incomers and Invaders

Richard Tipping

Human, animal and plant incomers, whether peaceful or predatory, have been washing up on the shores of the Forth Valley for millennia and continue to arrive today. Our conference this year, with 'Brexit' dividing the country, explored how and why this has happened and how incomers have in turn shaped endemic, native populations.

Some of the most exciting new data on human population change is coming from new techniques, applied to old bones and artefacts, and is bringing the most startling insights. At the forefront of this research is **Alison Sheridan** (National Museums Scotland), who with **Angela Gannon** and **Maya Hoole** (Historic Environment Scotland) introduced us to new ideas. Firstly, about the coming of farming to Scotland in the Neolithic, around 3,900 BC (all dates are calendrical) and secondly, about the origins of the Beaker people around 2,400 BC, just before the Bronze Age. Long before both these events, Mesolithic hunter-gatherers had arrived across the dry floor of the southern North Sea exposed after the last glaciation. Parts of this area are known on the Forth at Echline Fields and Cramond, dating from around 8,300 BC. Farming was an entirely new way of securing food resources and we have known for decades that the basic repertoire of food production, cereal grasses and domesticated livestock, had to have come across the North Sea. This journey was thought to have been made by boat, because of the existence of the North Sea. Yet, some archaeologists have argued that farming could have evolved within hunter-gatherer societies, taking parts of the farming package bit by bit from visits eastward to the continent.

Farming was beginning to be seen as a process, rather than an event. But, in the last decade, new ways to make radiocarbon dating much more precise and totally new ways to extract the whole genomic DNA record of individuals has revolutionised our understanding. In 2019, ancient DNA evidence confirmed that Britain's earliest farmers were indeed from across the North Sea. Farmers came here around 3900 BC, travelling West. Scotland was at the end of a line stretching back to the Near East. Why this should have occurred at 3,900 BC is not clear because farming had been estab-

lished for 700-1,000 years on the continent. Alison and Angela argue for the need to spread from population expansion in what is today France and Belgium. Different groups may have departed at different times. The earliest colonists, some of whom reached Claish, on the Teith just outside Callander, brought a new architecture; large communal timber halls which were abandoned and deliberately set alight as colonists became settlers. They introduced pottery as well as farming. They tapped into new sources of stone and carried with them highly polished jadeite axe heads originating in the North Italian Alps. What of native hunter-gatherers? Whilst geneticists talk about population replacement, the two economies may have shared the landscape for a time and some resources; specific marine foods in the Forth estuary such as whales, were used throughout the transition.

An equally dramatic series of abrupt changes accompanied the end of Neolithic settlement around 2,400 BC. Again, new evidence indicates a new migrant population. Beakers were new, distinctive forms of pottery, introduced along with more sophisticated stone weapons (for hunting or fighting), and metals such as copper and gold. Beaker people even had different-shaped heads. Archaeologists can now establish how mobile people were in their lifetimes by trace amounts of isotopic elements in their bones and teeth and can show Beaker people came over from the continent. But how many? Isotopic data tell us about individual people. DNA evidence helps describe population movement and, in 2018, this suggested that up to 92% of the Neolithic population of Britain was replaced by people trekking across Europe from the Black Sea region. Archaeologists generally find this a difficult concept and it is currently uncertain how many people it took to replace the gene-pool of an endemic population.

More readily seen as a conflict situation is the relation in the early centuries AD between native and Roman, but **Fraser Hunter** (National Museums of Scotland) sees this in more subtle terms. Roman policy towards natives changed through time, from conqueror to an army of occupation and, at times, a sort-of police force. The army itself was not a monolithic unit; but was itself a mixing pot of different peoples; with auxiliaries from across the conquered world. One clue to the changing relations is an examination of how Roman -manufactured items; from pottery, glass, bronze, jewellery and metalwork, is incorporated into native homesteads and farms. There is very limited evidence for the acquisition of these artefacts before the actual conquest in the 70's AD and those few finds probably represent coastal trade. However, in the 1st century AD we see

Rome targeting specific local populations, with prestige finds in South East Scotland and the Carse of Gowrie. Most notably, elites were living in elaborate brochs sited along the edge of the valley of the Forth; such as at Fairy Knowe, outside Buchlyvie, or the broch at Leckie, between Gargunnock and Kippen. Brochs themselves, tall conical towers are a distinctive and out-of-place architecture in central Scotland. At the end of the 1st century AD, many of these brochs were demolished, destroyed, it seems, by attacks from the North, by fellow-natives perhaps trying to sever native-Roman links. With Roman re-advance to the Antonine Wall in AD139/40, natives were not showered with Roman 'goodies'. Rather, Roman presence seems to have influenced the style and form of native artefacts. Along the southern edge of the Highlands and into Perthshire, Angus and Moray (i.e. outside the wall), metal ornaments like armlets or finger-rings became massive, over-sized and chunky, seen as a deliberate antagonistic reaction to renewed occupation. Abandonment of the Antonine Wall in the 160's AD and final withdrawal to Hadrian's Wall, saw a new Roman strategy: continued control at a distance by gift-exchange. This saw the supply of silver coins, so-called Denarius hoards to local power-centres between AD160 and 230. Examples such as that of Falkirk hoard, c. 2000, may have succeeded in the buying temporary peace to the North of the Wall, but ultimately helped shape opposition from across the Forth, in what would become Pictland.

It would be difficult to avoid Bannockburn in such a conference, and **Michael Penman** (University of Stirling) re-evaluated what we know of Edward II's attempted invasion in 1314. He reminded us that the battle actually ended a 10-year occupation by England of parts of Scotland, including Stirling Castle, which was garrisoned by Edward I in 1304. The invasion of 1314 was in some ways a re-advance. English occupation would have led to difficult choices for the native population as they assessed and re-assessed their relation to the invader, some appealing to the English parliament when the need arose.

Michael also stressed how familiar some of Edwards' advisors would have been with the landscape around Stirling and from 1306 with the style of Robert the Bruce. The battle of Loudon Hill in Ayrshire was in some ways a rehearsal for Bannockburn with Bruce's use of pits to steer English cavalry employed eight years later at St. Ninians. Depending on where the final battle of Bannockburn took place, it represented a comparable fight on boggy ground. However, in some ways, Edward's march to Bannockburn was hastily planned, more so than is often thought, and the English army ar-

rived rather strung out and dis-organised. It is also often forgotten that the Scots army probably matched the English in numbers, and was drilled while Edward marched. As to the second day of the battle, Michael is influenced by Tony Pollard's archaeological work on the Stirling carse, which included extensive metal-detecting. In this model, after his rebuttal at St. Ninians on the first day, Edward turned North down the incised gully of the Bannock Burn to the flat carseland, perhaps to the confluence of the Pelstream and Bannock Burns. Early on the second day, the English turned and may have tried to move up through Balquidderock Wood, but were forced back onto the carse and defeat by Robert. Work by the late Alasdair Ross may have hinted that the carse was treacherous ground that year. Despite Robert I's attentiveness to re-building and support for local estates around Stirling, following Edward's defeat the local population would have suffered continuing fears for the future. Fears of English reprisals and threatened invasion led to something akin to 'scorched earth' policies being pursued by Robert in 1319 and 1322 in the Stirling countryside and the final cost to Stirlingshire as a result of the wars with Edward I and II may have been a considerable reduction of its value, by around 55%, between 1274 to Robert's death in 1329.

The afternoon session turned to invaders in the natural world, though human interaction makes this far from natural. **Richard Ennos** (University of Edinburgh) focused on disease affecting our native emblem, Scot's pine. This has occurred as a result of the introduction to the British Isles of two alien but closely related pine species: the faster-growing Corsican pine in dry dune areas like Tenstsmuir in Fife and the Lodgepole pine, grown on peat since 2006 because it is more tolerant than Scot's pine of waterlogging. Since 2010, native pinewood on Scotland has increasingly been affected by an invasive airborne fungal spore, *Dothistroma septosporum*, which brings *Dothistroma* needle blight, defoliation, loss of yield in commercial forests, and can cause the death of trees. Richard described his team's efforts to understand and control the problem, using genetic 'fingerprinting' to trace the source of the invasion. They identified three 'races' of *Dothistroma*, each associated with only one of the three species. Scot's pine has a different 'race' of *Dothistroma*, which becomes a threat to the tree only in the presence of one of the introduced pine species. The trigger is Corsican pine. Genetic 'fingerprinting' shows that Corsican pine is genetically closer than Lodgepole pine to native Scot's pine, and hybridises with it, increasing the threat from needle blight. It is the planting of exotic tree species related to our native species that introduces invasive diseases. There are many parallels: Japanese chestnut

(*Castanea crenata*) alongside American chestnut (*C. dentata*) leads to Chestnut blight; Manchurian ash *(Fraxinus mandschurica)* and European ash (*F. excelsior*) together produce Ash dieback. Species will evolve resistance if natural regeneration occurs but a safer policy is to think very hard before allowing in introduced species.

Mary-Anne Collis is the regional Conservation Office for 'Saving Scotland's Red Squirrels'. Our native species, *Sciurus vulgaris,* is widely distributed across northern Eurasia and the western Mediterranean, at home in conifer or broadleaf forest, where they are canopy-dwellers, feeding on cones and nuts but also berries, flowers, mushrooms and eggs. Individuals vary in fur colouring from reddish-brown to deep brown with some grey or black, and produce up to two litters of 3-4 kittens a year. They are threatened by, of course, American grey squirrels (*Sciurus carolinensis*) which outcompete red squirrels for food and habitat and have higher densities and higher reproductive rates. In oak forests, common below the Highland line, grey squirrels cope much better with toxins found in acorns: while red squirrels die if their diet is confined to acorns. Grey squirrels also spread Squirrelpox virus. While grey squirrels are a threat only in the British Isles where, they were introduced in the 19th century, here and elsewhere other threats to red squirrels come from human disturbance to once-natural habitats. There are now only around 120,000 red squirrels in the British Isles, 75% of them found in Scotland.

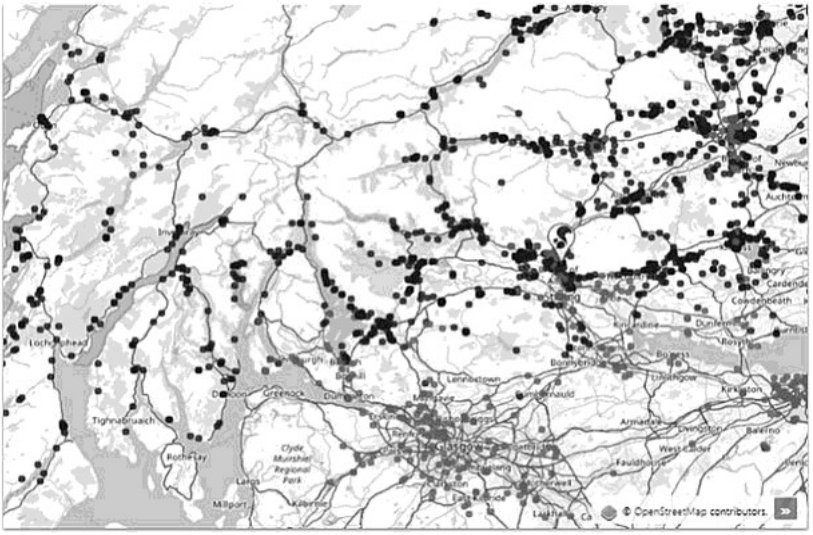

Figure 1. Current (2019) sightings of red squirrels in central Scotland.

'Saving Scotland's Red Squirrels' (SSRS) is the first nationally coordinated attempt to halt the decline in the red squirrel population by controlling the spread of grey squirrels north of the Midland Valley, defending the Highland line and removing grey squirrels from their Aberdeen enclave in the North These measures are working and the red squirrel range and population are now stable. Locally, population surveys establish who is where, with public sightings logged (scottishsquirrels.org.uk) (Figure 1), scientific sampling and targeted grey squirrel control through trapping and 'humane dispatch'. Recent work has shown that ecological restoration can also be important: increasing numbers of native pine marten (*Martes martes*) are reversing the decline of the red squirrels by suppressing grey squirrel populations.

Angus MacIver has for many years been recording the numbers of Taiga Bean Geese (*Anser fabilis*) on the Slamannan Plateau, the hilly farmland South of Falkirk, East of Cumbernauld and North West of Bathgate. He has been systematically recording the usage of individual fields by these winter migrants from the Arctic Circle and relating this distribution to the agricultural, post-industrial and wetland landscape. He has watched their decline from the 1990s as a total European population of >100,000 birds was reduced to one of around 63,000 now. Of the around 1,500 birds that migrate, mostly from Norway and Sweden, the majority fly only to southern Sweden, Denmark and northern Germany.

Scotland now receives only around 200 birds. There are only two concentrations in the British Isles, the Yare marshland in Norfolk and the Slamannan Plateau. Trends within the British Isles are hard to measure because populations are low but, while the Yare Valley population seems still to be declining, that on the Slamannan Plateau has been relatively stable. Birds arrive in October and GPS tracking of individuals shows how susceptible to weather patterns the migrating birds are. In autumn 2017, for instance, the entire migrating population was driven first to Norfolk before moving on over the next two days up to Slamannan. The journey across the northern North Sea can take two days with birds roosting overnight on the sea. They are attracted to Slamannan by the potential of the wetland mosses as safe roosts, such as the RSPB Fannyside Loch reserve and the SSSI of Darnrig Moss. Local pasture provides a food source, with the birds enjoying the increased amount of oat stubble on the fields in recent years. Birds stay until about the second week in February, their return flight being equally hazardous. For more information, visit https://sites.google.com/view/scotlands-bean-geese.

Nigel Willby and **Alan Law** (University of Stirling) looked at the introduction of the European Beaver (*Castor fiber*). Once a native of the British Isles, it was exterminated here around 400 years ago. Due to re-introductions in 26 EU countries it thrives on the continent. Beavers were re-introduced to Britain in 2002 and even before then were closely studied. Beavers are large (15-38kg), strongly territorial, aquatic herbivorous rodents which live to 7-8 years of age. Two-thirds of the British population, of <1000 animals, are in Scotland, most in Tayside where there were 114 territories in 2018. They were granted 'right to remain' in 2016 and have had protected status since May 2019. Their principal ecological value is as a keystone species, increasing heterogeneity and dynamism in freshwater habitats which have been reduced by land use change. Beaver-modified wetland has a much higher plant diversity and a higher abundance of beetles, though it is not richer in species. Beavers rapidly transform woodland to wetland by dam-building, canal-digging, grazing and trampling, adding complexity and patchiness to landscapes in ways that are difficult for people to mimic. This activity effects the way water flows through the landscape, improving water quality, stabilising flows and reducing the flashiness of stream-flow.

THE VEGETATION ON STIRLING'S CASTLE ROCK: THREE CENTURIES OF CHANGE. PART 2 GOWAN HILL

Roy Sexton

(Scottish Wildlife Trust, Stirling and Clackmannanshire Group)

Botanical Recorders: Pam Murdoch, Sue Sexton, Jan Harbidge, John Harrison, Dr Brian Ballinger, Prof John Grace, Norman Still, Jacky Robinson, John Mallet.

Historical Advisors: John Harrison, Stephen Digney, Donald Balsillie, Guy Harewood, Kristin Johnstone and Murray Cook

The Survey

At the 1930 meeting of Stirling Natural History and Archaeological Society (SNHAS) it was agreed that in view of the rapidity of changes taking place in Stirling it was desirable to record the plants and vegetation on the Castle Rock to serve as a basis for future comparisons. James Chisholm undertook the task and published a 22 page report in the 1931-32 SNHAS Transactions. As result of similar concerns about the growth of scrub and woodland over the open ground around the castle the local Branch of the Scottish Wildlife Trust started a comparative survey in 2007. During the last thirteen years eleven botanists have recorded nearly 300 species in the same area (see Appendix) in which Chisholm reported just over 200 species in 1931.

As a consequence of the volume of information gathered we divided the report into two parts. Part 1 was published in last year's volume of the FNH Journal which dealt with the south and west sides of the Castle and included the Back Walk Woods, the Haining, the King's Knot, Butts Field and the Cliffs under the Castle. Part 2 deals with the vegetation on the land to the NE of the Castle that overlooks the bridges over the Forth. It includes Gowan Hill and Mote Hill and the woodland cliffs along the hill's NW side. This area is currently bounded by Back O'Hill Road to the NW, Glencoe Rd, Crofthead Rd and Upper and Lower Castle Hill to the East (See Plate 5). In this area we recorded 203 species of plants (see Appendix).

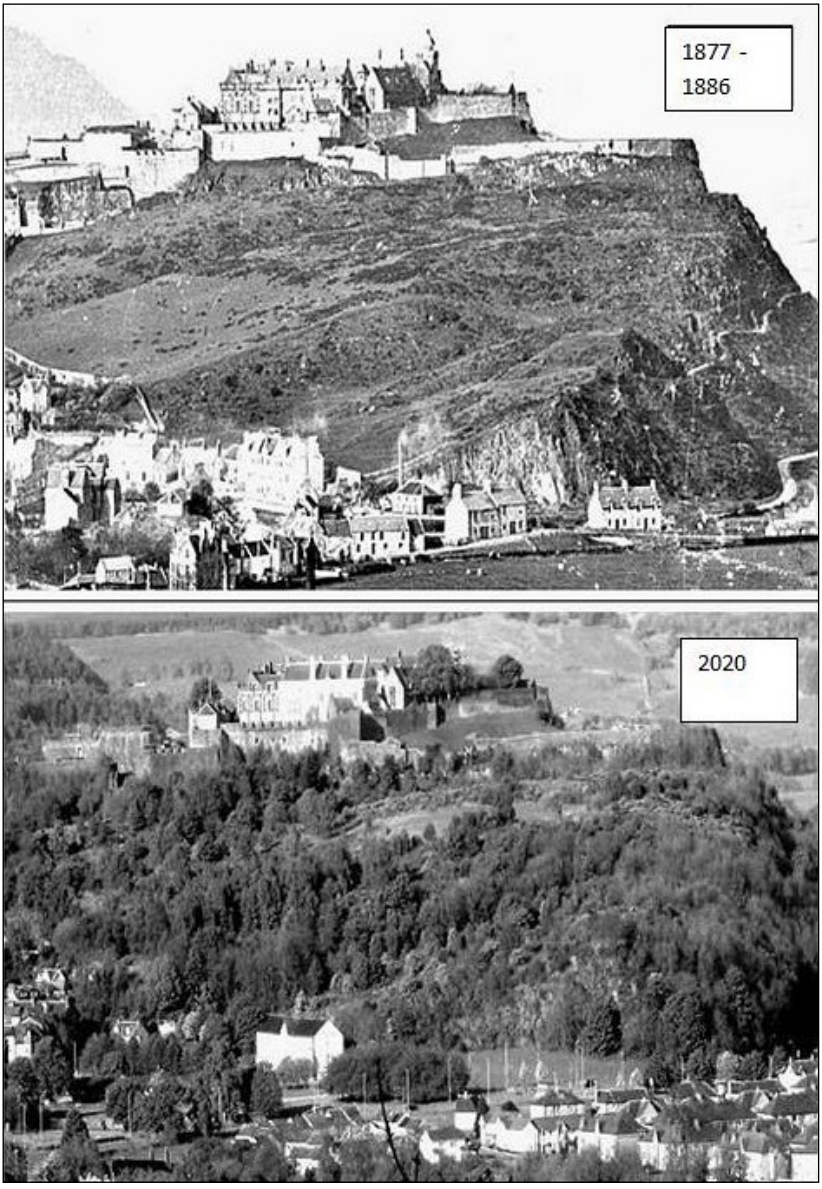

Figure 1 Upper: Gowan Hill taken from Abbey Craig between 1877 and 1886 showing lack of trees and scrub. Courtesy of the *George Washington Wilson Collection, Aberdeen University Library*. **Lower:** same view in 2020.

Although once known as Gallowhills the modern popular name of Gowan Hill has been in use since the 17th century (Ronald, 1891). In his list of Scottish vernacular plant names Peter Marren states that the term *Gowan* either refers to Daisies or is used as a general term for white and yellow field flowers (Mabey, 1996). It is hard to believe that the present virtually Daisy free, tree and scrub covered slopes (Fig 1, lower) could ever have merited this description. However early photographs taken in the 1860s-80s show large areas of very short turf with associated wild flowers (Fig 1, upper). Even as late as the 1970s, aerial photographs still show the central plateau of Gowan Hill had large areas of grassland and only 18 isolated trees (See Plate 1). A recent count of the same area revealed nearly 300 pioneer trees with many more saplings following behind (Fig. 1 lower).

Mote Hill with its iron age fort (Fig 2) in the NE corner of the plateau also illustrates this rapid change in vegetation. For hundreds of years it has been known as *Hurley Hackie* because its steep short turf-covered slopes were ideal for use as a children's toboggan run. Over the last 30 years it has become so enveloped in Hawthorn, Blackthorn, Rose, Gorse and Elder scrub that the only way down is using the footpath. Equally bewildering is the invasion of the slopes by purple flowered Rosebay Willowherb (Plates 4 and 5). It is hard to believe that the plant which currently covers 40% of the slopes was not present in 1931 when Chisholm made his lists. To understand these dramatic changes in the vegetation it is necessary to gather information about the social history, geology and environmental changes which have provided the drivers. The following summary is derived from secondary sources, particularly the very informative web-based account by John Harrison (2016).

Background Geology

Shearer (1889) in his account of the flora of the Castle area attributes its richness to its varied geology. Gowan Hill together with the Castle Rock, Abbey Craig and King's Park are all outcrops of the quartz dolerite *Stirling Sill*. This igneous rock was intruded into fractures in the late carboniferous sedimentary rocks which had been laid down across the area. These sedimentary rocks are much softer than the sill and over the last 307 million years they have been eroded away to leave the series of prominent dolerite crags that currently dominate the flat Carselands (Browne and Gillen, 2015).

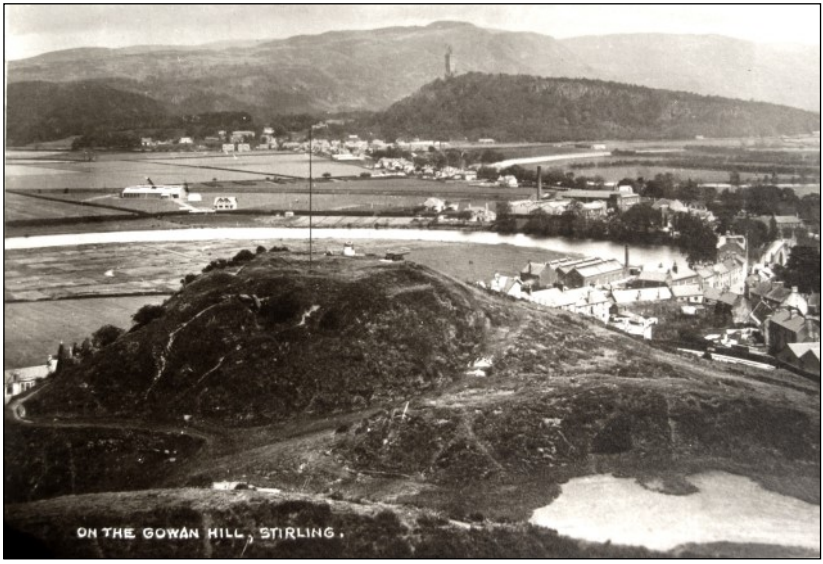

Figure 2. A post-card of Mote Hill the site of an Iron age fort where the Beheading Stone and two cannons were erected. In around 1920 it was covered in short turf and a few small Gorse bushes but is now completely cloaked in Hawthorn, Blackthorn, Gorse and Rosebay Willowherb.

Dolerite contains plagioclase feldspar and augite which weather to give varying amounts of calcium, magnesium, sodium, iron and potassium. The soils derived from the rock are often shallow but relatively nutrient rich (see Hipkin in Sexton, 2014). Chisholm (1931) defines the Gowan Hill soil as *a sandy till with boulder clay* or *dry field,* i.e. land which could be used for arable crops like oats and turnips (Cupples, 1845). Dolerite is very hard and has been quarried at several sites round Gowan Hill but it weathers badly and large boulders can easily detach from cliffs. This process is evident all around the Castle Rock indeed several areas have been covered in steel mesh to protect the public.

Bryce's 1806 plan (Fig 3) clearly shows three gullies running NW to SE across the sloping plateau. Ballengeich Road follows one of these and another runs along the NE side of Ballengeich cemetery. A third crosses the plateau to the west of Mote Hill on which the Beheading Stone sits. The west sides of these valleys provided the habitat for the early establishment of scrub and trees in the 1970s.

Morris (1894) attributed the origin of the gullies to the abrasive actions of glaciers flowing from NW to SE across the Hill. The remains of glacial material are found in the soils and walls all over the site (Morris, 1896). In 1892 during the construction of Ballengeich Cemetery the boulder clay was cleared from the underlying dolerite rocks revealing scratch-marks or *striations* aligned in the same NW to SE direction (Kidston, 1892). These were produced when rocks embedded in the base of the glacier were dragged across the sill's surface. The Council purchased the three acre Ballengeich cemetery site from the Crown Estates in 1886 for £310. It was initially quarried for road stone to provide the depth of soil required for a cemetery and then landscaped with soil imported from construction sites in Broad Street and Dumbarton Road. The first native trees in the plateau area were associated with an island of unquarried rock at the north end of the cemetery (See Plate 1).

There is a very sharp boundary between the dolerite sill and the adjacent limestone/coal group sedimentary rocks (British Geological Survey: Geology of Britain Viewer). It runs along the line of the north facing cliffs overshadowing Back O'Hill road. Apparently the actual contact surface between the hot larva with the cold shales and sandstone produced modified metamorphic rocks which were used in the construction of the extension of the Back Walk from Ballengeich hairpin to Mote Hill (See Plate 5, Chisholm, 1931). At the base of the cliffs along the Back O'Hill road the remains of a thin strip of layered sedimentary rocks are visible in a cliff exposure. The base rich soil in the Back O'Hill woodlands must be partially derived from sedimentary, glacial and metamorphic sources.

The History of Land Management

The earliest evidence of a settlement on Gowan Hill is the remains of a vitrified Iron Age hill fort on Mote Hill. Carbon dating from a recent Community Archaeological Dig (Cook, 2016) suggested that the fort was destroyed by fire in the first century AD. Stephen Digney's 1995 study had earlier reported a 4.5 ha enclosure on the plateau between the Castle and Mote Hill which was surrounded by earth and stone banks (NS 792 943) (Page, 2003; A-Kelly, 2004). Traces of medieval rig and furrow cultivation could be seen within the enclosure (Digney, 2016) and there was also evidence that livestock were grazed there.

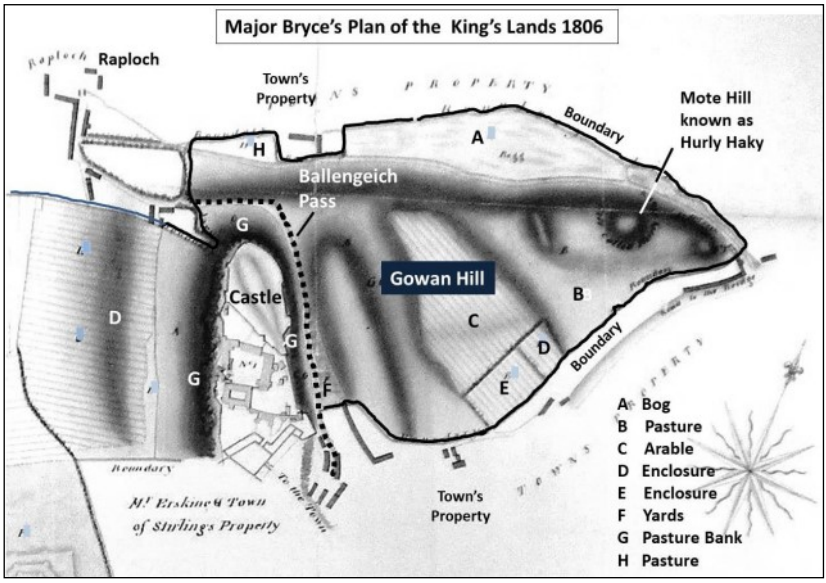

Figure 3. This plan shows the Gowan Hill area of the King's Lands around Stirling Castle. It was drawn by Major Bryce (Commanding Engineer of North Britain) and recorded how the land was managed in 1806. With kind permission from the *The National Archives Image Library*, Kew.

Originally the *Gallowhills* (Gowan Hill) were granted by the Crown to the *Burgesses and Community of Stirling*. It was used as common ground for grazing, recreation, cutting turf, gathering wild fruit etc. (Ronald, 1891, Harrison, 2016). In 1506 an exchange (Act of Excambion) was arranged whereby the Crown relinquished part of the King's Park to the south of the Castle (corresponding to the present Victoria Square area) in return for the far inferior lands on Gowan Hill.

John Harrison (2016) suggested that by this time castle-based artillery had sufficient range to cover the strategically important Stirling Bridge. Control of the vegetation on Gowan Hill secured the sight lines and provided a clear view of potential troop movements on the Hill. With at least 16 sieges over the centuries this was obviously a prudent move. The newly acquired land was enclosed within stone walls which still remain on the Hill's southern side. The boundary between the Town Property and what became referred to as the Castle Constabulary Lands are shown on Bryce's Plan (Fig. 3).

After James VI left for London, John Erskine (later Earl of Mar) who was keeper of the Castle was granted control of the King's Park, the Raploch and Gallowhills. By 1668 his successor was grazing approximately 30 cows and oxen, 120 sheep and 12 saddle horses as well as maintaining 20 acres of hay meadows to sustain them in the winter. John Harrison (2016) relates that *From the time when the Earl of Mar fled into exile in 1715 the Castle governors usually let the whole of the Park, King's Knot, Butts Field and Gowan Hills to a single well-to-do local man who then sublet it to several others*. Although the primary use of the land was agricultural it had to be available for military camps and exercises and ploughing of parts not previously cultivated was forbidden.

In 1803 King's Park Farm was created for the principal tenant (Harrison 2016) and Gowan Hill was part of King's Park tenancy into the 20th century. Most of the pasture was sublet to both local inhabitants and for cattle and horses coming to the town's markets, one of which was conveniently sited at the east end of the Gowan Hill. The Ordnance Plan of 1806 (Fig 3) shows all of Gowan Hill was used for agriculture. Two acres of steep slopes on the east side of the Castle were *hill pasture* and a sheep fold is shown there in Ewart's plan (Cook 1898). In the centre of the plateau there was five acres of flattish arable land and round this were 23 acres of pasture. It was this management regime which kept at bay the sort of invasion by scrub and woodland that we are currently experiencing.

The Vegetation Changes

Bryce's 1806 plan serves as a convenient starting point to document the changes in the vegetation. Plant records first appear in 1831 with William Hutton Forest's floral lists written for those taking the waters at the Bridge of Allan's Spa. This was followed by a number of other 19th century accounts produced by individuals and field clubs visiting Stirling on excursions as well as by members of Stirling Natural History and Archaeological Society (Sexton, 2019). In addition, high quality photographs initially taken for the *Magic Lantern* trade and then for postcards showing the vegetation started to appear in the 1860s (Figs 1 and 2). Then from the 1920s aerial photographs followed by satellite images allowed the charting of the progress of the scrub and tree invasion.

1. Woodland along the NW slopes.

The Ash and Sycamore dominated base-rich woodlands (Stafford, 1998) which now cover the cliffs above Back O'Hill Road started to develop in the 1870s. The detailed OS maps of the period

show odd trees and patches of scrub. A series of photographs taken of Bridge of Allan from the Back Walk in 1877 have foregrounds covered in short grass sward with a scattering of knee high Gorse bushes but no sign of the trees that would obscure the views today. Later photos of the Castle taken from the Raploch between 1877 and 1908 show that pioneer woodland and scrub had spread along the cliffs which had become completely wooded by 1929. Ash is the most common tree today and there are a number big enough to be 80 years old. Sycamore is also frequent and Chisholm points out that the rapid colonisers were all trees with wind dispersed seeds. Much slower progress has been made by Oak, Beech and Hazel which are dispersed by animals. Elm which is also wind dispersed used to be present but the older trees were killed by the Dutch Elm disease in the 1980s. They were replanted in 1991 with Oak , Ash, Rowan, Beech and Gean (SCMP, 2006).

Unlike the Back Walk woodlands on the south side of the Castle there are no exotic trees. The woodland understory is made up of Elder, Hawthorn, Blackthorn, Holly and Honeysuckle. The ground flora has large areas dominated by Ivy and Dogs Mercury together with Greater Woodrush, Herb Bennet and the Willowherbs. It is noticeable that the herb layer lacks the medical herbs like Tuberous Comfrey and attractive flowers like Green Alkanet which are dominant in areas of the Back Walk Woods on the south side of the Castle (Sexton, 2019).

Pox Woods on the north facing cliffs below King's Park Golf course share similar geology and aspect to those along Back O' Hill Road (Sexton 2014). They are floristically much richer with considerable numbers of Ancient Scottish Woodland Indicator Species (ASWIS)(Crawford, 2009) including drifts of Bluebells and Wild Garlic, together with Wood Anemones, Wood Sorrel, Primroses, Bird Cherry, Sweet Woodruff, Golden Saxifrage etc. Most of these are absent or rare in the Back O'Hill Woods though Dogs Mercury, Enchanter's Nightshade and Greater Woodrush are all ASWIS which are found there. Recent plantings of Bluebells, Primroses and Guelder Rose have been made as part of the modern Management Plans (SCMP, 2006, 2016).

Bryce's plan (Fig 3) shows that the area at the bottom of the cliffs was once a bog with the Bridge Mill Lade running through it. We were surprised to find Ragged Robin a wet meadow relic still growing there. The columnar dolerite cliffs along the south side of the Back Walk between Balengeich Road and Mote Hill were largely bare in 1907. Even in the 1950s there are photographs of people walking down the Back Walk with the Wallace Monument

still visible in the background. Since then the growth of Ash and Sycamore trees on both sides of the track have obscured this view. Dog Violets now line the path sides as well as Daisies and the inevitable municipal plantings of Daffodils.

One of the botanical jewels of the Castle Rock is the Aquilegia or Columbine colony in one of the Ash filled gullies to the south of the Back Walk (NS7906 9434) (see Plate1). In May 2019 we counted over 700 flower spikes making the valley almost as blue as if it were populated by Bluebells. Although a native plant Aquilegia is generally considered to be a garden escape but this colony has been growing on this spot for at least 200 years and none of the plans, photographs or LIDAR images show any indication of past habitation close to it. In the adjacent gulley there is an attractive natural colony of Primroses with large numbers of Dog Violets and a few Wood Sorrel plants.

When the original track up the Ballengeich Pass was improved in 1808 the blasting revealed the junction of the igneous and sedimentary rocks near the hairpin (MacCulloch 1814). Just to the east of this is a small sandy rock face where dolerite *exfoliation weathering* has provided a local source of sand but the detached rocks endangered the road and paths beneath. When we started our surveys in 2007 it contained a colony of Viper's Bugloss which was lost when the site was covered in steel safety mesh. The species would have become extinct on the Gowan Hill were it not a component of the wild flower seed mixes spread by a local charity to increase bee friendly plants. The Gorse which now covers these cliffs makes a spectacular show in spring.

2. The Central Plateau.

The arable enclosure occupying the centre of the plateau in 1806 (Fig 3) was probably converted to pasture soon after Bryce's Plan was finished. The early botanical records in the 1830s contain no evidence of arable weeds like Poppies, Corn Marigolds, Cornflowers, etc. which might have been expected if the area were still in cultivation. These species do occur in the appended species list because they too have been sown at the top of Upper Castlehill in wildflower mixes. Until 2011 there was a large colony of a purple stemmed fodder Cabbage (*Brassica oleracea*) mixed with an early Rape cultivar (*Brassica napus*) at the side of the Ballengeich Road, probably a relic of past cultivation. They might have originated from the series of yards shown in Bryce's plan (Fig 3) along the southern end of Ballengiech Road. In 2020 six Rape plants reappeared in the road gulley on the opposite side to the

original colony. These early Brassica cultvars have been noted by many of the visiting botanists right back to Forest in 1831.

In the photographs from the 1860s the plateau appears to have been principally covered in a mosaic of short sward and coarse Whin-dominated grassland (Fig 1). There was an illegal trade in turf cut from the hillside. Athough most of the short sward has disappeared under scrub and pioneer woodland a 0.5 ha area centred on NS 7916 9429 has survived (See Plate 3). At first glance the area appears to have been close-mown but it is currently maintained by rabbit grazing and human footfall. In the latest management plans there is provision for mowing if the rabbits fail (SCMP, 2016). Short grassland dominated by Sweet Vernal and Annual Meadow grasses as well as Fescues also survive along the sides of some of the paths maintained by annual strimming (SCMP, 2006). There are a few flowering plants growing amongst the very fine grasses and Wood Sage, Heath Bedstraw and Ragwort seem to tolerate the rabbits. In the slightly longer grass that has escaped intensive grazing Tormentil, White Deadnettle, Stinging Nettle, Bird's-foot Trefoil, Native Bluebells, Buttercups, Speedwells, Bedstraws and Dog Violets are present.

Accounts widely assume that until WW2 the grass on Gowan Hill was kept short by grazing animals. This land formed part of the lease associated with King's Park Farm, the tenancy of which was held for a century until 1945 by the Dewar Family. Grazing may have been sublet but it never appeared in the Stirling Observer's *Lists of Grass Parks for Let* unlike the King's Knot and The Haining. Although we have not found any major farms immediately adjacent to Gowan Hill during the latter half of the 19th century there are some indicators of grazing. For instance manure was for sale, there was a very extensive dairy situated at Crofthill at the SE end of lower Castle Hill (OS, 1858) and there were an number of dairymen and a haybaler living in streets on the SE side of the hill.

From 1841-1911 there was a Gowan Hill Dairy at 43, Lower Bridge Street that might well have grazed a small herd on the hill behind. Recent management plans mention that sheep grazing was used in the past (SCMP, 2016) however there are several features that seem at odds with the use of extensive grazing in the 20th century. Firstly there is no sign of the relic hedging, fencing or dykes which would have been necessary to keep animals away from the precipitous cliffs surrounding the plateau. Secondly our lists do not include the plants like Yellow Rattle and Zig Zag Clover that are characteristic of old pastures. Thirdly I have not found a

single 20th century photograph of Gowan Hill with stock on it.

In view of the fact that rabbits and footfall are primarily responsible for maintaining the current areas of short grass it seems probable they played an even more important role in the past. Certainly rabbits were much more numerous before the introduction of Myxomatosis virus in 1954 (Bartrip, 2009) and there are accounts of the damage they caused in Ballengeich Cemetery. One elderly local recalled a neighbour in the 1970s who was employed to carry out scything on Gowan Hill but we don't know the extent of this activity. There is also a lot of evidence that greater recreational use was made of the Hill in the past. There are many accounts of children from the surrounding areas using the 'Gownie' as their playground and it is quite rare to see children playing there today. Stirling Observer articles also endorse this, for instance a thousand people attended one of the YMCA's summer open air meetings on the east side during WW1 and it was also used by the Home Guard in WW2. Cellebratory fires were traditionally held there and a Sunday gambling school involving 50 men was recorded in 1907.

There have always been extensive areas of coarser grasses on Gowan Hill (Cocksfoot, False Oat, Common Bent, Yorkshire Fog, Timothy, Meadow Foxtails etc.) interrupted by drifts of Gorse or Whin. This tall neutral grassland shelters a number of wild flowers like Harebells, Ragwort, Thistles, Tormentil, Yarrow, Knapweed, Hogweed, Plantains, Buttercups, Clovers, Dog Rose, Nettles, Creeping Thistle, Foxgloves, Spear Thistle, White Dead-nettle, Cleavers, Ground Elder, Pignut, Docks, Willow Herbs , Forgetmenots, Speedwells, Bedstraws, Tansy, etc. Most of these taller grasslands have been over-run by Rosebay Willow herb but there is quite a large area conserved in Ballengeich cemetery. The Gorse never seems as tall in pre WW2 photographs as it does today (up to 3m) and I have been told by elderly locals that it was originally kept in check through controlled burning by the army. Council reports mention that between WW2 and the 1990s uncontrolled fires were also important elements in suppressing the vegetation. Gorse control features in all the recent Stirling Council Management Plans and some flailing took place in 2003 (SCMP, 2016) but its impact is no longer visible. Recently the edges of the main footpaths have been strimmed in summer which has helped with scrub control but of course kills off many of the wild flowers. An aerial photograph taken in 1945 showed that the combined grasslands occupied approximately 6.6 ha, which has been reduced by the invasive spread of scrub and pioneer woodland to 1.8 ha in 2004 and 0.6 ha in 2017.

One concern voiced by Chisholm (1931) was the impact of the town's polluted atmosphere on Gowan Hill. Smoke created by steam trains, industry and domestic coal fires became trapped between Gowan Hill and the town. A pall of smoke obscured the area in a number of pre-WW2 postcards. Chisholm thought the spread of Blaeberry (Bilberry) into the plateau was the result of atmospherically generated acidification. The impact of the Clean Air Acts of 1956 and 1968 probably explains why we have been unable to find Blaeberry during our survey.

It seems amazing that Rosebay Willowherb (RBWH) the five foot high purple flowering plant which our survey shows currently dominates 40% of the area of Gowan Hill (See Plate 5) was not mentioned in Chisholm's account of its flora in 1931 (See Plates 4 and 5). It is visible in a 1973 photograph and later SWT's 1998 Habitat Survey (Stafford, 1998) refers to *Large Stands of Rosebay Willowherb* on the south side of the plateau. Gerard's Herbal of 1597 records that RBWH was originally a rare native plant of woodlands in Northern England. It then became more common as a garden plant than in the wild. The current Botanical Society of Britian and Ireland's floral map shows that over the last 50 years it has spread to virtually every recording square in the British Isles, railway line embankments providing great invasion corridors. This expansion was initiated at the end of WW1 when the plant spread into recently felled woodlands.

However it really took off in the Blitz when 'Bomb-Weed' spread like a purple carpet over the cratered streets of London. In North America it is called 'Fire Weed' because it quickly colonises areas of burnt forest. Originally it was thought that the RBWH invasion was caused by the introduction of an aggressive North American strain but there is no modern DNA evidence for this (Mabey, 2010). Although it is very attractive when in flower (See Plate 4) it is an extremely effective invader and little survives where it has taken hold. In the late summer clouds of its plumed seeds blow from Gowan Hill like snow flurries spreading the plant all over Stirling. The latest Gowan Hill management plan (SCMP, 2016) suggests cutting and lifting Brambles and Willowherb *to promote grasses and create clear lines of sight*.

In his 1931 account Chisholm writes '*Roses, Brambles, Blackthorn and Rasps … those greedy and thorny land grabbers with Whin as an accomplice are speedily changing the face of the open grassland and making way* for *the establishing of Hawthorn, Elder, Sycamore and Ash*' (Chisholm, 1931). The spread of large shrubs started to appear on aerial photographs of Gowan Hill in the 1950s when two small

bushes are visible under the Castle Walls and a few on Mote Hill. At this point in time when Gowan Hill was essentialy free of trees and bushes the similar slopes on the south side of the Castle were already covered (See Plate 1). By 1960 bushes were starting to colonise Mote Hill and the gulley just to the west of it. At this stage there were only 4 bushes on the central plateau. A decade later in 1973 (See Plate 1) the invasion was gathering momentum and there was now a line of bushes and gorse along the steep slope between the Castle wall and Ballengeich Road with about 20 bushes and young trees along the central gulley across the plateau. The first Ash and Sycamore trees appear to have spread from the woodland along the north edge of the plateau. During the early 1970s the University Conservation Volunteers also carried out some tree planting though the records have been lost. This was probably in response to the national tree planting campaign *Plant a Tree in 73* followed by *Plant Some More in 74*.

During the period from the 70s to the 90s pioneer woodlands of Ash, Sycamore, Birch and Elder started to become established so that by the turn of the millennium there were about 80 trees with maturing canopies and several hundred large mature bushes generally spread across the plateau. During the 1990s public consultations revealed increasing concern about the spread of tree and scrub cover which was interfering with both views and access. A Nature Conservation Strategy for Stirling's Urban Areas drawn up by the Council in 1990 suggested management intervention on Gowan Hill was necessary to prevent the development of woodland cover (SCMP, 2006). In 2005 the Council successfully applied for a Forestry Commission *Woodlands in and Around Towns* grant which for the first time provided some resourcing of woodland management.

On Gowan Hill between 2006-2016 the plan was i) to control natural regeneration ii) to carry out a pilot scheme of limited tree planting (40 trees) and iii) to carry out controlled gorse clearance on some slopes (D. Balsillie personal com.). Today, although the rate of spread of trees may have been curtailed, it still continues with hundreds of maturing trees and many more saplings following on behind. A count of 200 Ash trees revealed that 53% currently have serious Ash Die-back infections and this will ultimately help reduce woodland spread.

On the Gowan Hill plateau area there are several old Apple trees - relics of past plantings. Many childhood reminiscences refer to picking apples, wild raspberries and blackberries on the

'Gownie'. Recently a community orchard has been planted with old cultivars of Apples, Pears, Damsons, Cherries and Greengages. Amongst these is an old favorite cooking apple called *Stirling Castle*.

Figure 4. Stirling Castle - an old favourite cooking apple raised in the 1820s by John Christie a nurseryman in Causewayhead and introduced by Messrs Drummond of Stirling in 1831.

3. Walls and Cemeteries

Gowan Hill is partly surrounded by ancient walls which come with their own specialist flora. Pellitory of the Wall is a member of the Nettle family which grows in the mortar (See Plate 3). It is found on the walls round Ballengeich Cemetery and on the Park Wall in Crofthead Road. Wallflowers are declining on the east side of the Castle (See Plate 2). This year there were only 8 flowering plants on the walls and their supporting rocks where there were 24 twelve years ago. Those that are left are being over-run by Brambles, Ivy, Sycamore, Ash and Elder. The updated Council Management Plan (SCMP, 2016) proposes to improve the *unkempt appearance* of the bank between the Castle and Ballengeich road *by cutting and*

treating the young trees below the Castle Wall. This will hopefully save not only the Wallflowers but also the Giant Bellflowers which have failed to flower there since 2016. The Ash in this strip of bank is seriously infected with Ash Die-back and will probably have to be removed anyway.

One of the two Rock Stonecrops is found on the old walls near the Lower Castlehill entrance of Ballengeich Cemetery. We identified it as *Sedum forsterianum* but in the past there was a debate as to whether it was the similar *Sedum rupestre* (Stirling and Kidston, 1895). In June the walls all round the Castle are lit up by the yellow flowers of Hawkweed , the pink tufts of Fairy Foxglove and Ivy-leaved Toadflax one of our longest established alien UK species (1617).

Ballengiech and the four other contiguous cemeteries round the Church of the Holy Rude contain many floral relics of their uncultivated past. For instance Dovesfoot Cranesbill which is on Forest's 1831 list is found there. There is also a nice patch of neutral grassland on the bank just inside the entrance of the Ballengeich Cemetery. The Holy Rude Cemeteries add a number of species to the reference list because it is the only place on the entire Castle Rock where there is a pond with its accompanying aquatic flora of Marsh Marigolds, Yellow Iris, Brooklime, Purple Loosestrife and Monkey Musk etc. This area of the Cemeteries used to be known as William Drummond's Pleasure Ground but is now commonly called Pithy Mary's. Drummond was a nurseryman and evangelist and the area was laid out by him in 1862-3. The Ladies' Rock has a number of rare plants which were dealt with in Part 1 of this account.

Overview

This is the third article in a trilogy of Scottish Wildlife Trust vegetation surveys covering the contiguous areas of Gowan Hill, The Castle Rock and the King's Park all parts of the original King's Lands. We are very fortunate to have the floral accounts, detailed plans and early photographs which have allowed us to document the changes that have taken place over the last 300 years. One feature that has been consistently picked out is how many of the *interesting* plants first recorded two centuries ago are still surviving conserved within their historic surroundings. This spring a single plant of Yellow Figwort grew amongst the scaffolding round Cowane's Hospital which was only the second time this species has been recorded since 1831. We were also sent a

picture of a clump of Wood Sorrel growing at the base of Mote Hill where Forest recorded the species *immediately below Hurly Hawkie* in 1831.

Table 1 Some of the original plants which have been lost from King's Park (Sexton 2014), Castle Rock (Sexton , 2019) and Gowan Hill (Sexton, 2020)

Agrimony	Early Purple Orchid	Masterwort	Vipers Bugloss
Alexanders	Field Gentian	Meadow Saxi-frage	Rest Harrow
Bloody Cranesbill	Field Madder	Milk Thistle	White Mullein
Catmint	Wild Mignon-ette	Mountain Pansy	Wild Antirrhi-num
Deadly Nightshade	Henbane	Field Bind-weed	Yellow Star of Bethlehem

Perhaps what has not been stressed enough is how many beautiful plants (Table 1) have been found to have disappeared by this current survey. For instance, Wallflowers which are as much a part of castle walls as the battlements, may soon become extinct on the east side of the Castle (See Plate 2). Unfortunately, Chisholm's 1931 account did not include a full list of species which would allow us to assess the real extent of the damage. We were better placed to make such judgements in the first article about King's Park Flora because local High School Headmaster Alexander Moyes listed all 225 species he found in 1908. By 2014 we recorded 247 species in the same area superficially indicating that the floral biodiversity was doing rather well. However only 144 species on the original list actually remained in 2014 and the 81 that were lost were all native wild flowers. Half of the 103 new species were non-native plants which had escaped from neighbouring gardens or, like daffodils, had been planted to offset the loss of the native flora.

Grassland is part of the natural ecological succession which progresses to scrub and then to woodland. Unfortunately if we want to retain the grasslands surrounding Stirling Castle for landscape, recreational or biodiversity reasons it has to be actively managed. During the 20th Century Gowan Hill was administered by agencies of the Crown Estate with the exception of Balangeich Cemetery which has been owned by Stirling Council since 1886.

From the 1970s until 2013 the Crown Land seems to have been collaboratively managed by the Council under a series of agreements with the Crown Estate Commissioners the last of which was a 25 year lease from 1996 -2021. The Council had a Woodland Management Plan drawn up in 2006 and revised in 2016 (SCMP, 2006 and 2016). A *Woodlands In and Around Towns* grant from the Forestry Commission (2005) provided the resources to partially manage the trees with the side benefit of path improvement. Some public realm monies were also made available from 2014-16.

In piecing together the floral history of both the lands immediately around the Castle (Sexton, 2019) and the adjacent King's Parks Site (Sexton, 2014) one cannot help but be struck by the lack of a coherent long term management plan for such a nationally important asset. Groups representing access rights, historical conservation, recreation, tourism events, local communities, biodiversity, etc. can all too easily find their plans in unneccessary conflict unless attempts are made to understand and integrate them. Such collaboration will have been facilitated when on 15th August 2013 the Secretary of State for Scotland transferred the King's Park, Stirling from the Crown Estate to the Scottish Ministers and from them to Stirling Council. Under this agreement Stirling Council will hold the lease for 150 years. We hope that when the next vegetation reviews are written in a century's time the positive impact of this change in administration will be evident.

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Appendix: List of the plant species recorded during the surveys of Stirling Castle Rocks. Part 1: The slopes and fields around the Castle and Part 2: Gowan Hill; as described in volumes 42 and 43 of the Forth Naturalist and Historian Journal. The plant names are those used by Blamey, Fitter and Fitter (2003) *Wild Flowers of Britain and Ireland,* A and C Black, London.

American Willowherb	Blackberry	Cat's-ear
Annual Meadow-grass	Blackthorn	Changing Forget-me-not
Aquilegia	Bluebell hybrid	Charlock
Ash	Bluebell native	Cherry Laurel
Autumn Hawksbit	Bog Stitchwort	Chickweed Common
Barren Brome	Bracken	Cleavers
Barren Strawberry	Broad Buckler-fern	Cock's-foot grass
Beech	Broad-leaved Dock	Coltsfoot
Beech fern	Broad-leaved Willowherb	Comfrey Common
Bird cherry	Brooklime	Common Bent
Birds-foot-trefoil	Broom	Common Blue-sow-thistle
Bistort	Buddleja	Common Couch
Biting Stonecrop	Bulbous Buttercup	Common Dog violet
Bittersweet	Bush Vetch	Common Duckweed
Black Medick	Canadian Goldenrod	Common Field-speedwell

Common Figwort
Common Knapweed
Common Mallow
Common Mouse-ear
Common Spotted-orchid
Common Whitlow Grass
Corn Marigold
Cornflower
Creeping Buttercup
Creeping Cinquefoil
Creeping Soft-grass
Creeping Thistle
Creeping Yellow-cress
Crested Dog's Tail
Crosswort
Cuckooflower
Curled Dock
Cut-leaved Cranesbill
Daffodil (horticultural)
Daisy
Dames Violet
Dandelion
Dog Rose
Dog's Mercury
Dovesfoot Cranesbill
Downy Birch
Elder
Enchanter's Nightshade
Eyebright
Fairy Foxglove
False Oat-grass
Fat Hen
Feverfew
Field Forget-me-not
Field Horsetail
Field Maple
Field Scabious
Field Wood-rush
Fox-and-cubs
Foxglove
Fringe Cups
Fuchsia
Garden Lady's mantle
Garden Solomon's Seal
Garlic Mustard
Germander Speedwell
Giant Bellflower
Giant Hogweed
Goat Willow
Goatsbeard
Golden Saxifrage
Golden-scaled Male Fern
Gooseberry
Gorse
Great Willowherb
Great Wood-rush
Greater Birdsfoot Trefoil
Greater Periwinkle
Greater Plantain
Greater Stitchwort
Green Alkanet
Ground Elder
Ground Ivy
Groundsel
Guelder-rose
Hairless Lady's Mantle
Hairy Bittercress
Hairy Tare
Harebell
Haresfoot clover
Hart'stongue
Hawthorn
Hazel
Heath Bedstraw
Heath Speeedwell

Heath Wood-rush
Hedge Bindweed
Hedge Mustard
Hedge Woundwort
Hemlock
Herb Bennet
Herb Robert
Himalayan Balsam
Himalayan Cotoneaster
Hogweed
Holly
Honesty
Honeysuckle
Horse Chestnut
Ivy
Ivy-leaved Speedwell
Ivy-leaved Toadflax
Japanese Knotweed
Jointed Rush
Juniper
Knotgrass
Lady Fern
Lady's Bedstraw
Lambs'-ear
Lesser Burdock
Lesser Celandine
Lesser Periwinkle
Lesser Stitchwort
Lesser Trefoil
Lilac
Lily of the Valley
Lords and Ladies
Maidenhair Spleenwort
Male Fern
Marsh Cudweed
Marsh Marigold
Meadow Buttercup
Meadow Cranesbill
Meadow Foxtail
Meadow Vetchling
Meadowsweet
Monkeyflower
Mouse-ear Hawkeed
Mullein Great
Nipplewort
Norway Maple
Oil-seed Rape
Oregon Grape
Ox-eye Daisy
Parsley Piert
Pedunculate Oak
Pellitory of the Wall
Pendulous Sedge
Perennial Ryegrass
Perforate St John's Wort
Petty Spurge
Pick-a-back Plant
Pignut
Pineappleweed
Polypody
Poppy
Primrose
Procumbent Pearlwort
Purple Toadflax
Ragged Robin
Ragwort Common
Ramsoms
Raspberry
Red Campion
Red Clover
Red Currant
Red Dead-nettle
Red Fescue
Red Valerian
Redleg

Reed Canary-grass
Ribwort Plantain
Rock Cotoneaster
Rock Stonecrop
Rosebay Willowherb
Rough Chervil
Rough Meadow-grass
Rough Sow-thistle
Rowan
Russian Comfrey
Scentless Mayweed
Scots Pine
Self-heal
Sharp-leaved Mint
Sheeps Sorrel
Shepherd's Purse
Shining Crane's-bill
Short-fruited Willowherb
Silver Birch
Silverweed
Slender Speedwell
Small-leaved Lime
Smooth Meadow-grass
Smooth Sow-thistle
Sneezewort
Snowberry
Snowdrop
Snow-in-summer
Soft Brome
Soft Rush
Soft Shield Fern
Sorrel Common
Spanish Bluebell
Spear Thistle
Spotted Hawkweed
Star-of-Bethlehem
Sticky Groundsel
Sticky Mousear
Stinging Nettle
Sweet Cicely
Sweet Vernal Grass
Sweet violet
Sycamore
Tansy
Teasel Wild
Thale Cress
Three-nerved sandwort
Thyme-leaved Speedwell
Timothy Grass
Tormentil
Tuberous Comfrey
Tufted Vetch
Vetch Common
Viper's Bugloss
Wall Cotoneaster
Wall Lettuce
Wall Speedwell
Wallflower
Wall-rue
Walnut
Wavy Bittercress
Wavy Hair-grass
Weld
Welsh Poppy
Welted Thistle
Western Polypody
White Campion
White Clover
White Dead-nettle
White stonecrop
Wild Carrot
Wild Privet
Wild Stawberry
Wild Thyme
Wilson's Honeysuckle

Winter Aconite	Wood-sorrel	Yellow Figwort
Wood Burdock	Wych Elm	Yellow Iris
Wood Dock	Yarrow	Yellow Rattle
Wood Horsetail	Yellow Archangel	Yew
Wood Sage	Yellow Corydalis	Yorkshire Fog Grass

UPPER FORTH BIRD REPORT 2019

N. Bielby

This is the 46th bird report for the Upper Forth SOC (Scottish Ornithologists Club) recording area. The area covered by the report comprises the council areas of Falkirk, Clackmannanshire and Stirling but excludes parts of the Clyde drainage basin such as Loch Lomondside and the Endrick Water area (including Fintry and Balfron) all of which are covered by the Clyde bird report. The total area covered is c.222,554 ha. The report consists of a summary of the main bird news from 2019 followed by detailed species accounts.

Chris Pendlebury, the local SOC recorder, can be contacted by e-mail at chris@upperforthbirds.co.uk; by leaving a message on 07798 711134 or by mail to 23 Ochlochy Park, Dunblane FK15 0DU. Records can be provided through the BTO BirdTrack system (49,791 records were entered into Birdtrack by 202 users for our area in 2019) or by an Excel spreadsheet that can be sourced from Chris. Details of what type of records are required for each species along with advice on writing descriptions and submitting records can be obtained from Chris or the deputy recorder, Neil Bielby at n64b68@gmail.com or by phoning 01786 823830 (please note that records of rare / scarce species entered **only into BirdGuides** cannot be used in this report due to the inability to verify them).

Scarcer and rare species for which a full list of records are provided are highlighted with the use of an asterisk (*). Records of rare species are subject to acceptance by the BBRC, SBRC or the local rarities panel. The latter currently consists of Graeme Garner, Mark Lewis, Duncan Orr-Ewing, Chris Pendlebury and Andre Thiel. A list of local rarities is available from Chris Pendlebury.

Much information and records - especially counts, rates and comparisons - come from the Wetland Bird Survey (WeBS) and Breeding Bird Survey (BBS) surveys carried out on behalf of the British Trust for Ornithology (BTO). In 2019 a total of 78 randomly selected km squares were surveyed for the BBS which, along with four Waterways BBS (WBBS) sites, resulted in 284.4 linear km's be-

ing perambulated. A total of 13,489 birds were recorded from 107 species by 43 surveyors with the coverage in each broad habitat type in the Upper Forth area being quite close to that of the actual.

The monthly 'core' WeBS counts (Jan – Mar and Sep - Dec) are split into estuary and inland with the former being co-ordinated by M.V. Bell. The estuary counts, which are downstream from Cambus, are split into five sectors in the Upper Forth area in which 87,170 wildfowl (excl. geese) and waders were counted in the 7 months (Jan-Mar & Sep-Dec) by six volunteers. Inland, 123 still sites and 156.1 km's of rivers and canals were counted by 56 volunteers who carried out 627 counts on still sites and perambulated 782.9 km of river and canal producing 43,076 wildfowl (excl. geese and waders) in the same 7 months.

Note: a detailed weather report for 2019 can be found elsewhere in this journal.

HIGHLIGHTS OF THE YEAR

January

The year started well with a single Waxwing near L. Venachar (1st). C.150 Brambling were in a large finch flock between Dunblane & Doune (6th) while a smaller race Canada Goose was at Slamannan (14th). A male Mandarin Duck on the W. Pond, Aberdona was unexpected (11th) as was a Little Egret on the Alva Pools (30th). 41 Bean Geese were near Slamannan when a flock of c.80 Twite were at Higgin's Neuk (20th). On the 26th, a Greenland White-fronted Goose was in the Powfoulis area, a female Common Scoter was on the Lake of Menteith and a Rock Pipit was on Skinflats saltmarsh. There were 26 Whooper Swans on L. Dochart (27th) while 10 Eiders were on the estuary off Bo'ness (30th).

February

A Greenland White-fronted Goose was near S. Alloa (2nd) with a first winter Glaucous Gull at the Lake of Menteith (15th). There were single Waxwings at B & Q, Falkirk (10th), Causewayhead (12th) and Wallacestone Primary School (13th) while c.10 were in a Causewayhead garden (20th). In the Skinflats area, a Hooded Crow was present (15th), a Common Crossbill (17th) with a Short-eared Owl in the vicinity of the pools (22nd & 25th). The long staying Common

Scoter was still on the Lake of Menteith (15th) while a Shelduck was on Pendreich Pool, Br. of Allan the following day.

March

A 2nd winter Mediterranean Gull was at Blackness (1st). Five Scaup were on the estuary at Kinneil when four Ringed Plovers were at Cambusmore / Gart GP (3rd). Merlins were at Brackenlees (10th) and Flanders Moss carpark (23rd). A Whimbrel was near Higgin's Neuk (11th). 19 Whooper Swans were on L. Earn (27th) while three Barnacle Geese were with Pink-footed Geese at Skinflats the next day.

Year firsts were: a Sand Martin at Skinflats Pools and a Chiffchaff singing at Powfoulis (22nd); a Common Sandpiper on the R. Forth below Gargunnock (26th) and an Osprey flying over Carron Valley Resr. (29th).

April

The highlights were: a Blue-headed Wagtail at Skinflats Pools (18th) with a Garganey there (20th - 21st). A White-tailed Sea Eagle was over the R. Forth at Cambus (21st) while a Dotterel was heard overhead in G. Finglas (22nd) with another on Ben Cleuch, Ochils (23rd). A Wood Sandpiper was at the head of L. Tay (26th).

Other records included: a Merlin on Sheriff Muir (1st). A Hooded Crow at Skinflats Pools (4th – 8th). Three Ospreys at Carron Valley Resr. (6th). C.12 Common Crossbills in Chacefield Wood, Denny (10th). A Gadwall, seven Shovelers and a White Wagtail at Skinflats Pools (11th) with nine Shovelers, five Pintails, two Short-eared Owls and 30+ White Wagtails there (18th). Five Guillemots on the R. Forth at Cambus with nine on the R. Forth in Stirling when a Jack Snipe was flushed on Flanders Moss (17th). Five Shovelers, a Whimbrel, two Guillemots and three Wheatears at Longcarse (19th). A Short-eared Owl on Kippen Moor (18th) and two late Barnacle Geese at Higgin's Neuk (29th).

Year firsts**:** Swallow, Higgin's Neuk (2nd), Wheatears, Longcarse (2nd), House Martin, Kinbuck (6th), Willow Warbler, Skinflats Pools (11th), Whitethroat, Skinflats Pools (18th), Grasshopper Warbler, Skinflats Pools (19th), two Cuckoos, Carron Valley (27th), Whinchat, Balquharn Glen (29th) and a Redstart, Douchlage (NS 5392, 30th).

May

A Spoonbill at Skinflats Pools (8th), a ♂ Garganey on the north pool at Skinflats and a Little Ringed Plover at the head of L. Tay (15th) were the standout birds of the month.

Two Turnstones were well up the estuary at Powfoulis (12th). Three Ptarmigan and two Ring Ouzels were on Meall Ghaordaidh, G. Lochay (14th). Single Whimbrels were at Kinneil and Skinflats Pools (17th) with another at the head of L. Tay when a Hooded Crow was very unusual in Br. of Allan (18th). A Mandarin was on the R. Devon at Dollar (21st).

Year firsts**:** two Swifts, Dunblane, two Tree Pipits, two Garden Warblers and a Wood Warbler Blackwater Marshes and a Ring Ouzel above Botaurnie in G. Lochay (all 2nd).

June

The highlights were a Baikal Teal on the north Skinflats Pool which will be a 1st for the Upper Forth if accepted by the BBRC (2nd) and a Hobby over Callander (3rd).

Other notable records included two Arctic Terns at Kinneil (20th) with 34 Gadwall on the north pool at Skinflats (21st). There were two singing Quails on Sheriff Muir (22nd). A Sandwich Tern at the head of L. Tay was the 1st record here in 25 years of observations (25th) and a Mediterranean Gull was on the south pool at Skinflats (27th).

July

Single Mediterranean Gulls were at Kinneil (12th) and Skinflats Pools (20th). A Goshawk was over Drip Moss (7th). At Kinneil there was a Common Scoter (12th), three Arctic Terns (22nd) and a juv. Spotted Redshank (31st). Three Black-throated Divers were on L. Ard (28th). Two Grey Plovers, two Green Sandpipers and a juv. Wood Sandpiper were at Powfoulis tidal breach (31st) while 1-2 Marsh Harriers were recorded in the Alloa / Tullibody Inch area throughout the month.

August

A Turtle Dove heard in the vicinity of Skinflats Pools was only the 5th record for the Upper Forth (4th). Also at the Pools were two

Curlew Sandpipers and two Wood Sandpipers (2nd), three Mediterranean Gulls (3rd), a Spotted Redshank (2nd – 5th), up to two Marsh Harriers (2nd – 6th), a juv. Cuckoo (4th), two Ruff, a Spotted Redshank and four Whimbrel (5th) and a Mediterranean Gull (13th). Powfoulis tidal breach provided two Green Sandpipers (1st), two Wood Sandpipers (2nd), a Marsh Harrier (6th), a Grey Plover (12th) and two Whimbrel (23rd). In Clackmannanshire, up to five Little Ringed Plovers were in the Longcarse area (1st - 12th) where a maximum of five Marsh Harriers and two Bearded Tits were recorded during the month. Three Ruddy Shelduck were on the mud at Cambus (7th) with a Little Gull at Blackness (13th). Three Great Skuas flew up the Forth at Kinneil (23rd). A juv. Black Tern was at Carron Valley Resr. when three Black-throated Divers were seen on L. Tay at Killin (24th).

September

Highlight: a White-rumped Sandpiper at Skinflats Pools was the first record for the Upper Forth area (29th & 30th).

A Green Sandpiper was at the Allan Water, Kinbuck when a Guillemot was at the head of L. Tay (7th). At Blackness, a Curlew Sandpiper was seen by the castle (6th, 11th & 12th) with a Ruddy Shelduck present (11th – 15th). A Green Sandpiper and 195 Sandwich Terns were by the estuary at Powfoulis (8th) with 25 Common Scoters on the estuary at Kinneil the following day. A Little Stint was observed at Skinflats Pools (14th) while two Black Terns were at Blackness and a Scaup was on Gartmorn Dam the day after. A Manx Shearwater (only the 18th record for the Upper Forth) and two Little Stints were on the Forth Estuary off Skinflats when two juv. Gannets flew west over Bonnybridge (17th). A further six Gannets were observed flying west over Larbert (21st). A Spoonbill and a Marsh Harrier were reported from Skinflats Pools (24th) with two Little Stints, a Curlew Sandpiper, a Ruff and a Lesser Whitethroat there (28th).

October

Highlights: A Cattle Egret at Bolfornought Farm, Stirling is the first record for the Upper Forth area (10th – 16th). There were Yellow-browed Warblers at Larbert House (12th) then from Kinneil and

Kinbuck when a Black Redstart was reported from Stirling (13th). A Great Grey Shrike was at L. Mahaick (25th – 27th) while a Hawfinch was on Holme Hill, Dunblane (27th). A Great White Egret at Kildean, Stirling is only the 5th record for the Upper Forth reporting area (30th).

Two adult Mediterranean Gulls were at the Powfoulis tidal breach when two Barnacle Geese were near Airth (5th). There were 82 Bean Geese at Jawcraig, Slamannan when seven Common Scoters and a Mediterranean Gull were at Blackness (7th). A blue phase Snow Goose was near Airth when a Scaup was on Little Denny Resr. (11th). There were six Barnacle and one White-fronted Goose at Higgin's Neuk (12th). Five Bearded Tits were in a reedbed by the R. Forth (14th). A Green Woodpecker was calling in Dollar Glen (15th) with four Twite seen there (21st). A Long-tailed Duck was on the estuary at Skinflats (29th). The first Redwings of autumn were reported from Dunblane (8th) while the last Swallow sighting was on Sheriff Muir (11th). A late Sand Martin was in Doune (19th).

November

The Great White Egret remained around Drip Bridge on the R. Forth (1st – 12th) and was then observed flying N over Dunblane (14th). The first Waxwings of the winter were reported on the 8th with one at Bainsford, Falkirk and two at Kinneil. Six further Waxwings were seen in Dunblane with three in Alloa on the 29th.

There were three Jack Snipe and a Merlin at Skinflats Pools (2nd) with 109 Whooper Swans in an adjacent stubble field the following day. A 1st winter Long-tailed Duck was on Gartmorn Dam (6th). A very late Swallow was seen at Cambus (9th) while 126 Whooper Swans and 15 Barnacle Geese were on stubble at Orchardhead, Skinflats with two Red-throated Divers, eight Eiders and seven Guillemots on the estuary there the following day.

December

Waxwings: There were 22 at Stirling Bridge (1st) while five were seen in Callander (4th). In Dunblane, six were by Tescos (3rd) with 15 there the next day. Between nine and 29 were at the junction of the Perth Rd. and Daniel Av. (6th – 9th) with eight near the High School (30th).

C.40 Twite were at Skinflats Pools (6th). A Great White Egret by Lower Sheardale, Dollar was judged to be the Craigforth bird (11th) A Merlin was on Flanders Moss (11th). A male Scaup was on L. Lubnaig (17th). The maximum Bean Goose count at Slamannan was 137 when two Green Sandpipers were by the Allan Water at Kinbuck (20th). A Long-eared Owl was near the Macrae Monument, Sheriff Muir (21st) followed by three Bearded Tits in the Alloa Inch area the next day. A Common Scoter was at Kinneil (28th) with a Mediterranean Gull at Skinflats (31st).

CONTRIBUTORS

This report has been compiled from records submitted by the contributors listed below. Where initials are given, the contributors are listed in species entries of birds that are rare, uncommon or otherwise noteworthy. The editor is grateful to all the contributors for submitting their records without which this report could not be written. Apologies to anyone who has been inadvertently missed out.

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SYSTEMATIC LIST

Codes – F, C and S refer to the Falkirk, Clackmannanshire and Stirling Council Areas respectively. Names and species order: both the common and Latin names, along with the species order, have been in a continuous state of flux over recent years. To maintain some semblance of continuity and in order to make locating a species in the report a little easier, the same order as last year has been retained. As with the species order, there appear to be different sets of common English names by different authorities, but for this report the British Birds 2016 list has been used with the IOC International English names (2012) in brackets.

Spring and autumn arrival and departure dates in this report have not usually been recorded systematically so that changes between years should only be seen as indicative and not interpreted as reflecting true phenological variation.

In this report a coded summary of general distribution is included after the species name. The codes used in this report are:

B Breeding status: widespread (present in more than five 10 km squares).

b Breeding status: local, scarce (present in fewer than five 10 km squares).

W Winter status: widespread or often in groups of more than ten.

w Winter status: local, scarce or usually fewer than ten in a group.

P or p Passage (used for species usually absent in winter). P and p used for widespread and local / scarce, respectively, as in winter status above.

S or s Summer visitor (used for species present in summer but which do not normally breed). S and s used for widespread and local/scarce, respectively, as in winter status above.

Irr Irregular: less than annually.

V Vagrant: does not normally occur.

Abbreviations: ad (adult), aon ('s) (apparently occupied nest (s)), aot (apparently occupied territories), Av (avenue), b (brood), b/lkm (birds per linear km), Br (bridge), BoA (Bridge of Allan), BoD (Braes of Doune), bldgs. (buildings), cy (calendar year), CVP (Cambus Village Pools), CVR (Carron Valley Reservoir), c (clutch), conf (confluence), Cott (cottage), CP (country park), Cres (crescent), Dr (Drive), E (east), Est (estuary / estate), Fm (farm), FL (fledgling), F & C (Forth & Clyde), gdn (garden), G (glen), GP (gravel pit), Hosp (hospital), Ho, (House), Imm (immature), Incl (included), Ind (industrial), juv (juvenile), Kinc. (Kincardine), km (kilometre), L. (loch), max (maximum), m (metres), mig (migration), min (minimum), N (north), nr (near), NE (nest with eggs), NH (new high), occ (occupied), ON (occupied nest), pr (pair), Pl (place), Resr (reservoir), Rd (road), S (south), sp's (species), ssp (sub-species), Sta (station), St (street), UF (Upper Forth), v (very), veg (vegetation), W (west & winter), yr (year), Y (young) & > (flying).

MUTE SWAN *Cygnus olor* (B, W)

Inland WeBS: 400 in Jan, 365 in Feb, 312 in Mar, 258 in Sep, 331 in Oct, 287 in Nov & 245 in Dec. Forth Est. WeBS: 6 in Jan, 6 in Feb, 8 in Mar, 12 in Sep, 12 in Oct, 25 in Nov & 20 in Dec.

F Breeding: pr + 7Y N Pool Skinflats 4 Jul (NB); pr + 1Y Larbert Hosp Ponds 14 Sep (AB); 2Y F & C Canal (Lock 16 – R. Carron) 14 Sep (A&IB); pr + 6Y Callendar Park 15 Sep (DB) & pr + 5Y Kinneil Ho. Pond 15 Sep (DB). Site max: 56 Helix Park Pond 29 Sep & 27 Drumbowie Resr 10 Sep.

C Breeding: pr + 8Y Blackdevon Wetlands 23 Jun; pr + 1Y East Pond, Aberdona 1 Sep; ad + 2Y Delph Pond, Tullibody 1 Sep & broods of 2Y & 3Y Gartmorn Dam 5 Sep (NB). Site max: 96 (incl 13 juv) R. Devon (Tullibody Br. - A907) 29 Jan; 85 Haugh Cott fields 28 Mar (RLG) & 53 Gartmorn Dam 23 Jan.

S Breeding: ON R. Forth, Craigforth 30 Apr; pr + 6Y Cambusmore/Gart GP 7 Jul; pr + 5Y Ochlochy Pond 20 Sep; pr + 2Y Cromlix Lodge Pond 20 Sep & pr + 5Y L. Watston 25 Oct (NB). Pr + 4Y Gartmore Pond 13 Sep (IMM) & 2pr + 11Y Airthrey Loch 16 Sep (EG). Site max: 49 Lake of Menteith 9 Jan.

WHOOPER SWAN *Cygnus cygnus* (W)

Inland WeBS: 28 in Jan, 19 in Feb, 24 in Mar, 0 in Sep, 5 in Oct, 14 in Nov & 19 in Dec.

Forth Est. WeBS: 1 in Jan, 0 in Feb, 24 in Mar, 0 in Sep, 43 in Oct, 131 in Nov & 7 in Dec. Spring departure: last one head of L. Tay 25 May (JPH). Autumn arrival: first one Skinflats Pools 24 Sep (AE & RD).

F Winter/spring site max: 24 Kincardine Br. 22 Mar. Autumn/winter site max: 126 Skinflats Pools 10 Nov; 41 Powfoulis 20 Nov & 26 Higgin's Neuk 25 Oct.

C Winter/spring site max: 8 Gartmorn Dam 11 Apr. Autumn/winter site max: 8 Longcarse 20 Oct.

S Winter/spring site max: 26 L. Dochart 27 Jan & 24 head of L. Tay 24 Mar. Autumn/winter site max: 10 L's. Dochart/Iubhair 12 Nov; 10 Carse of Lecropt 14 Dec & pr + 5 juv L. Mahaick 25 Oct.

BEAN GOOSE *Anser fabalis* (W)

F Regular wintering flock of Taiga race birds in the vicinity of the Slamannan Plateau. Last 22 on 18 Feb (BGAG). First c.30 on 2 Oct (BGAG). Winter/spring max: 241 Oakersdyke 6 Feb (BGAG). Autumn/winter max: c.200 Wester Jaw 8 Oct (BGAG). A bird flew over the Falkirk Wheel 21 Dec (DJ).

PINK-FOOTED GOOSE *Anser brachyrhynchus* (W)
With several birds over-summering it is now difficult to ascertain an accurate last spring departure date but c.20 Longcarse 14 May was probably it (DOE). Autumn arrival: first 32 Skinflats Pools 5 Sep (AB). Forth Est WeBS: 646 in Jan, 428 in Feb, 2,922 in Mar, 65 in Sep, 3,628 in Oct, 3,186 in Nov & 1,729 in Dec. (Virtually all these birds are in fields above the high water mark. Although this species is recorded on inland WeBS counts most flocks spend the day grazing in non-wetland locations making the WeBS counts unrepresentative).
National autumn roost site counts. 20/21 Oct: c.6,700 Letham Moss; c.2,890 Skinflats & 1,460 Alloa Inch gives a total of c.11,050 which is a record total for the Inner Forth. 23/24 Nov: c.3,840 Alloa Inch & c.2,525 Skinflats.

F Winter/spring site max: c.2,400 Skinflats Fields 22 Mar; 1,575 Airth 2 Feb & c.1,500 Skinflats Fields 10 Mar. Autumn/winter site max: c.2,525 Skinflats Fields 24 Nov; c.2,000 Slamannan 1 Nov; c.1,100 Airth 14 Nov; c.1,000 S. Alloa 8 Oct & 842 High Bonnybridge 13 Dec. Summering records: max. 8 Higgin's Neuk 20 May & 2 Powfoulis 14 May.

C Winter/spring site max: c.3,000 Longcarse 27 Feb and 1,409 Blackgrange Rail Crossing 2 Apr. Autumn/winter site max: c.3,480 Longcarse 23 Nov. Summering records: max. 8 Longcarse 27 Jun.

S Winter/spring site max: c.1,300 R. Forth, The Frews 24 Feb; 869 Gartartan Fields 9 Jan & c.320 Strathyre 20 Apr. Autumn/winter site max: c.3,000 L. Watston 25 Oct & 2,707 over Dunblane 1 Oct. Summering records: one Cambusmore / Gart GP 9 Jun.

*WHITE-FRONTED GOOSE (Greater) *Anser albifrons* (w)

F One *ssp flavirostris* Powfoulis (Forth Est.) 26 Jan (DOE); one *ssp flavirostris* S. Alloa 2 Feb (GG); one *ssp flavirostris* Higgin's Neuk 12 Oct & 1 Powfoulis tidal breach 12 Nov (DOE, RS, AD, TC).

C One ssp *albifrons* Longcarse 10 Feb (JRC).

GREYLAG GOOSE *Anser anser* (b, W)
Icelandic birds normally depart in Apr and return in mid Oct but the exact spring departure and autumn arrival dates of these birds are muddied by the presence of an ever increasing number of resident feral birds whose winter population probably matches the Icelandic one now.

Forth Est. WeBS: 65 in Jan, 33 in Feb, 4 in Mar, 1,702 in Sep, 155 in Oct, 2 in Nov & 1 in Dec. (Virtually all these birds are in fields above the high water mark. Although this species is recorded on inland WeBS counts many flocks spend the day grazing in non-wetland locations making the WeBS counts unrepresentative).

F Summer (feral/naturalised birds): c.800 Blackness 11 Sep incl. two leucistic and one partial albino birds (AB) & 583 Skinflats Pools 28 Aug.

C Summer (feral/naturalised birds): 1,692 Alloa Inches 16 Sep; c.550 Longcarse 4 Sep & c.150 Cambus 12 Aug. Autumn/winter site max: c.260 Longcarse 23 Nov.

S Winter/spring site max: 114 Kinbuck 23 Feb. Summer (feral/naturalised birds): 94 Carron Valley 9 Jun. Autumn/winter site max: 863 L. Coulter 7 Dec; c.400 Cauldbarns (Auchenbowie) 24 Oct; 181 L. Watston 25 Oct & 148 Cambusmore/Gart GP 3 Nov.

*SNOW GOOSE *Anser caerulescens* (Irr)

F A blue phase bird was at Higgin's Neuk 11 Oct (ACC).

CANADA GOOSE *Branta canadensis* (B, W)

Numbers continue to steadily increase. Inland WeBS: 534 in Jan, 813 in Feb, 233 in Mar, 656 in Sep, 1,290 in Oct, 1,815 in Nov & 802 in Dec.

Forth Est. WeBS: 10 in Jan, 25 in Feb, 2 in Mar, 206 in Sep, 134 in Oct, 83 in Nov & 81 in Dec.

BBS/WBBS: recorded at 0.2 b/lkm (1997-2019 average: 0.12 b/lkm).

F Site max: 188 Skinflats Pools 1 Sep; 169 St Helen's Loch (Bonnybridge) 8 Nov; 149 Black Loch 8 Nov & 126 Drumbowie Resr. 2 Jan. A bird of the subspecies *interior* (Todd's) was seen by the B825 nr Avonbridge (NS 8972) on 12 Jan (IL) (subject to acceptance by BBRC).

C Site max: c.200 Longcarse 8 Aug & 154 Gartmorn Dam 2 Oct.

S Breeding: Cambusmore/Gart GP: crèche of 22Y + pr's with 3 & 1 chicks 9 Jun (NB). Pr + 4Y head of L. Tay 21 Jun (NB). Site max: 507 Blairdrummond Moss 1 Nov; c.350 R. Forth (Gargunnock) 21 Nov; 208 Gartartan (Aberfoyle) 10 Nov; 207 Carse of Lecropt 14 Sep; 165 Cauldbarns (NS7988) 24 Oct; 160 N. Third Resr. 17 Oct; 187 Blairdrummond Ponds 10 Nov; c.150 L. Venachar 18 Feb & 57 head of L. Tay (13 Oct).

BARNACLE GOOSE *Branta leucopsis* (w)
In our area it can be difficult distinguishing between wild migrants and feral birds resident in Britain but most records of the groups between Feb –Mar & Sep – Nov will be of wild birds on migration between Svalbard & the Inner Solway Firth.

F Winter/spring site max: 3 Skinflats Fields 3 Mar; 2 Powfoulis 26 Jan and 18 Mar & 2 Higgin's Neuk 29 Apr. Autumn/winter site max: 27>SW Bo'ness 1 Oct; 22 Kinneil 24 Sep; c.20 Skinflats Pools 24 Sep; 20 Skinflats Fields 13 Nov; 10 Higgin's Neuk 12 Oct; 8 Kincardine Br. 20 Oct & one Powfoulis 12 Oct. A leucistic bird was with 14 others Skinflats Fields 10 Nov.

*C One Longcarse 20 Oct (JRC).

S One E Flanders Moss 23 Dec. A probable feral bird was with Canada Geese at Balquhidder 22 Oct – 17 Dec.

SHELDUCK (Common) *Tadorna tadorna* (b, W)
Forth Est. WeBS: 474 in Jan, 736 in Feb, 893 in Mar, 3,306 in Sep, 1,391 in Oct, 348 in Nov & 370 in Dec.

F Breeding: broods of 9, 6 & 3 Kinneil 14 Jun (NB). Kinneil monthly highs: 244 in Jan, 346 in Feb, 649 in Mar, 259 in May, 658 in Jun, 701 in Jul, 2,916 in Aug, 2,595 in Sep, 533 in Oct, 229 in Nov & 219 in Dec. Moult flock max counts: 2,916 ad's + 272 juv Kinneil & 2,672 Skinflats 13 Aug (DMB). Other site max: 185 Blackness Bay 15 Oct; c.150 S. Alloa 11 Mar & 12 Almond Castle 6 Jun.

C Breeding - Tullibody Inch: pr + 8 chicks 23 Jul (NB). Site max. 145 Tullibody Inch 27 Apr; 13 Cambus 9 May; 7 Cambus Village Pools 2 Apr; 6 Blackdevon Wetlands 2 Jun; 5 Cambus Pools 25 Apr; 4 Kennet Pans 7 Apr & 3 Gartmorn Dam 27 Apr.

*S One Pendreich Pool (BoA) 16 Feb (NB).

RUDDY SHELDUCK *Tadorna ferruginea* (Irr)
This sp's is listed as Cat B on the Scottish List & is therefore not known to have bred in the wild in Scotland since at least 1949.

*F One Blackness 11 - 13 Sep (RS, ACC, CAM).

*C Three Cambus 7 Aug; 3 Longcarse 8 & 13 Aug (DMB, DOE).

*MANDARIN DUCK *Aix galericulata* (b, w)
It is unknown whether the following records relate to a bird(s) bred in the wild or escapees.

C Male W. Pond, Aberdona was the first record here 11 Jan (NB). ♂ R. Devon, Dollar 11 Apr & 21 May (AS, KB).

WIGEON (Eurasian) *Anas penelope* (s, W)
Inland WeBS: 493 in Jan, 534 in Feb, 193 in Mar, 24 in Sep, 131 in Oct, 504 in Nov & 305 in Dec.
Forth Est. WeBS: 1,922 in Jan, 1,718 in Feb, 959 in Mar, 35 in Sep, 401 in Oct, 620 in Nov & 1,063 in Dec.

F Winter/spring site max: c.250 S. Alloa 26 Jan; 237 Skinflats (WeBS) 11 Feb & c.100 Blackness 13 Jan. Autumn/winter site max: 144 Skinflats (WeBS) 14 Dec.

C Winter/spring site max: 1,409 R. Forth (Cambus – Alloa) 20 Jan & 130 Alva Wetlands 16 Feb. Autumn/winter site max: 433 R. Forth (Cambus-S. Alloa) 8 Nov; 135 Gartmorn Dam 9 Nov & c.130 Alva Wetlands 24 Nov.

S Winter/spring site max: 162 R. Forth (The Frews) 24 Feb & 55 L. Dochart 28 Feb. Autumn/winter site max: 66 Cambusmore/Gart GP 3 Nov.

GADWALL *Anas strepera* (s, w)

F Site max: 34 (incl. 6 juv) Skinflats Pools 21 Jun (present here in varying numbers from 5 Apr – 15 Dec) & 3 (2 ♂) Parkfoot Pool (Dennyloanhead) 10 Sep.

C Site max: 7 (4 ♂) Gartmorn Dam 7 Dec; 8 Blackdevon Wetlands 26 Jun & 4 Longcarse 30 Apr.

S Four Touch 4 Resr. 19 Sep; ♂ Cambusmore/Gart GP 24 Apr & ♂ L. Watston 25 Oct.

BAIKAL TEAL *Anas Formosa* (V)

F A ♂ N. Pool, Skinflats 2 Jun (AD *et al*.). (Ed. this will be the first record for the UF if accepted by the BBRC).

TEAL (Eurasian) *Anas crecca* (b, W)
Inland WeBS: 1,968 in Jan, 1,123 in Feb, 739 in Mar, 525 in Sep, 923 in Oct, 1,129 in Nov & 1,046 in Dec.
Forth Est. WeBS: 2,341 in Jan, 2,042 in Feb, 1,282 in Mar, 622 in Sep, 2,072 in Oct, 2,115 in Nov & 3,089 in Dec.

F Winter/spring site max: 581 Kinneil (WeBS) 20 Jan; 551 Skinflats (WeBS) 20 Jan & 168 R. Carron (Carron Ho. - A905) 19 Jan. Autumn/winter site max: 847 Kinneil (WeBS) 14 Dec; 513 Skinflats (WeBS) 14 Dec; 545 R. Forth (S. Alloa-Kinc. Br.) 14 Dec; 184 S. Alloa 29 Dec; 137 R. Carron (Carron Ho. - A905) 16 Nov & 133 Parkfoot Pool (Dennyloanhead) 11 Feb.

C R. Forth (Cambus-Alloa) monthly max: 1,105 Jan, 1,057 Feb, 832 Mar, 103 Apr, 285 Sep, 1,183 Oct, c.830 Nov & 1,330 Dec. Other site max: 273 Kennet Pans 14 Dec & 143 R. Forth (Fallin-Cambus) 4 Mar.

S Site max: 437 L. Watston 4 Jan (NH); 282 L. Coulter 5 Jan (NH); 251 Cambusmore/Gart GP 12 Oct; 225 R. Forth (The Frews) 22 Dec; 147 R. Forth (A91-Fallin) 17 Feb; c.140 Allan Water (Kinbuck) 7 Sep & 76 head of L. Tay 12 Jan.

MALLARD *Anas platyrhynchos* (B, W)

Inland WeBS: 1,913 in Jan, 1,263 in Feb, 694 in Mar, 1,265 in Sep, 1,724 in Oct, 1,440 in Nov & 1,515 in Dec.

Forth Est. WeBS: 266 in Jan, 203 in Feb, 109 in Mar, 192 in Sep, 225 in Oct, 155 in Nov & 319 in Dec.

BBS/WBBS: recorded at 0.83 b/lkm (1997-2018 av: 0.61 b/lkm; range 0.33 (2007) to 0.98 (2006) b/lkm). Unsurprisingly, the highest recording rate was on WBBS at 5.8 b/lkm.

F Breeding Darnrigg Moss Pond; R. Carron (Carronshore); Skinflats Pools & Union Canal (Glen Village). Site max: 224 on flood pool in stubble near the Kelpies 2 Aug; 111 F & C Canal (Bonnybridge – Lock 16) 18 Dec; 103 R. Forth (S. Alloa) 29 Dec & 102 Grange Burn (Grangemouth) 20 Nov.

C Breeding recorded from the Rhind only. Site max: 185 Gartmorn Dam 2 Dec.

S Breeding recorded at Ochlochy Pond only. Site max: 211 Airthrey L. 27 Nov; 146 Pendreich Pool (BoA) 26 Oct & 134 head of L. Tay 24 Nov.

PINTAIL (Northern) *Anas acuta* (W)

Forth Est. max: 109 in Jan, 86 in Feb, 62 in Mar, c.20 in Apr, 9 in Sep, 68 in Oct, 81 in Nov & 76 in Dec.

F Winter/spring site max: 127 R. Forth (Skinflats) 5 Jan & 71 Kinneil 20 Jan. Autumn/winter site max: 77 Skinflats (WeBS) 10 Nov. Other sites: ♂ Larbert Hosp. Ponds 12 Oct (AB).

C Pr Rhind Pool 14 May (DOE, GG).

S One L. Venachar 28 Mar; 1 Cambusmore/Gart GP 3 Aug, ♂ Blairdrummond Ponds 25 Oct & 1 R. Forth (Craigforth) 5 Nov (SH, NB, DOE).

*GARGANEY *Anas querquedula* (s)

F Male Skinflats N. Pool 21 Apr - 15 May (SWo, RS, AB, AE et al).

C One Longcarse 30 Apr (DOE).

SHOVELER (Northern) *Anas clypeata* (p)

F Skinflats Pools (monthly max.): 1 in Feb, 3 in Mar, 9 in Apr, 2 in May, 4 in Jun, 2 in Jul, 11 in Aug, 4 in Sep & 1 in Nov. St Helen's Loch (Bonnybridge): 2 on 10 Apr; 8 on 5 Oct & 3 on 8 Nov. 3 Parkfoot Pool, Dennyloanhead (8 Nov).

C Longcarse max: 5 in Apr, 3 in May, 1 in Jun, 6 in Aug & 7 in Dec. Gartmorn Dam: 2 on 27 Apr & 5 on 18 Sep. 2 Cambus Village Pools 9 Apr.

POCHARD (Common) *Aythya ferina* (w)

Inland WeBS: 2 in Jan, 1 in Feb, 1 in Mar, 0 in Sep, 3 in Oct, 6 in Nov & 0 in Dec. Numbers have reduced greatly over the past 15 years and the sp's is now quite scarce. The peak monthly count in 1995 was 230 (Jan).

F Skinflats Pools (monthly max): 6 in May, 3 in Jun, 6 in Jul, 5 in Aug, 11 in Sep, 15 in Oct, 8 in Nov & 13 in Dec. ♀ Larbert Hosp. Ponds 12 Oct.

C Gartmorn Dam (monthly max): 1 in Jan, 10 in Sep, 2 in Oct & 1 in Nov.

S Male Cambusmore/Gart GP from 3 Mar – 12 Oct with 2 ♂ on 3 Aug; ♂ L. Mahaick 25 Oct & 3 CVR 17 Nov.

TUFTED DUCK *Aythya fuligula* (B, W)

Inland WeBS: 421 in Jan, 370 in Feb, 298 in Mar, 215 in Sep, 433 in Oct, 367 in Nov & 396 in Dec.

F Site max: 121 N. Pool Skinflats 13 Oct; c.40 Helix Ponds 15 Nov & 34 Callendar Park Loch 20 Jan.

C Gartmorn Dam winter/spring max: 106 on 1 Jan. Autumn/winter site max: 155 on 2 Oct.

S Breeding: Ochlochy Pond: br. 6 ducklings c.4 days old & 6 Y c.2½ weeks old 27 Jun; br. 4 ducklings c.2½ weeks old & 6 juv 18 Aug & br. 3 ducklings c.5 weeks old 2 Sep (MVB). Cambusmore GP: 24 Y in eight broods ranging in size from chicks to 50 % grown 3 Aug (NB). Winter/spring site max: 76 Lake of Menteith 15 Feb; 50 Airthrey Loch 23 Mar; 36 Blairdrummond Ponds 4 Jan & 31 Cambusmore/Gart GP 7 Apr. Summer site max: 218 Cambusmore/Gart GP 3 Aug (moult flock). Autumn/winter site max: 72 Blairdrummond Ponds 25 Oct; 68 Cambusmore/Gart GP 8 Sep; 56 Lake of Menteith 9 Dec; 46 L. Watston 25 Oct; 42 Airthrey Loch 18 Dec. & 32 L. Lubnaig 17 Dec.

SCAUP (Greater) *Aythya marila (*s, w)

F Kinneil monthly max: 6 in Jan, 5 in Feb, 5 in Mar, 9 in Apr, 7 in Sep, 4 in Oct, 3 in Nov & 6 in Dec. Other site max: 7 Grangepans 14 Dec (JRC); 6 Carriden 26 Dec (DMB); 1 Skinflats N. Pool 4 Jan (MVB), 1 Powfoulis tidal breach 20 Mar (TC); ♀/imm Little Denny Resr. 11 Oct (NB) & 1 Helix Pond 22 Dec (DLT).

*C Male R. Forth (Cambus) 9 Apr (GG) & ♂ Gartmorn Dam 15 Sep (DMB).

*S Female Cambusmore/Gart GP 3 Nov (NB); ♀ Airthrey Loch 27 Nov (EG) & ♂ L. Lubnaig 17 Dec (MGC, RN).

EIDER (Common) *Somateria mollissima (*s, w)

Forth Est. WeBS: 2 in Mar, 9 in Sep & 9 in Nov.

F Blackness max: 3 in Feb, 1 in Mar, 8 in Apr, 2 in Jul, 5 in Sep & 1 in Oct. Bo'ness max: 10 in Jan & 5 in Sep. Kinneil max: 1 in May, 10 in Aug & 8 in Sep. 6 R. Forth (Kincardine Br.) 10 Nov & 2 R. Forth (Powfoulis) 28 Nov.

*LONG-TAILED DUCK *Clangula hyemalis* (w)

F Female R. Forth (Skinflats) 28 & 29 Oct (DMB, AB).

C First winter bird Gartmorn Dam 6 Nov (NB).

*COMMON SCOTER Melanitta *nigra* (w)

F Kinneil: ♂ Kinneil 12 Jul, 1 on 2 Aug & 1 on 28 Dec (AE, AB, DOE). Bo'ness: 62 offshore 25 Jun, 22 ♀/juv 29 Oct & 3 ♀ 27 Nov (RS, DMB, MVB).

S Female Lake of Menteith 26 Jan & 15 Feb (DK, NB).

GOLDENEYE (Common) *Bucephala clangula* (W)

Inland WeBS: 413 in Jan, 398 in Feb, 275 in Mar, 4 in Sep, 28 in Oct, 295 in Nov & 348 in Dec.

Forth Est. WeBS: 49 in Jan, 51 in Feb, 25 in Mar, 0 in Sep, 3 in Oct, 34 in Nov & 91 in Dec.

F Site max: 44 R. Forth (S. Alloa-Kinc Br.) 14 Dec; 26 Kinneil 14 Dec & 22 Skinflats Pools 29 Oct.

C Winter/spring site max: 56 Gartmorn Dam 23 Feb & 34 R. Forth (Cambus – S. Alloa) 18 Feb. Autumn/winter site max: 52 Gartmorn Dam 6 Nov & 20 Alloa Inches 13 Dec.

S Winter/spring site max: 121 (30 ♂) Lake of Menteith (15 Feb); 31 Blairdrummond Ponds 4 Jan; 31 CVR 20 Jan; 22 L. Lubnaig 18 Jan & 21 head of L. Tay 24 Mar. Summer: up to 4 head of L. Tay Jun – Aug. Autumn/winter site max: 97 (24 ♂) Lake of Men-

teith 9 Dec; 29 CVR 15 Dec; 23 L. Ard 15 Nov; 23 head of L. Tay 16 Nov & 22 L. Watston 8 Dec

RED-BREASTED MERGANSER *Mergus serrator* (b, W)
Forth Est. WeBS: 36 in Jan, 34 in Feb, 35 in Mar, 29 in Sep, 77 in Oct, 74 in Nov & 45 in Dec.

F Kinneil monthly max: 23 in Jan, 10 in Feb, 32 in Mar, 10+ in Apr, 95 in Jul, 82 in Aug, 26 in Sep, 38 in Oct, 42 in Nov & 22 in Dec. Other site max: 37 R. Forth (S. Alloa – Dunmore) 27 Nov; c.30 Bo'ness 1 Sep; 21 Skinflats (WeBS) 10 Nov; 8 Skinflats Pools 3 Feb; Forth Est. (Powfoulis) 11 Sep & 1 Helix Park 30 Mar.

C Longcarse: 1 on 3 Jan, 1 on 18 Mar & 2 on 14 Oct & 8 Kennet Pans 3 Feb & 9 Nov.

S Breeding: head of L. Tay: 5 ad + 5Y 23 Jul & ♀ + 8 ducklings 8 Aug (JPH). Killin / head of L. Tay monthly max: 1 in Mar, 3 in Apr; 8 in May, 7 in Jun, 5 in Jul, 8 in Aug, 14 in Sep & 5 in Oct. Other records: ♂ R. Teith (Lecropt) 3 Jan; 2 ♂ Cambusmore/ Gart GP 7 Apr; 2 L. Ard 30 Apr; 1 head of L. Katrine 10 Jun, 2 Crianlarich 2 Oct; 5 R. Teith (Carse of Lecropt) 3 Dec; 1 R. Forth (St Br-A91) 14 Dec & 1 R. Forth (Teith-Allan conf's) 20 Dec.

GOOSANDER (Common Merganser) *Mergus merganser* (B, W)
Inland WeBS: 111 in Jan, 160 in Feb, 101 in Mar, 69 in Sep, 86 in Oct, 154 in Nov & 155 in Dec.
Forth Est. WeBS: 1 in Jan; 7 in Feb, 12 in Mar, 5 in Sep, 15 in Oct, 8 in Nov & 17 in Dec.

F Breeding: ♀ + 10 ducklings R. Carron (Hill of Dunmore) 27 Apr (PB) & ♀ + 6Y R. Carron (Carronshore) 17 Jun (AE). Site max: 17 R. Carron (Glensburgh) 17 Jun; 17 Kinneil 2 Aug; 14 (8 ♂) F & C Canal (M80 – Lock 16) 27 Nov; 12 F & C Canal (Lock 16 – R. Carron) 21 Feb & 21 Dec & 11 Callendar Park Loch 2 Nov.

C Breeding: ♀ + 3Y Cambus 4 Jun (AM). Site max: 22 (14 ♂) Delph Pond (Tullibody) 11 Jan (NH); 20 R. Forth (Fallin-Cambus) 2 Feb & 12 R. Forth (Longcarse) 18 Mar.

S Breeding: ♀ + ducklings R. Fillan (Crianlarich) 12 May (DG); ♀ + 11 ducklings Aberfoyle 26 May (MCu); ♀ + 10 ducklings Heathershot (R. Teith) 6 Jun (KJD) & ♀ + 4 ducklings R. Teith (Coireachrombie) 15 Jun (AC). Head of L. Tay: 3 ad's + 8 ducklings 2 Jun; ♀ + 8Y 24 Jul & 17 Aug (JPH). Site max: 34 R. Forth (A91-Fallin) 17 Feb; 25 (12 ♂) R. Forth (Lecropt) 6 May; 22 R.

Forth (Teith-Allan conf's) 20 Dec; 20 R. Teith (W Row to Forth conf.) 17 Nov; 18 R. Carron mouth 12 Sep; 17 Blairdrummond Ponds 23 Nov; 16 R. Teith (Callander) 15 Feb; 15 R. Fillan (Kirkton Fm., Strathfillan) 4 Jul & 15 R. Teith (Doune) 7 Aug.

*RED GROUSE (Willow Ptarmigan) *Lagopus lagopus* (B, W)
BBS/WBBS: recorded at 0.1 b/lkm (1997-2018 av: 0.14 b/lkm. Range: 0.03 to 0.37 b/lkm). Only present in heather habitat and then in small numbers at a rate of 0.24 b/lkm.
F Four 'Tak-Ma-Doon' rd. 6 Apr (AD).
C Six Menstrie Moss 14 Jan & 1 Balquharn (Alva) 15 Feb (AE).
S Two Sheriff Muir 11 Feb; 1 Dumyat, 30 Mar; 2 G. Beich 24 May; 4 Sheriff Muir 21 Apr; 4 Meall Sgallachd (G. Ogle) 19 Oct & 1 Sheriffmuir Inn 21 Dec (DOE, MCub, ACC, AD, KJD).

*PTARMIGAN (Rock Ptarmigan) *Lagopus muta* (b, w)
S One Beinn Odhar 6 Jan (DP); ♂ Beinn a' Chroin 7 Mar (JR); 2 Creag Mac Rànaich 23 Mar (AW); 2 Creag Mhór 25 Apr (GG) & 3 Meall Ghaordaidh 14 May (NMcW).

*BLACK GROUSE *Tetrao tetrix* (b, w)
S Two Braeleny 1 Jan (DOE); 2 ♂ at c.550m Chaol Gleann (Auchtertyre, Strath Fillan) 2 Jan (JPH); 9 G. Beich (L. Earn) 5 Apr (DOE); 6 (4 ♂) Muir Toll (Campsie Fell) 13 Apr (VW); ♀ Kenknock (G. Lochay) 24 Apr (GG); ♂ 'Tak-Ma-Doon' rd. 27 Apr (AD); 8 E L. Arklet 6 May (JC); 1 Kirkton Fm. (Strath Fillan) 14 May & ♂ above Finlarig Power Sta. 28 Apr (JPH).

RED-LEGGED PARTRIDGE *Alectoris rufa* (b, w).
Released for shooting but it is thought unlikely that the small feral population is self-sustaining.
F Three Powfoulis 14 May.
C Two Menstrie 30 Apr.
S 25 Stonehill (Dunblane) 8 Jan & a bird was in a garden in the centre of Dunblane 17 Jan.

GREY PARTRIDGE *Perdix perdix* (b, w)
Has become very scarce during the last 20 years. A small number of releases helps sustain numbers.
F Site max: 12 Higgin's Neuk 13 Nov; 10 Howkerse 10 Nov; 9 Skinflats Fields 11 Feb & 7 Larbert 18 Feb.
C Site max: 18 Longcarse 2 Feb & 4 Cambus 13 Dec.
*S Two Heathershot (Carse of Lecropt) 22 Apr (KJD).

* QUAIL (Common) *Coturnix coturnix* (b)
S Max. 2 calling ♂'s Sheriff Muir 22 – 23 Jun (BD, NB, DOE).

PHEASANT (Common) *Phasianus colchicus* (B, W)
Large numbers released on shooting estates, otherwise widespread but in small numbers. BBS/WBBS: recorded at 0.46 b/lkm (1997-2018 av: 0.51 b/lkm. Range: 0.22 to 0.8 b/lkm).
C Breeding: ♀ with Y Blackdevon Wetlands 15 Jul (NB).
S Breeding: 2Y Howietoun Ponds 1 Jul (NB).

*RED-THROATED DIVER (Red-throated Loon) *Gavia stellata* (b, w)
F One Blackness Bay 27 Apr (EMcl) & 3 Skinflats (WeBS) 10 Nov (MVB).
S Two pr's head of L. Tay 31 Mar (JPH).

*BLACK-THROATED DIVER (Black-throated Loon) *Gavia arctica* (b)
S Two L. Iubhair 25/26 Mar, 1 on 9 Apr & 1 on 15 Jun (JPH). Up to 3 head of Loch Tay intermittently from 7 Apr - 15 Sep (JPH et al) & 1-2 L. Ard 6 & 28 Jul (MF, GG).

LITTLE GREBE *Tachybaptus ruficollis* (B, W)
Inland WeBS: 97 in Jan, 60 in Feb, 42 Mar, 90 in Sep, 90 in Oct, 91 in Nov & 70 in Dec.
F Breeding: N. Pool, Skinflats: ad + 3Y on 3 Jul; b's of 2 & 1 chicks 13 Aug & b/4 chicks 1 Sep (AB, MVB); b/4 Glen Pool (Lionthorn) 21 Jun (RD) & 2 juv West Mains Pond 23 Sep (DLT). Site max: 21 N. Pool, Skinflats 30 Sep; 11 R. Carron (Larbert-Carron Ho.) 17 Nov; 9 Drumbowie Resr. & 6 Little Denny Resr. 10 Sep.
C Breeding: 2Y Gartmorn Dam 5 Sep (NB). Site max: 15 Gartmorn Dam 15 Sep & 5 R. Devon (Alva-Tullibody Br) 17 Nov.
S Breeding: 1Y Ochlochy Pond (Dunblane) 26 May – 18 Jun (MVB); 2 ON Cambusmore/Gart GP 9 Jun (NB) & 1Y Sheriffmuir Woods pond 19 Jun (MVB). Site max: 29 Cambusmore/Gart GP 8 Sep; 14 L. Lubnaig 17 Dec; 9 L. Dochart 4 Jan; 8 L. Ard 15 Nov; 7 Blairdrummond Ponds 28 Jul & 6 L. Voil 17 Dec.

GREAT CRESTED GREBE *Podiceps cristatus* (b, w)
Inland WeBS: 15 in Jan, 11 in Feb, 22 in Mar, 34 in Sep, 28 in Oct, 25 in Nov & 18 in Dec.
Forth Est. WeBS: 12 in Jan, 10 in Feb, 10 in Mar, 33 in Sep, 27 in Oct, 19 in Nov & 6 in Dec.
F Monthly max: Blackness: 6 in Jan, 7 in Feb, 1 in Apr, 2 in Aug, 14 in Sep, 17 in Oct & 12 in Dec. Kinneil: c.40 in Jan, 9 in Feb, c.21 in Mar, 25 in Jul, c.40 in Aug, 33 in Sep, 43 in Oct, 34 in Nov & 16 in Dec. Other site max: 2 N. Pool Skinflats 8 Apr with 4 on 27 Oct.
C Gartmorn Dam monthly max: 3 in Jan, 6 in Feb, 4 in Mar, 3 in Apr, 1 in Jun, 2 in Sep, 4 in Oct & 4 in Nov.
S Breeding: Cambusmore/Gart GP: 1 ON 5 May, 3 ON 9 Jun, pr with 2 chicks & pr with chicks on backs 7 Jul & 6 ads + 5Y 3 Aug (NB). 3Y Lake of Menteith 13 Sep (NB). Lake of Menteith monthly max: 12 in Jan, 11 in Feb, 16 in Mar, 23 in Sep, 21 in Oct, 21 in Nov & 18 in Dec. Other sites max: 11 Cambusmore/Gart GP 3 Aug; 2 Blairdrummond Ponds 24 Feb; 2 L. Coulter 17 Oct & 2 CVR 6 Apr.

*MANX SHEARWATER *Puffinus puffinus* (V)
F One Skinflats 17 Sep is the 18th record for the UF (DMB).

*GANNET (Northern) *Morus bassanus* (p)
F Skinflats Pools: 2 on 23 Oct, 4 on 27 Oct, 3 on 5 Nov & on 8 Nov (AE, AB). Two juv above the F & C Canal, Bonnybridge 17 Sep (NB); 1 Carronshore 11 Oct (AE); 18 Forth Est. (Powfoulis) 23 Oct (TC) & 2 Kinneil 8 Nov (AE).

CORMORANT (Great) *Phalacrocorax carbo* (S, W)
Inland WeBS: 83 in Jan, 77 in Feb, 165 in Mar, 36 in Sep, 101 in Oct, 110 in Nov & 98 in Dec.
Forth Est. WeBS: 49 in Jan, 72 in Feb, 44 in Mar, 134 in Sep, 113 in Oct, 84 in Nov & 29 in Dec.
F Site max: 70 Est., Skinflats 17 Sep; 48 Skinflats (WeBS) 22 Mar; 35 Kinneil 19 Nov; 25 Higgin's Neuk 3 Jan & 12 Black Loch (Limerigg) 2 Jan.
C Site max: Longcarse: 77 on 27 Feb & 32 on 8 Nov.
S Monthly max: Lake of Menteith: 22 in Jan, 25 in Feb, 14 in Oct, 20 in Nov & 37 in Dec. Carron Valley Resr: 1 in Jan, 16 in Feb, 11 in Mar, 10 in Sep, 26 in Oct, 8 in Nov & 13 in Dec. Other site

max: head of L. Tay: 21 on 13 Jan & 13 on 26 Oct; 19 Cambusmore/Gart GP 7 Apr & 11 L. Rusky 15 Nov.

CATTLE EGRET *Bubulcus ibis* (V)

S One Bolfornought (Stirling) 10 – 16 Oct is the first record for the UF (IWC, CJP, NB et. al.). Notified of its presence on the evening of the 10 October by farmers Wendy & Ian Callion who informed that it had been present among the grazing cattle for c.3 weeks. Identification confirmed by CJP & NB the following morning.

LITTLE EGRET *Egretta garzetta* (w, s)

F One Kinneil 24 Aug; 1 – 2 Skinflats Pools & mudflats Jan – May & Aug - Dec; 1-2 Powfoulis tidal breach Jan – May & Aug – Nov with 3 on 14 May; 1 - 2 Higgin's Neuk / Kincardine Br. area Jan – Apr & Aug – Dec & 1 S. Alloa 29 Dec.

*C One Alva floods 30 Jan (RE) & 1 Longcarse 6 Jul, 13 & 29 Dec (DOE, DMB).

*S One R. Teith (Carse of Lecropt) 10 - 18 Apr (DT, KJD); 1 Doune 26 Apr (DOE); 1 Cambusmore/Gart GP 30 Apr (AK); 1 R. Forth (Craigforth area) 3 - 17 Nov (CJP, DT et al); 1 Allan Water (Kinbuck) 20 Nov (CSW) & 2 R. Teith (Lecropt) 14 Dec (CAM).

*GREAT WHITE EGRET (Great Egret) *Ardea alba* (V)

C One Dollar 11 Dec (BG's). The same bird as at Craigforth/Kinbuck.

S One R. Forth (Craigforth) 30 Oct – 12 Nov is the 5th record for the UF (TE, TC, ASi et. al.). The same bird flew N over Dunblane 14 Nov (BD). All have been accepted as records of the same individual (CJP).

GREY HERON *Ardea cinerea* (B, W)

Inland WeBS: 110 in Jan, 111 in Feb, 109 in Mar, 74 in Sep, 66 in Oct, 77 in Nov & 77 in Dec.

Forth Est. WeBS: 37 in Jan, 28 in Feb, 4 in Mar, 51 in Sep, 64 in Oct, 45 in Nov & 19 in Dec.

BBS/WBBS: recorded at 0.14 b/lkm (1997-2018 av: 0.12 b/lkm. Range 0.03 (1997) to 0.23 (2005) b/lkm). Again unsurprisingly, the highest recording rate was on WBBS at 0.6 b/lkm.

F Breeding: 5 aon's Kinneil Wood (AIB) & 4 aon's Dalderse Sewage Works (AB). Site max: 41 Skinflats (WeBS) 12 Sep; 11 R. Forth (Airth) 24 Aug & 10 Powfoulis tidal breach 11 Sep.

C Site max: 14 R. Forth (Longcarse) 14 Oct & 8 R. Devon (Alva) 18 Feb.

S Breeding: 11 aon's Nyadd (NB). Site max: 39 Carse of Lecropt 22 Feb; 15 L. Venachar 18 Feb; 12 (day roost) on roof of BoA abattoir 10 Feb; 12 Blairdrummond Ponds 30 Jun & 11 Cambusmore/Gart GP 25 Aug.

*SPOONBILL (Eurasian) *Platalea leucordia* (V)

F One Skinflats Pools 8-9 May (RD, AB); 2 Powfoulis tidal breach 14 May (TC) & 1 R. Carron (opp. docks) 13 Oct (MVB). These are the 17th, 18th & 19th records for the U.F.

RED KITE *Milvus milvus* (b ,W)

Inland WeBS counts: 5 in Jan, 4 in Feb, 7 in Mar, 2 in Sep, 1 in Oct, 1 in Nov & 7 in Dec.

*C One Seamab Hill 29 Apr (JHN) & 1 over Menstrie 6 Dec (GG).

S Breeding: 28 pairs were on territory (DOE). Max of 33 Argaty 19 Jan & 8 Doune 26 Jan. Regular around BoD, BoA, Callander, Cromlix, Dunblane & Stirling. Occ. sightings in areas of Carron Valley Resr., Earlsburn Resr's, Fintry Hills, Flanders Moss, Gargunnock, G. Dochart, Kilmahog, Killin, Kippen & Menteith.

*WHITE-TAILED EAGLE *Haliaeetus albicilla* (s, w)

S One Portnellan (L. Katrine) 30 Apr (DOE).

*MARSH HARRIER (Western) *Circus aeruginosus* (p, s)

F Eleven records of single birds (the 3 identified were ♀) in the Skinflats Pools area 28 Apr – 29 Sep with 2 on 2 Aug (EMcl, AB, CAM et al). 1 Carronshore 11 May (AB); ♀ M9 (NS 900841) 20 Jun (RS) & 1 Powfoulis tidal breach 6 Aug (JL).

C Sightings from 14 Apr led to the first confirmed breeding in the UF at an estuarine reedbed where a pr successfully fledged 2 from 3 Y (DOE et al) (Please see the short article by D. Orr-Ewing on pages 92-93 in this Journal). Last record 1 on 7 Sep (DOE). 1 Blackdevon Wetlands 7 Aug (RSm).

*HEN HARRIER *Circus cyaneus* (b, w)

S One Ashfield 1 Jan; 1 Sheriff Muir 5 Jan; ♂ Buchany (Doune) 2 Feb; ♂ Head Dykes (Sheriff Muir) 10 Feb; 1 L. Mahaick 16 Feb; ♀/imm Kippen Muir Dam 24 Mar; 1 Easter Glinns (Kippen) 11 Jun; 1 >E Dukes Pass (Trossachs) 28 Jul; ♀/imm Allan Water (Naggyfauld) 9 Oct; 2 Argaty 20 Nov & 1 B822 (NS 6393) 21 Nov. (DOE, AT, NMcW, JS/AM, CAM, GG, HT, LE).

*GOSHAWK (Northern) *Accipiter gentilis* (b, w)

F ♀ >E Bo'ness 28 Aug (RS).

S Breeding: 5 pr's bred in the L. Ard Forest area but productivity low with most pr's only having one young. These are quite widely spread so there are possibly more (CSRSG). Other records: ♀ Sheriff Muir 2 Mar (MVB); displaying bird in NN 60 on 30 Mar (CMcK); 1 CVR 31 Mar (AD) & 1 Drip Moss 7 Jul (DOE).

SPARROWHAWK (Eurasian) *Accipiter nisus* (B, W)

Inland WeBS counts: 2 in Jan, 2 in Feb, 3 in Mar, 4 in Sep, 5 in Oct, 3 in Nov & 5 in Dec. Thinly spread throughout the majority of the recording area. Contributors are encouraged to submit breeding records.

F Male carrying prey Powfoulis 23 Aug & bird chased & took a Dunlin over the Forth Est. at Skinflats, struggled to carry it (AB).

S A bird bounced out of a mist net in a Dunblane gdn 18 Feb (CMcK).

BUZZARD (Common) *Buteo buteo* (B, W)

The most numerous raptor recorded throughout the majority of the recording area. Contributors are encouraged to submit breeding records.

Inland WeBS counts: 40 in Jan, 39 in Feb, 42 in Mar, 40 in Sep, 39 in Oct, 45 in Nov & 44 in Dec.

BBS/WBBS: recorded at 0.28 b/lkm (1997-2018 av: 0.36 b/lkm. Range: 0.24 (2013) to 0.55 (1997) b/lkm). Recorded at between 0.32 b/lkm – 0.44 b/lkm in all habitat categories except 'urban & suburban' where there were none and 'mountain & moorland' where the rate was 0.16 b/lkm.

C Breeding: Calling Y from nest on pylon at the Blackdevon Wetlands 15 Jul (NB).

S Max: 5 Aberfoyle 19 Jun & 5 W Flanders Moss 25 Apr. Pr displaying over Barnton St (Stirling) 14 Oct.

HONEY BUZZARD (European) *Pernis apivorus* (b)

Breeding: A population in the Trossachs contained 1-4 territories (CMcI et al).

S Three separate sightings over Strathyre with the last on 23 Jun (DRC).

GOLDEN EAGLE *Aquila chrysaetos* (b, w)
S. Eleven territories were checked with nine pairs recorded. One territory had only a single bird while the final one was unoccupied. Two successful pairs reared two young (per DOE).
Outwith breeding season: 1 Beinn Luidh (Strathyre) 27 Jan; 1 Meall Sgallachd (NN 5526) 19 Oct; 3 Inverlochlarig 22 Oct; 1 head of L. Tay 26 Oct; 2 G. Ogle 31 Oct & 1 Strathyre 27 Nov.

OSPREY (Western) *Pandion haliaetus* (B)
First of the year: one L. Rusky 3 Apr (DT). Last record: one head of L. Tay 15 Sep (JPH).
F No records.
*C One Yetts o' Muckhart 3 Aug (DOE).
S Present and nesting throughout the district, particularly CVR, Callander, Doune, Menteith, L Tay / G. Dochart, & the Trossachs.

KESTREL (Common) *Falco tinnunculus* (B, W)
Inland WeBS counts: 4 in Jan, 0 in Feb, 1 in Mar, 2 in Sep, 2 in Oct, 2 in Nov & 2 in Dec. (Spread thinly throughout most of the recording area. Contributors are encouraged to submit breeding records. Normally only single birds seen).
F Male carrying prey Skinflats 10 Jul & aggressive interaction between a juv and a Sparrowhawk Skinflats Pools 17 Aug (AB).

*HOBBY (Eurasian) *Falco Subbuteo* (v)
S Breeding: there were 3 territories in the recording area (per CMcI). One Callander 3 Jun (DOE).

*MERLIN *Falco columbarius* (b?, w)
F Skinflats area: 1 on 17 Feb, 1 on 10 Mar & 1 on 20 Sep, (SWo, CS, AE); 1 Powfoulis 21 Feb & 20 Nov (TC); 1 Higgin's Neuk 12 Oct & 9 Nov (AA, ACC).
S One Harperstone (Sheriff Muir) 21 Apr (ACC); 2 Ceann Creagach (NN6432) 7 Jun (JB); ♀ Kirkton Fm (Strath Fillan) 23 Jul (JPH); ♀ Greenyards (Dunblane) 13 Oct (KJD) & ♂ Flanders Moss 11 Dec (AEW).

PEREGRINE FALCON *Falco peregrinus* (B, W)
Breeding: 30 territories were checked with 17 occupied by pairs, five where only single birds were seen and eight apparently unoc-

cupied. Ten successful pairs fledged 25+ young (per DOE). Widely, but thinly spread outwith the breeding season, mostly in lowland areas (incl. urban centres) and especially along the tidal R. Forth and estuary.

S A ♂ resided on Dunblane Cathedral from 1 Jan to 5 Mar then from 1 Oct to 31 Dec. Prey items incl. Great Spotted Woodpecker, Grey Wagtail, Blackbird, Dunnock, Redwing, Song Thrush, Blue Tit, Great Tit, Starling, Chaffinch, Goldfinch & Bullfinch (CMcK et al).

WATER RAIL *Rallus aquaticus* (b, w)

Widespread in suitable habitat but greatly under-recorded. Most records are of birds heard rather than seen.

F Single birds recorded at: Carron Dams, Kinneil Lagoon & Skinflats Pools.

C Site max: 6 Longcarse/Tullibody Inch 22 Dec (recorded here throughout the year) & 2 Blackdevon Wetlands 13 Dec. Also recorded at Cambus Pools.

S Single birds recorded at head of L. Tay & L. Watston.

MOORHEN (Common) *Gallinula chloropus* (B, W)

Inland WeBS: 95 in Jan, 82 in Feb, 47 in Mar, 109 in Sep, 104 in Oct, 112 in Nov & 117 in Dec.

F Breeding: pr + 4 chicks Union Canal (Kingseat Pl, Falkirk) 15 Jul (WP). Skinflats Pools monthly max: 9 in Jan, 8 in Feb, 2 in Mar, 4 in Apr, 3 in May, 5 in Jun, 9 in Jul, 16 (incl 11 juv) in Aug, 22 in Sep, 24 in Oct, 13 in Nov & 10 in Dec. Other site max: 16 F & C Canal (Lock 16 - R. Carron) 16 Dec; 12 (incl. 3 juv) F & C Canal (Bonnybridge – Lock 16) 17 Sep & 11 (incl. 3 juv) W. Mains Pond 29 Sep.

C Site max: 9 R. Devon (Alva-Tullibody Br) 17 Nov; 6 Gartmorn Dam 6 Feb & 5 Delph Pond (Tullibody) 6 Dec.

S Breeding: Airthrey Loch: 1 NE + b.5 on 16 Jun & b.1, 3 FL & 1 juv 29 Jul (MVB). Ochlochy Pond: 1 NE failed 14 Apr & pr + 1 FL (survived at least 3 weeks) 27 Jul (MVB). Monthly max Airthrey Loch: 15 in Jan, 15 in Feb, 12 in Mar, 27 in Sep, 17 in Oct, 24 in Nov & 18 in Dec. Other site max: 7 (incl 2 juv) Cambusmore/Gart GP 8 Sep; 6 Cultenhove Dam 5 Jan & 6 L. Venachar 19 Sep.

COOT (Common) *Fulica atra* (B, W)
Inland WeBS: 454 in Jan, 444 in Feb, 130 in Mar, 168 in Sep, 246 in Oct, 274 in Nov & 365 in Dec (after 14 winters of markedly reduced numbers the winters 2018/19 & 2019/20 have seen a resurgence with the 454 birds in Jan 2019 the highest monthly total since 674 birds in Jan 2005).

F Breeding: 2 b's Larbert Hosp. Ponds 2 Jun (AB); Skinflats N Pool: pr + 3Y on 20 Jun; 10Y on 4 Jul & b's of 1, 1, 2 & 2 of varying ages 13 Aug (AB, NB, MVB). Site max: 104 Skinflats N Pool 12 Sep & 49 Helix Park Pond 22 Dec.

C Gartmorn Dam max: winter/spring 181 on 1 Jan & autumn/winter: 60 on 2 Dec.

S Breeding: Airthrey Loch: 9 pr's + 24Y 16 Jun, 9b with 16FL 29 Jul (MVB – a very successful year with most pr's double brooded); Ochlochy Pond: 1 FL c.6 weeks old 18 Jun & 1 chick 9 Jul failed (MVB). Lake of Menteith max: winter/spring 168 on 9 Jan & autumn/winter 162 on 9 Dec. Other site max: 54 Airthrey Loch 27 Nov.

OYSTERCATCHER (Eurasian) *Haematopus ostralegus* (B, W)
Inland WeBS: 10 in Jan, 263 in Feb, 310 in Mar.
Forth Est. WeBS: 320 in Jan, 454 in Feb, 161 in Mar, 113 in Sep, 206 in Oct, 350 in Nov & 115 in Dec.
BBS/WBBS: recorded at 0.35 b/lkm (1997-2018 av: 0.69 b/lkm. Range 0.24 (2016 & 2018) to 1.64 (2003) b/lkm). Recorded in all habitat categories except conifer with the highest rate being on WBBS at 1.6 b/lkm. Early inland spring return: 3 Cambusmore/Gart GP 13 Jan & 1 Dunblane 16 Jan (NB, CRM)

F Site max: c.230 Kinneil 5 Feb; 163 Blackness 30 Jan; 117 Skinflats (WeBS) 17 Feb & 83 Powfoulis tidal breach 2 Aug.

C Site max: 71 Kennet Pans 3 Feb.

S Breeding: nesting Keir roundabout 8 Apr with ad + 1 chick 15 Jun (NB); nest Barbush B8033 roundabout (Dunblane) hatched 2 chicks 5 May with 1 juv 9 Jun (MVB, CMcK, NB); pr + 1 chick Atholl Pl. (Dunblane) 29 May (KJD) & 1 aon Cambusmore/Gart GP 9 Jun (NB). Site max: c.70 Blairdrummond Ponds 24 Feb & 43 head of L. Tay 5 Apr. Winter inland: 1 Blairdrummond 23 Dec.

AVOCET (Pied) *Recurvirostra avosetta* (V)

F Pr Skinflats Pools 11 Apr – 24 Apr is the 17th record for the UF (AB, AD, RS, SWo et al). The pr, on the N. Pool (22nd), were dis-

playing & chasing Teal off (SWo). A further bird on the salt-marsh by the pools 22 Apr was the 18th record for the UF (AB). Powfoulis tidal breach: 2 on 14 May with 1 on 15 May (JN, TC). This is the 19th record for the UF.

*LITTLE RINGED PLOVER *Charadrius dubius* (Irr)

C Longcarse: 1 on 1 Aug, 2 on 2 Aug, 1 on 5 Aug, 4 juv's on 7 Aug, 5 on 8 Aug, 2 on 10 Aug, ad + juv 12 Aug & 4 imm. 13 Aug (DOE, DMB, GG).

S One R. Teith (Carse of Lecropt) 23 Jun (DT).

RINGED PLOVER (Common) *Charadrius hiaticula* (b, W)

Forth Est. WeBS: 0 in Jan, 11 in Feb, 1 in Mar, 0 in Sep, 0 in Oct, 26 in Nov & 0 in Dec. A poor year.

F Site max: 27 Blackness 30 Jan with 72 on 11 Sep; 5 Skinflats Pools 6 Aug; 4 Powfoulis tidal breach 15 May & 2+ Kinneil 15 Feb.

*C Kennet Pans: 1 on 21 Mar & 3 on 7 Apr (MVB, GG), 7 Longcarse 2 Jun & 1 on 8 Aug (JRC, GG).

S Breeding: ad + 3Y Cambusmore/Gart GP 9 Jun (NB). Monthly max Cambusmore/Gart GP: 4 on 3 Mar, 5 in Apr, 4 in May, 1 in Jun, 1 in Jul & 2 in Aug. Monthly max head of L. Tay: 2 on 15 Apr, 4 in May, 2 in Jun & 1 in Jul.

GOLDEN PLOVER (European) *Pluvialis apricaria* (B, W)

Forth Est. WeBS: c.130 in Jan, 98 in Feb, 27 in Sep, 237 in Oct & 43 in Nov.

F Monthly max Kinneil: c.130 in Jan, 98 in Feb, 1 in Aug, 93 in Sep, c.500 in Oct & 135 in Nov. Powfoulis tidal breach: 35 on 27 Mar, 92 on 18 Apr & 118 on 12 Nov.

*C One Menstrie Moss 14 Jan & c.30 Longcarse 19 Oct (AE, GG).

S C.410 Wester Frew 4 Apr.

GREY PLOVER *Pluvialis squatarola* (p/w)

F Monthly max: Skinflats Pools & shore: 6 on 27 Oct, 6 on 14 Nov & 7 on 9 Dec. Powfoulis tidal breach: 7 on 15 Oct & 5 on 10 Nov. Other records: 7 Kincardine Br. 13 Oct & 1 Blackness 19 Oct.

*DOTTEREL *Charadrius morinellus* (Irr)

S Singles Upper G. Finglas 22 Apr & near summit of Ben Ledi 22 Apr (CMcK, TCa).

LAPWING (Northern) *Vanellus vanellus* (B, W)
Inland WeBS: 144 in Jan, 134 in Feb, 124 in Mar, 300 in Sep, 57 in Oct, 87 in Nov & 45 in Dec.
Forth Est. WeBS: 436 in Jan, 235 in Feb, 0 in Mar, 1,117 in Sep, 1,871 in Oct, 497 in Nov & 38 in Dec.
BBS/WBBS: recorded at 0.1 b/lkm (1997-2018 av: 0.68 b/lkm. Range 0.1 (2019) to 1.72 (2000) b/lkm). The highest recording rate was on WBBS at 0.52 b/lkm.
F Kinneil monthly site max: c.570 in Jan, 229 in Feb, c.140 in July, 583 in Aug, c.620 in Sep, 372 in Oct, 515 in Nov & 35 in Dec. Skinflats Pools area monthly max: c.170 in Jan, 237 in Aug, 442 in Sep, 415 in Oct & 350+ in Nov. Other site max: c.150 Parkfoot Pool, Dennyloanhead 10 Sep & 129 Powfoulis tidal breach 24 Jan.
C Longcarse/Tullibody Inch monthly max: c.110 in Jun, 199 in July, 346 in Aug, 563 in Sep, c.1,050 in Oct & c.130 in Nov. Other site max: c.160 R. Devon (Cambus) 22 Oct & c.100 Collyland 21 Nov.
S Breeding: pr + 2 chicks Cambusmore/Gart GP 9 Jun. Site max: 94 Cambusmore/Gart GP 3 Mar & 81 Allan Water (Kinbuck) 7 Sep.

KNOT (Red) *Calidris canutus* (W, s)
Forth Est. WeBS: c.1,170 in Jan, c.1,630 in Feb, 11 in Mar, 126 in Sep, 659 in Oct, c.1,630 in Nov & c.1,903 in Dec.
F Site max: Kinneil c.3,400 on 27 Nov & 3,044 (count from photo) 24 Dec (DMB). 'Summering' birds: Kinneil: 7 on 17 May, 1 on 6 Jul, 4 on 2 Aug then first autumn return 385 on 15 Aug. Skinflats Pools area monthly max: 5 in May, 5 in Jun & 5 in Aug.
*C.One in summer plumage Alloa Inches 7 Aug (DMB).
*S One head of L. Tay 1 Jun. Not in breeding plumage (JPH).

*SANDERLING *Calidris alba* (p)
F One Skinflats Pools 23 Apr. Powfoulis tidal breach: 5 on 6 Aug & 1 on 12 Aug & 3 Kinneil 6 Sep (AD, TC, AE).

*LITTLE STINT *Calidris minuta* (p)
F Two Skinflats Pools 17 Sep – 29 Sep (DMB, AB, SWo) & 1 Powfoulis tidal breach 6 Aug (TC).

WHITE-RUMPED SANDPIPER *Calidris fuscicollis* (V)

F One Skinflats Pools 29 - 30 Sep is the first record for the Upper Forth (AB, SWo, RG, DMB).

*CURLEW SANDPIPER *Calidris ferruginea* (p)

F Skinflats Pools: 2 on 2 Aug, 1 – 2 from 2 – 30 Sep & ad + juv on 30 Sep (AD, SWo et al). Blackness: 1 on 6 Sep, 1 on 11/12 Sep & 2 on 13 Sep (RS, AB, CMcK).

DUNLIN *Calidris alpina* (b? W)

Forth Est WeBS: 2,803 in Jan, 2,151 in Feb, 417 in Mar, 153 in Sep, 917 in Oct, 2,048 in Nov & 3,784 in Dec.

F Kinneil monthly max: c.3,900 in Jan, c.4,200 in Feb, 407 in Mar, 1 in Apr, 10 in May, 25 in Jul, 109 in Sep, c.1,100 in Oct, 3,852 in Nov & c.3,780 in Dec. Skinflats Pools & shore monthly max: 55 in Jan, c.320 in Feb, c.100 in Mar, 4 in Apr, 8 in May, 3 in Jun, c.670 in Aug, c.530 in Sep, c.80 in Oct, c.100 in Nov & 106 in Dec. Other sites max: 21 Blackness 13 Sep (CAM).

C Monthly max Longcarse: 2 in May, 2 in Jun, 4 in Jul, 29 in Aug, 12 in Sep, 22 in Oct & 22 in Dec. Other sites: 6 R. Devon (Cambus) 22 Oct & 1 Kennet Pans 7 Apr.

*S One Ben Lui 11 May (CRM). Monthly max head of L. Tay: 2 in Apr, 13 in May, 9 in Jun & 3 in Jul.

RUFF Philomachus *pugnax* (w, p)

F Skinflats Pools: ♂ in breeding plumage 22 Apr, 2 on 5/6 Aug & 1 - 2 from 21 – 30 Sep (AB, SWo, AE, RG et al). 1 Kinneil 1 Jan & ♂ 23 Jun (FAC, RS). 1 - 3 Powfoulis tidal breach 11 - 17 Sep (TC, AB, RS). 1> high SW Higgin's Neuk 12 Oct (RS).

*JACK SNIPE *Lymnocryptes minimus* (w)

F Powfoulis tidal breach: 1 on 26 Jan, 1 on 2 Feb & 1 on 18 Apr (DOE, TC); 4 Skinflats saltmarsh 2 Nov (AD) & 1 Kincardine Br. 27 Jan (RS).

S One Flanders Moss 17 Apr (DMB); 1 R. Teith, Lecropt 3 Nov (RS); 1 Ashfield Pools 17 Nov & 1 being plucked by a Peregrine on Dunblane Cathedral 4 Dec (CMcK).

SNIPE (Common) *Gallinago gallinago* (B, W)

Inland WeBS: 26 in Jan, 22 in Feb, 27 in Mar, 10 in Sep, 51 in Oct, 68 in Nov & 126 in Dec.

Forth Est. WeBS: 10 in Feb, 6 in Sep, 13 in Oct & 11 in Nov.

BBS: recorded at 0.12 b/lkm (1997-2018 av: 0.1 b/lkm. Range 0.03 (1998) to 0.21 (2018) b/lkm). They were only recorded on mountains & moorland at 0.2 b/lkm & deciduous, scrub & marsh at 0.14 b/lkm.

F 85+ Larbert Hosp. Ponds 14 Dec (flushed by a Buzzard); 17 Parkfoot Pool, Dennyloanhead 5 Oct & 10 Kinneil 27 Sep.

C Site max: 23 Longcarse (19 Oct) & 14 Craigrie Pond 8 Nov.

S Breeding: 2 aot R. Balvag (Strathyre) 15 May (DRC). Heard 'chipping' at Blackwater Marshes & head of L. Tay (NB, JPH). Site highs: 23 Howietoun Ponds 21 Dec & 12 R. Forth (The Frews) 17 Nov.

WOODCOCK (Eurasian) *Scolopax rusticola* (B, W)

Widely, but thinly spread. Resident numbers greatly bolstered by winter visitors. Underreported.

F One Kinneil Mill 8 Jan; 1 Shore Rd. (Grangemouth) 9 Jan; 3 Chacefield Wood, Denny 18 Jan; 1 Torwood Gdn Centre 30 Jan; 1 walking along a Denny St 4 Feb; 1 Powfoulis tidal breach 10 Nov & 1 Jawcraig 29 Nov.

*C Three Sheardale Woods 1 Dec (RLG).

S Site max Jan – Mar: 2 Sheriff Muir; 2 Low Botaurnie (G. Lochay); 2 Cambusmore/Gart GP; 2 Sauchieburn; 2 Duke's Pass (Aberfoyle) & 1 Kirkton Fm. (Strath Fillan). Roding birds head of L. Tay 10 Apr – 10 May (JPH). Nov – Dec (all singles): first Kirkton Fm. (Strath Fillan) 2 Nov; L. Watston; L. Rusky; R. Forth (Kildean & Meiklewood); Carse of Lecropt; Stockbridge (Dunblane); >E Newton Cres. (Dunblane); Sheriff Muir & Lanrick Est.

BLACK-TAILED GODWIT *Limosa limosa* (W, S)

Forth Est. WeBS: 728 in Jan, 976 in Feb, 930 in Mar, 548 in Sep, 797 in Oct, 1,077 in Nov & 672 in Dec.

F Kinneil monthly max: c.1,320 in Jan, c.1,130 in Feb, 718 in Mar, c.800 in Apr, c.400 in May, 193 in Jun, 672 in Jul, 1,505 in Aug (NH), c.1,470 in Sep, c.950 in Oct, c.1,220 in Nov & c.720 in Dec. Other sites max: 353 R. Forth (S. Alloa-Dunmore) 29 Dec & c.300 Skinflats Pools & shore 9 May.

C Longcarse monthly max: 7 in Feb, 61 in May, 5 in Jun, 17 in Jul, 4 in Aug & 2 in Sep. 177 Kennet Pans 21 Mar.

BAR-TAILED GODWIT *Limosa lapponica* (W)
Forth Est. WeBS: 46 in Jan, 59 in Feb, 6 in Mar, 6 in Sep, 12 in Oct, 47 in Nov & 45 in Dec.
F Kinneil monthly max: 38 in Jan, 34 in Feb, 9 in Apr, 1 in Jul, 15 in Aug, 4 in Sep; 10 in Oct; 44 in Nov & 33 in Dec. Skinflats Pools & mudflats monthly max: 2 in Jan, 6 in Apr, 8 in Aug, 35 in Sep, 16 in Oct & 2 in Nov. Other site max: 11 Powfoulis tidal breach 11 Sep.
*C Six Kennet Pans 21 Mar (MVB).
*S One head of L. Tay 27/28 Apr (JPH).

WHIMBREL *Numenius phaeopus* (p)
F Skinflats Pools monthly max: 1 on 1 Jan, 9 in Apr, 1 in May, 1 in Jul, 2 in Aug & 2 in Sep. Kinneil monthly max: 1 on 17 May, 2 in Aug & 2 in Sep. Higgin's Neuk: 1 from 11-15 Mar, then 1 on 17 Sep & 9 & 22 Nov. Other sites: singles Powfoulis tidal breach in May, Sep & Oct; 1 R. Forth (S. Alloa – Dunmore) 1 May; 1 Bo'ness 25 Aug & 1 Blackness 11 Sep.
C Longcarse monthly max: 4 in Apr & 5 in May. Singles Kennet Pans 20 Aug & 1 Sep & 2 mouth of Black Devon 8 Sep.
*S One head of L. Tay 18 & 23 May (JPH).

CURLEW (Eurasian) *Numenius arquata* (B, W)
Inland WeBS: 3 in Jan, 111 in Feb, 104 in Mar, 30 in Sep, 72 in Oct, 33 in Nov & 196 in Dec.
Forth Est. WeBS: 942 in Jan, 1,151 in Feb, 796 in Mar, 995 in Sep, 845 in Oct, 882 in Nov and 623 in Dec.
BBS/WBBS: recorded at 0.28 b/lkm (1997-2018 av: 0.57 b/lkm. Range 0.24 (2018) to 0.98 (2003) b/lkm). The highest recording rate was on farmland at 0.28 b/lkm.
F Skinflats monthly max: 382 in Jan, 423 in Feb, 203 in Mar, c.50 in May, c.40 in Jun, c.45 in Jul, c.340 in Aug, 247 in Sep, 429 in Oct, c.340 in Nov & 436 in Dec. Kinneil monthly max: 333 in Jan, 128 in Feb, 33 in Mar, 195 in Sep, 106 in Oct, 203 in Nov & 51 in Dec. Other site max: 195 R. Forth (S. Alloa – Kinc. Br.) 14 Sep; c.130 Blackness 13 Jan; c.100 Powfoulis tidal breach 26 Jan & 10 Feb & c.70 Higgin's Neuk 3 Jan & 12 Mar.
C R. Forth (Cambus-S. Alloa) monthly max: 173 in Jan, 454 in Feb, 326 in Mar, 11 in Apr, 4 in May, 18 in Jun, 105 in Jul, c.140 in Aug, 63 in Sep, 182 in Oct, c.210 in Nov & 189 in Dec. Kennet-

pans: 131 on 21 Mar, c.170 on 15 Sep & 101 on 15 Oct. Other site max: 181 Haugh of Blackgrange 20 Dec & 69 Cambus Village Pool 1 Oct.

S C.100 Fallin Bing 31 Oct; c.90 Carse of Lecropt (11 Mar); 81 head of L. Tay 24 Mar & c.70 Bandeath 15 Dec.

COMMON SANDPIPER *Actitis hypoleucos* (B)

BBS/WBBS: recorded at 0.08 b/lkm (1997-2018 av: 0.07 b/lkm. Range 0.05 (1999) to 0.12 (2017) b/lkm). First of year: 2 R. Forth (Gargunnock) 26 Mar (PS) & 1 Carronshore 8 Apr (AE). [20 year range: 26 Mar – 21 Apr]. Last of year: 1 Tullibody Inch 14 Oct (DMB). Winter: 1 Powfoulis 23 Dec (GW).

F Site max: 7 Kinneil 6 Jul, 12 Jul & 2 Aug. 5 Powfoulis tidal breach 6 Aug.

C Nine Tullibody Inch 8 Jul & 5 Gartmorn Dam 10 Jul.

S Site max: 8 head of L. Tay 25 Apr; 7 Cambusmore/Gart GP 7 Jul; 6 Braeleny 27 Apr; 6 G. Lochay 21 Jun & 5 Allan Water (Ashfield – Dunblane) 23 Apr.

*WOOD SANDPIPER *Tringa glareola*

F One Powfoulis tidal breach 31 Jul (TC) & 2 S. Pond Skinflats 2 Aug (AD, CAM).

C 1 Longcarse 22 Jun & 2 Aug (DOE).

S One head of L. Tay 27 Apr (JPH).

*GREEN SANDPIPER *Tringa ochropus* (p)

F Max: 2 Powfoulis tidal breach 31 Jul – 2 Aug & 8 - 20 Sep (TC, AB). Two Higgin's Neuk 14 Sep (RSm).

S One Allan Water (Kinbuck) 7 Sep & 2 on 23 Dec (CJP, DJ).

*SPOTTED REDSHANK *Tringa erythropus* (p)

F Skinflats Pools: 1 on 31 Jul & from 2 - 5 Aug (RS, AD, DOE, SWo). 1 Powfoulis tidal breach 2 Aug (CAM) & 1 Kinneil 24 Aug & 10 Sep (JRC, DT).

C One Longcarse 3 Aug (JRC).

GREENSHANK *Tringa nebularia* (w, p)

F Kinneil monthly max: 3 in Jan, 3 in Feb, 4 in Mar, 2 in Apr, 1 in Jun, 2 in Jul, 4 in Aug, 6 in Sep, 5 in Oct, 6 in Nov & 6 in Dec. Other sites: single birds Skinflats Pools Jan - Apr & Aug - Dec; 4 Blackness 13 Aug with 1 in Jan, Feb, Sep, Oct & Dec; 1 R. Carron (Glensburgh) 17 Feb; 1 Powfoulis tidal breach 21 Feb & 23 Oct & 1 Higgin's Neuk 15 Dec.

*C One Longcarse 12 Apr, 22 Jun & 8 Jul (DT, DOE, GG).
*S One L. Dochart 11 Apr & 1 head of L. Tay 17 Apr - 5 May then 25 May (JPH).

REDSHANK (Common) *Tringa totanus* (b, W)
Forth Est. WeBS: 1,771 in Jan, 2,261 in Feb, 1,976 in Mar, 1,196 in Sep, 2,945 in Oct, 2,502 in Nov & 3,252 in Dec.
F Kinneil monthly max: 795 in Jan, 907 in Feb, 859 in Mar, 523 in Apr, 475 in July, c.1,460 in Aug, 1,013 in Sep, 1,633 in Oct, 1,145 in Nov & 1,485 in Dec. Skinflats monthly max: 586 in Jan, 1,148 in Feb, 1,062 in Mar, 45 in Apr, 3 in Jun, 3 in Jul, c.200 in Aug, 915 in Sep, 1,124 in Oct, 1,201 in Nov & 1,522 in Dec. Other site max: c.90 Higgin's Neuk 2 Feb; c.70 Blackness 13 Jan & c.50 Powfoulis tidal breach 2 Feb.
C Monthly max R. Forth (Cambus - S. Alloa): 26 in Jan, 21 in Feb, 20 in Mar, 2 in Apr, 2 in May, 4 in Jun, 3 in Jul, 1 in Aug, 12 in Sep, 11 in Oct, 51 in Nov & 24 in Dec. Other sites: 3 Alva Floods 27 Feb with 2 on 13 Oct (GEL) & 2 R. Devon (Alva) 18 Mar (AR).

S Head of L. Tay monthly max: 3 on 31 Mar, 5 in Apr, 5 in May, 2 in Jun, 1 in Jul with last 2 on 15 Sep (JPH). One Kinbuck 10 Mar (CJP). Cambusmore/Gart GP: 2 on 23 Mar, 1 on 7 Apr & 2 on 5 May (DT, NB).

TURNSTONE (Ruddy) *Arenaria interpres* (w)
Forth Est. WeBS: 21 in Jan, 7 in Feb, 20 in Sep, 5 in Oct & 1 in Nov.
F Site max: 18 Bo'ness - Carriden 16 Sep; 11 Kinneil 20 Jan; 5 Blackness 11 Sep, 2 Powfoulis tidal breach 12 May; 1 Skinflats Pools 6 Aug & 1 R. Carron (Glensburgh) 10 Nov (JRC, AB, DOE, AE, MVB).

* KITTIWAKE (Black-legged) *Rissa tridactyla* (p)
F C.30-40 (circling against a black cloud in buoyant flight with their all black wing tips standing out clearly) Kinneil 2 Apr (DMB) & 2 Kinneil Kerse 24 Aug (JRC).

BLACK-HEADED GULL *Chroicocephalus ridibundus* (b, W)
Inland WeBS: 546 in Jan, 1,208 in Feb, 419 in Mar, 708 in Sep, 467 in Oct, 907 in Nov & 1,975 in Dec.
Forth Est. WeBS: 537 in Jan, 674 in Feb, 144 in Mar, 1,201 in Sep, 183 in Oct, 2,503 in Nov & 65 in Dec.
BBS/WBBS: recorded at 0.07 b/lkm (1997-2018 av: 0.93 b/lkm.

Range: 0.07 (2019) to 3.47 (1997) b/lkm).
F Site max: c.2,400 Skinflats Pools 10 Nov & c.350 Blackness 13 Jan.
C Site max: 297 Longcarse 23 Jul.
S Breeding: Cambusmore/Gart GP: 5 aon 9 Jun; 4 aon, 2 large Y + 2 chicks 7 Jul (NB) & 4 aon + 38 chicks Falcon Foods bldg. (Stirling Uni) 16 Jun (MVB). Site max: c.80 head of L. Tay 17 Apr.

*LITTLE GULL *Hydrocoloeus minutus* (Irr)
F Ad in winter plumage Blackness 13 Aug (DMB).

*MEDITERRANEAN GULL *Larus melanocephalus* (w)
F Skinflats Pools: singles 14 Apr, 26 Jun, 23 Jul, 2 & 13 Aug, 5, 27 & 29 Oct (AD, DT, DOE, AB); 1 Kinneil 12 Jul (AD); a 2nd cy bird Grangemouth 13 Aug (DMB); 2 Stonehouse (Skinflats) 5 Oct (RAB) & 1 Powfoulis tidal breach 5 & 23 Oct (DOE, TC).
C One Alloa Inch 13 Jul (AD) & 1 Kennet Pans 1 Sep (JRC).

COMMON GULL (Mew Gull) *Larus canus* (b, W)
Inland WeBS: 546 in Jan, 472 in Feb, 402 in Mar, 648 in Sep, 294 in Oct, 305 in Nov & 765 in Dec.
Forth Est. WeBS: 110 in Jan, 79 in Feb, 95 in Mar, 353 in Sep, c.160 in Oct, c.420 in Nov & 36 in Dec.
BBS/WBBS: recorded at 0.23 b/lkm (1997-2018 av: 1.31 b/lkm. Range: 0.18 (2015) to 3.31 (1998) b/lkm).
F Site max: 513 Drumbowie Resr. 10 Sep & c.240 Slamannan 2 Nov.
C Site max: c.350 Tullibody Inch 23 Mar.
S Breeding: Cambusmore/Gart GP: 7 aon's 5 May & 1 juv 7 Jul (NB); 9 chicks Falcon Foods bldg. (Stirling Uni) 16 Jun (MVB) & 3 chicks head of L. Tay 16 Jul (JPH). Site max: 308 R. Teith (Lecropt) 14 Dec; c.250 Flanders Moss E 23 Dec & 176 head of L. Tay 20 Jul.

LESSER BLACK-BACKED GULL *Larus fuscus* (B, P, w)
Inland WeBS: 7 in Jan, 77 in Feb, 148 in Mar, 345 in Sep, 133 in Oct, 79 in Nov & 42 in Dec.
Forth Est. WeBS: 2 in Jan, 7 in Feb, 12 in Mar, 43 in Sep, 24 in Oct, 11 in Nov & 1 in Dec.
BBS/WBBS: recorded at 1.02 b/lkm (1997-2018 av: 0.98 b/lkm. Range: 0.53 (2016) to 1.89 (2009) b/lkm). The highest recording rate was in urban/suburban habitat at 6.48 b/lkm but it was recorded in all six broad habitat categories.

F Breeding: 2 aon's on roofs of both the Council Offices, Denny & Bonnybridge Ind. Est. 24 May. C.50 prs nested on the roof of the disused A.G. Barr bldgs at Port Downie by the F & C Canal, Camelon (WT). Site max: 67 Kinneil 8 Aug.
C Breeding: min 34 aon's Kelliebank Ind. Est (Alloa) & 6 aon's Alloa Glass Works 21 May (NB). Site max: c.50 Longcarse 5 Aug.
S Breeding: 1 aon Cambusmore/Gart GP 5 May. Pathfoot bldg. (Stirling Uni.): 3 aon + 3 NY 16 Jun & 9 FL/juv with a further 5 juv on Airthrey Loch 29 Jul (MVB). Site max: 748 Kippen 1 Oct; 132 R. Forth (The Frews) 21 Sep & c.120 Kinbuck 29 May.

HERRING GULL (European) *Larus argentatus* (b, W)
Inland WeBS: 196 in Jan, 287 in Feb, 64 in Mar, 125 in Sep, 127 in Oct, 1,040 in Nov & 127 in Dec.
Forth Est. WeBS: c.600 in Jan, c.650 in Feb, 155 in Mar, c.600 in Sep, c.640 in Oct, c.400 in Nov & c.600 in Dec.
BBS/WBBS: recorded at 0.47 b/lkm (1997-2018 av: 0.50 b/lkm. Range: 0.1 (2000) to 4.17 (1999) b/lkm). The highest recording rate was in urban habitat at 3.7 b/lkm. Numbers much reduced in recent years following the closure of open refuse tips and greater recycling of food waste.
F Breeding: c.16 prs nested on the roof of the disused A.G. Barr bldgs at Port Downie by the F & C Canal, Camelon (WT). Site max: 550+ Grangemouth Docks 17 Feb & 100 Kinneil 10 Feb.
C Breeding: min 2 aon's on roofs of both the Kelliebank Ind. Est. & Glass Works, Alloa 21 May (NB). Site max: c.660 R. Devon, Menstrie 26 Nov & c.200 Craigrie Pond 8 Nov.
S. One intermittently head of L. Tay 18 May – 2 Jun.

*GLAUCOUS GULL *Larus hyperboreus* (Irr)
S A first spring bird was at the Lake of Menteith 15 Feb (NB).

GREAT BLACK-BACKED GULL *Larus marinus* (S, W)
Inland WeBS: 13 in Jan, 16 in Feb, 9 in Mar, 4 in Sep, 10 in Oct, 11 in Nov & 16 in Dec.
Forth Est. WeBS: 19 in Jan, 11 in Feb, 13 in Mar, 9 in Sep, 4 in Oct, 20 in Nov & 24 in Dec. Recorded in small numbers. Widespread but scarce inland, mainly in winter.
F Site max: 75 Kinneil 28 Aug & 18 Lathallan Pool (Polmont) 25 Feb.
C Site max: 16 Gartmorn Dam 5 Sep; 12 Longcarse 8 Aug & 6 juvs Craigrie Pond 8 Nov.

S Breeding: 1 aon on island of CVR 4 Apr (AD). Site max: 8 Buckieburn Resr. 24 Feb; 6 Lake of Menteith 30 Mar; 6 Blackdub floods 11 Dec & 2 juvs head of L. Tay 29 Jun. One pirated a small flatfish from a Lesser Black-backed Gull on R. Forth, Bandeath 8 Jul (NB).

SANDWICH TERN *Sterna sandvicensis* (s, P)
First for year: 1 Kinneil 2 Aug (DMB). Last of year 1 Blackness 15 Oct (DMB).
F Site max: 195+ Powfoulis (roosting on the mudflats) 8 Sep; 175 Blackness 12 Sep; 81 Kinc. Br 12 Sep & c.20 Skinflats 17 Sep.
*C 59 Longcarse 10 Aug (JRC).
*S One head of L. Tay 25 Jun (JPH).

COMMON TERN *Sterna hirundo* (S)
First of year: 2 Powfoulis tidal breach 12 May (DOE). [10 year range: 26 Apr – 18 May]. Last of year Powfoulis tidal breach 24 Sep (TC).
F Site max: 35 Blackness 12 Sep; 17 (mobbing a juv Sparrowhawk) Skinflats Pools 2 Aug (AD, MVB); 17 Kinneil 17 May; & 7 R. Carron Grangemouth) 10 Jul.
*C Seven Longcarse 27 Jun with 2 on 28 Jul (NB, DOE) & 3 Kennet Pans 29 Jun (GG).

*ARCTIC TERN *Sterna paradisaea* (p)
F 100+ (265 'Commic' Terns) Blackness 13 Aug (DMB). Kinneil: 2 on 20 Jun with 3 on 22 Jul (LW, WT).

* BLACK TERN *Chlidonias niger* (Irr)
F One Blackness 15 Sep (GG).
C Two Longcarse 1 Sep (JRC).
S Juv CVR 24 Aug (GG, VW).

* GUILLEMOT (Common Murre) *Uria aalge* (s, w)
F Three Kinneil 18 Apr (DT); 2 Blackness 19 Apr (EMcl); 3 Skinflats (WeBS) 13 Oct (MVB); 1 Blackness 15 Oct; 1 Grangepans 27 Oct (GG) & 2 Kinneil 10 Nov (AB).
C R. Forth, Longcarse: 2 (+2 dead birds being carried upstream on the tide & 1 dead on bank) 19 Apr (NB). R. Forth (Cambus): 5 on 17, 1 on 19 with 2 on 20 Apr (GG, NB) & 1 Gartmorn Dam 18 Sep (SP).

S Nine R. Forth, Stirling 17 Apr (GC); 2 R. Teith (Lecropt) 18 Apr (KJD). Head of L. Tay: 1 on 7 & 16 Sep, 2 on 27 Sep & 1 on 13 Oct. One L. Dochart 14 Sep (JPH).

FERAL PIGEON *Columba livia* (B, W)
BBS/WBBS: recorded at 0.72 b/lkm (1997-2018 av: 0.95 b/lkm. Range: 0.29 (2016) to 2.19 (1997) b/lkm). The highest recording rate was in urban habitat at 6.79 b/lkm.
F 174 Stonehouse Fm. (Skinflats) 31 Oct (NS 9184).
C C.100 Longcarse 12 Dec.
S C.100 Dunblane centre 30 Nov & c.100 Bandeath 15 Dec.

STOCK DOVE *Columba oenas* (B, W)
Widely but thinly spread, mostly in farmland areas. Usually in groups of <4. BBS: Recorded at 0.05 b/lkm (1997-2018 av: 0.05 b/lkm. Range: 0.01 (2003) to 0.12 (2005) b/lkm).
F Site max: c.50 Kinneil 15 Feb; c.40 Powfoulis 5 Oct & c.30 Higgin's Neuk 5 Oct.
C Site max: 10 Longcarse 14 May.
S Site max: c.30 Bandeath 15 Dec.

WOOD PIGEON (Common) *Columba palumbus* (B, W)
BBS/WBBS: recorded at 3.18 b/lkm (1997-2018 av: 3.48 b/lkm. Range: 2.48 (1997) to 4.78 (2012) b/lkm). The highest recording rate was in urban habitat at 11.15 b/lkm but was recorded in all six broad habitat categories. The 2nd most numerous species on this year's BBS.
F Max: c.500 Larbert 21 Jan.
S Site max: 1,486 Ashfield 10 Nov (mig. count CMcK) & c.440 Greenyards, Dunblane 4 Dec.

COLLARED DOVE (Eurasian) *Streptopelia decaocto* (B, W)
BBS/WBBS: recorded at 0.18 b/lkm (1997-2018 av: 0.25 b/lkm). Range: 0.13 (2014) to 0.48 (2006) b/lkm). The highest recording rate was in urban habitat at 1.7 b/lkm.
F Max: 6 S. Alloa 21 Mar.
S Max: 6 Crianlarich 9 May.

TURTLE DOVE (European) *Streptopelia turtur* (V)
F One Skinflats Pools 4 Aug (SWo) is the 5th record for the UF after single birds in Falkirk (May 1969); Skinflats (May 1977); Skinflats (Jul 1987) & Thornhill (May 1995).

CUCKOO (Common) *Cuculus canorus* (B)
BBS/WBBS: recorded at 0.15 b/lkm (1997-2018 av: 0.09 b/lkm. Range: 0.03 (2009) to 0.26 (2018) b/lkm). First spring records: 1 Sheriff Muir 21 Apr & 1 Kirkton (Strath Fillan) 23 Apr (ACC, JPH). [20 year range 14 to 29 April]. Last record 1 Aberfoyle 28 Aug (AMcN).
*F One Rough Castle, Camelon 23 May (EMcL) & juv Skinflats Pools 4 Aug (SWo).
*C One Black Devon, Forest Mill 4 Jun (DAR).
S Widespread in the 'highland glens' and the lowland moors and mosses. Site max: 7 head of L. Katrine 10 Jun; 5 G. Beich (N. of L. Earn) 24 May; 4 G. Lochay 11 May; 4 Ballochleam (NS6592) 11 Jun; 3 CVR 7 May & juv Mill of Argaty 4 Aug.

*BARN OWL (Western) *Tyto alba* (b, w)
F Three Easter Manuel (NS 9777) 26 Jun (ACC).
C No records.
S One A820 (NN 7401) & 2 Doune 3 Jan. Singles: Middle Kerse, Kippen 12 Feb & 14 Jul; West Carse 22 Feb; Flanders Moss E 17 Mar; Muir Toll, Campsie Muir 13 Apr; centre of Dunblane 21 Apr; Bolfornought (NS 8293) 11 Oct; Gallamuir, Cowie 14 Oct & Killin 25 Nov (TG, FAC, JN, GG, DOE, VW, CJP, RS, BA, DW).

TAWNY OWL *Strix aluco* (B, W)
Widespread but under-recorded.
F Recorded from: Blackness, Carron (Falkirk), Carron Dams, Jawcraig & Muiravonside.
C Recorded from Menstrie.
S Breeding: Killin: 'branched' chick 8 Jun & ad + 2Y 26 Jul (GG, JPH). Recorded from: Ballochleam, Kippen, Balquhidder, Crianlarich, Doune, Dunblane, G. Beich, Port of Menteith, Keirarnhall, Kippenrait Glen, L. Iubhair, L. Mahaick, Plean CP, Stirling Uni, Killin, Strathyre & Waltersmuir. A calling bird in Killin was also making the 'xylophone trilling' vocalisation 13 May & 28 Aug (JPH).

*LONG-EARED OWL *Asio otus* (b, w)
F One Powfoulis tidal breach 27 Jan (AD, RS). Skinflats Pools: 1 – 2 from 20 - 29 Mar (AD, AB).
C One Kennetpans 21 Dec. Flew across the Forth from the S shore (AD).
S One Sheriff Muir 21 Dec made a ♀ call (KJD).

*SHORT-EARED OWL *Asio flammeus* (b, W)

F Two Kincardine Br. 27 Jan (RS); 1 – 3 Skinflats Pools intermittently from 22 Feb to 20 Apr (AD, SWo, AB, RS, IB); 2 roosting in the sea wall Powfoulis 17 Mar (AB) & 1 Brackenlees Fm. 18 Mar (AD).

S One Kippen Muir 20 Apr (RNS).

SWIFT (Common) *Apus apus* (B)

Recorded throughout the area. BBS/WBBS: recorded at 0.17 b/lkm (1997-2018 av: 0.39 b/lkm. Range: 0.02 (2018) to 0.98 (2002) b/lkm). The highest recording rate was in urban habitat at 3.45 b/lkm. First for year: 5 Gartmorn Dam 4 May (AIB). [20 year range 24 April to 6 May]. Last 1 Dunblane 4 Sep - a very late bird (KJD).

F Site max: c.160 Skinflats Pools 2 Jun & c.30 Powfoulis tidal breach 21 Jul.

C Max: 12 Gartmorn Dam 7 Jun.

S Breeding: 24 confirmed nests Dunblane (CMcK) & min 4Y from nest sites on two bldgs in Main St, Strathyre (DJC). Site max: 44 Dunblane 15 Jul; 25+ Blairdrummond Ponds 27 May; 22 Carron Valley 9 Jun & c.20 BoA 10 May.

KINGFISHER (Common) *Alcedo atthis* (b, w).

Inland WeBS: 4 in Jan, 1 in Feb, 3 in Mar, 13 in Sep (indication of a good breeding season?), 7 in Oct, 5 in Nov & 3 in Dec. Breeding in small numbers in suitable habitat throughout the area. More widespread outwith the breeding season.

GREEN WOODPECKER (European) *Picus viridis* (B, W)

F Recorded from: Glenbervie & Limerigg.

C Recorded from: Alva, Dollar Glen, Forest Mill (2), Menstrie & Woodhill, Alva (2).

S Recorded from: Aberfoyle, Argaty, Balquhidder, Blairdrummond, Blairlogie, Callander, Cambusmore/Gart GP, Camusurich, .L. Tay (2), Cromlix, Doune, Dumyat, G. Lochay, Killin, L's. Ard, Chon & Mahaick, Logie Kirk & Strathyre.

GREAT SPOTTED WOODPECKER *Dendrocopos major* (B, W)

Recorded thinly throughout the area and year. BBS/WBBS: recorded at 0.05 b/lkm (1997-2018. average 0.07 b/lkm. Range 0.0 (1997) to 0.15 (2012) b/lkm).

F Breeding: juv in Carronshore gdn 21 Jun (AB).

S Breeding: NY + 1 FL Dykedale Woods (Dunblane) 12 Jun (MVB).

SKYLARK (Eurasian) *Alauda arvensis* (B, W)
BBS/WBBS: recorded at 1.54 b/lkm (1997-2018 av: 1.67 b/lkm. Range: 1.25 (1997) to 2.71 (2000) b/lkm). The highest recording rate was in the mountain & moorland habitat at 2.5 b/lkm where it was the 2nd most numerous species after Meadow Pipit. The 10th most numerous species on this year's BBS/WBBS.
F Max: 35+ Skinflats 29 Sep.
S Max: c.900 Carse of Lecropt 1 Feb (flushed by a Buzzard).

SAND MARTIN *Riparia riparia* (B)
BBS/WBBS: recorded at 0.97 b/lkm (1997-2018 av: 0.6 b/lkm. Range: 0.02 (2003) to 1.34 (2009) b/lkm. The wide annual range is largely due to changing colony locations. First for year 1 Skinflats Pools 21 Mar (MVB) [20 year range 4 Mar to 30 Apr]. Last 6 Blackness 14 Sep (AMcN).
F Site max: c.20 Skinflats Pools 26 May & 21 Jun.
C Site max: c.50 Tullibody Inch 8 Aug & c.85 Gartmorn Dam 25 Jun.
S Breeding: c.10 aon's R. Balvag, Strathyre 20 Apr (DJC). Site max: c.400 head of L. Tay 2 May; c.300 Blairdrummond Ponds 9 Apr; c.65 Cambusmore/Gart GP 25 Apr & 40+ Crianlarich 3 Jun.

SWALLOW (Barn) *Hirundo rustica* (B)
BBS/WBBS: recorded at 1.05 b/lkm (1997-2018 av: 2.12 b/lkm. Range: 1.0 (2016) to 3.53 (2009) b/lkm). The highest recording rate was on the farmland habitat at 2.16 b/lkm. The 15th most numerous species on this year's BBS. First for year: singles S. Alloa & Gartmorn Dam 2 Apr (ACC, GG). [20 year range: 6 Mar – 11 Apr]. Last: 3 Cambus 22 Oct (CAM).
Breeding records please.
F Max: c.70 Skinflats Pools 3 Aug & 17 Sep.
C Max: c.230 Tullibody Inch 15 Aug.
S Breeding: nested at Dunblane Cathedral & Howietoun Ponds. Max: c.50 Hill of Row 30 Jul.

HOUSE MARTIN (Common) *Delichon urbicum* (B)
BBS: recorded at 0.71 b/lkm (1997-2018 average: 0.73 b/lkm. Range: 0.23 (2016) to 1.29 (2003) b/lkm). The highest recording rate was in urban/suburban areas at 1.88 b/lkm. More breeding records please. First of year: 2 N. Pool, Skinflats 25 Mar was the earliest date yet (AD). [20 year range: 25 Mar – 21 Apr]. Last: 3 Dunblane 5 Oct (MVB).

F Breeding: 3 ON Carron 29 Jun & 12 Aug (AB). Max: 40+ CVR 7 Apr.
C Max: c.40 Gartmorn Dam 7 Jun.
S Max: 75 Dunblane 7 Sep; c.50 Braeleny 3 Jul & c.40 L. Mahaick 3 Jul.

TREE PIPIT *Anthus trivialis* (B)

BBS/WBBS: recorded at 0.25 b/lkm (1997-2018 av: 0.09 b/lkm. Range: 0.0 (2004) to 0.25 (2019) b/lkm). The highest recording rate was in deciduous wood / scrub habitat at 0.82 b/lkm. First of year: 2 Ruskie 19 Apr (DOE). [20 year range: 2 Apr – 27 Apr]. Last: Flanders Moss 15 Aug (AE).

*F One Skinflats Fields 23 Apr (AE) & 1 Roughcastle Fort 23 May (EMcL).
*C One Menstrie 21 Apr (GG) & 1 Seamab Hill 29 Apr (JHN).
S Breeding: 18 aot's Tyndrum 29 May (DMB). Max: 8 Callander Crags 25 May & 6 W. Flanders Moss path 25 Apr. Widespread to N & W of Stirling, scarcer elsewhere.

MEADOW PIPIT *Anthus pratensis* (B, W)

BBS/WBBS: recorded at 5.49 b/lkm (1997-2018 av: 5.03 b/lkm. Range: 2.71 (1997) to 7.38 (2016) b/lkm). The highest recording rate was in the mountain & moorland habitat at 10.8 b/lkm. The most numerous species on this year's BBS/WBBS.

F Max: c.100 Skinflats Pools 30 Sep.
C Max: 38 Longcarse 28 Aug.
S Max: c.40 Lairhill, Sheriff Muir 21 Aug.

*ROCK PIPIT (Eurasian) *Anthus petrosus* (w)

F Skinflats foreshore: 1 on 26 Jan, 3 on 27 Oct, 1 on 21 & 31 Dec (DOE, AB); 'present' Powfoulis tidal breach Jan & Feb then 1 on 14 Nov (TC); 1 Higgin's Neuk 2 Feb (DOE) & 'present' Blackness 9 & 14 Dec (KH, GWa, ASi).
C 1 Longcarse 2 Feb (JRC).

*YELLOW WAGTAIL *Motacilla flava* (V)

F One Skinflats Pools 18 Apr was of the blue-headed *flava* race (SWo).

GREY WAGTAIL *Motacilla cinerea* (B, w)

Found in small numbers in suitable habitat throughout the area. A partial migrant. Inland WeBS: 3 in Jan, 1 in Feb, 25 in Mar, 14 in Sep, 12 in Oct, 8 in Nov & 11 in Dec.

S Max: 5 head of L. Tay 27 Sep.

PIED WAGTAIL *Motacilla alba* yarrellii (B, w)
BBS/WBBS: recorded at 0.31 b/lkm (1997-2018 av: 0.34 b/lkm. Range: 0.17 (2013) to 0.77 (1998) b/lkm). Recorded at the highest rate on farmland at 0.64 b/lkm.
F Max: 35 Powfoulis tidal breach 28 Dec; c.20 Skinflats Pools 5 Sep & c.20 Larbert 22 Oct.
C Max: 22 Longcarse 27 Jul.

WHITE WAGTAIL *Motacilla alba alba* (p)
F Skinflats Pools area. Spring: first 11 Apr with 24 on 18 Apr & c.15 on 21 Apr. Autumn / winter: 1 – 2 from 1 – 17 Sep then 1 on 9, 21 & 30 Dec. Two Blackness 11 Sep & 2 Kinneil 17 Sep.
*S 11 Blairdrummond 27 Apr; 3 Cambusmore/Gart GP 5 May & 20 head of L. Tay 7 May (DOE, NB, DMB).

WAXWING (Bohemian) *Bombycilla garrulus* (w)
A few in winter/spring then a reasonable influx during late autumn/winter with the first record 2 Kinneil 8 Nov (AE).
F Site max: 22 Grahamston (Falkirk) 6 Feb (BG's) & 2 Kinneil 8 Nov.
C Max: 3 Alloa 28 Nov.
S Site max: c.30 Dunblane 7 Dec (AD); 22 Stirling Br. 1 Dec; 12 Broomridge (Stirling) 25 Nov; 10 Causewayhead 20 Feb (BG's); 5 Callander 4 Dec; 3 Cambuskenneth 4 Mar & 1 Invertrossachs 1 Jan.

DIPPER (White-throated) *Cinclus cinclus* (B, W)
Recorded on suitable watercourses throughout the region. Inland WeBS: 48 in Jan, 36 in Feb, 25 in Mar, 29 in Sep, 29 in Oct, 51 in Nov & 31 in Dec.
F Breeding: singing bird R. Carron (Carron) 9 Nov (AB). Site max: 5 R. Carron (M876-Larbert) 26 Mar, 16 Sep & 22 Oct.
C Breeding: One singing R. Devon, Glenfoot 16 Nov (GEL). R. Devon: Vicar's Br-Tillicoultry WeBS max: 19 in Jan, 14 in Feb, 13 in Mar, 9 in Sep, 12 in Oct, 14 in Nov & 11 in Dec.
S Site max: 9 Allan Water (Ashfield-Dunblane) 23 Apr; 5 R. Teith, Lanrick Est. 17 Nov & 5 L. Lubnaig 21 Nov.

WREN (Eurasian) *Troglodytes troglodytes* (B, W)
Widespread and common. BBS/WBBS: recorded at 1.32 b/lkm (1997-2018 av: 1.86 b/lkm. Range: 0.78 (2011) to 2.37 (2000) b/lkm).

The recording rate was fairly similar in all habitats except mountain & moorland where it was much lower. The 11th most numerous species on this year's BBS/WBBS.

DUNNOCK *Prunella modularis* (B, W)
Widespread and common. BBS/WBBS: recorded at 0.39 b/lkm (1997-2018 av: 0.45 b/lkm. Range: 0.26 b/lkm (2018) to 0.76 b/lkm (2005)). The highest recording rate was in urban habitat at 1.7 b/lkm.
S Breeding: ad feeding fledglings Ochiltree, Dunblane 30 Apr (NB).

ROBIN (European) *Erithacus rubecula* (B, W)
Widespread and common. BBS/WBBS: recorded at 0.8 b/lkm (1997-2018 av: 1.17 b/lkm. Range: 0.77 (2018) to 1.52 b/lkm (2004)). The highest recording rate was in conifer woodland at 2.64 b/lkm followed by deciduous wood / scrub habitat at 1.95 b/lkm.
F Max: 10 Callendar Park 22 Mar.
C Max: 8 Longcarse 13 Dec.
S Max: 23 Kingshouse-Killin cycle route 29 Jun; 15 Flanders Moss 10 May & 14 R. Teith, Carse of Lecropt (WeBS) 17 Nov.

BLACK REDSTART *Phoenicurus ochruros* (Irr)
S One Springkerse (Stirling) 13/14 Oct (LMP, CJP). This is only the 6th record for the recording area, the last one having occurred in Mar 2005. There were previous records in 1875, 1982, 1983 and 1996.

REDSTART (Common) *Phoenicurus phoenicurus* (B)
Found in low numbers mostly to the N & W of Stirling. First spring record: 1 G. Dochart 13 Apr (JPH). [12 year range: 10 Apr – 29 Apr]. Last: head of L. Tay 13 Jul (JPH).
S Breeding: 5 aot's Tyndrum 29 May (DMB). Max: 5 Auchlyne (G. Dochart) & 5 G. Beich (L. Earn) 24 May.

WHINCHAT *Saxicola rubetra* (B)
BBS/WBBS: recorded at 0.14 b/lkm (1997-2018 average: 0.09 b/lkm. Range: 0.01 (2007) to 0.22 (1997) b/lkm). Recorded mostly to the N & W of Stirling. First spring record: 1 Callander 23 Apr (DMB). [20 year range: 15 Apr – 26 May]. Last Skinflats 17 Sep (DMB).
C One Balquharn Glen 29 Apr.
S Max: 4 Sheriff Muir 10 May & 4 L. Mahaick 3 Jul.

STONECHAT (European) *Saxicola rubicola* (B, w)
BBS/WBBS: recorded at 0.08 b/lkm (1997-2017 average: 0.06 b/lkm. Range: 0.0 (2012) to 0.19 (2008) b/lkm).
F Max of 2 Skinflats Pools Oct - Dec.
C Max: 3 Alva 7 Jun.
S Site max: 9 Sheriff Muir 3 Jun; 8 Ballochleam, Kippen 11 Jun; 3 pr's Flanders Moss 17 Apr; 6 L. Mahaick 3 Jul & 5 W Flanders Moss 6 Aug.

WHEATEAR (Northern) *Oenanthe oenanthe* (B)
BBS/WBBS: recorded at 0.33 b/lkm (1997-2018 av: 0.17 b/lkm. Range: 0.07 b/lkm (2004) to 0.33 b/lkm (2019)). The highest recorded rate was on mountains and moorlands at 0.55 b/lkm while the rate of 0.29 b/lkm on farmland presumably mostly consisted of 'Greenland *leucoroha*' passage birds during May. First spring record 2 Longcarse 2 Apr (NB). [12 year range: 14 Mar – 8 Apr]. Last 2 Skinflats 20 Sep (CS).
F Max: 4+ Skinflats Pools area 8 Apr.
C Max: 5 Longcarse 30 Apr.
S Breeding: pr + 4 juv's Cauldhame Jun (DMB). Max: 14 Braeleny 27 Apr & 6 Ballochleam, Kippen 1 May.

*RING OUZEL *Turdus torquatus* (b)
F One >SE Liddle Dr, Bo'ness 14 Oct (RS).
S One Low Botaurnie (G. Lochay) 2 May & 6 Jun (AE); 3 Meall Glas/Sgiath Chuil 6 May (GP); 2 Meall Ghaordaidh 14 May (NMcW); singing ♂ Creag Mac Ràanaich 24 May (KJD); 1 Craigruie, Balquhidder 25 May (DI); singing ♂ G. Ample 10 Jun (DMB) & 3 Rob Roy's Putting Stone (NN 5124) 3 Aug (JPH).

BLACKBIRD (Common) *Turdus merula* (B, W)
Widespread and common. BBS/WBBS: recorded at 1.72 b/lkm (1997-2018 av: 2.08 b/lkm. Range: 1.28 (2016) to 2.72 (1999) b/lkm). The highest recording rate was in urban/suburban areas at 7.76 b/lkm but was recorded in good numbers in the other habitat categories except mountain and moorland where it was scarce. The 8th most numerous species on this year's BBS.
F Max: 14 Skinflats 15 Dec & 10 S. Alloa 2 Apr.
C Max: 18 Longcarse 13 Dec & 10 R. Devon (Tillicoultry) 20 Dec.
S Max: c.15 Blairdrummond 10 Nov; 14 Howietoun Ponds 21 Dec & 13 Laighills (Dunblane) 20 Nov.

FIELDFARE *Turdus pilaris* (W)
Last spring record 42 Sheriff Muir 21 Apr (ACC) is within 10 year range of 25 Mar - 14 May. First autumn record 2 S. Broomage, Larbert 6 Oct (WT) is within the 10 year range of 3 Sep to 22 Oct.
F Site max: c.350 Skinflats Pools 10 Nov & c.100 M876 (Bowtrees) 14 Mar.
C Site max: c.300 Tullibody Inch 13 Dec & c.150 Cambus Village Pools 6 Dec.
S Site max: c.350 Carse of Lecropt 2 Nov & Strathyre 4 Dec; c.300 Bandeath 15 Dec, 242> over Dunblane 31 Oct & '100's' Kirkton, Strath Fillan 21 Oct.

SONG THRUSH *Turdus philomelos* (B, W)
Widespread. BBS/WBBS: recorded at 0.54 b/lkm (1997-2018 av: 0.52 b/lkm. Range: 0.24 (2011) to 0.82 (2000) b/lkm). The highest recording rate was in deciduous wood / scrub at 1.43 b/lkm.

REDWING *Turdus iliacus* (W)
Last spring record: c.30 Auchenteck, Dunblane 14 Apr (KJD) is within the previous 10 year range of 7 Mar to 1 May. First autumn record: 5 Crianlarich 5 Oct (IMcP) is within the previous 10 year range of 16 Sep to 12 Oct.
F Max: 58 Falkirk Cemetery 17 Feb.
C Max: c.200 Longcarse 13 Dec.
S Max: c.280 Carse of Lecropt 31 Oct; c.190> over Dunblane 21 Oct (Trek) & '100's' Kirkton (Strath Fillan) 21 Oct.

MISTLE THRUSH *Turdus viscivorus* (B, W)
Widespread. BBS/WBBS: recorded at 0.17 b/lkm (1997-2018 av: 0.16 b/lkm. Range: 0.06 to 0.3). Recorded in low numbers in all habitat categories except urban / suburban where none.
F Max: 7 Kincardine Br 14 Sep.
S Max: c.25 Sheriff Muir 26 Sep; 15 Cromlix 25 Sep; 11 L. Rusky 15 Sep & 10 Hill of Row 30 Jul. Single birds defended berry laden *Sorbus* 'Joseph Rock' trees in three different Dunblane gdn's during the autumn / winter period.

GRASSHOPPER WARBLER (Common) *Locustella naevia* (B)
Widely but thinly spread throughout the area.
First spring records singing birds Chacefield Wood, Denny & Skinflats Pools 19 Apr (AD, MVB). [20 year range 14 Apr to 27 Apr]. Last 1 Skinflats Pools 4 Aug (SWo).
S Max: 6 Crianlarich 9 May & 5 W. Flanders Moss path 25 Apr.

SEDGE WARBLER *Acrocephalus schoenobaenus* (B)
BBS/WBBS: recorded at 0.1 b/lkm (1997-2018 av: 0.1) Range: 0.03 (2018) to 0.27 (2012) b/lkm). Unsurprisingly, the highest recording rate was on WBBS at 0.64 b/lkm - relatively scarce elsewhere.
First spring record: 5 ♂'s Skinflats Pools & 1 Cambus 20 Apr (AB, SWo, GG) [20 year range 20 Apr - 1 May]. Last: 1 Skinflats 21 Sep (AB).
F Site max: 12 Skinflats Pools 6 Jul & 6 Kinneil 6 Jul.
C Max: 14 Tullibody Inch 6 Jul & 7 ♂'s Kennetpans 13 May.

*REED WARBLER (Eurasian) *Acrocephalus scirpaceus* (b)
Breeding of the species in the Upper Forth area was first confirmed in 2011. First spring record: 1 Skinflats 17 May (DMB). [4 year range: 5 – 17 May]. Last Skinflats 3 Sep (RS).
F Skinflats Pools from 17 May - 4 Aug with max of 3 on 2 Jun (DMB, SWo, CAM et al). One bird was seen feeding in an adjacent cereal field 31 Jul (AB). Max. 2 Powfoulis tidal breach 1-12 Aug (CAM, TC).
C Tullibody Inch from 18 May to 15 Aug with max of 3 in May, Jun & Jul (DOE, GG et al); 3 Alloa Inch 13 Jul (GG) & 1 Cambus 3 Aug (JRC).

BLACKCAP (Eurasian) *Sylvia atricapilla* (B)
Found throughout the area. BBS/WBBS: recorded at 0.27 b/lkm (1997-2018 av: 0.15 b/lkm. Range: 0.07 (1999) to 0.27 (2019) b/lkm). The highest recording rate was in deciduous wood / scrub at 0.45 b/lkm. Probable first spring records: singles at Stirling Uni & Castlehill, Stirling 29 Mar (ACC, TC). Last 1 (feeding on rowan berries) Dunblane 17 Oct (CMcK). [It is difficult to separate the few overwintering birds from Eastern Europe with genuine summer migrants].
F Winter record: 1 (feeding on fat balls) Polmont 15-30 Dec (DN). Max: c.8 Skinflats Pools 20 Apr.
C Winter record: ♂ Alloa gdn 20 Nov (IR).
S Winter records: ♀ Alexander Dr gdn (BoA) 1 & 27 Jan (MS) & ♂ Ochiltree gdn (Dunblane) 24 Feb (NB). Max: 11 Blairdrummond 18 May.

GARDEN WARBLER *Sylvia borin* (B)
Recorded throughout the area in small numbers.
First spring record 1 Gartmorn Dam 27 Apr (GG) [20 year range 14

Apr to 5 May]. Last Liddle Dr (Bo'ness) 9 Sep (RS).
S Max: 6 The Lodge, Aberfoyle 11 May.

WHITETHROAT (Common) *Sylvia communis* (B)
BBS/WBBS: recorded at 0.18 b/lkm (1997-2018 av: 0.20 b/lkm. Range: 0.11 (2015) to 0.32 (2000) b/lkm). Recorded in all habitat categories except mountain & moorland. First spring records 2 Kinneil & 1 Skinflats Pools 18 Apr (DT, SWo) [20 year range 9 Apr to 2 May]. Last: 1 Skinflats fields 20 Sep (AE).
F Max: 6 Skinflats Pools 14 May.
S Breeding: ad feeding Y Strathyre 16 Jul (DRC). Max: 6 Blairdrummond 18 May.

WOOD WARBLER *Phylloscopus sibilatrix* (B)
First spring record 1 Camusurich (L. Tay) 19 Apr (AIB). [20 year range: 17 Apr to 24 May]. Last 1 Killin 6 Sep (IMcP).
S Recorded in small numbers in deciduous woodland to the N & W of the highland line.

CHIFFCHAFF (Common) *Phylloscopus collybita* (B, w)
BBS/WBBS: recorded at 0.25 b/lkm (1997-2018 av 0.13 b/lkm. Range: 0.01 (1997) to 0.26 (2012) b/lkm). Numbers have increased noticeably over the past 20 years and the sp's is now widespread in suitable habitat. No overwintering birds recorded. First singing record: 1 Powfoulis tidal breach 22 Mar (MVB) with the last autumn record 1 head of L. Tay 26 Oct (JPH).
F Max: 9 Kinneil Wood 7 Apr & 8 Skinflats Pools 18 Apr.
C Max: 8 Gartmorn Dam 29 Mar & 18 Sep.
S Breeding: ad feeding 2-3 newly fledged Y BoA 1 Jun. A bird showing the characteristics of the ssp. *abietinus* was singing in Dunblane 31 Mar (CMcK).

WILLOW WARBLER *Phylloscopus trochilus* (B)
Widespread. BBS/WBBS: recorded at 2.2 b/lkm (1997-2018 av: 1.69 b/lkm. Range: 1.15 (2007) to 2.84 (1997) b/lkm). The highest recording rate was in deciduous wood / scrub at 6.6 b/lkm. The 6th most numerous species on this year's BBS. First of year 1 Cambus 9 Apr (GG). [20 year range 3-18 Apr]. Last: 1 Skinflats Pools 30 Sep (SWo).
F Max: 9 Skinflats Pools 18 Apr.
C Max: 10+ Gartmorn Dam 4 May.
S Max: 59 Kingshouse – Killin cycle track 29 Jun; 22 singing birds CVR 21 Apr & 16 May. 21 Blackwater Marshes (NN 5305) 11 Jun.

YELLOW-BROWED WARBLER *Phylloscopus inornatus* (V)

F One at Larbert House woods 12/13th Oct (AB, AD) & 1 Grangeburn, Grangemouth 13 Oct (JRC) are only the 3rd & 4th records for the UF after 1 in Buchlyvie on 30/05/1960 and 1 at Skinflats Pools 25/09/16.

S One Kinbuck 13 Oct is the 5th record for the UF (CJP).

GOLDCREST *Regulus regulus* (B, W)

BBS/WBBS: recorded at 0.28 b/lkm (2013-2019 av: 0.33 b/lkm. Range: 0.23 (2016) to 0.42 (2014) b/lkm). As expected, the highest recording rate was in the conifer habitat at 3.0 b/lkm.

F Max: 10 Callendar Park 22 Mar.

SPOTTED FLYCATCHER *Muscicapa striata* (B)

First spring record: 1 Coireachrombie (Pass of Leny) 12 May (LH). [20 year range: 1 to 25 May]. Last: Eas Gobhain (Callander) & Killin 15 Sep (NB, JPH). Found in ever decreasing numbers – mostly to the N & W of Stirling.

*F One Roughcastle, Tamfourhill 23 May (EMcL) & 1 Skinflats Pools 1 & 3 Sep (AB, RS).

S Max: 5 Flanders Moss 15 Aug & 4 G. Finglas 4 Jul. E & S of Stirling: 2 Fallin CP 20 Jul.

BEARDED TIT (Bearded Reedling) *Panurus biarmicus* (b)

*F Skinflats Pools: 2 on 25 Feb & 2 on 24 Oct (AE, DT, AB).

C Monthly max Tullibody Inch: 2 in Jan, 2 in Feb, 1 in Mar, 2 in Apr, 5 in May, 6 (incl. 4 juv) in Jun, 8 in Jul, 2 in Aug, 2 in Sep, 8 in Oct, & 3 in Dec (JRC, DOE et al). One R. Forth, Haugh of Blackgrange 28 Oct (AM).

LONG-TAILED TIT *Aegithalos caudatus* (B, W)

Widespread. BBS/WBBS: recorded at 0.11 b/lkm (1997-2018 av: 0.14 b/lkm. Range: 0.03 (2009) to 0.38 (1997) b/lkm).

F Max: 16 Skinflats 10 Nov.

C Max: 12 Gartmorn Dam 9 Nov.

S Max: c.25 Stirling Uni. 23 Sep & 19 Blairdrummond 23 Dec.

BLUE TIT (Eurasian) *Cyanistes caeruleus* (B, W)

Widespread. BBS/WBBS: recorded at 1.28 b/lkm (1997-2018 av: 1.53 b/lkm. Range: 0.8 (2016) to 2.51 (2005) b/lkm). Recorded in similar numbers in all the broad habitat categories except mountain & moorland where it was peripheral. Deciduous wood / scrub returned the highest rate at 2.97 b/lkm. The 12th most numerous spe-

cies on this year's BBS/WBBS.

F Max: c.80 passed through a Bo'ness gdn in 5 mins 29 Aug (RS); c.21 Falkirk cemetery 16 Feb & c.17 Camelon cemetery 20 Jan.

S Max: 24 Leannach Forest 1 Jan & c.20 Balquhidder Glen 17 Dec.

GREAT TIT *Parus major* (B, W)

Widespread. BBS/WBBS: recorded at 1.05 b/lkm (1997-2018 av: 0.87 b/lkm. Range: 0.41 (2000) to 1.32 (2010) b/lkm). As with Blue Tit, recorded in similar numbers in all the broad habitat categories except mountain & moorland where it was peripheral. WBBS returned the highest rate at 2.24 b/lkm. The 14th most numerous species on this year's BBS/WBBS.

F Breeding: Max: c.21 Camelon cemetery 20 Jan; c.15 Falkirk cemetery 16 Feb; c.15 Callendar Park 22 Mar & c.15 Liddle Dr. (Bo'ness) 29 Aug.

S Max: c.10 Stirling Uni 11 Mar & c.10 Balquhidder Glen 17 Dec.

COAL TIT *Periparus ater* (B, W)

Widespread. BBS/WBBS: recorded at 0.29 b/lkm (1997-2018 av: 0.47 b/lkm. Range: 0.14 (2009) to 1.00 (2002) b/lkm). The highest rate was 1.64 b/lkm in the conifer woodland habitat.

S Max: 23 Kingshouse – Killin cycle track 29 Jun.

NUTHATCH (Eurasian) *Sitta europaea* (B)

After the first record in 1999 breeding was recorded in 2009. Now widespread in steadily increasing numbers and becoming a regular visitor to garden bird feeders.

F Max: 4 Callendar Park 1 Feb.

S Max: 8 Doon Hill (Aberfoyle) 9 Dec & 6 Forest Park, Aberfoyle 28 Jul.

TREECREEPER (Eurasian) *Certhia familiaris* (B, W)

Widespread in small numbers.

C Max: 5 Gartmorn Dam 18 Sep.

*GREAT GREY SHRIKE *Lanius excubitor* (Irr)

S One L. Mahaick 25 Oct – 9 Nov (NB, CJP, CMcK, DOE).

JAY (Eurasian) *Garrulus glandarius* (B, W)

Widespread in small numbers. Secretive in the breeding season.

F Max: 5 Larbert Pond 27 Mar.

S Max: c.10 Doon Hill, Aberfoyle 9 Dec & 7 R. Teith, Lanrick 4 Jan.

MAGPIE (Eurasian) *Pica pica* (B, W)
Widespread in Falkirk and Clackmannan districts plus the Stirling area. Unusual N of the Highland Line. BBS/WBBS: recorded at 0.52 b/lkm (1997-2018 av 0.48 b/lkm. Range 0.31 (2003) to 0.75 (2010) b/lkm). Notably most numerous in urban/suburban habitats at 3.45 b/lkm.
F Max: 21 Bo'ness 27 Nov.
C 20 Cambus 20 Dec.
S Max: 25 Newton Cres., Dunblane 26 Jan (pre roost count at 15.55 hours, MVB); 22 Longley (BoA) 1 Feb & 20 Bandeath 15 Dec. One Kirkton, Strath Fillan 11 Apr & 14 Jul (JPH).

JACKDAW (Western) *Corvus monedula* (B, W)
BBS/WBBS: recorded at 1.83 b/lkm (1997-2018 av 2.40 b/lkm. Range: 1.56 (2016) to 3.27 (2005) b/lkm). Recorded in all six broad habitat categories but most frequent in urban/suburban areas at 8.0 b/lkm. The 7th most numerous species on 2019 BBS/WBBS.
F Max: c.120 Langlees, Falkirk 22 Nov.
C Max: c.130 Longcarse 7 Sep.
S Max: c.300 Hill of Row 19 Jan & 237 head of L. Tay 15 Apr.

ROOK *Corvus frugilegus* (B, W)
BBS/WBBS: recorded at 1.66 b/lkm (1997-2018 av: 3.21 b/lkm. Range: 1.37 (2016) to 6.74 (1999) b/lkm). Most frequent on farmland at 3.67 b/lkm. The 9th most numerous species on 2019 BBS/WBBS but numbers appear to be decreasing.
F Max: c.200 Kingseat Pl. (Falkirk) 3 Feb & 17 Dec.
C. Breeding: Two nestlings found under a small rookery in Menstrie 20 Nov was very late (EM). Max: c.70 Longcarse 3 Jan.
S Breeding: 316 nests Dunblane in Apr - a decrease of 4 on 2018 (MVB). Max: c.140 Drip Moss 7 Jul.

CARRION CROW *Corvus corone* (B, W)
Ubiquitous. BBS/WBBS: recorded at 2.43 b/lkm (1997-2018 av: 3.12 b/lkm. Range 2.0 (2018) to 6.22 (2005) b/lkm). Recorded in all six broad habitat categories but most frequent in farmland at 4.11 b/lkm followed by urban/suburban areas at 3.94 b/lkm. The 5th most numerous species on 2019 BBS/WBBS.
F Max: 55+ Bo'mains Meadow 18 Oct.
C Max: 85 Longcarse 3 Feb.
S Max of c.90 Longley (BoA) 1 Feb.

HOODED CROW *Corvus cornix* (b, w)
Hybrids with Carrion Crow are common in a transition band running E-W across the area to the N of Callander.

S Most pure birds are found in far north-western part of the area. Max: 4 hybrids Balquhidder Glen 21 Nov & 2 head of L. Tay 28 Apr.

RAVEN (Northern) *Corvus corax* (B, W)
Now quite widespread but mostly in small numbers apart from non-breeding groups. BBS/WBBS: recorded at 0.23 b/lkm (1997-2018 av 0.09 b/lkm. Range 0.01 (2000) to 0.23 (2019) b/lkm).

F Breeding: nest on pylon by Chacefield Wood, Denny 10 Apr (AD). Max: 10 Kinneil Wood 3 Feb & 4 Almond Castle, Polmont 6 Jun.
C Recorded in small numbers (max 2) from several locations.
S Site max: 27 Kirkton Annet, Braes of Doune 16 Feb; 23 Strathyre (roost site) 4 Dec; c.10 L. Mahaick 21 Dec & 10 Gartclach, Dalmary 14 Apr.

STARLING (Common) *Sturnus vulgaris* (B, W)
BBS/WBBS: recorded at 2.75 b/lkm (1997-2018 av: 4.77 b/lkm. Range: 2.08 (2016) to 10.70 (2000) b/lkm). Most frequent in urban/suburban areas at 14.97 b/lkm (the highest rate for any sp's in any habitat). The 3rd most numerous species on this year's BBS/WBBS.

F Site max: c.250 Powfoulis tidal breach 21 Jul & c.200 Skinflats Pools saltmarsh 20 Jun.
C Site max: 235 Tullibody Inch 8 Jul & c.180 Gartmorn Dam 26 Nov.
S Site max: c.700 in murmuration W edge of Dunblane 21 Nov; c.500 >W at dusk BoA 5 Mar; c.500 Bandeath 15 Dec & c.250 L. Mahaick 16 Feb.

HOUSE SPARROW *Passer domesticus* (B, W)
BBS/WBBS: recorded at 1.23 b/lkm (1997-2018 av: 1.69 b/lkm. Range: 1.20 b/lkm (2016) to 2.93 (2010) b/lkm). Most abundant in urban/suburban areas at 12.36 b/lkm. The 13th most numerous species on this year's BBS/WBBS.

F Max: 105 Skinflats Fields 15 Aug.
C Max: 35 Longcarse 5 Aug.
S Max: c.170 Carse of Lecropt 15 Aug & 31 Newton Cres, Dunblane 16 Aug.

TREE SPARROW (Eurasian) *Passer montanus* (B, W)
BBS/WBBS: recorded at 0.07 b/lkm (1997-2018 average: 0.1 b/lkm. Range: 0.00 (2002) to 0.28 (2010) b/lkm).
F Breeding: ad feeding 2 Y 29 May then 4ad + 8Y 14 Jun 34 Campbell Christie Dr. (Mungal, Falkirk. (SWo)). Max: 65 Stonehouse, Skinflats 4 Jan & 24 Mungal, Falkirk 23 Jun.
C Max: c.20 Gartmorn Dam CP 2 Oct.
S Breeding: pr nest building Atholl Pl., Dunblane 20 Apr (KJD). Max: c.60 Bandeath 12 Oct; 45 Hill of Row 6 Jan; c.40 Whirrieston, Thornhill 23 Dec; 30+ Carse of Lecropt 10 Apr & 25 Stonehill, Dunblane 24 Sep.

CHAFFINCH (Common) *Fringilla coelebs* (B, W)
BBS/WBBS: recorded at 2.73 b/lkm (1997-2018 av: 3.8 b/lkm. Range: 2.73 (2019) to 5.15 (1998) b/lkm). Recorded in all six broad habitat categories but most frequent in conifer woodland at 6.73 b/lkm followed by deciduous wood/scrub at 6.45 b/lkm. The 4th most numerous species on this year's BBS/WBBS.
F 20+ Powfoulis 20 Jan & 20+ Skinflats Pools 3 Feb.
S Site max: c.350 Greenyards, Dunblane 13 Feb; c.300 Hill of Row 6 Jan; c.60 Stonehill, Dunblane 8 Jan & c. 50 Dunblane gdn 3 Feb.

BRAMBLING *Fringilla montifringilla* (w)
Last spring record: 1 Dunblane 20 Apr (CF). First autumn record: 1 Ashfield 16 Oct (Trek).
*F Two Powfoulis 16 Feb & 1 Powfoulis tidal breach 27 Mar (RS, TC).
*C Two Gartmorn Dam CP 19 Oct (GG).
S Site max: c.150 Hill of Row 6 Jan & 10 Ashfield 10 Nov.

GREENFINCH (European) *Carduelis chloris* (B, W)
Still widely but now thinly spread. Numbers on BBS in Scotland fell by 69 % from 2007 to 2017, largely due to the parasite *Trichomonosis gallinae*. BBS: recorded at 0.11 b/lkm (1997-2018 av: 0.45 b/lkm. Range: 0.03 (2017) to 1.07 (2005) b/lkm). Recorded at the highest rate in urban/suburban areas at 0.61 b/lkm.
F Max: 18 Mungal, Falkirk 17 Feb & 15 Powfoulis 26 Jan.
S Site max: c.360 feeding on Noble Fir (*Abies procera*) cones Dykedale Woods, Dunblane 30 Dec (MVB) & 25 Ashfield 18 Jan.

GOLDFINCH *Carduelis carduelis* (B, W)
BBS/WBBS: recorded at 0.65 b/lkm. (1997-2018 av: 0.44 b/lkm.

Range: 0.12 (1998) to 1.00 (2010) b/lkm). The highest recording rate was in urban/suburban areas at 2.85 b/lkm.

F Max: c.200 Powfoulis tidal breach 21 Jul & c.60+ Skinflats Pools 21 Aug.

C Max: 36 Blackdevon Wetlands 20 Dec.

S Max: c.120 Jerah Forest 26 Sep; 64 Newton Cres., Dunblane 23 Nov; 56 Carse of Lecropt 12 Oct & 46 Howietoun Ponds 25 Aug.

SISKIN (Eurasian) *Spinus spinus* (B, W)

BBS/WBBS: recorded at 0.12 b/lkm (1997-2018 av: 0.32 b/lkm. Range: 0.1 (2000) to 0.75 (1997) b/lkm).

F Max: 14 Carron 20 Jan.

C. Max: 45 Blackdevon Wetlands 3 Jan & c.40 Gartmorn Dam 26 Nov.

S Max: c.110 Biggins Wood, Dunblane 26 Nov & c.60 Stirling 30 Dec.

LINNET (Common) *Linaria cannabina* (B, W)

BBS/WBBS: recorded at 0.06 b/lkm (1997-2018 av: 0.26 b/lkm. Range: 0.05 (2005) to 0.83 (2006) b/lkm). Essentially a farmland bird where it was recorded at 0.11 b/lkm.

F Max: c.60 Carron 13 Jan; c.40 Powfoulis 3 Jan & c.40 Blackness 15 Oct.

C Max: 11 Longcarse 4 Jul.

S Site max: c.380 Greenyards, Dunblane 4 Dec; c.150 Carse of Lecropt 19 Jan; c.70 Stonehill, Dunblane 8 Jan & c.70 Kilmadock 3 Mar.

TWITE Linaria *flavirostris* (b, W)

F Site max: 105 Higgin's Neuk area 14 Dec ; c.70 Skinflats Fields 24 Sep & 45 RSPB Powfoulis 3 Jan.

*C Four Alva Glen 21 Oct (KJD).

*S Breeding season: 2 Kenknock, G. Lochay 25 Apr (GG). Max: 3 Cam Chreag (NN3734) 17 Sep (JPH).

LESSER REDPOLL (Common) *Acanthis cabaret* (b, W)

BBS/WBBS: recorded at 0.27 b/lkm (1997-2018 av: 0.10 b/lkm. Range: 0.01 (2008) to 0.35 (2015) b/lkm). The highest recording rate was in the deciduous / scrub habitat at 0.89 b/lkm.

F Max: 35 Bo'ness 23 Jan.

C Max: 5 Smithfield Loan, Alloa 9 Mar.

S Max: 94 Balquhidder 17 Dec.

COMMON CROSSBILL (Red) *Loxia curvirostra* (b, W)
BBS/WBBS: recorded at 0.05 b/lkm (1997-2018 av: 0.07 b/lkm. Range: 0.00 (2010) to 0.56 (2012) b/lkm). Only recorded in the conifer (0.36 b/lkm) & deciduous/scrub habitats (0.17 b/lkm).
*F 28 Torwood Castle 26 Jan; 12 Chacefield Wood, Denny 5 Jan & 10 Apr & 2 Torwood 4 Feb (AD, AB).
*C Seven Forest Mill 1 Apr (AE).
S Max: c.200 Tyndrum 7 May incl. 'several stout billed birds but not 'Parrots' (DMB); 13 Drip Moss 19 Jun; 12 L. Mahaick 21 Dec & 8 Auchtertyre (G. Dochart) 3 Dec. Recorded in small numbers at several other sites.

BULLFINCH (Eurasian) *Pyrrhula pyrrhula* (B, W)
Recorded in low numbers in the lowlands. BBS/WBBS: recorded at 0.05 b/lkm (1997-2018 av: 0.06 b/lkm. Range: 0.01 (2003) to 0.12 (1998) b/lkm).
F Max: 10 Kinneil 19 Nov.
C Max: 8 Gartmorn Dam CP 23 Jan.
S Max: 21 Dykedale Woods 30 Dec; 15 Caledonian Dr., Dunblane 30 Nov & 12 Doune 6 Jan.

*HAWFINCH *Coccothraustes coccothraustes* (V)
S One Dunblane 27 Oct (CJS).

*SNOW BUNTING *Plectrophenax nivalis* (w)
S Four Beinn a' Chroin 7 Mar (JR).

YELLOWHAMMER *Emberiza citrinella* (B, W)
BBS/WBBS: recorded at 0.34 b/lkm (1997-2018 av: 0.45 b/lkm. Range: 0.08 (2003) to 0.74 (2010) b/lkm). As would be expected, most frequent on farmland at 1.09 b/lkm.
F Site max: c.35+ Skinflats Pools 3 Feb; 29 Brackenlees 18 Jan & c.20 Higgin's Neuk 15 Feb.
C Site max: 75 Longcarse 17 Jan & 20 Cambus 13 Dec.
S Site max: 32 Carse of Lecropt 1 Feb; c.30 Hill of Row 6 Jan & 27 Greenyards, Dunblane 26 Nov.

REED BUNTING (Common) *Emberiza schoeniclus* (B, W)
BBS/WBBS: recorded at 0.24 b/lkm (2004-2018 av: 0.23 b/lkm. Range: 0.10 (2005) to 0.45 (2006) b/lkm). As would be expected, most frequenton WBBS at 1.12 b/lkm.

F Site max: 21 Brackenlees (Skinflats) 17 Feb & 20 R. Forth, S. Alloa – Dunmore 29 Dec.
C Site max: C.20 Tullibody Inch 13 Dec & 15 Blackdevon Wetlands 20 Dec.
S Site max: 27 R. Teith, Carse of Lecropt (WeBS) 14 Dec; 25 Blairdrummond 4 Jan & 25 Hill of Row 24 Feb.

HYBRIDS

CANADA GOOSE x GREYLAG GOOSE
S Two Balquhidder 28 Jan, 25 Feb, 21 Nov & 17 Dec.

RINGING REPORT 2019

Neil Bielby

The following report highlights a selection of notable observations from bird ringing activities during 2019. For access to additional information visit:

https://www.bto.org/our-science/projects/ringing/publications/online-ringing-reports

A total of 2,243 birds were ringed in the 'Upper Forth' region in 2019 with the commonest species being Blue Tit (398), Great Tit (220), Blackcap (137), Barn Owl (121) and Willow Warbler (109). Comparing the Upper Forth to the Britain and Ireland ringing totals, of particular significance were the ringed totals for Osprey (17 / 223 = 8%) and Buzzard (21 / 394 = 5%). Some notable / scarce species ringed in the region in 2019 include Goshawk (3), Woodcock (10), Barn Owl (121), Reed Warbler (1), Grasshopper Warbler (4), Nuthatch (18), Tree Sparrow (13) and Brambling (5).

Notable **ringing** recoveries **during 2019 are as follows:**

Mute Swan ***Cygnus olor:*** A ♀ ringed as an adult in Cumbernauld on 08/09/2008 was seen again on Airthrey Loch (Stirling Uni) in 2015. It was further seen at this location in 2017, 2018 and 2019.

Shelduck ***Tadorna tadorna:*** An adult ♀ German-ringed bird, reported from Guardbridge (Fife) in 2005 was seen at Skinflats on 24/07/2019.

Grey Heron ***Ardea cinerea:*** A nestling ringed at Besthorpe NR, nr Newark (Notts) on 28/04/2019 was seen at Skinflats Pools on 29/09/2019 (370 km).

Bar-tailed Godwit ***Limosa lapponica :*** A first year bird ringed at Ujscie, Wisly (Poland) on 05/09/2019 was reported from Skinflats Pools on 04/10/2019 having moved a distance of 1,443 km.

Black-headed Gull: *Chroicocephalus ridibundus:* A nestling ringed at RSPB Saltholme (Teesside) on 11/06/2018 was reported from Linlithgow Loch (W. Lothian) on 18/11/2018 and Callendar Park, Falkirk on 17/11/2019 (ring read in field). A nestling ringed at Sands of Forvie NNR, Newburgh (Aberdeenshire) on 03/07/2017 was caught by a ringer at Blackness Castle on 05/01/2019 (174 km).

The following birds ringed at Blackness Castle had their colour rings observed abroad. First-year bird (04/12/2018) seen Stavanger (Norway) on 12/05/2019 (642 km). First-year bird (05/01/2019) seen Stavanger (Norway) on 24/04/2019 (642km). Second-year bird (04/12/2018) seen Linlithgow Loch (W. Lothian) on 23/02/2019 then Elk, Wjoska Polskiego (Poland) on 19/03/2019 (1,662km).

Common Gull *Larus canus*: The colour rings of a first-year bird ringed at Blackness Castle on 16/09/2018 were seen at Belfast Lough on 10/11/2018 and 28/04/2019 (212 km). The colour rings of an adult bird ringed at Blackness Castle on 22/08/2018 were seen at Stavanger (Norway) on 15/08/2019 (642km).

Sandwich Tern *Thalasseus sandvicensis:* A first-year bird ringed at Seal Sands (Teesmouth) on 24/08/2011 was caught by a ringer at Blackness Castle on 11/08/2019. (213 km). A nestling ringed at Sands of Forvie NNR, Newburgh (Aberdeenshire) on 11/06/2019 was caught by a ringer at Blackness Castle on 25/08/2019. (174 km).

Common Tern *Sterna hirundo:* A first-year bird ringed at Seal Sands (Teesmouth) on 24/08/2015 was caught by a ringer at Blackness Castle on 11/08/2019 (213 km). A bird colour-ringed as an adult at Blackness Castle on 05/08/2019 was seen off the coast of the Gambia on 12/10/2019 (4,859 km). A bird colour-ringed as an adult at Blackness Castle on 20/08/2019 was seen off the coast of Senegal on 23/11/2019 (4,642 km).

Barn Owl *Tyto alba:* A nestling ringed at Shittleheugh (Northumberland) on 29/05/2017 was found 'long dead' in a nestbox at Farmston (Stirling) on 07/06/2019 (169 km). A ♀ nestling ringed at the Luib Hotel (Stirling) on 05/06/17 was found 'long dead' on Colonsay on 07/07/2019 (112 km).

Great Spotted Woodpecker *Dendrocopos major:* An adult ♀ ringed at Blairdrummond on 02/12/2012 had its ring read at Doune on 31/05/2019 making it 6y 5m 29d old (the longevity record for this species is 11y 10m 21d for a Nottinghamshire (Treswell Wood) bird which was set in 2017).

Kestrel Falco *tinnunculus*: A nestling colour-ringed near Doune on 20/06/2013 was seen alive at Kaluga Aeroport (Russia) on 30/08/2019 (2,523 km).

Coal Tit Periparus *ater:* An adult ringed on Abbey Craig on 23/10/2015 was caught by a ringer at Levenmouth (P & K) on 06/01/2019 (36 km).

Blue Tit ***Cyanistes caeruleus:*** A juvenile ringed at Loaningbank, Menstrie on 11/08/2012 was recaptured there on 19/01/2019 making it 6y 5m 8d old (the longevity record for this species is 9y 8m 16d for a bird at Attenborough NR (Notts) which was set in 1984).

Sedge Warbler ***Acrocephalus schoenobaenus***: first year bird ringed at Kinneil Lagoon on 25/08/2018 was caught by a ringer at Donges (France) on 08/08/2019 (973 km).

Blackcap ***Sylvia atricapilla:*** A first year ♂ ringed at Kinneil Lagoon on 25/08/2019 was caught by a ringer at Saint-Froult (France) on 08/09/2019 (1,138 km).

Whitethroat ***Sylvia communis*****:** A first-year bird ringed at Kinneil Lagoon on 01/09/2018 was found dead at Fylingthorpe, Whitby (N. Yorks) on 07/05/2019 after hitting a window.

Fieldfare ***Turdus pilaris:*** A first-year ♂ ringed at Kinneil Lagoon on 25/08/2018 was caught by a ringer at Bodo (Norway) on 23/05/2019 (1,564 km).

Redwing ***Turdus iliacus:*** An adult bird ringed at Kinneil Lagoon on 07/10/2018 was found freshly dead in Birkenhead (Merseyside) on 10/01/2019 having been killed by a cat (297 km).

Robin ***Erithacus rubecula:*** A first-year bird ringed at Loaningbank, Menstrie on 29/09/2013 was recaptured there on 25/08/2019 making it 5y 10m 27d old (the longevity record for this species is: 8y 4m 30d for a bird at Fylde (Blackpool) which was set in 1977).

Siskin ***Spinus spinus***: A first-year ♂ ringed at Callander on 16/04/2017 was recaptured in Staffordshire on 19/01/2019 (411 km). A first-year ♂ ringed in Shropshire on 20/03/2019 was found freshly dead in Glenample, Lochearnhead on 10/06/2019 (395 km).

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MARSH HARRIER BREEDING IN THE UPPER FORTH, 2019

Duncan Orr-Ewing

The Marsh Harrier *Circus aeruginosus* is an annual passage migrant in the Upper Forth recording area, with most birds seen in August and September along the Forth estuary. It has been assumed that these records relate to migrating birds from the Tay reedbeds.

On 27 April 2019, I located a second-summer male bird at a Clackmannanshire estuarine reedbed, and on 30 April this bird was joined by a female. The male bird lacked the normal grey upper wing panels and tail, and showed some pale grey on the underwing. On 12 May, I was pleased to see the pair carrying out a soaring and chasing display with some calling, and then both birds carrying large strands of Reed *Phragmites australis* into a tidal reedbed. I continued visiting the site when I could find time and, on every visit, I saw at least one of the birds and often the pair. During the week commencing 22 May, I convinced myself that incubation had started. According to the literature this date was nearly a fortnight outwith the normal laying date range.

At this point, I made contact with Steve Moyes of the Tay Ringing Group, and Harry Bell of the Tayside Raptor Study Group, who have monitored Marsh Harriers for many years in the Tay reedbeds. They gave me some helpful tips and stressed that breeding Marsh Harriers could be sensitive to disturbance during the incubation phase. Since the male of this pair was a second-summer bird, my hopes were not high for a successful breeding attempt. During late May and June, I visited the site on a number of occasions and sometimes saw the male bird; however, it was clear that he was foraging some distance from the nest.

During June there was a record of a female seen in the Kincardine Bridge area about 7 km from the nest which I suspect was this second-summer male bird wrongly identified. Around 24 June, there were several torrential rain events in the Stirling area, including one that resulted in the collapse of a supermarket roof. I was also watching high tides on the Forth estuary with trepidation. I feared the worst for the breeding harriers!

However, on 29 June, my fears were allayed when I observed a food pass between the male and female, a clear indication that hatching had taken place. On 5 July, I went to the site and saw three food passes in one hour. From the third week of July, I noted that both adults were foraging and bringing in food. On 8 August, I saw the female bird bring in food to the nest when three young Marsh Harriers leapt out of the reedbed in an attempt to grab the prey. The adult birds and the three young remained in the general area of the reedbed until the end of August. By the end of the first week of September, it seemed that the adult female had migrated. By mid-September, at least two of the young were still present before finally migrating themselves.

This is the first known successful breeding of Marsh Harriers in the Upper Forth recording area. I plan to monitor the nesting site again next breeding season if the birds return; however, Steve Moyes tells me not to count on this based on his experience in Tayside and Fife.

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STATUS OF CATTLE EGRET, GREAT WHITE EGRET AND LITTLE EGRET IN THE UPPER FORTH BIRD RECORDING AREA.

Chris Pendlebury

Summary

2019 saw three species of egrets being recorded in the Upper Forth recording area: cattle egret *Bubulcus ibis*, little egret *Egretta garzetta*, and great white egret *Ardea alba*. All three species are found widespread in Europe, primarily around the Mediterranean, extending north into central Europe. These extensions in range have brought recent increases in numbers, to differing degrees, in Scotland; these are discussed in relation to the 2019 Upper Forth records.

Cattle egret (See Plate 6)

The record in 2019 was the first record of this species for the Upper Forth region. This was at Bolfornought Farm, Stirling from around mid-September to 16th October. The arrival date is uncertain as it was only reported to birdwatchers approximately 2 weeks into its stay. The individual fed around the local cattle, and was often seen roosting in the cattle shed.

Twenty two cattle egrets had been recorded in Scotland up to the end of 2018, with numbers increasing in recent years: 19 of these were recorded since 2004 (McInerny & McGowan 2020). This increase is linked to the species range expansion into northern France in the 1960s followed by an increase in numbers in England, where breeding was noted for the first time in 2008 (Forrester *et al.* 2007; McInerny & McGowan 2020).

Great white egret (See Plate 7)

The fifth great white egret for the region was recorded near Stirling from 30th October to 12th November, initially found at Kildean before relocating to Craigforth. The bird was then seen on the 14th flying over Dunblane and then near Kinbuck. The bird was then recorded at Dollar on 11th December. The previous records in the region for this species were: at Loch Katrine in May 1881; Kinneil in October 2011 and at Polmont in May 2014.

Eighty great white egrets had been recorded in Scotland up to the end of 2012, at which point the species was no longer consid-

ered a Scottish rarity (McGowan *et al*. 2014). The increase in numbers of this species in Scotland is again linked with an expansion of the species into north-western Europe and a similar, but more widespread compared to cattle egret, increase in England where the species started breeding in 2012 (Forrester *et al.* 2007; McGowan *et al*. 2014). The breeding population in England was estimated to be 8 -12 pairs in 2017 (Woodward *et al*. 2020).

Little egret (See Plate 8)

Little egrets are now regularly found in the Upper Forth area, especially along the Forth estuary. They are also recorded annually, but in smaller numbers, elsewhere in the Stirling council region, with at least two recorded along the River Forth upriver of Stirling in late 2019 (at the same time as the great white egret was present).

Little egret is the commonest of the three species, but it is only relatively recently that it has started to be recorded regularly. As with the other two egret species, it expanded its range in the second half of the 20th century, with breeding now regular particularly in southern England. The English breeding population was estimated at 1100 pairs in the 2013-2017 period (Woodward *et al.* 2020), but the species is yet to be recorded breeding in Scotland.

Little egret was first recorded in the Upper Forth Region in 1969 in Dunblane, but not again till 2002 when two were at Skinflats. Individuals were then recorded in 2003 (Skinflats and Kinneil), 2004 (Blackness and Cambus) and 2007 (again at Skinflats and Kinneil). The species has been recorded annually since 2009, with six being the highest count so far. One colour-ringed individual recorded at Kinneil in 2017 had been ringed as a chick at a nest 2 years previously in Lincolnshire; whilst it is difficult to comment based on a single record, this could suggest that birds are coming from the breeding populations in northern England.

Conclusion

With the range expansion of all three species of egrets into north -western Europe, and the increase in breeding in England, a connected increase in records would be expected in the Upper Forth region. Whilst it might be several years before the next cattle egret record, the annual occurrence of great white egret in the region would not be unexpected. The numbers of little egret would also be expected to increase, especially if the species does start to breed in Scotland.

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DUNBLANE AND KIRKTON WEATHER REPORTS, 2019

Neil Bielby and John Holland

Dunblane

The weather station is my suburban back garden in Ochiltree, Dunblane. This is situated 50 m to the east of the Dunblane Hydro ridge, 100 m a.s.l., in a shallow, sheltered valley. (G.R. NN 78990143).

I have been recording the weather since 1995 and all averages etc. refer to the last 19 years. (Note: because there is much variation from year to year in Britain in the parameters used to define climate, climatological averages are usually taken over periods of 30 years for temperature and 35 years for rainfall. Therefore, all averages in this report should be viewed with some caution). I am indebted to Dr. John P. Holland for providing Met Office and additional weather records from Kirkton Farm, Strathfillan (NN 359283; 170 m a.s.l.) and Killin. Weather recording began in 1991 at Kirkton Farm and means etc. for this site date from that year. Killin means date from 2000. The data from Kirkton allows for some interesting meteorological comparisons between the far north-west and central areas of our region.

Daily rainfall (> 0.2mm), maximum and minimum temperatures, barometric pressure, cloud cover, wind direction and speed (Beaufort scale) are recorded. All except the maximum daily temperature are recorded at 09.00 hours. A brief description of the day's weather is also noted along with exceptional and unusual weather phenomena across the UK. Unless indicated otherwise, daily (24 hour) rainfall amounts are measured from 09.00 hours on the date mentioned until 09.00 hours the following morning. Unless stated otherwise, the Met Office 'long-term average' (LTA) is from 1981 – 2010.

Summary

The mean temperature for 2019 of 8.63°C was 0.13°C above the 1995 – 2019 average while precipitation of 1048.1 mm (41.3 inches) was 55.3 mm (5%) below the average. The wettest month was De-

cember with 148.5 mm whilst surprisingly, the driest was January with 29.1 mm (See Plate 9). The warmest month was July (mean temp. 16.66°C) and the coldest January (mean temp. 1.94°C). The highest recorded temperature was 29.6°C (25th July) and the lowest -9.1°C (1st February). There were 66 air-frosts (average 70) and six ground frosts (average 4) while snow lay on the ground at 09.00 hours on 12 occasions (average 21). Temperatures of over 25.0°C were recorded on only 2 days (one in June and one in July). There were 189 (52%) 'rain days' (average 208) with the highest 24 hour total being 26.1 mm (measured at 09.00 hours on the 26th of August). The average barometric pressure was 1011.0 mb (mean 1011.5 mb) with a high of 1047 mb (2nd January) and a low of 972 mb (13th December). It was calm at 09.00 hours on 44% of mornings although only occasionally did it remain calm throughout daylight hours. Turning to the seasons: Winter (Dec. 2018 – Feb. 2019) was milder (+0.91°C) yet much drier (-35.3%) than average with the 162.7 mm of precipitation recorded being the lowest for this season. Spring (Mar. – May) was warmer (+0.33°C) but wetter than the norm (+10%). Summer (June – August) was warmer (+0.30°C) and wetter (+22%) while the mean temperature in autumn was exactly the same as the average at 8.50°C. Rainfall of 278.8 mm was 19% above the average (See Plate 10).

The Weather through the Year

January was colder and much drier than average. The mean temperature of 1.94°C was 0.34°C below the average with a night low of -6.4°C (23rd) and a day high of 10.5°C (12th). There were 16 air -frosts (average 14) and one ground frost. Total precipitation of 29.1 mm was only 24% of the average and the lowest at this station for January after 29.3 mm in 1997. There were 11 days of measurable precipitation (average 20) - another low here, while snow lay on the ground at 09.00 hours on 12 occasions (average 12). The mean barometric pressure of 1015 mb was 7 mb above the average with the 1047 mb recorded on the 2nd setting a new high for this location (after 1045 mb in 2000 and 2001). The mean temperature for Scotland as a whole was 0.1°C above the 1981 -2010 average with rainfall being only 54% of the average.

High pressure continued to dominate reaching a record high for this station of 1047 mb (2nd). The first 2 days were mostly sunny but

a blanket of cloud covered the area from the 3rd to the 6th. The night of the 6th / 7th was windy and mild with temperatures peaking at 10.2°C (13.0°C, Achnagart, Ross & Cromarty). Two sunny but colder days followed, before milder and overcast conditions returned with temperatures reaching 10.8°C during the evening of the 12th. The weekend of the 12th / 13th was windy with the westerly and north-westerly winds gusting up to 44 mph. The unusually dry start to the year continued but temperatures gradually fell back to normal with frosts from the 17th to the 19th (-3.8°C, 18th) and a thin covering of snow at dawn on the 19th. There was another short cold snap from the 21st to the 24th (-6.4°C, 23rd) with falling snow during the morning of the 22nd giving a light covering. After a few milder days the weather turned colder again on the 28th with 1.5 cm of snow falling during the morning of the 29th. This cold snap continued until the month end with sharp frosts at night (-5.6°C, -14.3°C Braemar 31st). The days were cloudless in Dunblane but a temperature inversion on the last day of the month saw the Forth Valley covered in dense, freezing fog.

February was much milder and drier than average with the mean temperature of 4.75°C being 1.68° above the long-term average making it the 2nd mildest February at this station after 6.99°C in 1998. There were eight air-frosts and one ground frost. Precipitation of 57.6 mm was only 61% of the average with measurable amounts on 14 days (average 17) while snow lay on the ground on three occasions (average five). Scotlandwide the mean temperature was 2.5° C above the LTA making this the 2nd highest in a series dating from 1910. The daytime max. of 18.3°C Aboyne was a new February record for Scotland (21st) while the daytime temperature reached 21.2° C at Kew Gardens, London (26th). Another record for Scotland was set at Achnagart (Ross & Cromarty) when the night temperature fell no lower than 13.9°C (22nd / 23rd).

The cold snap continued for the first few days of the month with a year low of -8.8°C (-11.9°C Kirkton, -15.4°C Braemar, 1st). 'Atlantic' weather then took over with the deep depression (970 mb, 8th) of storm 'Erik' producing strong winds and 24.2 mm of rain during the 8th (34.6 mm Kirkton). High pressure (1035 mb, 24th), centred over Europe, slowly built from the 10th drawing in unseasonably mild air from the Canary Islands on a south-westerly airstream. Daytime temperatures peaked at 15.2°C (22nd) - a new high

for February at this station after 13.8°C in 2009. These mild conditions lasted, with a little patchy rain, until the month end

March was milder and wetter than average with the mean temperature of 5.82°C being 0.91°C above the average. The mean daily high was 0.4°C and the mean night low 1.41°C above their averages. The maximum daytime temperature was 14.0°C (21st) with the lowest night temperature being -3.9°C (8th). There were six air-frosts (average 11) and one ground frost. Precipitation of 109.9 mm was 41% above the March average with measurable amounts on 19 days (average 16). Snow lay on the ground at 09.00 hours on two occasions (average four). The mean barometric pressure was 1010 mb (average 1012). The mean temperature for Scotland was 1.1°C above the LTA with precipitation 31% above the average. The maximum temperature recorded in the country was 16.9°C in Edinburgh (20th) while the lowest was -6.9°C at Aboyne (5th). A snow depth of 6 cm was measured at Mugdock C.P. (11th).

Storm 'Freya' brought gales and rain during the night of the 2nd / 3rd. The unsettled weather continued as a conveyor belt of Atlantic depressions and associated fronts brought spells of wet weather and gusting winds. 26.8 mm of rain fell during the 5th & 6th while 63.3 mm of precipitation was recorded in the 7 days from the 10th – 16th (163.2 mm Kirkton). This latter spell also had some strong to gale force winds culminating in the named storm 'Gareth' during which gusts of 75 mph were recorded at Machrihanish. Snow fell during daylight hours on the 16th accumulating to a depth of 2 cm. The wind continued to be the main feature of the weather for the next 8 days. Initially this was from a south-westerly direction (max. gust 41 mph, 22nd) before backing to the NW on the 23rd. With mostly overcast conditions, temperatures were on the mild side while rainfall amounts were small. There was a cold SW 5 (gusting 44 mph) on the 24th but it was mostly sunny, as was the following day. However, despite a stationary a high pressure (1033 mb, 28th), it remained stubbornly overcast until the 30th and 31st which were both sunny days.

April was warmer and drier than usual. The mean temperature of 8.54°C was 0.72°C above the average with a high of 21.5°C (20th). This was the 3rd highest temperature recorded at this station for the month after 22.0°C (1999) and 21.8°C (2003). There were three air-

frosts (average five). Rainfall of 40.6 mm was 66% of the average with measurable amounts on 12 days (average 15). The mean barometric pressure was 1016 mb (average 1012). Scotlandwide the mean temperature was 1.4°C above the LTA making it the 6th warmest in a series dating back to 1910 with the north-west being much warmer than normal. Rainfall was just 61% of average while sunshine was 21% above the average.

A large, dominant high pressure system over Scandinavia controlled the weather for the first 19 days of the month. Initially this produced a mixture of damp, dreich days but sunnier ones became increasingly frequent. However, the accompanying cooling easterly winds of varying strength were ever present which kept temperatures below the seasonal average with night frosts from the 10th–12th (-2.6°C 11th, -6.8°C Braemar 10th). These winds finally died away on the 19th as a plume of warm air from the south quickly raised temperatures to a year high of 22.5°C (24.8°C Floors Castle, Roxburghshire 20th). These unseasonably high temperatures lasted until the 22nd when a series of complex low pressure systems introduced cooler conditions and some much needed rain for dry gardens on which only 2.2 mm had fallen in the previous 16 days. The last few days of the month were dry with average temperatures.

May was cooler and slightly wetter than average. The mean temperature of 10.4°C was 0.65°C below the average with a daytime high of 24.5°C (15th) and a low of -1.2°C (12th). There were two air-frosts. Rainfall of 76.6 mm was 14% above the average with measurable amounts on 15 days (average 16). The mean barometric pressure was 1017 mb (average 1013) with a high of 1038 mb (13th) and a low of 1001 mb (8th). Overall for Scotland, the mean temperature was 0.5°C below the LTA while rainfall was 25% above its LTA. A maximum temperature of 25.8°C was recorded at Kinlochewe (15th) with a minimum of -6.2°C at Kinbrace, Sutherland (7th). Shetland enjoyed 15.6 hours of sunshine on the 15th.

A cold northerly airstream developed from the 3rd with a low of -1.2°C in the early hours of the 12th (-3.3°C Kirkton). After three dry and sunny days, the weather became more unsettled until the barometric pressure began to build again as a high pressure system (1038 mb) settled over the UK. This brought a spell of seven dry days from the 11th which, along with a plume of warm, continental

air, saw daytime temperatures peak at 24.5°C (25.8°C Kinlochewe, 15th). After rain on the 18th the weather was largely sunny, if breezy at times, until the weekend of the 25th / 26th which saw the start of a spell of unsettled, wet weather which culminated in 35.5 mm of rain in 57 hours from 11.00 hours on the 29th to 20.00 on the 31st (50.4 mm Kirkton).

June was slightly cooler and wetter than average. The mean temperature of 13.66°C was 0.4°C below the average with a high of 25.9°C (27th) and a low of 4.1°C (10th). Total rainfall of 73.2 mm was only 5% below the average with measurable amounts on 19 days (average 15). The highest 24 hour total was 11.1 mm (16th). The mean barometric pressure was 1013 mb (average 1015) with a high of 1032 mb (27th) and a low of 1000 mb (3rd). For Scotland as a whole the mean temperature was 0.3°C above the LTA while rainfall was 15% and sunshine 6% above their averages. The maximum temperature in Scotland was 30.0°C at Achnagart, Inverness-shire (28th) and the lowest 0.0°C at Durris, Aberdeenshire (1st). UK extremes were: a maximum temperature of 34.0°C Heathrow (29th); minimum temperatures of -0.3°C Redesdale, Northumberland and St Harmon, Powys (10th) while 74.6 mm of rain fell on Wainfleet, Lincolnshire (11th).

A series of Atlantic lows saw the unsettled theme continue with some rain most days until the 20th. The 3rd was windy with the south-westerly winds gusting at 44 mph in the morning. The complex of lows then remained over the UK bringing some heavy rain at times – notably to southern and eastern England from 10th – 12th. The Stirling area avoided the worst of the weather with short spells of mostly light rain and showers and even some sunshine although daytime temperatures remained a little below the norm for June. A weak high pressure system (1033 mb, 27th), building up from the south from the 21st, heralded the demise of the unsettled 'Atlantic' weather which had persisted for the past month. This peaked on the 22nd which was a warm, humid day with spells of sunshine (20.6°C). The plume of warm, humid air, originating in North Africa, culminated in a thunderstorm during the early evening of the 24th. This deposited only 4.8 mm in Dunblane but c.25 mm in the centre of Stirling in just one hour causing flooding in Port St. and turning King St. and Friars St. into torrents which people 'body

surfed' down. Water cascaded through the roofs of both the Sainsbury's and Tesco supermarkets while 15 people had to be rescued by boat from Stirling Rugby Club and the M9 was closed for a short period between junctions nine and ten. Temperatures continued to rise peaking at 26.3°C on the 27th, a cloudless and calm day. A much tamer thunderstorm in the late afternoon of the 29th brought an end to this brief reminder of summer.

July was a little warmer and wetter than the norm. The mean temperature of 16.66°C was 0.79°C above the LTA, this was entirely due to the mean night low being 1.52°C above the LTA. The daytime maximum of 29.6°C (25th) was only 0.1°C below the all-time high at this station of 29.7°C (2009). Total rainfall of 100.1 mm was 11% above the average with measurable amounts on 15 days (average 16). 27.1 mm fell in the 24 hours up to 09.00 hours on the 20th. The mean barometric pressure of 1014 mb was 1.0 mb above the average. The mean temperature for Scotland as a whole was 2.1°C above the LTA while rainfall was + 39%.

The first 8 days of the month were dry with plenty of sunshine which saw temperatures peak at 20.6°C (8th). Rain, of varying intensity, fell throughout the following day with 21.3 mm recorded (25.6 mm Kirkton). Summer resumed 2 days later as building high barometric pressure brought increasingly warm, humid and mostly sunny conditions (23.9°C, 13th). Despite the humidity, which saw a night minimum temperature of only 15.0°C (11th) and the occasional threatening build-up of dark clouds, there were only a couple of showers producing 1.7 mm of rain during this period. This fine spell ended on the 17th when 11.4 mm of rain fell between 11.00 hours and 09.00 hours the next day. A succession of Atlantic low pressure systems followed with the next one depositing 27.1 mm in 13 hours from 17.00 on the 19th. Another 9.0 mm fell from 15.00 hours on the 21st then, apart from a short thunderstorm in the early hours of the 24th there was no further rain until the 27th when rain throughout most of the day produced 20.8 mm. During the intervening period it was mostly sunny and very warm but quite humid with temperatures peaking at 29.6°C (25th).

August was slightly warmer but much wetter than usual with the mean temperature of 15.54°C being 0.44°C above the LTA. The maximum daytime temperature of 27.6°C (25th) was the hottest Au-

gust day since 29.6°C was recorded in 2003. Total rainfall of 143.6 mm was 57% above the LTA with measurable amounts on 25 days (average 17). The mean barometric pressure of 1008 mb was 5 mb below the LTA with a high of 1022 mb and a low of 989 mb. Overall, the mean temperature in Scotland was 0.8°C above the LTA but it was the wettest August in a series dating back to 1910 with 190% of average rainfall (See Plate 11).

An Atlantic low pressure system drifted slowly across the UK from the 4th bringing with it both prolonged periods of rain and thundery downpours. During the afternoon of the 4th, one of the latter deposited 54.0 mm of rain in the Trossachs / Tyndrum area causing a landslide on the hillside above L. Katrine & washing away part of the track bed of the railway between Ardlui and Crianlarich.

Dunblane had no rain that afternoon showing how localized these deluges were. Another around noon on the 6th produced 18.8 mm in Dunblane in less than an hour. The following day, similar cloudbursts closed the Linlithgow to Edinburgh main rail line when the Winchburgh Tunnel was flooded to a depth of 2 feet with the water not being pumped out and the line reopened until the morning of the 9th. Cyclonic rain produced 22.2 mm in Dunblane between 06.00 and 14.00 hours on the 9th. The continuing succession of Atlantic low pressure systems prolonged the unsettled weather with varying, although lesser amounts, of daily rain. A brief respite from the unsettled and often cool weather finally occurred when the jet stream moved to the north of the UK. As a consequence, high pressure built over the near continent which resulted in a plume of warm air being drawn up from the south between the 24th and the 26th (27.6°C, 29.1°C Floors Castle (Roxburghshire); 33.4 °C Heathrow, the hottest late August Bank Holiday temperature for the UK (25th)). The four dry days from the 23rd to the 26th were a welcome respite before the unsettled weather returned which culminated in 27.9 mm (69.8 mm Tyndrum) of cyclonic rain falling between 13.00 hours on the 30th to 11.00 hours on the 31st.

September was slightly warmer and wetter than average with the mean temperature of 12.38°C being 0.14°C and the total rainfall being 5% above their averages. The maximum daytime temperature was 21.4°C (20th) while the night low was 4.0°C (8th). There was

measurable rain on 18 days (average 16 days) with the highest 24 hour total being 15.8 mm (8th).The mean barometric pressure was 1013 mb (average 1014 mb) with a high of 1031 mb (13th) and a low of 991 mb (26th). Across Scotland the mean temperature was 0.5°C above the 1981-2010 average while rainfall was 97% of the average. The maximum temperature recorded was 25.5°C at Port Henderson, Ross & Cromarty (21st) with the lowest being – 1.9°C in Aboyne (8th). Gusts of 70 mph were recorded at Baltasound, Shetland (15th).

The first four days of the month were distinctly autumnal with spells of rain and a maximum daytime high of 16.4°C (1st). A ridge of high pressure (1025 mb, 7th) then brought some settled and slightly warmer weather with the 7th being a calm day of unbroken sunshine. Unsettled conditions returned on the 9th with rain from midnight until noon producing18.4 mm. The much tamer remnants of hurricane 'Dorian', which caused such devastation in the Bahamas, passed across Scotland during 11th depositing 14.4 mm of rain along with winds gusting up to 34 mph. An all too brief high pressure system pushing up from the south (1034 mb) resulted in a sunny day on the 13th with a daytime maximum temperature of 17.5°C. Autumnal conditions returned the following day which was gloomy and windy with the WSW winds gusting up to 40 mph. Only 1.5 mm of rain fell from the 11th to the 21st with this dry spell culminating in yet another transient high pressure system (these short lived high pressure systems with accompanying warm / hot temperatures have been a feature of the summer) which resulted in a maximum daytime high of 21.4°C (20th). The familiar Atlantic conveyor belt of low pressure systems then returned with heavy rain setting in at noon on the 22nd to be followed by varying amounts of rain for the following 5 days which produced a total of 38.4 mm (52.4 mm Kirkton). In marked contrast, the 28th was a virtually calm day of almost unbroken sunshine.

October was a little colder and drier than average. The mean temperature of 7.27°C was 1.28°C less than the average with a high of 14.4°C (7th) and a low of -3.8°C (29th). There were six air-frosts (average three) and two ground frosts. Rainfall of 95.4 mm was 25% below the average making this the sixth October running which has been drier than the LTA. There were 18 'rain days' (average 21) with the highest 24 hour total being 22.8 mm (5th). The mean baro-

metric pressure was 1008 mb (average 1010 mb) with a high of 1033 mb (29th) and a low of 992 mb (9th). Until the 26th the weather across Scotland was unsettled but during the second half of the month the country lay to the north of the jet stream which resulted in longer dry, bright spells between the rain belts. From the 27th the weather turned cold and sunny. The mean temperature for Scotland was 0.8°C below the 1981-2010 average.

The first 2 days of the month were sunny with a light NE airflow. These conditions resulted in the first frost of the autumn, -0.5° C (2nd). Atlantic weather systems then re-established themselves with an associated, slow moving band of rain producing 22.8 mm from noon on the 5th to 09.00 hours the following morning (34.4 mm Kirkton). A succession of these low pressure systems and associated fronts (992 mb, 9th) moved slowly across Scotland during the next week with daily rain producing a total of 38.4 mm from the 6th – 12th (143.6 mm Kirkton). The accompanying, almost continuous, south-westerly winds gusted up to 39 mph. A further 13.6 mm of rain fell during the evening and night of the 13th / 14th. The cumulative effect of all this rain brought about the closure of the Edinburgh to Linlithgow rail line when the Winchburgh tunnel was again flooded on the 13th. Calmer and largely drier conditions ensued with spells of diffuse, autumnal sunshine. This more settled weather continued until the end of the month with an area of high pressure (1033 mb, 29th) over the country from the 27th – 31st. It was virtually cloudless from the 27th until noon on the 30th with the lowest temperature of the autumn, -3.8°C being recorded in the early hours of the 29th (-6.2°C Altnaharra, Sutherland (31st)).

November was colder and a little drier than average. The mean temperature of 2.84°C was 1.73°C below the LTA with a daytime high of 11.3°C (2nd) and a night low of -7.2°C (19th). There were 14 air-frosts (average nine) and one ground frost. Rainfall of 102.4 mm was 12% below the LTA with measurable amounts on 15 days (mean 20). The mean barometric pressure was 1003 mb (LTA 1008 mb) with a high of 1025 mb (30th) and a low of 974 mb (2nd). For Scotland as a whole the mean temperature was 1.4°C below the LTA while rainfall was only 62% of the average. However, there was a very marked east – west split with eastern areas being cloudier and wetter than average while the west was sunnier and much drier than usual. Indeed, some western parts had only a third of the

normal November rainfall which was all due to the jet-stream running further south than usual (See Plate 12). The maximum temperature was 16.4°C at Dunstaffnage, Argyll (1st).

The month started with a deep low pressure system (974 mb, 2nd) centred over southern Scotland with strong winds around it (gusts of 95 mph were recorded at the Needles, Isle of Wight). After heavy overnight rain the 2nd was calm and quite mild (11.3°C) with only the occasional spotting rain. An easterly airstream around slow moving Atlantic lows then became the norm with spells of rain. 33.7 mm from 12.00 hours on the 4th until after dusk on the 5th caused flooding on the M876 and the M9 in the Falkirk / Larbert area. The 7th, 8th and 9th were days of almost unbroken sunshine and light winds with night frosts (-4.3°C, 10th). Torrential rain (63.8 mm) in the South Yorkshire/North Derbyshire area in the 24 hours ending at 09.00 hours on the 8th caused widespread flooding with many homes inundated and roads impassable. Such was the devastation that a national emergency was declared with the army drafted in to help. Many people were rescued from their flooded homes and a woman died when she was swept away by flood water in Derbyshire. Apart from 16.0 mm of rain during the night of the 10th / 11th (47.0 mm, Forrest Lodge, Kirkcudbrightshire) this area remained unaffected with no rain from the 12th to the 19th. As the barometric pressure slowly built the nightly frosts intensified with a low of -7.2°C (-9.6°C Tyndrum, -9.9°C Braemar, 19th). A run of 9 night frosts ended on the 21st as an easterly airflow brought blanket cloud cover along with slowly increasing temperatures and dampness which gave five dreich days from the 22nd – 26th. There were spells of heavier rainfall during this period which totalled 26.2 mm. High pressure then built (1025mb, 30th) with the last two days of the month being cloudless, calm and cold with a frost of -6.6°C (-9.7°C Kirkton) on the final day of the month.

December was milder and wetter than usual. The mean temperature of 3.80°C was 1.53°C above the LTA with a daytime high of 10.7°C (29th) and a night low of -7.9°C (1st). There were 11 air-frosts (average 14). Rainfall of 148.5 mm was 30% above the LTA with measurable amounts on 22 days (average 19) while snow lay on the ground at 09.00 hours on just one occasion (average five). The mean barometric pressure was 1002 mb (LTA 1010 mb) with a high of 1032 mb (31st) and a low of 972 mb (13th). For Scotland as a whole

the mean temperature was 1.3°C above the LTA while rainfall was 18% above the average. It was a dry, sunny month in the north-east but wet in central and western areas. The maximum temperature of 18.7°C at Achfary, Sutherland on the 28th set a new record high for the whole of the UK in December. This was caused by a combination of tropical maritime air being pulled up on a southerly airstream and the so called 'Foehn effect' which is caused by wet and cold conditions on one side of hills and warmer, drier conditions on the other - Achfary lies just to the east of Ben Stack (721m.). A minimum temperature of -10.3°C was recorded at Tulloch Bridge, Inverness-shire (1st). Some UK meteorological extremes across the UK in December were: 135.0 mm of rain at Seathwaite, Cumbria during the 24 hours ending at 09.00 hours on the 6th; a snow depth of 25 cm at Malham Tarn, North Yorkshire (16th) while a wind gust of 83 mph was recorded at the Needles, Isle of Wight (8th).

The first day of the month was cloudless and calm after an overnight frost of -7.3°C (-9.1°C Kirkton). The weather then became very unsettled as Atlantic low pressure systems crossed Scotland. The 5th was wet and windy producing 13.2 mm of rain on south-westerly winds gusting up to 38 mph. It was much wetter in the north-west of the area where flooding closed the West Highland railway line between Bridge of Orchy and Crianlarich. It was even wetter on the 7th / 8th as the first named storm of the winter, 'Atiyah', deposited 28.1 mm between 12.00 hours on the 7th to 09.00 hours on the 8th (37.0 mm Larbert; 65.4 mm Kirkton; 79.2 mm Achnagart, Sutherland). Again it was windy with gusts of up to 41 mph. In welcome contrast, the 9th was a calm day of unbroken sunshine before yet another Atlantic depression produced 24.4 mm between 00.00 hours and 17.00 hours on the 10th with the accompanying winds gusting up to 47 mph (gusts of up to 78 mph were recorded at Lerwick, Shetland). Unsurprisingly, all this rain resulted in the rivers overflowing thus producing flooding in the usual areas across the Carse of Stirling. The weather in the following days was typical of mid-December with a mixture of beefy raw showers and low winter sun. During spells of the latter the surrounding hills looked splendid in their plastering of snow. A thin covering of wet snow at 09.00 hours on the 16th was the first snow of the winter at this station. Heavy rain during the nights of the 18th / 19th and 19th / 20th deposited 23.0 mm which kept both the rivers and flood waters

topped up. Despite low barometric pressure (976 mb) from the 15th to the 25th there was only a light south-easterly airflow or it was calm. After a little early mist, Christmas Day was cloudless & calm. It was unseasonably mild between the 27th and the 30th with a maximum temperature of 10.7°C (29th). The final day of the decade was sunny and cold with a minimum temperature of -3.4°C and a maximum of 0.7°C.

Kirkton Farm (Met Office Automatic Weather Station), near Tyndrum, Strathfillan

Summary

The total rainfall recorded at the Met Office automatic weather station at Kirkton in 2019 was 2394.0 mm (94.3 inches). This was 219.8 mm less than the 1991-2015 twenty five year average (2613.8 mm). The wettest month was December when a total of 412.0 mm (16.2 inches) of rainfall was recorded. August was also particularly wet with 374.8 mm of rainfall (over 2.5 times the average rainfall for August). The rainfall was above average in March, June, July, August and December. The driest month was November with 55.4 mm of rainfall (only 19% of the 25 year average). This was the driest ever November recorded at the farm. January and April were also particularly dry with only 138.4 mm of precipitation in January (38% of the 25 year average) and 68.4 mm of precipitation in April (45% of the 25 year average). The highest rainfall over a calendar week (Monday to Sunday) was 155.6 mm between the 2nd and 8th December. There were four calendar weeks when the total rainfall exceeded 100 mm. The highest rainfall in a single 24 hour period (09:00 GMT to 09:00 GMT) was 69.8 mm on the 30th August. There were 4 days in 2019 when more than 50 mm of rainfall was recorded (4th August, 30th August, 7th December and 10th December). The highest rainfall in a single half-day 12 hour period (21:00 GMT to 09:00 GMT) was 50.0 mm on the 30th August. The total number of rain days was 263 (72.1%). There were 22 days when there was more than 25 mm of rainfall recorded.

The lowest temperature recorded during 2019 was on the 1st February when the temperature fell to -11.9°C. This was the lowest temperature since January 2011. The lowest maximum temperature was recorded on the 30th November (-1.2°C). There were only 2 days in 2019 when the temperature failed to rise above freezing (2nd

January and 30th November). An air frost was recorded on a total of 81 days. There were no air frosts recorded in June, July or August. The highest temperature recorded was on the 25th July (29.1°C). July and August were the warmest months with mean temperatures of 15.66°C and 14.80°C respectively, and mean maximum temperatures of 20.19°C and 18.65°C respectively. Temperatures of 25°C or above were recorded on 4 days (27th June, 28th June, 25th July and 25th August), while temperatures above 20°C (but less than 25° C) were recorded on a further 33 days (3 days in April, 3 days in May, 5 days in June, 15 days in July, 9 days in August, and 2 days in September).

Sleet or snow was recorded falling at the weather station on 23 days. There was no sleet or snow recorded at the weather station in November and only 2 days of sleet or snow in December.

There were 3 days in 2019 when sustained gale force winds were recorded at the farm (26th January, 12th March and 3rd April); and there were 4 days when thunder and lightning were recorded (12th March, 24th July, 31st July and 4th August). There were 7 days in 2019 when hail stones were recorded.

The Weather through the Year

January 2019 was a dry month with only 138.4 mm of precipitation (38% of the 25 year average), making it the fourth driest January since 1991. The month started with a period of cold, dry and bright weather, with an overnight low of -7.6°C on the 2nd. There was then a milder period with some rain and showers, before it turned cooler again in the second half of the month when there was some sleet and snow. Sleet was recorded on 3 days and snow on a further 7 days. Lying snow was recorded at the weather station on 6 days, although the maximum snow depth was only 3 cm (recorded on the 24th, 29th, 30th and 31st). The 26th of January was wet and windy with rain, sleet and a gale force northerly breeze.

The lowest temperature of the year was recorded on the 1st February when the temperature fell to -11.9°C, however most of February was mild with a mean maximum temperature of 9.1°C and a mean temperature of 4.75°C (compared to the averages of 6.6°C and 3.27°C respectively). The temperature on the 25th February reached 15.2°C which was the highest winter maximum temperature rec-

orded at the farm (since recording started in 1991). Although wetter than January, February also had a below average rainfall (79% of the 25 year average). There was only one day when there was more than 25 mm of rainfall recorded (34.6 mm on the 8th). There were only 2 days of snow (1st and 3rd) and one day of sleet (4th). There was lying snow at the weather station from the 1st to the 5th.

March was wetter than average with 27 days of precipitation. The week beginning the 11th March was particularly wet and windy with 149.8 mm recorded. Sleet, hail, thunder and gale force winds were all recorded on the 12th March (Storm Gareth). Snow was recorded on 2 days (10th and 16th) with sleet on a further 5 days. The lowest temperature in March was recorded on the last day of the month (-5.4°C).

The first week of April was quite cool and breezy with showers. There were overnight gale force winds between the 2nd and 3rd, and sleet showers with snow on the hills on the 3rd. There was then a period of dry weather between the 7th and the 24th, when only 3.6 mm of rain was recorded (falling on just 2 days). Temperatures remained relatively cool up until the 18th April, with the overnight temperature dropping to -5.2°C on the 10th. Between the 18th and the 23rd there was a period of warm, sunny and dry weather with a maximum temperature of 22.2°C recorded on the 22nd. The end of April was a little cooler with some showers. The total rainfall in April was only 68.4 mm, which was less than half the average rainfall for the month, and there were only 13 rain days.

The start of May was quite cool with some overnight frosts and a few showers (including hail on the 10th). It then turned dry and sunny with increasing day time temperatures reaching a maximum of 23.9°C on the 15th. A minimum temperature of -3.3°C was recorded on the 12th. The second half of May was more changeable with showers and some longer spells of rain, interspersed with dry and sunny spells. The last day of the month was wet with 25.4 mm of rain recorded. The total rainfall in May, of 116.4 mm, was slightly below the 25 year average.

The summer of 2019 was the wettest summer (June, July and August) since recording began in 1991 (683.0 mm of rain). All three months had above average rainfall totals although it was the rainfall in August that accounted for more than 54% of the summer

rainfall. Most of June was showery with rainfall recorded on 24 days. There was a warm and sunny spell at the end of the month with a maximum temperature of 26.9°C on the 27th.

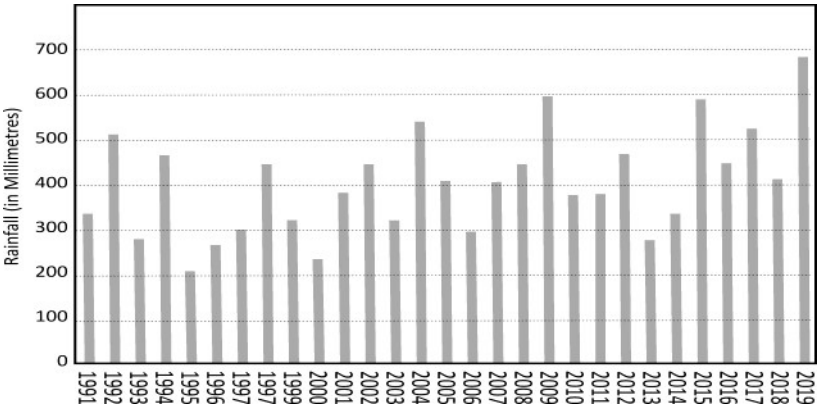

Figure 1. Summer Rainfall (June. July and August) (1991-2019) Kirkton Farm, Tyndrum.

The changeable conditions with showers and drier spells continued through July. Thunder and lightning were recorded on the 24th and 31st. The year's maximum temperature of 29.1°C was recorded on the 25th. This was the warmest July day on record.

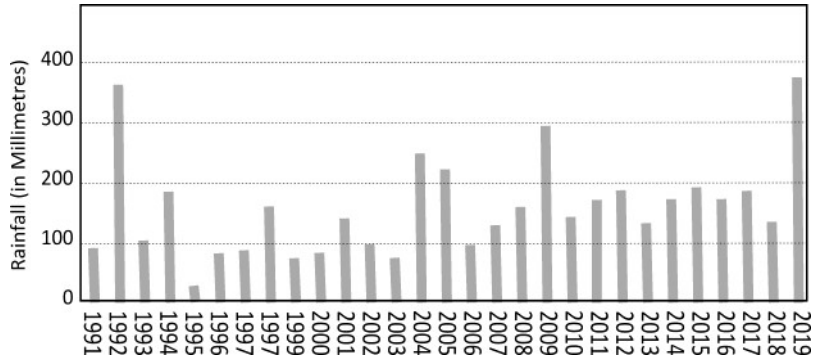

Figure 2. August Rainfall, (1191-2019) Kirkton Farm, Tyndrum.

August 2019 was the wettest August since recording began in 1991 (374.8 mm; 251% of the 1991-2015 twenty five year average). It was also the wettest month since January 2016. The 30th August 2019 was the wettest summer day on record (69.8 mm of rain were

recorded in the 24 hours from 09:00 on the 30th to 09:00 on the 31st). Very heavy thundery rain in the late afternoon and early evening of the 4th resulted in some significant flooding when the River Fillan burst its banks, causing damage to fences and washing away part of a farm track. The very heavy rain on the 30th also resulted in some flooding of the inbye fields. Although rain was recorded on 25 days during August there was a 4 day period between the 23rd and 26th when the weather was dry, hot and sunny. A maximum temperature of 27.3°C was recorded on the 25th. The rainfall totals for September and October were just below the average figures for the two months. Much of September was showery although there was a warm dry period between the 18th and 21st when the temperature reached 21.8°C (20th). The 29.0 mm of rain recorded on the 10th September was the highest daily total and the only day during the month when rainfall exceeded 25 mm.

The first few days of October were dry and sunny with overnight frosts, but this was then followed by a very wet period between the 5th and 11th when 175.6 mm of rainfall were recorded (almost three quarters of the month's rainfall). The last few days of the month were dry and bright with some overnight frosts.

November was the driest month of the year with only 55.4 mm of rainfall and only 18 rain days. This was the driest November on record. The maximum daily rainfall for the month, of 10.6 mm, was recorded on the 1st. There was no sleet or snow recorded and no gales. Frost was recorded on 14 days with temperatures falling to -9.6°C on the 19th and -9.7°C on the 30th. The daytime temperature on the 30th remained below freezing only reaching a maximum of -1.2°C.

The first day of December was cold and dry with an overnight low of -9.1°C and a daytime maximum temperature of 1.7°C. This cold and dry weather did not last, with most of December being relatively mild and wet. December was the wettest month in 2019. The 412.0 mm of rainfall recorded was 78.1 mm more than the 25 year average. There were 27 rainfall days during the month. The period between the 7th and 11th was particularly wet with 192.0 mm of rainfall recorded during this 5 day period, resulting in some flooding of the fields and some minor flood damage to the farm

office. Snow was only recorded on one day (14th) with sleet recorded on the 11th.

Killin

The total rainfall recorded in Killin in 2019 was 1673.0 mm (65.87 inches); this was 225.5 mm less than the 2002-2016 fifteen-year average (1898.5 mm). January was the driest month with only 62.5 mm of rain, while December was the wettest month with 283.0 mm. During 2019 Killin received 69.9 % of the rainfall recorded at Kirkton (i.e. some 721.0 mm less). The rainfall was higher at Kirkton than Killin in all months apart from November.

Thanks to the Met Office for supplying the data from the automatic weather station at Kirkton.

John Holland (SRUC Hill & Mountain Research Centre, Kirkton & Auchtertyre Farms)

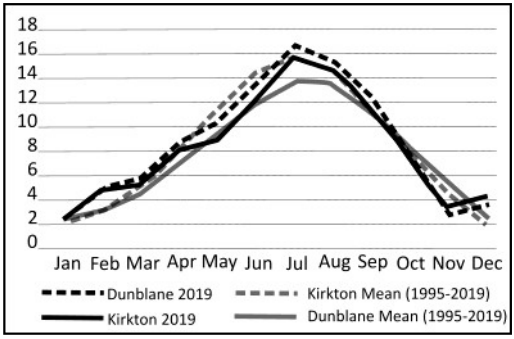

Figure 3. Dunblane and Kirkton, Monthly Mean Temperatures (°C).

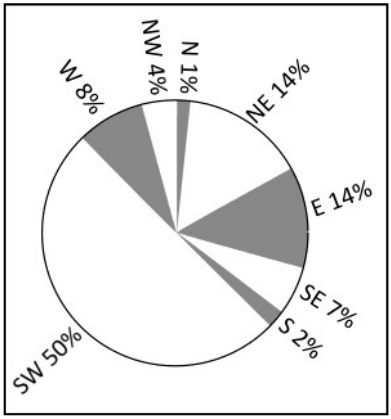

Figure 4. Wind Direction, Dunblane 2019.

THE WESTERN OCHILS: c 1450 to c. 2000.

John G. Harrison

Introduction

The western Ochils (from Dumyat to Glendevon) is a large and varied area, rising to 721m at Ben Cleuch but incised by many glens, some very steep-sided, others with gentler slopes more suitable for settlement and arable farming. Arable agriculture has extended to remarkable elevations; a settlement in Glen Tye, at 350m (NN 83905 02039), has extensive cultivation remains, a corn drying kiln and documentary evidence for crop growing in the seventeenth and eighteenth centuries (Figure 1, below and Figure 2, opposite; Canmore ID 25280; Inglis, 2003; NRS, CC6/5/13 p. 134-5; ibid, p. 564 -566; CC6/5/15 p. 71).

Figure 1. Glen Tye from Sherrifmuir.

This paper will concentrate on the seventeenth and eighteenth centuries, a period of diversity and dynamic change, culminating in the creation of extensive sheep farms which have dominated till the current (and even more far-reaching) industrial-scale changes, particularly afforestation and wind-farms.

Prehistoric and Medieval Period

Prehistoric remains include standing stones and hill forts whilst settlement evidence in the late prehistoric and high medieval periods includes duns and a motte (RCAHMS, 2001; Cowley & Strachan, 2006). A site above Castle Campbell has been interpreted as a medieval deer park (Canmore ID 338735). In the late fifteenth century, extensive areas were in control of the Crown. Culross Abbey had a significant holding based on Jerah, in Menstrie Glen. The earldom of Strathearn dominated medieval Glendevon and the slopes above Strathallan. By 1500, following a widespread pattern, these medieval estates had either vanished or were being broken up. That produced a complex mosaic of diverse forms of property and tenure, overlaid on the varied landforms (Neville, 2005; RCAHMS, 2001; Macdougall,

1997; Gilbert 1979). Though all the zones experienced the same wider economic pressures, each experienced a distinctive trajectory of change, to be explored.

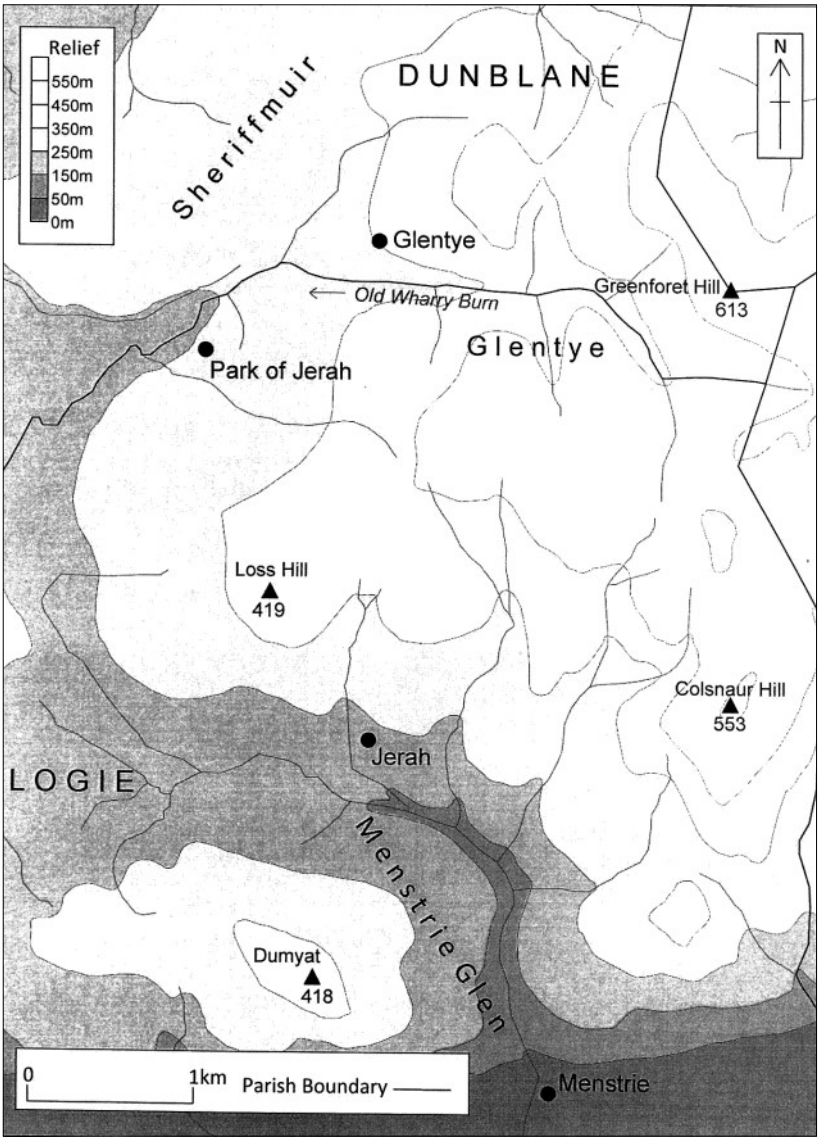

Figure 2. Menstrie Glen and adjacent areas (Stephen Digney).

Post Medieval Property and Tenure

Post medieval Glendevon parish was dominated by resident owner-occupiers (feuars) who farmed their own land, the largest farms well-capitalised with two plough teams (and, correspondingly, substantial arable). At both Borland in 1683 and Frandy in 1687 there were seven horses of various ages and six oxen; Borland had 426 sheep and Frandy 430 (NRS CC6/5/19 p 56; CC6/5/20, p.21), Several of these feuars had two-storey, stone houses e.g. at Borland, Glensherup and Glenquey (Harrison, 1998 & Figure 3, below)

Figure 3. Borland. In Glendevon, a substantial, owner-occupied farm in the seventeenth century.

Much of the rest of the western Ochils came to be owned by the lairds of estates focused on the adjacent low ground, where they had substantial mansions; their hill farms were occupied by tenants who had small, poorly-capitalised farms, such as many in Menstrie Glen. Though most farms had some arable, necessary for fodder as much as for human use (see Glentye below) in contrast with Glendevon, many would have to share with neighbours to make up one plough team, never mind two. Parts of the northern fringes, ravaged by war and Highland raids in the seventeenth century, remained particularly poor and undercapitalized for decades.

There were also areas of commonty, jointly owned by several adjacent estates and used, usually via the tenants, for pasture, peat cutting and other uses. The legal processes to divide the Commonties of Sheriffmuir and of Backhills of Tillicoultry between the various owners provide much of the evidence in this paper, as the witnesses describe their use of the hills and environs, the factors driving contemporary change, from the 1650s to 1770s (RCAHMS, 2001; Harrison,

1998; Harrison, 2019, Harrison, Forthcoming). These processes were widespread and some comparable evidence is cited from the uplands of St Ninians, Gargunnock, Kippen and Fintry parishes, where similar processes were at work.

Drivers and Symptoms of Change

The new patterns of ownership brought uncertainties, exacerbated by the adoption of new farming methods, which increased pressures on the hills, precipitating disputes which were already current by 1600. Use of the high hills for summer pasture (shieling) presumably stretches back into the medieval period and was still significant about 1600. Such transhumance systems were widespread elsewhere. For several weeks in the summer stock were taken from the low ground, where the crops were growing, to the hill pastures. Temporary shelters (shieling huts) were constructed for the herds, who milked sheep and cows and made cheese and butter. Archaeological remains of shieling huts, are widespread in upland Scotland, including the Ochils (Bil,1990; Dixon, 2018, RCAHMS, 2001).

A meeting to resolve a dispute about pasture between Abercairney (proprietor of Braes of Ogilvie, on the northern side of the hills) and Tillicoultry is recorded at the 'shiels of Glenbie' in Upper Glendevon in 1611 (See Figure 2). Abercairney himself visited the disputed shielings of Gadwalls, high on the northern side of Ben Cleuch, in 1632 and asserted them to have been there 'past memory of man', instructing his tenants to repair the huts, a strong assertion of property rights (NRS GD24/1/319). At some time before 1640 William Alexander, Earl of Stirling, had sheep driven from Menstrie Glen, over the ridge, into Glen Tye and across the burn there (later recognized as the Menstrie march) on to Greenforet, where his herds attempted to create a shieling; tensions continued over this march into the 1690s (NRS CS233/S/1/57; CS98/2871; RPC, third series, XII, 266-7, 327; 385-7; Figure 4). In 1659, Lord Rollo, currently laird of Tillicoultry, complained of reports that Abercairney's tenants had built several shiels (NRS GD24/1/319).

But, by that time, shieling was of diminishing importance, as new systems created new pressures. Some of these pressures had their origins in wider economic change, including rising population, urbanisation, new markets and fairs, improving roads and bridges (particularly from the 1670s onward) and the use of agricultural lime (Harrison, Forthcoming).

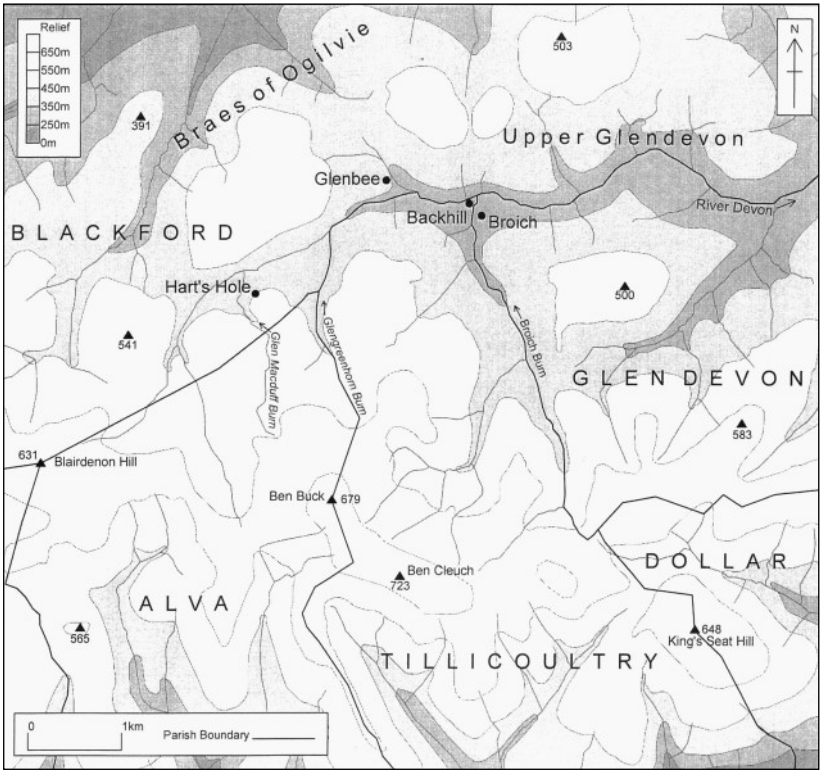

Figure 4. Upper Glendevon and adjacent areas (Stephen Digney).

Two changes more specific to the local uplands are the adoption of new types of sheep and the growing practice of agistment, farmers leasing pasture to others for cash, usually called 'grass goods'. So early as 1619 John Fisher, at Auchlinsky in Glendevon parish, had 46 Southland wethers (castrated males) and 48 Hameland wethers. Others also had these types (NRS, CC6/5/3 p. 36; CC21/5/9 pp. 187-188). Hameland sheep were a breeding flock, perhaps sent to the hills in summer but usually brought down to low ground in winter as they were not hardy. Southland wethers were purchased at the markets at Linton (then in Peeblesshire) kept for three years for their wool, then sold for slaughter; they were hardy and usually kept on the hills in winter; but, as a non-breeding flock, required expensive replacements (NRS CS229/M/3/1, 1772, p. 293-5; p. 346). Southland sheep were the forerunners of Blackface sheep, which dominated by the 1790s. However, losses could be heavy in bad weather, particularly snow, one tenant losing 81 sheep

in a storm, some Hameland, some Southland (NRS CS229/ M/3/1,1772, p. 299). So, only the better-off took the risks of Southland flocks, others keeping mixed flocks or preferring the Hameland type which provided their own replacements (NRS CS229/M/3/1/ Bundle E p.99). By the 1670s, the Dinn family (feuars, based around Cringate, in Fintry parish) were dealers, buying hundreds of sheep on credit at Linton each year, evidently Southland types, for sale; such dealers obviated the need for purchasers to go to Linton to buy replacements, their advent another indication of economic change (NRS, RD2/69 p.1377; RD4/43 p. 185; RD4/53 p. 247; RD2/69 p. 5: RD4/62 p. 88; RD4/63 p. 235; RD4/63 pp. 900-905, & p. 915; SC67/5/3 p. 177).

By the 1640s, farmers about Glendevon and in Glentye (and probably elsewhere) did not all send their full allocation of stock to the hills but took in 'grass goods', whether for the summer or all year round, for a payment per head (NRAS 234/42 I (1) 3, /42 I (1) 18; NRS, CC6/12/1 p. 161; GD24/1/319/C, David Harley; CS233/5/1/57 James Forrester). This provided income whilst spreading the costs and risks of stocking large pastures. John Cairns, the tenant of Backhills of Tillicoultry, said that, even if he could afford to fully stock such a large farm, he would not risk so much capital on the hills in the winter; many people from a wide area of the low ground sent ten or twenty sheep to him, either by the season or the year (NRS CS229/M/3/1/ E/99).

In the late seventeenth century, tenants from Dunblane north to Gleneagles complained that they had suffered from warfare and raids by Highlanders so they could not fully stock their farms, particularly the hill pastures; indeed, their testaments at this period show them to be under-capitalised and paying very modest rents. Later, one said that this wife's family, tenants in the Ochils for generations past, had been 'several times reduced to have nothing by plunder and robbery from the highlanders' (Stevenson, 2004, 227; Inglis, B., 2016, p. 30.Wills, 1973, p. 23; NRS CC6/12/-; RH15/115/5/2 G item 12). As they recovered, the people of Tillicoultry challenged their attempts to resume using the vast area between the high tops of the Ochils and the Upper River Devon (Figure 4; Figure 6). The laird (Murray of Abercairney) mounted a vigorous defence, first encouraging his tenants to build sheilings on the disputed ground. These were quickly pulled down by the Tillicoultry people, so, from 1674 he tried to settle two Highlanders on a new farm, near the foot of Glenbee, on the north side of the upper Devon (clearly his property), but including the pasture of the disputed ground in their lease. These Highlanders threatened that, if

the Tillicoultry stock came over the summits (of Ben Cleuch, Ben Buck etc.) they would cut their haughs (a stereotyped threat which does not seem to have been carried out) (NRS GD24/1/319/Bundle C).

That was not quite the end of sheiling in the Ochils though the final example looks like a regression to ancient practice, a symbolic assertion of property rights. It was built on Alva's instructions on land disputed with Abercairney and can probably be identified at NN 8899 0393 at 450 m. (Canmore ID 217725; Figure 4). On 7 August 1714 two witnesses described the position and structure of 'Alva's Lodge in Glenmacduff', sometimes called Hart's Hole. The site was attacked by the Ogilvie tenants in 1727. In 1739 witnesses described it being built 'about 1715', its use for milking sheep by a series of tenants and the final demolition by the Ogilvie people about 1735, though the grazing dispute was not resolved for several further decades (NRS GD24/1/319, 1714; ibid, 1727; RH15/115/5/1/ F). Abercairney's ultimate victory is reflected in the modern boundary lines in this area

The new sheep types and agistment with the changes on the low ground put the hill pastures under increasing year-round pressure; disputes were inevitable and marches particularly contentious. From the 1760s, many landlords banned sheep from the low ground, claiming that they damaged the newly-planted hedges. Further pressures came as rents for hill pasture rose, making the smaller, Hameland type less economic. The switch to Southland (now known as Blackface sheep) was complete by the 1790s. The impact of the changes would be least in areas such as Glendevon, with its tradition of substantial, well-capitalised farms. It was greatest in an area like Menstrie Glen which was transformed as small tenancies were amalgamated into sheep runs, arable was reduced and march dykes were built to divide the heritages (RCAHMS, 2001). There were also implications for the low ground where sheep, pasturing on rough ground by day but housed or folded on potential arable at night, had been important for generating manure (Harrison, Forthcoming; Allardyce, 1888, II p. 250-251).

The Commonty of Sheriffmuir

Another change, symptomatic of changing economies and outlooks, was the division of the commonties into discrete areas of property. This consideration of the Sheriffmuir summarises more detailed evidence in Harrison, 2019. Long human concern with the Sheriffmuir is attested by the presence of an alignment of Standing Stones. The earliest documentary evidence is the late fifteenth centu-

ry poem, *The Wallace*, which has the Sheriffmuir on William Wallace's route from Perth to Stirling; the road, indeed, is probably ancient. Witnesses between the 1720s and 1760s vividly describe use of the muir back into the seventeenth century. Despite periodic fights and growing pressures on the resources most use was amicable.

Between c. 1660 and c. 1770, the main use of Sheriffmuir was as supplementary pasture for farms on the lower ground of Strathallan, from above Dunblane to around Braco. That area had probably all been within the medieval earldom of Strathearn but was in the parishes of Dunblane, Auchterarder and Muthil. This supports the suggestion that the muir had originated as the common grazing for a medieval thanage or shire (the 'shire muir') presumably a subunit of the earldom, predating parish formation. The muir was mainly grazed in summer but, unlike the stock at the shielings, these were not milk animals. The shepherds (often teenagers or younger) took them up in the morning and returned them home in the evening, indeed, sometimes left the stock on the muir whilst they went home for their midday meal.

Whilst some claimed right to pasture any part of the muir, in practice it was more convenient to use the areas closest to their own head dykes, using other areas only as a legal claim during disputes. Sometimes stock was driven off contested areas but one witness, when pressed admitted that the case he cited had been ten years before; it was not routine. By the later seventeenth century, payments were also being made for droves of Highland cattle heading to Lowland markets, to pasture the muir; a tryst or cattle fair around the Standing Stones persisted into the 1880s. These droves are symptomatic of an increasingly commercial outside world, driving change on the muir; they brought in cash but would exacerbate the impoverishment of the pastures, of which the tenants complained, some saying it was no longer worth sending their stock, even by the 1760s. By the 1740s, despite some protests, small areas on the fringes of the muir were being enclosed and improved, to become arable – or at least better pasture.

Tenants also cut peats and turf, gathered rushes and heather (for thatch) and (from the early eighteenth century) quarried and burned cornstone (a form of limestone) on the muir, all subject to intermittent dispute. These resources would all, via fire or dunghill, become plant nutrients, so the muir was a source of inputs for the farms on the low ground. It was a busy place; witnesses named over 40 locations within what now seems a barren, empty landscape, the young herds fought with rivals, played with friends. Balhaldie resisted encroachments on his peat cuttings but, John Ritchie recalled, dec-

ades later, that about 1720, though he was blatantly encroaching, Balhaldie gave him a snuff (Figure 5).

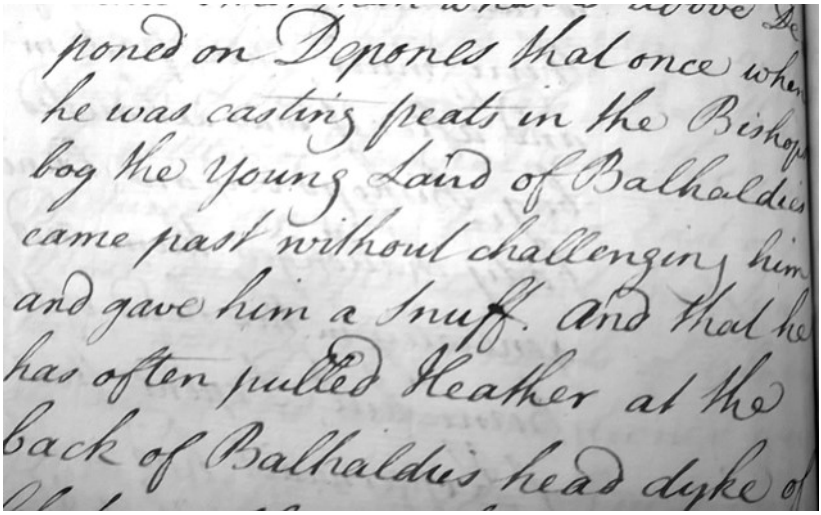

Figure 5. John Ritchie depones that the Laird of Balhaldie gave him a snuff, (NRS CS25/1772/12/2).

Again, change was in the air, one witness saying he used to cut peat but by the 1760s, bought coal instead, another sign of the commercial external world. The objective of division was to remove the constraints of shared ownership and use. However, in a striking recognition that change had to be realistic, the parties agreed, at the outset, that the peat cuttings might need to remain as commonty, even after the pasture was divided. Like much else, at this period, what emerged was an intermediate stage, not the final outcome (Harrison, Forthcoming).

Commonty of Backhills of Tillicoultry

The Tillicoultry hills are a huge area, with three major zones, the south-facing fore-face (some of the lower parts enclosed by 1760) the rolling high tops and the Backhills, the extensive north-facing slopes between the high tops and Upper River Devon (Figure 4 & Figure 6). The breakup of the medieval royal estate of Tillicoultry resulted in several estates, mainly based on the low ground to the south, but with claims on the hill pastures, perhaps as property contiguous to their constituent farms, perhaps a share of the vaguely-defined Commonty of Backhills or perhaps both (NRS CS229/M/3/1, 1772,

p. 77). Whether commonty or property, the higher part of this expanse was open; untended stock could wander freely, as they could between Tillicoultry and upland Alva (to the west) and Dollar (to the east). As seen above, until 1700, the owners of Braes of Ogilvie (in Strathallan) had also claimed rights to the Backhills, though in practical terms only wanting access for summer pasture, as discussed above. Once the Ogilvie people lost their claims (above) disputes between the different Tillicoultry claimants came to the fore. There is no documentary evidence of the Tillicoultry people having shielings in the hills at any date, though they did have pens, near the foreface, used to confine ewes in an accessible location whilst the lambs were weaned.

It was in 1700 that Tillicoultry won the dispute with Abercairney, perhaps not surprisingly as Sir Robert Stewart, presently laird of Tillicoultry, was currently a judge of the Court of Session, which awarded the victory. The victors' first (prudent) action was to have a new settlement built on the south side of the upper River Devon (facing the one previously created by Abercairney). This remote farm at Backhills became visible in 2003 when the waters of the Upper Glendevon Reservoir were low (Cowley & Strachan, 2006; see Figure 4). Following the victory, the Backhills were recognized as a Commonty between the various claimants from Tillicoultry – a contrast with the Commonty of Sheriffmuir, with its ancient roots. It is the disputes consequent on this which provide much of the detailed evidence about use of the hills and about the wider economic and agricultural background (NRS GD24/1/319; CS229/M/3/1). Further evidence comes from a dispute about the Maddy Moss, between Dollar and Glensherup (NRS CS230/A/3/7). The farm of Backhills, for example, had minimal arable and a modest stock of its own. It mainly depended on taking in many hundreds of beasts belonging to others. These were mainly sheep but also included some cattle and horses. Draught oxen, which had been sent to pasture the hills after the labour of seed time was over in the seventeenth century, had been replaced by horses by the 1760s; these recovered condition on the summer pastures and were then set to carting coal to the harbor at Alloa (NRS CS229/M/3/11772, p. 135, p. 200).

The grazing regimes were complex. Only the southern foreface of the Tillicoultry hills was accessible enough for the sort of diurnal trip seen at Sheriffmuir. Herds might tend only their own, family flocks or, increasingly, the amalgamated flocks of several farms or composed of 'grass goods' or owned by major landowners. Even stock turned out onto the hill and left to pasture at will were visited frequently by the herds, though George Drysdale said herds only

visited the Backhills two or three times a week in winter, when the weather was bad and seldom when it was seasonable (NRS CS229/M/3/1,1772, p.119). Herds gathered their own flocks to the pens for clipping or selling but the work was coordinated; there were systems for returning strays (NRS CS229/M/3/1, 1772, p. 40). Strays which wandered onto others' pasture might be tolerated but driven stock were not. Hameland sheep were brought down to the low ground in the winter leaving mainly Southland sheep (and some cattle) in the hills (NRS CS229/M/3/1 1769, p. 98, p. 116, p. 199; ibid, 1772, p. 126, p. 191, p. 200). In spring, the Forehills (of Tillicoultry) were kept for sheep with lambs (Hameland sheep) and for milk cattle, so they were accessible (NRS CS229/M/3/1, 1772, p. 221-2. Attempts were made to drive sheep to high ground in summer, partly to preserve the lower grass for the winter (CC229/M/3/1, 1772, p. 194). Ewes were enclosed in stone pens called rees, near the foreface, whilst lambs were weaned (NRS CS229/M/3/1, p. 204). Robert Kirk had herded about 1730 but only in the summer, on the Backhills; he stayed close with his sheep during the day but returned home at night (NRS CS229/M/3/1 1769, p. 71). When new lots of Southland sheep were brought in, the herds kept them on their allotted stretch of pasture, until they learned it, a process known as 'wonting' (NRS CS229/M/3/1 1769, p. 38-40). When the snow was deep, sheep might come down spontaneously or be driven to low ground where they could find pasture (NRS CS229/M/3/1 1772, p. 49, p. 126, p. 204).

Witnesses give a sense of the constant adjustments being made. William Christie herded the feuars' sheep on the back hills, but 'giving the sheep [on the forehills] a turn when he went that way' (NRS CS229/M/3/1 1769, 1769, p. 47-8). Cattle and horses were moved away from the steepest parts at night, to keep them from accidents (NRS CS229/M/3/1 1769, 1769, p. 126, p. 142). John Paterson, who herded the hills above Gargunnock, said 'the sheep belonging to the best herd were best off' (NRS, CS25/1772/12/2/4 /244-5; CS238/M/6/55). Objectors to division of the Backhills argued that it would be inconvenient for them since, at present, the stock could use the grass 'as the keepers finds to be more fit for them' (NRS CS229/M/3/1 Box 2, Memorial). The Maddy Moss (GR928010) is in Dollar parish, some 60 acres in extent, between two burns and at 500 to 600 m. at the head of Glensherup. Witnesses in 1777 said that stock pasturing the adjacent higher tops were driven there on summer evenings so they could be easily found by their herds in the morning; this was a well-known practice, called 'lairing' (NRS CS230/A/3/7, William Christie).

Witnesses were aware of the external economic pressures. By 1770 the feuars (who had right to cut peat in the hills) now only did so for drying grain; for home use they bought coal 'being as cheap as peats and easy to come by', one witness said that the trouble made peat dear (NRS CS229/M/3/1, 1769, p. 79, p. 81). The high hills were too remote to be much used for gathering rushes or turf. About 1770, stock levels were increasing and John Cairns said that extra herds were now needed, for the front and back areas (NRS CS229/M/3/1, 1769, p. 32-3). At the same time, the rent for pasture (grass mail) was increasing, whether for the summer (April to the end of harvest) or all year (NRS CS229/M/3/1, 1772, p. 154, p. 194). There were complaints that the pastures were overgrazed, particularly in summer (NRS CS229/M/3/1, 1772, p. 215).

It was said that the foreface, particularly, was overgrazed; if used more sparingly in summer it would have provided good winter feed for the young stock (NRS CS229/M/3/1, 1769, p. 244). William Cairns sometimes bought sheep, keeping them only for a few days on the foreface, before selling them and buying more (NRS CS229/M/3/1, 1769, p. 158, p. 165, p. 170). He commented, more generally, that 'the feuar who had more money to purchase sheep put more to the hill' (NRS CS229/M/3/1, 1769, p. 174). Heavy losses in bad weather, discouraged some from taking risks and numbers of sheep could vary sharply. John Galloway sent few sheep, preferring to lay out his money to lime his land (NRS CS229/M/3/1, 1772, p. 230-231; p. 233-4, p. 251).

Enclosure and bans on sheep keeping on the low ground impacted on the hill pastures. As numbers of Hameland sheep fell (a change mainly affecting the less-well-off) there was more pasture for the Southland flocks of the better off (NRS CS229/M/3/1, 1772, p. 131, p. 155-165).). Herding was also changing. Where, formerly, most herds had tended small flocks, perhaps their own or their family's sheep, by the 1770s, they were often employed by groups of tenants or by the landlords to tend larger, increasingly commercial flocks of Southland/ Blackface sheep. By the 1790s, that was the norm – indeed, by then, Hameland sheep had vanished (Harrison, Forthcoming).

Menstrie Glen

Menstrie Glen has gently-sloping sides with extensive archaeological remains, including shieling huts on the higher ridges, rig and furrow cultivation within earth-banked enclosures and numerous settlements (See Plates 13 and 14). The Wright of Loss papers provide vivid evidence of farming and settlement in extensive parts of

the glen, particularly from 1750 to 1769. Together, archaeology and documents make this one of the best-understood upland landscapes in Scotland (RCAHMS, 2001.

As shieling became less important, permanent settlement was expanding. The names of the medieval heritages in Menstrie Glen (mainly Gaelic in origin) were already old by 1500 (Lipney, Fossachie, Lossentrule); but there is a scatter of more modern or subsidiary names such as Quarterside of Lipney, Cadgerknows and Tounhead of Loss, appearing around 1600 and suggestive of new settlement (RCAHMS, 2001). The tenant of Cadgerknows, a turf-built steading at NS 8295 9843 (Canmore ID 47155) died in 1591 (NRS CC8/8/27 p. 73-4); it is a site so high and inauspicious that it would suggest repletion. But Lossintrule, on the opposite side of the glen, described as 'but a grass room' in 1627, had the farms of Langcraig, Whittetsbank, Cauldhame and Ploverburn, all 'modern' names and associated with arable, within a few decades (RCAHMS, 2001, 30-38). By the mid seventeenth century, the glen was densely settled (See Plates 13 and 14) James Wright, landowner, cattle dealer and progressive farmer, rebuilt his house at Loss in the early 1750s, making a substantial 'lairds' house' (comparable with the feuars' houses on Glendevon) and redesigning the surrounding landscapes, creating new enclosures, laying out a garden and planting trees (some still present).

Until the 1760s, parts of the heritages of Loss and of Ashentrule were intermixed; Wright agreed a new line of division with his neighbour and a march dyke was built. Wright took leases or shares in farms elsewhere in the hills (in Alva, at Frandy in Glendevon) and stocked the land with new, commercial flocks of sheep. He already owned both Loss and Lipney (in Menstrie Glen) but now took a lease of Fossachie (the northern half of Dumyat); this was fenced. The small tenants were warned to quit, their last crops under-sown with rye grass and clover. In their place came commercial sheep flocks, supervised by shepherds brought in from the south of Scotland. Wright's death, aged only 39 in 1769, brought his experiments to an end and so closes our window on this crucial period.

Sheep Walks and Depopulation from c. 1760.

The great change in the Ochils between the 1760s and 1790s was not the introduction of sheep – they had been there for centuries; it was not even the introduction of Blackface sheep, since, as has been seen, their precursors had been present for 150 years before their final takeover. The novelty was that Black-faced totally re-

placed the Hameland type and greatly outnumbered other species, such as cattle and horses; they were on the hill all year round, with no diurnal move between low and high ground. The new sheep farms had little or no need for arable, so were less environmentally diverse; the labour-force necessary for the old, mixed-species, mixed breed farming systems were redundant, small tenanted farms were abandoned. The flocks' wanderings were constrained by legal judgements and march dykes rather than fights and youthful herds. Proprietors could decide how to use the hills without consulting neighbours or the needs of their tenants for fuel and thatch. The cost was paid by those displaced as depopulation spread.

After the Division of the Sheriffmuir, there must have come a time when the pastures were so degraded, the convenience of buying coal so obvious, commercial limestone and slates for roofing so much more readily available than cornstone and thatch from the muir and the areas accessible for pasture on the divided commonty so limited, that traditional usage by tenants was abandoned. Albeit many of the farms in the strath remained occupied, the muir, once a hive of activity, gradually became the rather solitary place we know today, another bit of (not very good) sheep pasture, its value perhaps somewhat enhanced by grouse shooting in the nineteenth century but perhaps its greatest value deriving from the cattle market (the cash generator, even briefly considered as an alternative to the Falkirk Tryst) (Harrison, 2019).

Many of the same forces were at work throughout the hills, albeit the zones started from differing situations. A few farms became shepherds' houses with no need for arable - and even these were eventually abandoned, the most remote first. The house in Glentye, a farm into the eighteenth century, was a shepherd's house by about 1770 but abandoned shortly thereafter (NRS CS25/1772/12/2, Process, p. 180-182). The farm at Glenbie probably went about 1800 (though the house at Backhills survived till, threatened with submergence under the reservoir, it was replaced higher up the slope (Cowley et al., 2006). Wright's little mansion at Loss was occupied by farm workers in 1841 and then abandoned (RCAHMS, 2001). The house at Jerah, in Menstrie Glen, was used intermittently till about the 1960s but was then abandoned after a fire (McLaren, pers.com; Canmore ID 145015) The impact of such change was generally less in Glen Devon parish, where the farms had been much larger and better capitalised even in the seventeenth century and where some have survived as inhabited sites, even as farms. Today, even where the sheep remain, most of the people are walkers, not shepherds.

Even the nineteenth century maps show patches of plantation forestry; more followed in the twentieth which also saw the construction of several reservoirs. By the millennium, wider economic changes threatened the traditional structures of 'hill farming'. Less visible but no less significant, management changes such as drainage and use of synthetic fertilizers have had significant impacts on wildlife (Bryant, 2017). In recent years have come wind farms, the Beauly-Denny power line and a further explosion of forestry (commercial and otherwise) all related on the Scottish government's response to climate change.

Figure 6. Wind farm looking North from Ben Cleuch- the Scale of the Backhills of Tillicoultry make the windfarm look small.

The rate, scale and depth of these industrial changes will have a much more profound and enduring impact on the hills than the changes discussed here – even than the advent of farming in the Neolithic. The outside world – national and global - is once again the driver (Harrison, 2019). We may be invited to comment. But can we change the trajectory?

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STIRLING CHURCH LIFE IN THE EARLY 19TH CENTURY

Evidence from the Royal Commission on Religious Instruction (Scotland)

Kenneth B Scott

Introduction

Between 1836 and 1839 the Royal Commission on Religious Instruction (Scotland) sent commissioners throughout the country to obtain information from local ministers on church-going and other aspects of church life. In their nine reports they gave a parish-by-parish account of organised religion, which provides a uniquely detailed account of Scottish churches in the early nineteenth century. The purpose of this article is to explore what these reports have to tell us about one particular parish in the 1830s – the parish of Stirling.

Background

The Royal Commission was set up with the remit of 'inquiring into the opportunities of public religious worship, and means of religious instruction, and the pastoral superintendence, afforded to the people of Scotland' (*Report*, 1, i). The origin of the Commission lay in the process of industrialisation which by the 1830s was well under way in Scotland. The major increase and redistribution of population caused by this revolution created problems for the country's institutions as they strove to adapt themselves to changing circumstances. The Church of Scotland was one such institution. In 1835 the General Assembly clearly stated its view of the situation.

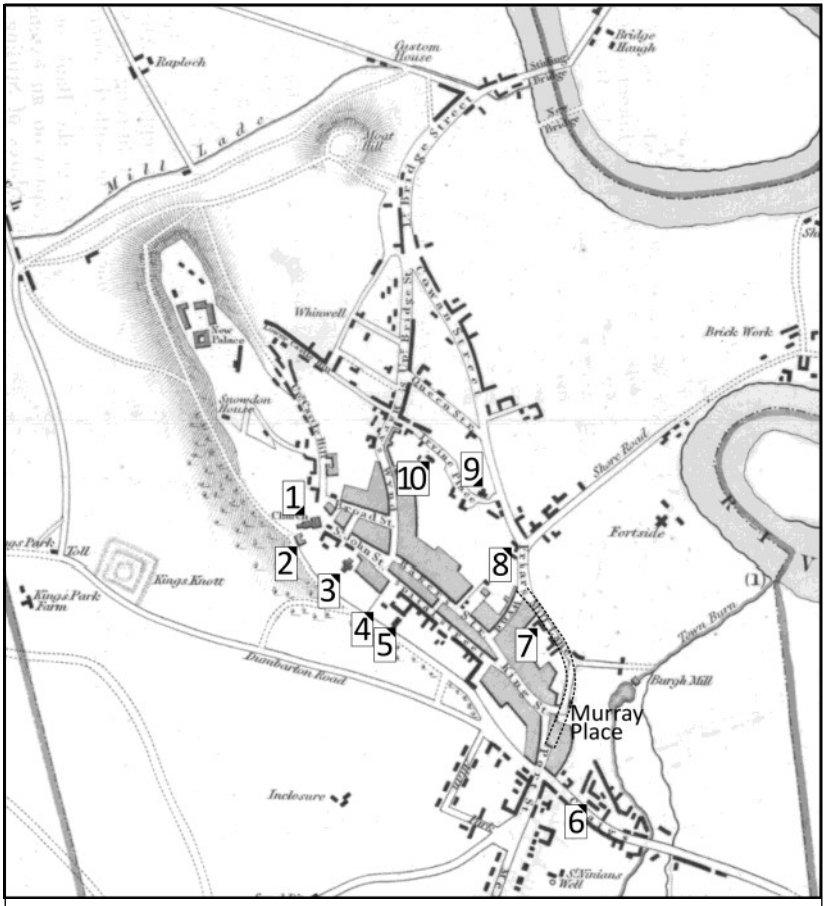
> The *results of all our inquiries impresses on us more and more the appalling consideration that in all the more populous districts of the kingdom, multitudes are passing onward to eternity in utter ignorance of the only way of salvation, and many thousands of children are growing up to manhood (sic) without being brought up in the fear and admonition of the Lord; and we dare not acquit ourselves of the guilt of having failed to provide the means . . . for averting or removing these growing evils.*
>
> (*Acts of the General Assembly*, 1835)

The 'means' which the Church meant to employ was a simple one - build more churches. It was in the cities and large towns that the population increases, and the social and moral problems that accompanied them, were most obvious. It was in these very same urban areas that the Kirk was most lacking in buildings, pews and ministers. If only these could be provided in sufficient numbers, then the masses could be brought to salvation.

The Church itself began to take action by setting up a Committee on Church Accommodation under the dynamic leadership of the Reverend Dr. Thomas Chalmers of Glasgow, the leading churchman of the time In its first year it raised the sum of £66,000 and commissioned the building of 64 new churches (Drummond and Bulloch 1973). However, the real problem lay in providing continuing support for these new congregations, especially in paying ministers' stipends. A petition was sent to Lord Melbourne's Whig government with the object of securing endowments for the new churches. In the King's Speech at the start of the 1835 Parliament attention was drawn to 'the means by which [the Church of Scotland] may be enabled to increase the opportunities of religious worship for the poorer classes of society' (*Hansard*, 24 February 1835).

Not all Scots were enamoured of this proposal, however. The Dissenting Churches – those Presbyterians who had seceded from the Established Church since the 18th century – vociferously opposed any grants to the Kirk. As a result of a growing tendency towards 'voluntaryism' in religion, the Dissenters were increasingly opposed to any links between Church and State, and to the idea that the State should fund the Church of Scotland (Brown, S. 1997). They argued that there was ample accommodation for those who wanted to go to church and objected to paying more taxes in order that the Establishment might benefit. '*If there is so strong a feeling in Scotland in favour of the extension of the Established Church,' argued Stirling Burghs*' Liberal MP, Lord Dalmeny, in the Commons debate, '*why do not its friends keep up their own endowments?'* (*Hansard*, 1 April 1835).

When the request for a Commission was eventually passed by Parliament, it was to ascertain not only opportunities for worship, religious instruction and pastoral superintendence, but 'how far these are of avail for the religious and moral improvement of the poor and working classes' (*Hansard*, 1 July 1835). Thus the investigation was to go beyond the mere counting of heads and seats. It was to be a survey of the social, educational, pastoral and financial aspects of the Scottish churches of a kind attempted neither before or since.



(Reproduced with the Permission of the National Library of Scotland)

1. Parish Church of Stirling (East and West Churches)
2. Guildhall - Baptists
3. 1st United Succession Church (Erskine) - St John Street
4. Scots Baptists -Trades Hall Spittal Street
5. Burgher Church Spittal Square.
6. Reformed Presbyterian Church (Craigs)
7. Independent Church - Murray Place
8. Episcopalian Chapel - Barnton Street
9. 2nd United Succession Church (Viewfield) - Irvine Place
10. Roman Catholic Chapel - Irvine Place

Figure 1. Location of the Churches within the Burgh of Stirling c. 1840 (based on Great Reform Act Plans and Reports, Stirling, 1832**)**

The Parish of Stirling.

Two members of the Commission visited Stirling on 28 February 1838, when the ministers of the various churches in the parish were called to the Justiciary Court Room in the Tolbooth to present their evidence (*Stirling Journal*, 2 March 1838). They had already received a lengthy questionnaire – 48 questions in all – indicating the information that would be required, but it still took some six hours for the evidence to be given.

The parish of Stirling was of no great size, being three miles long and one-and-a-half miles broad at its greatest extent. The area of the parish was not identical to that of the Royal Burgh of Stirling, parts of which were included in the parish of St Ninians that intruded at several places into the Burgh. On its landward side, Stirling parish contained a number of areas that lay outside the Burgh, including the village of Raploch and the area around Cambuskenneth Abbey, which was actually in the parish of Logie, but was for most purposes included within Stirling.

Nonetheless, the population of the parish had increased rapidly in recent times, rising by over 60% from 5,271 in 1801 to 8,340 in the census of 1831. The Commission, however, reported the parish population as 8,556, which probably included the people of Abbey. For its size Stirling contained a remarkable range of churches (see Figure 1 and Table 1). With only a very small number of exceptions, no parish in the country contained a greater number of non-Established congregations, of which there were nine in total. These included every main denomination, except the Relief Church, although people from Stirling were reported to travel to St Ninians to attend the church there.

The United Secession Church (U.S.C) had two congregations in Stirling. The older of the two, situated in St John's Street (the Back Raw), was the mother church of that denomination, having been founded by the Rev. Ebenezer Erskine, leader of the original secession in 1733 (Muirhead 1986). It had been rebuilt in 1826 and was served by two ministers of long standing. The second U.S.C. congregation, situated at the east end of Irvine Place, was built as an Anti-Burgher church in 1752 following a split amongst the followers of Erskine over the taking of the Burgess Oath. It had one minister. In 1820 the majority of these two factions (the 'New Licht' Burghers and 'New Licht' Anti-Burghers) had reunited to create the United Secession Church (Scott, 1983). The property and finances of both U.S.C. congregations were administered by lay managers, appointed annually by the congregations.

There were two other Presbyterian congregations. The Reformed Presbyterians regarded themselves as the true heirs of the 17th century Covenanters, and grew out of the remnants of the Cameronians and other 'hill men'. Their church stood in the Craigs and was built in 1783 (Ormond 1897). The Original Burghers were formed in a breakaway from the Original Seceders following disagreements over the Solemn League and Covenant in 1799. This congregation's place of worship was in Spittal's Yard, behind the High School of Stirling and was built in 1801 (Drysdale 1904). Again both of these congregations were administered by lay managers and had their own full-time ministers. Of the non-Presbyterians the church with the longest existence in Stirling were the Episcopalians. They had maintained their presence since the establishment of Presbyterianism in 1690, although it had not always been legal for them to worship publicly. Their church building, erected about 1798, stood at what is now the junction of Barnton Street and Maxwell Place (Saunders 1978). The clergyman was responsible for administering all aspects of the congregation.

There were two Baptist groups in the parish, both fairly small and of recent origin, but nonetheless maintaining full-time ministers. The Scotch Baptists, founded in 1802/3, by Robert Carmichael, a former Seceder minister and Archibald McLean, an Edinburgh printer (Muirhead 2015), used the Trades' Hall in Spittal Street for services, while the Baptist congregation, of the so-called English order, was formed in 1826 and met in the Guildhall (Bebbington 2000). An Independent church had started in Stirling in 1812 and was congregationalist in nature. They worshipped in a two-storey house in Murray Place owned by the congregation. It was administered by elected lay deacons.

The most distinctive of the non-Presbyterians were the Roman Catholics. It was only in 1793 that an Act of Parliament had been passed freeing them from legal penalties in Scotland. However, by the early 19th century their numbers were rising as immigrants from Ireland and the Highlands moved into the Central Lowlands in search of work (Drummond and Bulloch 1973). The Stirling congregation had been established in 1823 in a building fitted up as a temporary chapel and owned by a private individual. It shared the services of a full-time priest with two other chapels.

In terms of both religious establishment and geographical location, standing above every other church in the town was the historic Parish Church of Stirling, just below the Castle. Founded in 1494 the original building had been divided into two separate places of worship in 1656. The West Church was the older of the two, while

the East Church had been formed out of the choir of the original. The Kirk had three ministers, one for the West, one for the East, with the minister of the third charge preaching week about in the two churches. As a parish church its upkeep was in the hands of Stirling Town Council as heritors under the Church Patronage (Scotland) Act of 1711, and the Council also paid the ministers' stipends. The civic nature of the parish church was demonstrated by the fact that the responses to the Commission were provided not only by the ministers, but by the Town Clerk and the Officers of the Corporations. The spiritual oversight was in the hands of the kirk session composed of the minister and lay elders, who were usually men of substance and often included members of the Town Council (Muirhead 2015). Despite its limited size and awkward shape, the parish of Stirling contained a considerable diversity of churches, and presented in essence a microcosm of Scottish religious life in the 1830s.

Church Accommodation and Attendance

The heart of the Commission's work was to establish how many people could be accommodated in the churches on a Sunday, how many attended church, and the relationship between the two. The more straightforward of these two factors was church accommodation: the number of sittings that a church had (Table 2). By far the largest church in Stirling was the parish church, although in practice it was two congregations. With a combined total of 2,364 sittings it provided around one-third of the total in the town. It was quite closely followed by the two United Secession churches which made up just under one-third of the sittings, the larger of the two by far being Erskine's church in the Back Raw. The Original Burghers had quite substantial space for 800, with the Reformed Presbyterians at 250. Of the non-Presbyterians the largest was the Independent church in Murray Place with 400 sittings. The Episcopal church seated 200, and while the Roman Catholic building used only moveable forms at this time, a new chapel was being built to accommodate 350.

While the number of seats in a church was one factor in access to worship, the other factor was seat-rents. The mainstay of income for most churches in the 19th century, and indeed into the 20th century, especially for the Presbyterians, was payments made to let out pews (Brown 1987). Of the Presbyterian churches, only the Reformed Presbyterians did not have seat rents, and of the non-Presbyterians only the Episcopalians had them. Members of most congregations thus paid for the privilege of sitting in a particular

pew in church. In the West and East churches pews were granted to various public bodies for their exclusive use: to the Magistrates and Council of the Burgh; the Merchant Guildry; the Incorporated Trades' Convener's Court; Cowane's and Spittal's Hospitals; the Mechanics, Maltmen and Carters; the ministers' families; and the rector of the Grammar School. The Established Church also had to make provision for those on poor relief, who could not afford seat-rents. The evidence to the Commissioners suggested that not less than 400 or 500 sittings would be required for the poor, '*there being a very great number of poor families in the parish*' (*Report*, 8, 333).

The Parish Kirk was described as '*in good repair*', but '*cold*', repairs to the East having been carried out in 1808, and in the West in 1818. It had 905 seats available for let and 1306 were unlet. Eighty-nine seats were set apart for the poor. Virtually all the sittings in the United Secession churches and the Episcopal church were available to let, reflecting memberships which more likely came from the growing merchant and middle classes, and the landed gentry, respectively. However, where not all the lettings were taken up, there was often some availability to the '*poor and working class*'.

The Original Burghers split 50:50 let/unlet, and the Episcopalians charged for all their seats. These seat rents ranged in price from 4 pence to 8 shillings (Parish), from 5 shillings up to 11 shillings (U.S.C.), from 3 shillings to 21 shillings (Episcopal). Access to church, therefore, also depended on either the capacity of attenders to pay seat-rents or the availability of sittings for those who could not afford to pay, i.e. the poor.

Church attendance was a much more complicated matter (see Table 3). All the information provided to the Commission came from the ministers and there was no way of checking the reliability of the statistics provided. Politics and self-interest undoubtedly played a part. Secondly, the figures asked for related to Sunday attendances, but virtually all churches had more than one service on a Sunday, morning and/or afternoon and/or evening, and it was likely that a proportion of worshippers attended more than one service. Also, attendances were not confined to those who lived within the parish of Stirling nor vice versa. Attendees came from outside the parish to churches in Stirling, especially where a denomination did not have a church nearby. For example, the Second United Secession Church had over 300 (66%) of their habitual attenders were non-parishioners, from the parishes of St Ninians, Kincardine, Logie and Lecropt. For the Parish Church this was a significant issue because it meant that the Town Council was pay-

ing to accommodate churchgoers from outwith the bounds. For instance, over 200 inhabitants of the Abbey travelled by boat across the River Forth in all weathers to attend the Parish Church. Equally, some parishioners attended churches outside the parish, and in the case of Stirling, although not elsewhere, this appeared to balance out.

The Commissioners asked for three different sets of attendance statistics: highest average attendance; habitual attendance; and number of communicants (Table 4). Habitual attendance probably provided the clearest weekly estimate of attenders, while numbers admitted to the sacrament of Holy Communion provided the most accurate estimate of core membership. Indeed the Scotch Baptist minister stated that he considered only communicants to be part of his denomination. The two largest congregations by all these standards were the Parish Kirk and the Erskine United Secession. On all three counts the Presbyterian churches had the largest attendances. Unsurprisingly, given the roots of the United Secessionists in Stirling, attendances and communicant membership of the two U.S. churches were also relatively high. However, overall just over half the church attenders were not communicant members. The official count finally accepted by the Commission was a highest total attendance of 5,215 persons compared to an overall total of 6,753 sittings.

The variable distribution of attenders and sittings throughout the churches hid a substantial problem, according to the Parish church ministers. They argued that 'sittings in the parish church at the rate of 70 in the 100, which a good ecclesiastical state would require, form a provision for 3,341 persons – leaving 1,381 who have no means of public worship and religious instruction in connection with it' (*Report*, VI, 335). Their solution to this problem was to build another parish church.

The Commission was also given a remit to find out about provision for the 'poor and working class', although this group was not defined in a very specific way. The Commission reported that in Stirling 'the population consists in a large proportion of the poor and working classes. The remainder consists of respectable shopkeepers and tradesmen, professional persons, etc ' (*Report*, VI, 332). From these mixed, and very broad, descriptions the Commission managed to provide a general idea of poor and working class church attenders (See Table 5).

The churches which were identified as completely composed of the poor and working-class were the Scotch Baptists and the Ro-

man Catholics, while three-quarters of the Reformed Presbyterians were in this category. Generally, the Presbyterian churches recorded fewer poor and working-class attenders. The Parish Kirk provided no figures for the poor, probably because it was, being responsible for the spiritual welfare of those who received poor relief within the parish, the church of last resort. Those who were keen to receive poor relief, but had no strong church attachment, would associate themselves with the Kirk and the Kirk would be expected to accommodate all those who fell into that category. The outcome of this statistical avalanche was that the Commissioners accepted that in the parish of Stirling there were church sittings for 6,841 persons, while regular attenders were 5,215 in number. In other words, the churches were 76% filled and there appeared to be adequate provision for the poor and working class.

Church Finance

Quite a number of the Commission's questions related to various aspects of church finance, unsurprisingly as the Church of Scotland's main purpose in accepting the Commission was to obtain endowments from the Government. The three main areas that were considered were building costs, income and expenditure, and stipend. Improvements had been carried out to the parish church buildings earlier in the century by its heritors, the Town Council, which dealt with all building repairs from the tiends (as tithes were known in Scotland) collected within the parish. Four of the other congregations – First and Second United Secession, Reformed Presbyterians, and the Independents - still had debts to pay off on their buildings, ranging from £1,000 to £100. When the Commissioners visited Stirling the Roman Catholics were in the middle of building a new chapel and house at a cost of £1,500 and still had a few hundred pounds unpaid. The Original Burghers and the Episcopalians had paid off their debts, the Scotch Baptists paid a rent of £2 per annum for the Trades' Hall, and the Baptists used the Guildhall rent-free.

Seat-rents, annual payments to secure a personal church pew, played a significant part in the income of the churches (Brown 1987). These ranged from £380 p.a. in the 1st U.S.C. to £175 p.a. in the Episcopal church to £85 p.a. in the Original Burghers. Three congregations – the Independents, Scotch Baptists and Baptists – did not collect seat rents. In the parish church the seat rents of £40 p.a. went to the town council as part of the common good fund. Again, these figures tended to reflect the social composition of the congregations: 'respectable' working class and tradesmen in the

U.S.C.; the landed classes in the Episcopal church and the poorer working classes in the remainder. The parish churches probably included the two extremes, the great and the good of civic society plus the very poorest of the parish (Brown 1997).

Weekly offerings varied considerably, often reflecting the economic status of the worshippers. The parish church raised around £242 annually from ordinary collections, and the two U.S.C. congregations raised around £150 and £55, respectively. At the other end of the scale, the Scotch Baptists raised £15/16 from collections and Roman Catholics about 12 shillings each week (c. £30 p.a.). The Reformed Presbyterians summarised a key principle of the Voluntary parties: 'the members contribute for the support of the gospel according to their ability' (*Reports, VI,* 342). There were also extraordinary collections taken which were usually for specific purposes, such as relief of the poor, missionary purposes at home and overseas, and congregational expenses and projects. The Second U.S.C. congregation, for example, held a special collection to pay for the installation of gas lighting.

The main congregational expenses, such as repairs and payments to officials, were met from the seat-rents. Above all, this income was used to pay the stipends of the ministers. In the Church of Scotland stipends were paid from the tiends, a tax on parishioners set at one-tenth of physical and financial income. In Stirling this went to the minister of the 1st charge (West Church) and comprised 13 chalders & 4 bolls of victual {i.e. dry goods, such as grain, meal, and beans} worth about £248 per annum; hay & garden produce; 2 beeves of meat; a boat for fishing on the River Forth; an extra stipend from the parish of St Ninians; and a glebe (a piece of farm land). A payment was also made in lieu of a manse. The total worth of all this was estimated at £350. The ministers of the 2nd and 3rd charges fared less well, although still comfortably, receiving £250 and £200 respectively from the town council. However, they both received neither manse nor glebe and there was no provision in lieu.

Seat-rents also contributed to the stipends of the Second U.S.C. (£150) and the Original Burghers (£130). The latter also had a manse and two gardens. Two other clergy received £100 or more (Episcopalian and Roman Catholic). The Reformed Presbyterian minister received £95 including a payment in lieu of a house, while the Independent minister's stipend was £60/70 p.a., and the Baptists could only raise about £48. The Scotch Baptist minister received no stipend. The highest stipends went to the two ministers

of the First U.S. congregation who received £400 each. As with most of the ministers outwith the Church of Scotland there was an emphasis on stipends being dependent on the voluntary givings of the congregations. In the First U.S. the stipends were 'secured solely by the affection and consciences of the congregation and may be varied in amount by a majority of them' (*Report,* VI, 339).

In the context of an age when labourers were paid about £39 per annum, miners about £56, textile workers about £65, and doctors about £200, most of the Stirling ministers were well rewarded for their labours (www.essex.ac.uk) and the parish ministers exceeded the Church of Scotland minimum stipend of £150. The financial evidence clearly pointed to the non-Established churches being able to provide voluntarily for their own needs, but demonstrated that the Established Kirk was still almost totally dependent on the support of external bodies for its financial and property requirements.

Religious Instruction and Pastoral Superintendence

The reference in the Royal Commission's remit to religious 'instruction' related to both formal and informal means of nurturing parishioners in accepted Christian values. The formal means included Sunday worship, weekday lectures and bible classes, and other devotional opportunities such as prayer meetings. As far as Sunday services were concerned, there were a surprising number of nil responses to the Commission, the assumption being, of course, that every church had a morning service. The First United Secession congregation held two services on a Sunday morning and an evening service on every second Sunday, as well as Sunday classes for the young. One of the Parish ministers held Sabbath evening services in the Cameronian meeting house, which were 'tolerably well attended'. Another held a Sabbath evening class for young women and men, at separate hours.

The Parish ministers also provided a number of weekday opportunities. There were Bible classes for young men and women, lectures on the Catechism on Tuesday evenings, a class for children on Saturdays and usually a class for young women on another weekday evening. In addition, the three ministers in rotation gave a weekday evening lecture in the East Church or Session House. The only other church to answer this question was the First U.S. which mentioned monthly prayer meetings and a library of three to four-hundred volumes. The informal means of 'instruction' lay in the pastoral oversight of congregations whereby ministers in their visitation of their people provided moral advice, guidance and admonition. The Commission's enquiries here focused on two issues: were

the ministers able to adequately carry out pastoral superintendence *within* their own congregations? And, were they able to extend such oversight *beyond* their own congregations?

While the First U.S.C. ministers indicated that circumstances did not prevent them carrying out pastoral superintendence of their congregation, seven of the others said that they did (the Original Burghers gave no answer). Seven ministers replied that they were able to extend their exertions beyond their own congregations, although the Episcopal clergyman appeared to limit this to being Chaplain to Stirling Castle.

The greatest problems were associated with the Parish Kirk. The ministers there observed that: '*their labours are rendered comparatively inefficient by the great population, and the want of a territorial division, and a separate eldership for each locality'*. (*Report*, VI, 335). In particular, the Parish ministers reported that: *'a great number of young persons have been, and are growing up regardless of the Sabbath and of religious ordinances; and habits of intemperance have been increasing among the lower orders. This may be traced in part to the increase of the population without a corresponding augmentation of the provision made for their pastoral instruction'*. (*Report*, VI, 449). The answer to this, they argued, was for a third church to be built at the northern end of the parish.

Outcomes

In summarising their findings in respect of the Parish of Stirling, the Commissioners concluded that most of the places of worship were well attended, and that there were sufficient sittings for the highest average attendances. There were 6,641 places for 5,215 worshippers, over 75% full (see Table 3). With regard specifically to the parish churches, however, there were a number of deficiencies. These included the expanding population of the parish that had to be catered for, obstructed access (especially for those coming over from the Abbey), and the inadequate size of the parish churches, which claimed to have 2,364 sittings for 3,250 habitual attenders. The major problem was a geographical one, that the parish churches were both together in the wrong place.

The reason for the Commissioners not recommending an additional parish church was that such a proposal had already been under consideration for some time. After prolonged negotiations with the Town Council and the local Presbytery, and a great deal of wrangling over how to disconnect (or 'decollegiate') the existing three charges, it was agreed to proceed with building a new parish

church in the lower part of the town. The situation was helped by the reunion of the Original Burghers with the Church of Scotland in 1839. This made it possible to divide the parish into four quarters, each with its church, its own minister and kirk session, and its own parish area. The process was completed when the North Parish Church was officially opened for worship on 29 May 1842 (Cook 1893).

A sub-group of the parishioners which received considerable attention in the Commission's reports were the poor and working class. For Stirling the statistics indicated that this group ranged in church representation from 50% (Original Burghers and Epicopalians) through 84% (Parish Kirks) to 100% (Scotch Baptists and Roman Catholics) of habitual attenders in the churches (see Table 5), an average of 77% of the total attenders.

A recurring theme in recent church historiography has been the point at which the churches 'lost' the adherence of the working classes (Brown 1997). The traditional view has argued that this happened during the early phase of industrialisation with the break-up of rural society and the growth of the cities. More recently a view has emerged that the disenchantment of the working classes with the churches was not at all as sudden as that and the attachment continued throughout the nineteenth century. Certainly there appears to be some support for the latter position from the Commission's evidence for the parish of Stirling in the 1830s. The report estimated that well over 80% of the church-attending population were poor and working class and only 199 persons, all poor and working class, had no church connection at all (*Report*, 8, 332).

At a national level, the preliminary reports of the Commission on Glasgow and Edinburgh showed that the Established Church of Scotland was already under pressure from Presbyterian Dissent. The balance of churchgoers in Edinburgh being 44% to 42%, and in Glasgow 41% to 40% (Brown, C.G., 1997). On the same basis as these calculations, the Parish Churches in Stirling had 49% of churchgoers against 46% in the Presbyterian Dissenting congregations. This revealed that the Church of Scotland was in a much weaker position in the urban areas than had been anticipated by the Establishment.

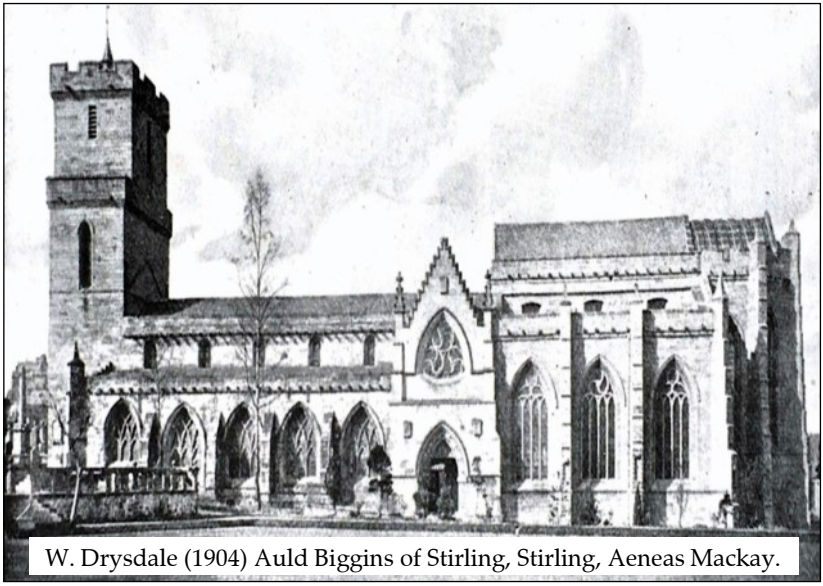
Another blow to the Kirk came with the announcement in early March 1838 of Lord Melbourne's Government proposals for church extension. Although the Royal Commission's early reports showed insufficient church accommodation in the largest cities, the government declined to provide any endowments for new churches and

took the position that voluntary effort alone could meet the demand for church accommodation in urban areas. It was 'a devastating blow to the Established Church . . . [by] refusing to support the expansion of the Established Church in response to the rapidly growing population of the industrialising Scotland, the state had in effect determined that the social influence and authority of the [establishment should be allowed to decline. (Brown, S. 1997). The Church of Scotland could no longer rely on its special relationship with the State.

On the other hand, it was a clear victory for Voluntaryism and the Dissenting Presbyterians. Issues over patronage continued to fester during what became known as '*the ten years' crisis'* in the Church of Scotland. As the Evangelical party in the Kirk became stronger and the Moderates, who had dominated under the old order, declined, the road to the Disruption of 1843 became more certain (Drummond and Bulloch 1973).

What were the Churches Like at the End of the 19th Century?

We are fortunate to have a number of photographs and an illustration of what they looked like at the end of the 19th century (See also Plates 15 and 16).



W. Drysdale (1904) Auld Biggins of Stirling, Stirling, Aeneas Mackay.

Figure 2. The Parish Kirk, East and West Church;

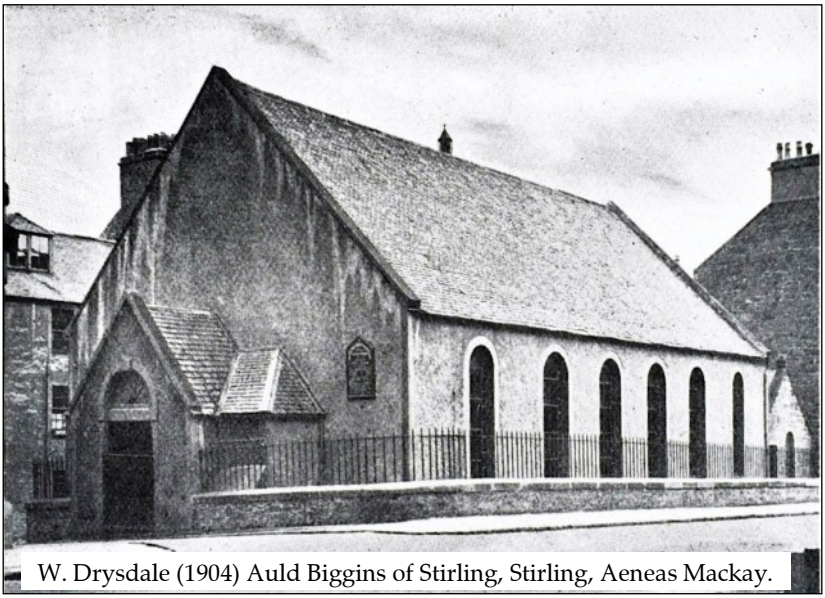


Figure 3. Cameronian Kirk;

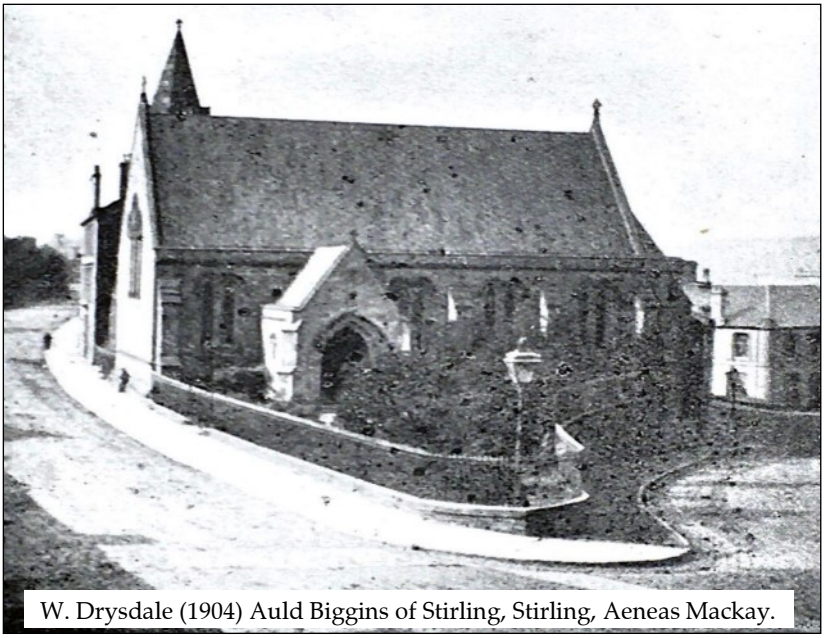


Figure 4. Old Episcopal Church.

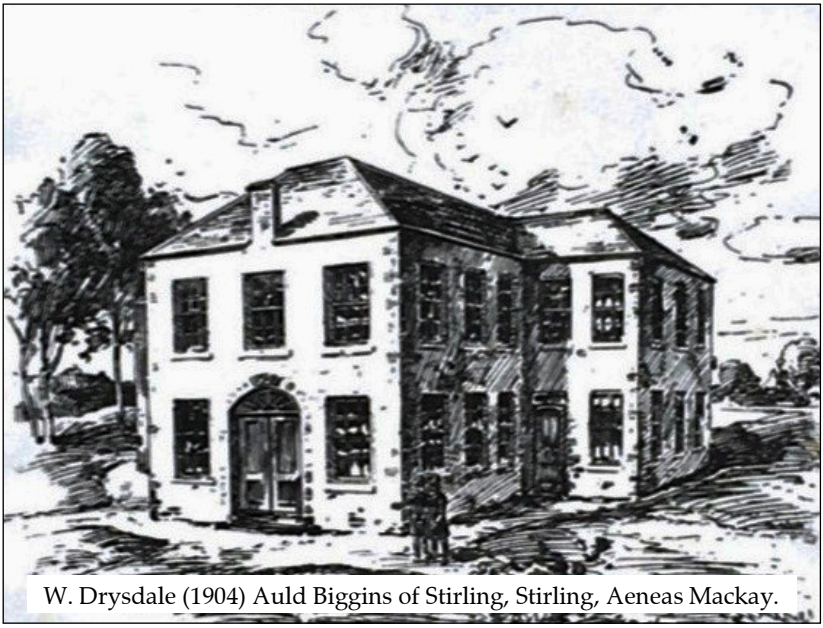


Figure 5. 1st United Secession Church (Erskine).

Figure 6. 2nd United Secession Church (Viewfield).

Where are these Churches Today?

The Parish Kirk - The Church of the Holy Rude remains the historic parish church of Stirling. Between 1936 to 1940 major renovations removed the dividing wall between the West and East churches and the building became a single church.

1st United Succession - After 1847 this church became the 1st United Presbyterian, then John Street U.P., then Erskine U.P. It joined the United Free Church in 1900 and after the Union of 1929 became the Erskine Marykirk Church of Scotland. It closed in 1969 and its building in St. John's Street is now a youth hostel, with only the original façade remaining.

2nd United Succession - After 1847 this church became the 2nd United Presbyterian, then Viewfield U.P., then in 1900 Viewfield U.F. In 1929 it became Viewfield Church of Scotland and it remains active at the corner of Irvine Place and Barnton Street.

Reformed Presbyterian - The Cameronian Church closed its doors in 1908 and united with St Columba's United Free Church (now St Columba's Church of Scotland, Park Terrace).

Original Burghers - This congregation rejoined the Church of Scotland in 1839. Its building in Spittal Square was later sold to the South Free Church, and in the early 1850s a new church was built in Murray Place. In 1929 it became Stirling South Church of Scotland, which united with Allan Park Church in 1970.

Episcopalian - This congregation continues to worship in Stirling as Holy Trinity Episcopal, in a new church built in Dumbarton Road in 1978.

Independent - Closed in 1923.

Scotch Baptists/ Baptists - With both congregations at a low ebb, a united Stirling Baptist Church was created in 1850 with a building in Murray Place**.** In 1989 it moved across the street to the vacant South Church of Scotland building, where it now continues.

Roman Catholics - The first chapel was built in 1838 in Irvine Place. St Mary's moved to a new building in Upper Bridge Street in 1905 where it remains**.**

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Table 1. The Churches of the Parish of Stirling.

Congregation	Ministers
The Parish Church of Stirling Church of Scotland First Charge - West Kirk Second Charge - East Kirk	First Charge - Rev. James Julius Wood Second Charge - Rev. George Cupples Third Charge - Rev. Alexander Leitch
First United Secession Church	Rev. John Smart Rev. David Stewart
Second United Secession Church	Rev. James Gilfillan
Reformed Presbyterian Church	Rev. William Stevenson
Original Burgher Congregation	Rev. William Mackray
Scotch & English Episcopalian Congregation	Rev. Robert Anderson
Independent Church	Rev. Alexander Marshall
Scotch Baptist Congregation	Rev. Archibald Shearer
Baptists	Rev. Malcolm McMillan
Roman Catholic Congregation	Rev. Mr. McLachlan

(* Percentages not equal to 100 because figures rounded up/down.)

Table 2. Church Accommodation.

Congregation	Sittings	% of Total*
Parish Church West + East	2,364 1,177 + 1,187	35%
First United Secession	1,417	21%
Second United Secession	522	8%
Reformed Presbyterian	250	4%
Original Burghers	800	12%
TOTAL PRESBYTERIAN	5,353	80%
Episcopalian	200	3%
Independent	400	6%
Scotch Baptist	100	1.5%
Baptist	150	2%
Roman Catholic	350	5%
TOTAL OTHER	1,200	17.5%
OVERALL TOTAL	6,753	

Table 3. Church Attendance.

Congregation	1. Highest Average	2. Habitual	3. Communicants [as % of 2]]
Parish Kirk West + East	2,200	3,250	1,676 [51.6%]
First United Secession	1,100	1,599	822 [51.4%]
Second United Secession	500	-	350 [-]
Reformed Presbyterian	300	400	150 [37.5%]
Original Burghers	600	700	280 [40.0 %]
Episcopalian	200	300	160 [53.3%]
Independent	120	200	70 [35.0%]
Scotch Baptists	40	50	25 [50.0%]
Baptists	90	117	42 [35.9%]
Roman Catholic	100	-	70 [-]
TOTALS	5,250	6,616	3,645 [49%]

Table 4. Church Attendance in Relation to Accommodation.

Congregation	Sittings	Attendance	% Filled
Parish Kirk East + West	2,364 1,187 + 1,177	2,230	94%
First United Secession	1,417	1,100	78%
Second United Secession	610	500	82%
Reformed Presbyterian	250	300	120%
Original Burghers	800	550	69%
TOTAL PRESBYTERIAN	5,441	4,680	86%
Episcopal	200	200	100%
Independent	400	120	30%
Scotch Baptists	150	40	27%
Baptists	100	75	75%
Roman Catholic	350	100	29%
TOTAL OTHER	1,200	535	45%
OVERALL TOTAL	6,841	5,215	76%

Table 5. Poor and Working Class Church Attenders

Congregation	Habitual No.	% of Congre-gation	% of Total Attenders
Parish Kirk	2,730	84%	41%
United Secession 1	960	60%	14.5%
United Secession 2	300	60%	4.5%
Reformed Presbyterian	266	67%	0.4%
Original Burghers	350	50%	5.3%
TOTAL Presbyterians	4,606	77.4%	70%
Episcopalian	150	50%	2.3%
Independent	122	67%	1.8%
Scotch Baptists	50	100%	0.8%
Baptists	84	72%	1.3%
Roman Catholic	100	100%	1.5%
TOTAL Non-Presbyterians	506	66%	7.7%
OVERALL TOTAL	5,112	77%	77.7%

WORLD WAR II MILITARY ACTIVITY AT SHERRIFMUIR

John A Smith

Background

Stretching along the Ochils between Blackford and Logie, traversed by the ancient road and divided by the Wharry Burn flowing south from Glen Tye is an area known colloquially as Sheriffmuir, although strictly the name only applies west of the Wharry. The southern course of the Wharry marks an abrupt east/west change in topography; hilly, with volcanic conglomerates to the east, and to the west; level moorland plain resulting from water action .

Military activity on this moorland plain has long been part of Sheriffmuir's story, from it's main claim to fame the 1715 Battle of Sheriffmuir to19thC local militia assemblies and 20thC artillery and tank training at the now decommissioned [in1950's] Whiteston Range. It was particularly important during both World Wars. Visible reminders still exist in the form of WW1 trench outlines and a WW2 scale version of part of the Atlantic Wall, one of possibly as few as four in UK, used for assault practice in preparation for the invasion of Europe.

This extensive military history west of the Wharry has been variously recorded, documented and published and is not the focus of these notes. This article is concerned with Sheriffmuir East of the Wharry, specifically an area roughly 0.5km either side of Sheriffmuir Rd from where it crosses the Loss Burn down to its junction with Pendreich Rd.

The author has walked this ground for decades often finding pieces of WW2 munitions debris, clearly indicating a military presence. On enquiry however, no record of any such activity was found to exist in local or national archives. The only reference to WW2 military activity at Sheriffmuir was from National Archives at Kew but that related to Whiteston Ranges. So it was decided to try and identify specific places where this military activity may have taken place and learn more about it. These notes describe the work, identify WW2 activity locations, note what was found at each and suggest possible users.

Searching for Sites:

Apart from modern forestry, heavier bracken and gorse growth (shepherds used to control them) the groundscape of Sheriffmuir is probably still much as it was in the 1940's. Traditionally, it has been used for sheep, which meant light ground use and more chance of spotting activity remains. The first places checked were where previous chance finds had been made and these were quickly confirmed as activity sites with munitions debris sometimes visible on or near the ground surface. With that done, nothing suggested where else to search, but earlier notes made about the confirmed sites hinted at some common features:

- located within 400m or so of a road, path or track
- include open ground backed by upward sloping ground.
- bounded by, or restricted to, ground/features suited to a particular activity.
- on ground with cover features sometimes sloping up to a high point.
- located at defensive positions near strategic features such as roads.

Further searching using these points as guidance proved quite successful leading to a total of ten sites being identified. After a time it was possible to recognise likely site locations based on local features and topography. Some identified sites almost certainly still contain debris and yet unknown others may remain to be found. Originally the sites may have been identified, selected and logged in advance of any potential use in order to avoid *ad-hoc* site searching during training which would clearly waste time, rely on luck and make forward planning impossible. The expertise required to identify and select suitable locations must have come from military sources with a thorough knowledge of standard issue infantry weapons, their use and training procedures. This would really only have been found in the Regular Army, not local forces such as Home Guard (HG) or Territorial Army (TA). Sites with similar topographies often had the same type of debris suggesting certain ground features were preferred for specific activities e.g.;

Grenade use: the most common grenade had a 4sec fuze (*fuze* = correct term for munitions) and 100 yard shrapnel spread so clear launch space and safety cover was necessary.

Rifle live firing: needed an unobstructed, level field of fire with suitable ground behind the targets to absorb spent bullets.

Ground cover use: to practice activities that incorporated using local features needed a site containing rocks, trees, bushes, undulating ground etc..

Debris and Weapons Identified from it:

All the debris found was easily identifiable using the many WW2 historic armament websites which in turn made identification of original weapons straightforward. The following list shows these weapons and how the identified debris relates to them.

Lee-Enfield .303 calibre rifle - 303 cartridge debris indicates the Lee -Enfield rifle from firing pin indent shape on cartridges.

Machine Gun .5 inch calibre - One heavily damaged 0.5 inch bullet was sufficient to identify it as coming from a Browning Heavy Machine Gun. The absence of more such debris suggests limited use of the weapon.

2-inch High Explosive (HE) mortar - Fired from Launch Tube, identified from remains of fuze mechanisms.

2-inch Signal Mortar - Fired upwards had slowed descent and coloured flare. Identified by tailfin shape.

2-inch Smoke Mortar - Used to observe accuracy of mortar fire or produce covering smoke. Identified from residue and casing remains.

No 36 grenade (Mills Bomb) - Identified from base-plugs and implosion damaged internal parts. A general use grenade, hand thrown or rifle launched, the familiar "pineapple" grenade. Two rifle adaptor gas-check plates from one site confirm rifle launching.

No 68 grenade - Identified from tailfin debris. An early Shaped Charge grenade, designed to punch a hole in armoured vehicles or tanks and launched by rifle with adaptor. This was withdrawn in 1941 due to its ineffectiveness against all but thin armour.

Most debris was degraded to a greater or lesser extent by the effects of firing, impact, detonation, weathering or corrosion. No doubt prolonged contact with acid ground had an effect too. For example, 2" Smoke Mortar cases only occurred as skins of corrosion around burnt residue, although their alloy tailfins often fared better, as did No36 grenade base plugs.

Figure 1. Site number 10 — Firing Range (the area in the bottom right hand corner of the photograph was covered in bullet debris).

Figure 2. Details of Bullet debris from site number 10.

About half of .303 cartridge cases, despite being brass, were invariably heavily corroded at the discharge end, the Mouth, aggravated perhaps by the original firing. Fortunately the firing cap end, the Head, where the manufacturer Headstamp showing type and production year is located, was in many cases better preserved and still legible. Some No 36 grenade base plugs and No 68 mortar tailfins also had legible Headstamps. The debris cartridges were all training blanks except for two each at Sites 4 & 6. Deformed bullets at Site 10 confirm live firing but no cartridge debris, probably lost with the firing positions under modern forestry.

Samples of items found.

Figure 3. 303 cartridge 1943 Headstamp with Lee-Enfield rifle firing pin indent.

Figure 4. Corrosion blank .303 (left) others typical of many from Sheriffmuir.

Figure 5. No 36 Grenade base Plug Stamped WDC 1940.

Figure 6. 2-inch mortar tailfin as typically found.

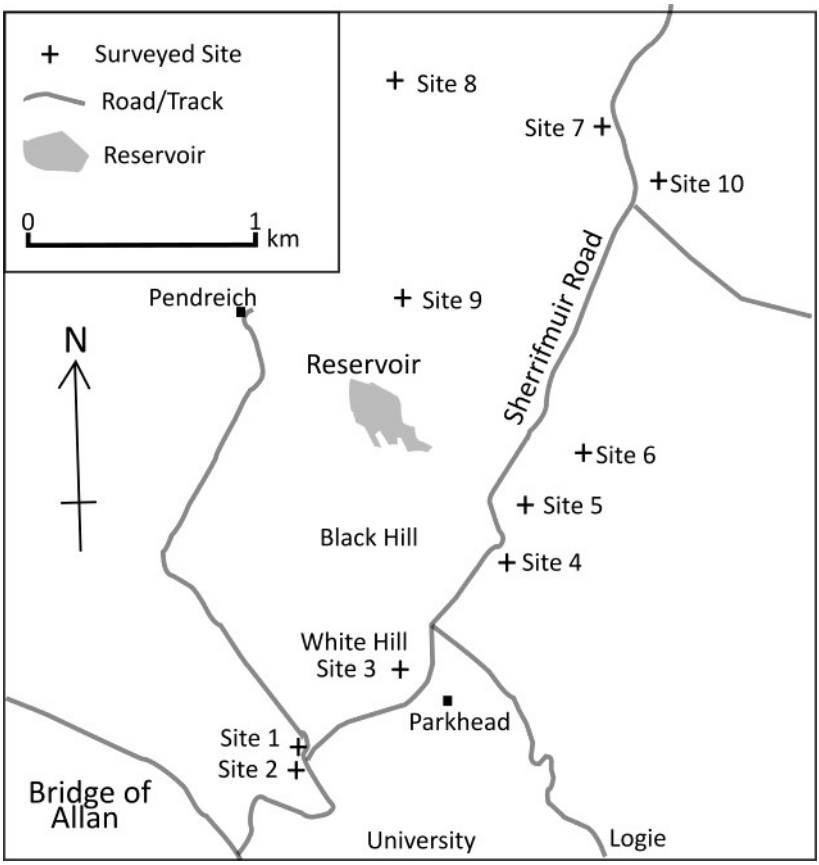

Figure 7. Location Map showing the 10 sites surveyed.

Modern forestry may have affected some sites, for example White Hill has evidence of activity but the adjacent Black Hill, a suitable candidate site, was forested and recently harvested. Location names given to the sites are based on local features. A suggested "best fit" activity for each site is extrapolated from its topography and types of debris found there. There is no evidence of heavy equipment use, construction or groundworks at any site apart from one with very minor terracing. Their limited ground areas, each no more than 150 metre radius, small amounts of debris and absence of infrastructure remains suggest large numbers of troops were not involved, in fact the sites' usage profile is more matched to light, perhaps even single use by small groups. (Map references based on OS Landranger Sheet 57 Stirling & the Trossachs).

Site Records:

Site 1: Sheriffmuir Rd NS 804 971

Locality: Sheriffmuir Rd & Pendreich Rd junction.

Topography: rough woodland, rock outcrops, cliffs and depressions

Evidence: .303 blank cartridge cases found in and around natural ground undulations in the woods and adjacent to roadside wall and doorway.

Weapons identified: .303 rifle

Possible activity: rifle training utilising natural ground features and proximity to road.

Comments: headstamp dates;1939/41/43/44 indicate prolonged use of this area.

Site 2: Sheriffmuir Rd & Pendreich Rd junction NS 805 971

Locality: 25m south of Sheriffmuir Rd & Pendreich Rd junction.

Topography: two single track roads merge here and run through a high sided, narrow gorge bordered above by mature deciduous woods.

Evidence: a 1.2m rough metal post at the roadside cut from what looks like a piece of rail or tram track was part of a roadblock. A Spiral Picket (barbed wire support), 1939/41/43/44 .303 cartridge cases and 2inch Signal Mortar debris(1941) were found under bushes and deep leaf litter behind the wall.

Weapons identified: .303 rifle, 2inch signal mortar

Possible activity: roadblock and/or control of access to military training area, possible general alarm point, defence against enemy troops moving down from open moor (See Plate 17).

Comments: 0pen areas like Sheriffmuir were considered potential enemy landing places. This site above the carse was well positioned to give a general alarm (signal mortar) and impede movement to/from Sheriffmuir and the nearby main A9 road (See Plate 15).

'This site was the designated assembly point for a Bridge of Allan HG Section if the invasion alarm was given, as it did on the night of 7 Sept 1940 when church bells sounded. The Section assembled and spent the night behind walls and trees listening for footsteps on Sheriffmuir Road but at 8am the alarm was declared false'.

Site 3: White Hill NS 808 976

Locality: 150m south of junction of Old Logie Rd with Sheriffmuir Rd.

Topography: wooded, steeply rising escarpment. Forestry may have erased evidence.

Evidence: spent, blank .303 cartridges,

Weapons Identified: .303 rifle.

Possible activity: with rifle, exploiting steep escarpment type topography.

Comments: illegible headstamp .303 cartridges on the escarpment top at the only break in its rocky face to offer a route up. A 1941 and an illegible .303 cartridge came from an old quarry lower down beside Sheriffmuir Road.

Site 4: Highlandman's Well NS 813 979

Locality: 100m southeast of Highlandman's Well.

Topography: this is the most extensive site found and shows the widest range of activities. It's a low broken escarpment falling away to rock outcrops and rough, sloping ground. The low path to Dumyat where grenade and bullet debris was found on the surface, passes directly across it about 100m from the road (See Plate 18).

Evidence: grenade and mortar parts, .303 cartridges, rifle grenade firing adapter.

Weapons identified: No36 grenade (Mills Bomb), No68 anti-tank grenade, .303 rifle, .303 rifle grenade firing adaptor, 2inch smoke and high explosive mortar.

Possible activity: No68 grenade launching by rifle adaptor, No36 grenade launching by hand and/or rifle adaptor. Small amount of live rifle firing.

Comments: headstamps from here were 1941 & 1943. Debris was spread along the escarpment face, down and across the Dumyat low path and to the adjacent rough grazing. The variety of debris indicates a wider range of activities than the other sites found. Depending on when devices were actually fired as opposed to Headstamp date this site could possibly have been in use from 1941 to 1944. *(see para; Debris and Weapons identified).*

Site 5: North of Highlandman's Well NS 816 980

Locality : 300m north of Hielandman's Well

Topography: 100m wide rough grazing rising to the east and dipping between two east/west aligned low escarpments with a number of large boulders nearest the southern ridge.

Evidence: blank .303 cartridges (1939/40/41) found singly and in pairs close beside the west faces of the boulders and at the escarpment's highest point. At the east end of the north escarpment overlooking low ground to the north .303 cartridge cases on the ground (from molehills!) may be related to Site 6 following.

Weapons identified: .303 rifle,

Possible activity: use of natural ground features complementing training with rifle.

Comments: faint ground marks here may be historic agricultural.

Site 6: Moorland east of Cocksburn Wood NS 817 983

Locality: open moor 400m east of Sheriffmuir Road opposite Cocksburn Wood.

Topography: coarse vegetation, localised rock outcrops.

Evidence: bullets, mortar and grenade shards, a small, distorted steel shard, cache of .303 cartridge casings at base of dyke on Sheriffmuir Rd in disturbed soil after ditching work

Weapons identified: .303 rifle, possible 2-inch HE mortar, No 36 grenade.

Possible activity: live rifle firing, mortar and grenade.

Comments: This site is 200m northeast of, and below, the north escarpment of Site 5 above which would be well placed for live firing down onto the Site 6 rock outcrops.

Site 7: Tibby's Well NS 817 000

Locality: 200m southwest of where Sheriffmuir Road crosses over the Loss Burn.

Topography: moorland edge with a big old beech tree beside a drystane dyke overlooking a sweep of Sheriffmuir Road.

Evidence: two spent, blank and very corroded .303 cartridges.

Weapons identified: .303 rifle

Comments: these two illegible Headstamp cartridges were found amongst stones fallen from the south face of the dyke at a mature beech tree on the edge of Pendreichmuir. Found here at the same time, part exposed in frozen mud dislodged by frost heave, three coins: 2 x George V halfpennies of 1938 & 19*xx* and 1 x 12-sided 1942 threepenny bit. (Did the man who left the cartridges drop his loose change all those years ago?)

Possible Activity: related to rifle use.

(Note), *Tibby's Well NS 818 999, a vigorous spring unnamed on maps rises on the wet, rough pasture ground 100m southwest of where Sheriffmuir Road crosses the Loss Burn. Its name probably derives from Tibby, daughter of Maggie O' the Bogs who ran a popular, 'weel-kent' 18thC howff here which Tibby inherited on her mother's death.*

Airthrey *Estate used the name in the late 1800's and present day shepherds still know the area as ''Tibby's''. The spring itself bubbles strongly upwards from the ground and served the local sheep for many years but cattle which replaced them have sadly transformed it into a muddy hole. A belief persists in some quarters that Tibby haunts the place in harmless form as an animal or bird.*

Site 8: Pendreichmuir NS 809 997

Locality: approx 1km north of Pendreich Farm.

Topography: mature beech trees on slope overlooking rough pasture.

Evidence: .303 cartridges, headstamps illegible.

Weapons identified: .303 rifle.

Comments: animal activity exposed a few corroded, illegible cartridges found on and near the surface at two mature beech trees where heather moor changes to pasture. The trees are the only ground feature and similar to Tibby's Well site 7 about 600m northeast.

Site 9: Pendreichmuir Cottage NS 808 990

Locality: ruined and unnamed on recent OS map but shown on 1944 edition 600m east of Pendreich Farm. Part of Airthrey in late 1800's and in 1892 lived in by the author's grandfather, one of the estate gamekeepers.

Topography: sited in a hollow, backed by the moorland of Pendreichmuir and a modern plantation, fronted by rough grazing.

Evidence: shrapnel fragments impacted in the remaining internal wall plaster. Grenade base plug and tailfin outside east gable. No dated fragments.

Weapons identified: Grenades No., 36 & No.,68

Possible activity: building seems to have been used as grenade target.

Comments: Few remote buildings would be available for live grenade practice, any that were might see heavy use. It was believed to be inhabited shortly before the War.

Site 10: Ashentrool NS 822 995

Locality: 200m northeast from where track to Menstrie meets Sheriffmuir Road.

Topography: rough grass slope rising from boggy ground and the Loss Burn.

Evidence: minor terracing, regularly spaced ground disturbance from bullet impacts, heavily damaged .303 bullets, part of a .5 calibre bullet and 2-inch Smoke Mortar fragments.

Weapons identified: .303 rifle, 2-inch smoke mortar and .5inch calibre Heavy Machine Gun.

Possible activity: a rifle Firing Range with two rows of targets at different heights and 2inch smoke mortar firing.

Comments: this is the only site found with visible, albeit slight, traces of construction. Two 2m wide parallel terraces have been cut linearly along the slope marking a lower 5-lane firing range and a higher 10-lane one.

Bullet impact zones where targets would have been placed show as 0.5m wide x 2.5m disturbed ground patches 4m apart at each 5-lane target position. The 10-lane range terrace is the better defined, particularly where its right-hand edge cuts the natural slope. Here bullet impact zones measure 0.5m x 3.5m, the larger size most likely due to different trajectory angles from the firing place than the lower 5-lane. Firing position(s) are unknown and probably lost in modern forestry to the south, shown as open ground on the1945 OS 1" map.

2-inch Smoke Mortar casing debris, severely corroded with no legible details, came from 25m East of the 10-lane range. Bracken encroachment and natural processes are making the site less dis-

cernible so it is best seen in winter, oblique light or with a dusting of snow. A single, heavily damaged .5-inch Heavy Machine Gun bullet was found on a track 20m west of the 10-lane range. Regular firing of such a weapon would be expected to produce much more debris than a single piece found so it may have had very limited use.

Dates and Activity:

Grenade and mortar headstamps include both *month* and *year* of production whereas cartridges only give the *year,* meaning a date of *actual use* can only be estimated since movement through the supply chain from manufacture to issue and use would add a delay time. For example, a January 1941 non-cartridge item after, say three months in the supply chain, might be available for use by April. But for a .303 cartridge dated 1941 any month of that year is potentially the production month, and since Jan and Dec represent the earliest and latest extremes, 3three months in the supply chain could give a possible 'use window' from April 1941 to March 1942. Items with later year dates may perhaps have a shorter "use window" since the supply system, apparently slow initially, was much more efficient later.

The 1944 and 1939 cartridges came from Site 2 (Sheriffmuir Rd/ Pendreich Rd junction) along with others dated 1941 and 1943 suggesting long use of the site. The 1944 date perhaps tends to confirm quick supply and use although the vast majority of locally based troops had in fact left the area many months before in preparation for D-Day. So who could have used a 1944 cartridge? Possibly a small force or individuals still training locally in 1944 preparatory to deployment later in the War.

1939 items may have come from existing local supplies in the early months of the War but not used until some time later. Table2 may be mirroring, to an extent, the wider War's progress: slow build-up in 1939 and 1940, high activity in 1942 and 1943 falling in 1944 as forces assemble for invasion of Europe.

Possible Users

Numerous regiments were stationed in and around Bridge of Allan at various times from 1940 and local historian John McKay listed around twenty-five of them in 1950. For example, 7th Cameronians, 9th Royal Scots, Royal Artillery, 4th (Polish) Rifles, 25th (Polish) Infantry, 1st Norwegian Brigade, and more, all trained troops unlikely to need small training areas. When a picture of the

site sizes and usage began to emerge Bridge of Allan Home Guard (HG) seemed the likeliest group to have used them. After some enquiries three HG veterans came forward who provided recollections of their time with Bridge of Allan HG.

Home Guard

Local Defence Volunteers (LDV) formed in spring 1940, became the Home Guard (HG) under military control in August, stood down in Dec 1944 and were disbanded in December 1945. The Bridge of Allan unit was part of 1st West Stirlingshire Battalion but can be excluded as having trained on Sheriffmuir. The veterans interviewed confirmed this and much of their training is known to have taken place in and near Bridge of Allan. The .303 cartridge cases found at the Sheriffmuir sites also confirm it because early in the War and after the heavy losses at Dunkirk .303 rifles were in short supply and production had yet to build up so only regulars, conscripts and TA received them. To address the problem, P14 .303 calibre and P17 .300 calibre ex-WW1 rifles were imported from the US in mid-1940.

However, these rifles had been reworked to US requirements which allowed the .300 P17 breech to accept a mistakenly inserted, slightly larger, British .303 calibre cartridge. If fired this led to jamming, serious injury or death. The 'fix' was a reminder stripe on the P17's stock. However, the Home Guard, desperate for weapons, were issued these .300 calibre P17's which became their Standard Issue. Significantly, no .300 calibre stamped cartridges were found, only .303, supporting the veterans' claim not to have trained on Sheriffmuir.

(The old Police Station was Bridge of Allan HG's weapons holding and assembly point. They trained with rifle, Bren gun, grenade and mortar, learned unarmed combat and how to use ground cover to avoid detection. Simulation firing a PIAT [Projectile Infantry Anti Tank] basic anti tank projectile launcher took place at Games Park. Training was less 'aggressive' in style than that of the Regulars. During one combined exercise HG 'defenders' had to wait near Airthrey west gate for 'enemy' troops, believed by one veteran to be 'Special Forces', to attack Airthrey Castle, the local Military HQ. But the enemy failed to appear so HG had a memorable early tea in Museum Hall. The veterans described other duties such as guarding local road junctions, telephone exchanges and public buildings, especially those unmanned at night. They operated roadblocks, did identity checks, transported and commissioned new rifles at Whiteston rifle range. HG was once called out to restore order when French-Canadian and Polish troops, who apparently mutually disliked each other,

came to blows in Bridge of Allan! They raised funds for the War effort in drill competitions against other forces in the Royal Hotel car park, once competing against the Royal Marines – the result was predictable!

Territorial Army (TA)/Regulars/Conscripts

TA troops were called up even before war was declared, their role being home support, strategic guard duty/defence, but liable to serve abroad in times of crisis. They had already trained with Regulars and had no need of Sheriffmuir.

Polish Forces

Polish Forces in Scotland primary task was East Coast defence and guarding strategic places such as train stations, munitions stores and military depots. They were trained soldiers who had evaded the Nazis, a great many were evacuated from Dunkirk. The Polish 1st Field Artillery based at Clackmannan and Polish Xth Heavy Artillery did in fact use Sheriffmuir but only Whiteston Ranges.

Canadians and others

Were also trained soldiers with access to British training areas if necessary, Sheriffmuir sites. would have been impossibly small for them.

Special Forces?

The HG veterans were interviewed individually and each stressed they did not train on Sheriffmuir, now confirmed by the absence of their .300 calibre ammunition. However, quite surprisingly, each man stated his belief that 'special forces' were active there, two named the 'Special Boat' service'. No deeper knowledge of this was claimed or how it came to be believed and there was reluctance to expand on it. One veteran quietly said he'd signed 'the paper' assumed by the author to be the Official Secrets Act. According to another, 'Special Boat' was the 'enemy' force which failed to arrive and attack Airthrey Castle in HG's previously noted exercise. In a small place like Bridge of Allan keeping even a secret force secret was likely to be difficult. It's worth noting that a Royal Engineers Bridging and Watermanship camp had just been built on the River Forth at Drip near Craigforth on the western outskirts of Stirling. Newly formed (1940) Special Boat Squadron troops are thought to have trained there and secret training took place at nearby Blairdrummond.

The original aim was to search for evidence of military activity and, if found, suggest who may have been involved. Although the former was achieved there was insufficient to propose a user group name so the work was simply recorded and concluded. However, quite some time later additional information came to light from someone who had lived at Pendreich as a boy during WW2. He described troops using a farm building as a sort of barracks/base. His recollection was that they wore non-British uniforms and insignia, perhaps suggesting Allied soldiers. Small groups regularly marched out into the surrounding area returning later in the day. Their presence was meant to be secret, nobody, not even people on the farm, were told anything. The present farmer in Pendreich, whose father was there during WW2 , has no knowledge of it.

If Home Guard or seemingly any other professional military groups in the area were not involved, who does that leave? Three Home Guard men on military duty in the area and conversant with it each believed that 'Special Forces' were active there. An eyewitness described unusual military activity by small groups in the area around Pendreich. Such activity matches the amount and type of debris and the limited extent of each site. It may also explain why the sites are relatively short marching distances from Pendreich. The eyewitness account says it started after Dunkirk and ended just before Arnhem (Sept 1944). That suits the Headstamp dates and the fact that no later cartridges were found. Therefore the current, and only, evidence relies on personal accounts and points to 'special forces', in a broad sense, or Allied soldiers undergoing low key training for future operations.

Summary.

Ten (10) previously unknown WW2 training sites were identified southeast of the Wharry Burn in an area with no known record of such activity. Ordnance debris found at these sites confirms small scale military activity during WW2 using British infantry weapons. With no supporting original record the verbal accounts in these notes are the only indicator of the site users possible identity. Based on this evidence the best-fit conclusion is that "special forces", in some form, were possibly the site users. More sites probably remain to be found.

Acknowledgement: Sites in this article were assumed at first to be used to meet local needs, ie., Bridge of Allan, Home Guard (HG) training areas. A message was placed in a local newspaper inviting surviving veterans to share their experiences. Three veterans responded describing their recollections and training. Some of their stories are included here. But more importantly they stated that HG

did not train at Sheriffmuir but believed unnamed others did. Their information directly affected the direction of the work and the author is much indebted to them. Information about troops at Pendreich and the roadblock on Sherifmuir Rd came from an acquaintance, quite by chance, during an unrelated discussion.

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Table 1: Identifiable Debris by quantity, weapon used, description and condition.

Qty	Originating weapon	Debris Description and condition
29	2 " smoke mortar	Casings with tailfins, all heavily corroded.
1	2" signal mortar	Casing with tailfin, some corrosion.
4	2" explosive mortar	Part casings with part tailfin.
30	No 36 grenade (Mills Bomb)	Firing assembly shards, severely distorted.
2	Rifle grenade Launcher plate	Light corrosion only.
9	No 68 grenade	Tailfin fragments, minor corrosion.
50	,303 rifle bullets	All severely ground-impact damaged.
122	.303 cartridge cases	Variously corroded but with legible detail.
117	.303 cartridge case pieces	Heavily corroded, no legible details.
1	.5 calibre machine gun bullet	Badly damaged and corroded.

Some 2inch mortar tailfins and No36 grenade base plugs had unknown manufacturer marks e.g., ADC, MAR, RE&S. Others marked; K, FD Ltd, EEC, were made by; Kynoch, Fry's Diecasting Ltd and English Electric Co., respectively.

Table 2: Identifiable Headstamp year by debris type & quantity.

Date	**.303 cartridge**	**No 36 grenade**	**No 68 grenade**	**2″ mortar**
1939	4	0	0	0
1940	1	1	0	3
1941	15	2	5	1
1942	64	0	0	10
1943	36	2	4	0
1944	2	0	0	0
1945	0	0	0	0
Totals	**122**	**5**	**9**	**14**

The figures above exclude debris unidentifiable by date since it cannot add to the picture.

STIRLING, 'STATUEMANIA' AND ROBERT BURNS

Christopher A Whatley

Summary

In the nineteenth and early twentieth centuries Scotland, as with much of the rest of Europe, went 'statue mad'. This paper describes Stirling's part in this, but its main focus is on the circumstances in which the burgh acquired – late in the day - a statue of Scotland's national poet, Robert Burns. Despite the high hopes of those who campaigned, often tirelessly, to secure the memories of heroic individuals in bronze, marble or other stone, within a short period of time most statues regardless of their artistic merit were little noticed. Yet when they were erected and unveiled, they were redolent with meaning. By investigating the conditions which culminated in the inauguration of the Burns statue in Stirling, and indeed by examining the statue itself, the paper reveals much about contemporary attitudes to Burns and how important he was for the inhabitants of the burgh in the Victorian and early Edwardian eras.

Introduction

From the end of the 1840s, across Britain and Ireland, throughout much of mainland Europe, over the Atlantic in North America and further afield in Australia and New Zealand, a phenomenon accorded the evocative term 'statuemania' got under way (MacLeod, 2007, 21-4). Statues, which had been relatively rare sights a hundred years earlier, appeared in profusion in prominent locations in cities and bigger towns and often even in smaller places too. If Scotland, according to some contemporaries, was initially a little tardy, this wasn't for long. In Glasgow a new statue was unveiled roughly every three years between 1819 and 1916 (Mackenzie, 2002, xiii), while by the end of the Victorian era Edinburgh's streets and squares were thickly populated with statuary of all shapes and sizes.

Stirling and Statue Mania

It was Glasgow's Necropolis, opened in the 1830s, that provided the impetus for what was a concentrated bout of statue raising in Stirling. Despite its function as a much-needed burial ground the Necropolis was also reckoned to be one of the best laid out and most sublime cemeteries in Britain. As with Glasgow's older burial

grounds, by mid-century Stirling's ancient Holy Rude Church graveyard was full to overflowing, '*overcrowded with human remains*', one witness wrote, '*rank, pestilential...[a] crying abomination...*' (*Stirling Observer*, 19th April 1855). So Stirling – belatedly according to critics of the town's inhabitants' apathy about such matters - necessarily entered the informal competition between larger towns to lay out cemeteries in their neighbourhoods that owed '*much of their beauty to their monumental statues, and designs in marble*' (*Stirling Observer*, 31 December 1857).

In 1857 and 1858, in the Valley part of the burgh's New Cemetery, seven statues were erected depicting iconic Scottish Protestant heroes, funded in large part – as the cemetery had been - by local businessman-benefactor and the ardent Presbyterian, William Drummond (Coleman, 2014, 2-4; *Stirling Observer*, 25 June, 3 and 31 December 1857, 19 August 1858).

Figure 1. Statues of three of the Scottish Protestant heroes, Alexander Henderson, John Knox and Andrew Melville, which were erected in Stirling's remarkable Valley Cemetery during 1858-9. The sculptor was Musselburgh-born Alexander Handyside Ritchie (1804-1870). (C.A. Whatley)

Just prior to this, William's brother Peter, equally zealous in the cause of Scottish Protestantism, had commissioned the same Edinburgh-based sculptor, Handyside Ritchie, to design statues of John Knox and William Wallace to stand by the entrance door of his new villa, 'Viewforth' (*Stirling Observer*, 30 October 1856). The Wallace Monument, on nearby Abbey Craig, completed in 1869, was part of the same patriotic commemorative movement, born of a widespread desire to protect and proclaim the public memory of the nation's heroic figures – initially monarchs and military leaders, but also politicians, inventors, captains of industry, and even philosophers and poets.

But in Scotland more monuments in the nineteenth century commemorated William Wallace, '*the consummate, incomparable Scottish hero'* (Cowan, 2007, 9) and defender of the nation's independence, than any other man (or woman) from Scotland's past (Morton, 2014, 140).

Wallace had rivals: Sir Walter Scott, for example, who also merited a national monument on Edinburgh's Princes Street, which housed a seated statue of the writer by Sir John Steell. But as far as memorialisation in the form of larger than life-sized statues is concerned, the most popular subject was Robert Burns, acknowledged even prior to his death in 1796 as Scotland's national poet. At first, it was memorials that were erected in his honour, at Dumfries (1819), Alloway (1820), and in Edinburgh (1839) on Calton Hill – although initially this housed a statue of Burns, begun by John Flaxman (Rodger, 2015, 49-70). Another made its appearance in Perth in 1854 outside the house of its creator William Anderson, a local stonemason.

1859, however, was the catalyst for the Victorian Burns statue movement to begin. This year marked the centenary of Burns's birth. It was during the unprecedentedly widespread and enthusiastic festivities which took place throughout Scotland on 25 January of that year that Burns's most ardent admirers, in the vanguard of which was Colin Rae Brown, pressed for lifelike representations of the *'people's poet'*: in other words, statuary (McGinn, 2019, 116). These would be unlike the earlier neoclassical memorials the mnemonics of which ignored the fact that Burns had written the stirring lines, 'A *man's a man for a' that'* and preached a form of universal brotherhood. Such democratic sentiments presented an unwelcome challenge to the old aristocratic order that was based on property, wealth and rank. They were messages those in the vanguard of Burns commemorations up until this point had been at pains to

suppress (Whatley, 2011). From mid-century, Chartist militancy had been supplanted by political pragmatism on the part of many former radicals. Anti-aristocratic, anti-clerical, liberal views became the dominant political narrative and, along with a belief in self-help and moral improvement, formed the popular essence of William Gladstone's Liberalism. For many thousands, Robert Burns had been the harbinger.

A critical requirement of Victorian statuary was that subjects should be immediately recognisable. This was made clear in 1840 (as the early signs of 'statue mania' began to manifest), by one of the promoters of the equestrian statue of the duke of Wellington to be erected in Glasgow: '*...an absolute identification of the person, features and expression of the Duke...is demanded by the Subscribers, and will form its chief value in the eyes of posterity*' (Letter to Archibald Alison). By this means, portrait statuary on top of imposing pedestals that were not too high, viewers could more clearly see the features of and identify with those subjects cast in bronze or carved in stone and, their sponsors hoped, admire and above all emulate them (Murphy, 2010, 245-6).

Public art and architecture of the period was not simply ornamental but had an important social and educational role in improving the behaviour of and inculcating respectability amongst the lower orders (Whatley, 2016, 116-7). The model for Burns, from which sculptors hardly dared to diverge, was Alexander Nasmyth's 1787 portrait, long considered to be '*the true Burns*' (Goodwillie, 1911, 21), although not universally.

The unveiling of the first of the Burns portrait statues in Glasgow's George Square in January 1877 sparked a race amongst the country's towns to follow suit. In Kilmarnock, Dundee, Dumfries, Ayr, Paisley, Montrose, Aberdeen and Leith, campaigns were launched to raise funds for statues of Burns. By the end of 1898, just over a hundred years after his death, there were eleven larger than life-sized statues of Burns in Scotland, with others erected elsewhere, in England, Ireland, Australia, Canada, New Zealand and the United States. In Scotland, in particular, the unveiling ceremonies were spectacular affairs, preceded by large, colourful and noisy processions comprising mainly artisans and other trade bodies led by civic dignitaries and mounted officials. These culminated at the statue sites where thousands of onlookers strained to hear the laudatory speeches of the great and the good, and who were cheered loudly when speakers made points that were in accord with popular sentiment. But not in Stirling.

Stirling: absentee in the race to commemorate the people's poet.

From 1886 there was a bust of the poet, in the Hall of Heroes in the Wallace Memorial, the first to be placed there. This was fitting, given how inspirational Blind Hary's late fifteenth century poem the *Acts and Deidis of Sir William Wallace* had been for Burns in his boyhood. The bust was gifted by Andrew Carnegie, the Dunfermline born handloom weaver who had gone to America and made his fortune as a steel and railway magnate. Carnegie – to whom we will return later – whose '*regard for Burns assumed the magnitude of a religion'* (Mackay, 1997, 12), frequently wrote and spoke on themes from Burns's works including egalitarianism and universal brotherhood.

Just why Stirling didn't participate in the Scotland-wide surge of Burns statue erection in the two decades after 1877 is puzzling. The burgh had much in common with other Scottish towns where such memorials were built. They were usually places which had a close association with Burns: most obviously Ayr, Dumfries, Irvine, Kilmarnock, and Glasgow. But a passing acquaintance with the poet was also enough to justify a statue, as in the cases of Dundee and Montrose (which Burns had visited as well as having relatives there). It was this kind of looser link that Stirling had, with Burns having stayed there in August 1787 after paying homage to Robert the Bruce and 'Old Caledonia' at Bannockburn (Ferguson, 1931, Vol I, 131-2). During his visit he also famously inscribed on a windowpane of Wingate's Inn where he was lodging a short poem in praise of the Stuarts and contemptuous of the line of Hanoverian kings who had been on the British throne since the ascendancy of George I in 1714.

Equally important as a determinant of a town's interest in statuary was civic self-esteem. There is no sign that this was lacking in Stirling – proudly proclaiming itself '*The City of the Rock'*. Pride in place had a competitive edge that caused towns in nineteenth century Scotland to vie with each other over the extent to which they had modernised. Form as well as function mattered. Typically, they boasted their superior spacial provision, like crematoria (as we have seen), street widening programmes, new squares, parks, prestigious buildings designed by leading architects – and statues. The range of subjects was wide, with the Duke of Wellington, Prince Albert and Queen Victoria leading the way (MacLeod, 2007, 24).

But in Scotland, to be without one of Burns, even before the local sculptor George E Ewing's Glasgow Burns was inaugurated, be-

came in the eyes of some influential figures in their respective towns, a matter of civic embarrassment, and a spur to action. After Glasgow's was unveiled, this intensified. The comment directed at Dumfries, that the absence of a Burns statue – where Burns had lived for several years, and died, was a '*blot...that should be wiped out'* (*Scotsman*, 7 April 1882), was simply the first of a kind of criticism that played a part in prompting drives for Burns statues in places as diverse as Ayr and Aberdeen.

Yet, reading through the columns of the *Stirling Observer* there is no sign of the kind of campaigns that were run elsewhere to raise funds for a statue of Burns by way of public subscription. Of these Glasgow's was the most successful, with some £2,000 being collected, much of it in the form of single 'democratic' shillings, so called as it was to 'the sons and daughters of toil' the campaign was directed, in part to give them a sense of ownership of what was termed 'The People's own Monument to BURNS' (Whatley, 2016, 124). Similar thinking was expressed by some of those concerned in the early stages of the Wallace Monument project (Morton, 2014, 141). In Kilmarnock, Dundee and Dumfries too, appeals to working people were made, and partly succeeded.

The onset of adverse economic conditions however made it more difficult for wage earners to contribute - despite the working classes' quite remarkable devotion to Burns. It was deteriorating conditions in the local fishing industry and flax trade that partly explain why thirty years elapsed between a Burns statue being mooted in Montrose (1882) and its unveiling in 1912. Also accounting for the snail's pace progress of this project was that Burns's direct connections with Montrose were not immediately obvious, thus making it difficult to enthuse the town's inhabitants (fewer than forty of whom had subscribed as late as 1898).

Stirling's links were even more tenuous. Size too may have been significant. Montrose's population, similar to Stirling's (around 14,000 in 1881), was smaller than any of the other towns where Burns statues funded by public subscriptions were erected. Nor was Stirling a particularly affluent burgh; it is notable that most Burns statues were erected in those cities and towns where middle class incomes were highest and with sizeable concentrations of skilled workers. Certainly monies for the town's statue of Robert the Bruce, raised on the Esplanade at Stirling Castle in 1877, had been slow in coming in – over seven years (Coleman, 2014, 1); there may well have been a limit to the capacity of potential subscribers to respond to a call to fund another statue so soon.

There were Burns devotees in Stirling , yet there may have been fewer of these than in other Scottish Lowland towns. In Glasgow, Dundee, Dumfries and Kilmarnock for example, it was men of this ilk - middle class professionals from a range of occupations and self -made businessmen - who instigated and kept alive Burns statue campaigns when they were flagging. Many were freemasons. Leading figures on town councils and members of Burns clubs were also important, often along with publishers and newspaper proprietors, who believed in the power of the written word and statues to elevate the masses. An example is the Kilmarnock publisher, newspaper owner and antiquarian James M'Kie, who was active in statue campaigns in Glasgow and Kilmarnock. Indeed, he was credited with having been 'connected with nearly every Burns movement in the West of Scotland', and lauded as the country's most important contributor to 'the immortal memory of the Bard' (Whatley, 2016, 106-7). Without such individuals, campaigns struggled.

The death of two of the most ardent and energetic promoters of the Burns statue scheme in Montrose in its early stages was given as another reason for the delay in bringing this to a satisfactory conclusion (Whatley, 2016, 107, 128, 158). M'Kie's equivalent in Stirling may have been the Rev Charles Rogers, chaplain at the castle, a town councillor and urban improver – who later in life produced a three-volume compendium on Burns, published 1889-91. However, it was during the late 1850s and early 1860s that Rogers was most active in and around Stirling, and his attention was taken up with the Wallace memorial. He was also disputatious and notoriously difficult to work with and slippery in his financial dealings. He left Stirling for London in 1864 (*Oxford Dictionary of National Biography*, 2004).

Stirling's lower level of enthusiasm for Burns is hinted at by the sluggishness of the burgh's elite to organise any kind of civic function for the Burns nationwide, indeed global, centennial in January 1859. Late in 1858 moves were being made, but at the behest of the local Free Gardeners Lodge, a body whose commitment to the nationalistic temper of the time had been demonstrated in August when they had marshalled a *'great meeting' in honour of 'our national hero, Sir William Wallace'* at the Borestone at Bannockburn (*Stirling Observer*, 22 July 1858). It was the Gardeners, Freemasons, and Oddfellows who in December lobbied the burgh's then provost John Dick at a meeting in Dowdy's Temperance Hotel for a Burns demonstration (*Stirling Observer*, 9 December 1858). Yet this and other initiatives, the editor of the *Observer* observed as late as 6 January (less than three weeks before the designated date), *'had proved*

abortive', leading to fears that '*unless some measure be immediately taken, Stirling will stand silent and alone with respect to this matter – leaving a slur, we should think, on the [the town's] public spirit and patriotism*' (*Stirling Observer*, 6 January 1859).

Outsiders too noticed and wondered why the apparent apathy (Gould, Vol 1, 70). However at least one resident, 'Homo', would have been encouraged by the inaction. Dragging Burns through '*the mire of a so-called festival'*, he raged, was another instance of the degradation of the nation's saints and martyrs by the erection of statues (almost certainly a reference to the Valley Cemetery) and the plans now afoot to '*vulgarise*' our '*classic hero, Wallace*, by '*dishonouring him with a monument'* (Gould, Vol 1, 87-8); by such mistaken means, it was argued by some contemporaries steeped in fundamentalist Reformation attitudes, the immortal were reduced to the rank of mere mortals. Whether in Stirling there was stronger resistance to the idea of celebrating Burns than elsewhere is difficult to judge, but such a mood was certainly present. Another townsman, the 'Wayfarer' joined with 'Homo' in roundly condemning the festival and Burns (who '*had one of the filthiest minds that ever existed'*), on the grounds that both were an affront to Christianity (*Stirling Observer*, 20 January 1859).

Even so, if there was a decidedly lukewarm sense of anticipation as the day approached, and few events honouring Burns took place in Stirling on 25 January, not even a procession (owing to the '*inclemency of weather'*), late in the afternoon the town's bells were rung on the orders of provost Dick and the magistrates. A music festival was held in the Corn Exchange, with an audience of some 700 people. The Stirling Musical Association too put on a concert, the Freemasons held a dinner in the Exchange Inn, and '*various private dinner parties also took place in the town'* (Ballantine, 1859, 393-4; *Stirling Observer*, 27 January 1859). But this was hardly impressive. The contrast with nearby Falkirk was striking. There, a day's holiday was observed, in the afternoon a '*large procession'* led by the Falkirk Foundry band passed through the town, while one of the evening events, a *'Working Men's Festival'* organised by the editor of the Falkirk Herald, and held in Bank Street Chapel, was in such demand that hundreds of working people were unable to procure tickets (Ballantine, 1859, 246-7).

Catching up

Clearly there was little or no appetite in Stirling to join the race for a statue of Burns during the 1870s or 1880s when the movement

in Scotland was at its height. Yet across the country, there was continued and perhaps even growing interest in Burns, although some commentators were concerned that this had more to do with the 'feasting and drinking' associated with his birthday than genuine interest in his life and accomplishments. However, it was upon this annual occasion rather than infrequent large-scale celebrations that greater emphasis was being placed. Ideally, Burns suppers (as they were now called; formerly such gatherings had usually been termed 'Dinners') were to become the main feature of the annual programmes of social and educational events organised by the growing number of Burns' clubs (McGinn, 2019, 118). Both reflecting and contributing to this was the founding in 1885 of the Burns Federation, when eight clubs were affiliated; by 1911 there were over 200 (in Scotland alone).

But now Stirling, where the absence of a formal Burns Club had been a matter of some mild criticism (*Stirling Observer*, 16 September 1886) was not to be left behind and later the following year a Stirling Burns Club was formed. (Although another much smaller, less formal club was in existence locally as well as others in the vicinity.)

The Club was commendably active, especially in promoting knowledge of Burns in the schools, as well of the Scottish language, or dialect, which in turn helped sustain a powerful sense of Scottish patriotism of which Burns was often adjudged the saviour. As far as can be ascertained, however, the subject of a statue was not much discussed. And this makes sense; the earlier ardour for memorials of this kind was cooling. 1896, the centenary of Burns's death, marked what was almost the tail end of the Burns statue movement – in Scotland. Aberdeen had one from 1892, while new statues were unveiled in Irvine and Paisley in 1896. It had taken twelve years to raise the funds for the last-named. Another was inaugurated in Leith, in 1898.

The numbers of participants, whether in processions or as onlookers, were far fewer than had been present in, say, Glasgow in 1877 or Dundee in 1880 – although Leith did well, drawing a crowd of 30,000. Over time attention was transferred to the funding and building of more practical memorials, such as housing for the (deserving) poor as at the National Burns Memorial in Mauchline, and hospital beds (Whatley, 2016, 157-9). The Burns Federation, founded in London by the same man who had set off the rush for Burns statues, turned instead to preserving and bringing to public notice places and artefacts associated with Burns and his poems and songs.

Yet inter-town rivalry continued to influence behaviour. Within the British union state, and without a Scottish government to take the lead, the centralisation-resistant middle-class elites of Scotland's towns were instrumental in keeping alive the legacy of Scotland as a nation (Morton, 1999). It was this, as was remarked earlier, that Burns personified. As a speaker at Stirling's Burns Club's annual supper in January 1888 declared to '*Great applause*', *'[Burns] caught up the national sentiments, the national modes of thought, the national aspirations, and glorified them in a voice of song which had never before been heard in Scotland...never to become silent till the Scottish tongue has been forgotten.*' (*Stirling Observer*, 2 February 1888). In the decades leading up to the First World War and with the Home Rule Association having been founded in 1886, the pressure to represent Scottish national pride and achievements in the form of permanent memorials was perhaps even more intense than it had been earlier (Coleman, 2014, 59-64), as it was in Ireland at the same time (Murphy, 2010, 226).

And so in January 1913 it was a great relief when news broke at a meeting of the town council that Stirling might soon be able to hold up its head in making up what the *Burns Chronicle* later called a '*deficiency*' in this '*ancient and historic town*' (*Burns Chronicle*, 1915, 82). For, as the editor of the burgh's *Observer* wrote (a little harshly, not least as he ignored the Valley's *Scottish* Protestant martyrs), '*with the exception of the Bruce Statue and the South African Memorial to the Argyll and Sutherland Highlanders on the Castle Esplanade, Stirling has not possessed any tribute of a similar nature to Scotsmen – leaving out the figure of Wallace at the entrance to the Town Council Chambers – whose names are worthy of preservation in this manner*' – a reproach that would be '*wiped away in the near future.*' (*Stirling Observer*, 21 January 1913).

This though, was not to be a popular fund-raising effort. Instead the statue was the endeavour of the then provost, David Bayne. As subscriptions from members of the public for statues of Burns dried up, it was left to particularly committed and well-off individuals to take the lead. Thus even though Irvine in north Ayrshire could boast close ties with the poet through his employment and residence there over the winter months of 1781-2, it was due to the exertions and money of a single individual, a Glasgow based merchant who had been born in the Ayrshire town that the burgh acquired its Burns statue in 1896 (Goodwillie, 1911, 92-3).

Bayne however had no such pedigree. He was a native of Laichdoors near the small Perthshire village of Muthill. Nevertheless, after a boyhood spell in Glasgow learning the grocery trade he had

come to Stirling where he succeeded to a grocer's business which he ran successfully for many decades, as well as accruing a portfolio of house properties.

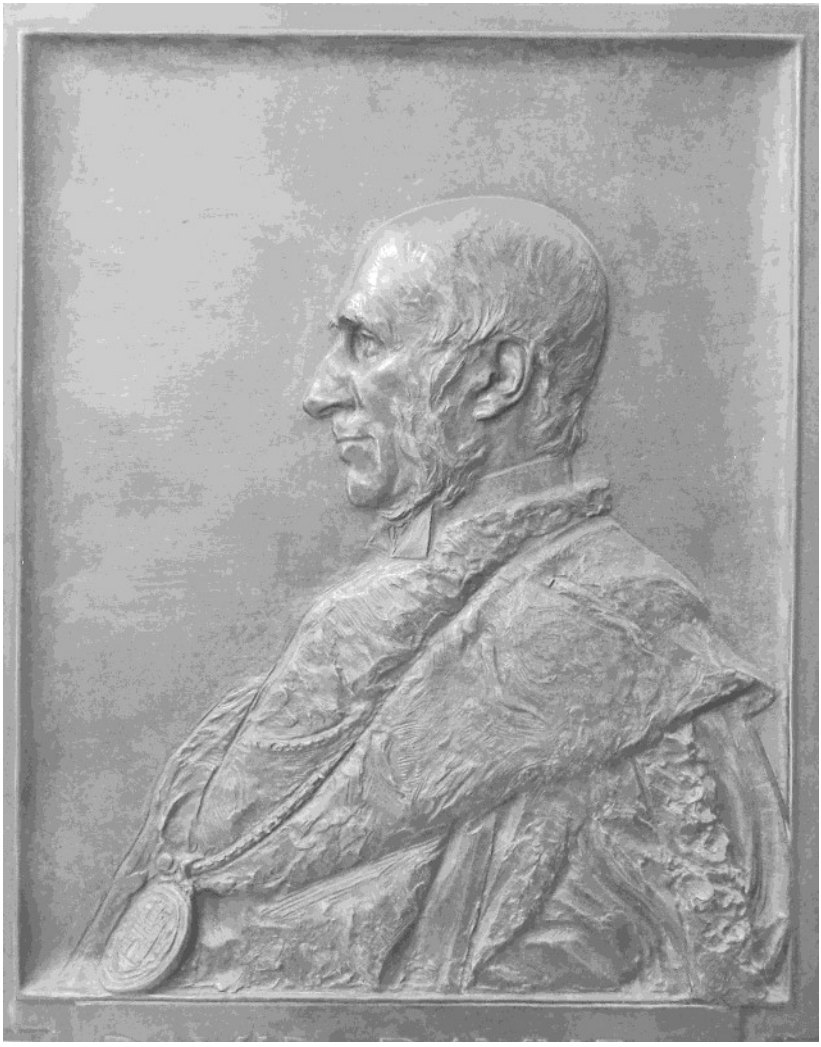

Figure 2. Bronze plaque of David Bayne, a successful self-made businessman and lifelong admirer of Burns who was Stirling's popular, paternalistic provost from 1909. (Image from Wikipedia, SulaLib / CC BY-S Ahttps://commons.wikimedia.org/wiki/File:Provost_David_Bayne_bronze_plaque.jpg)

In 1894 he had become a town councillor, a bailie in 1906 and in 1909 was elected as provost. In many ways he was the archetypical Burns enthusiast, and had much in common with those who in the 1870s and 1880s had been in the forefront of Burns statue campaigns elsewhere, described earlier. Like so many hard-working businessmen of the period who had risen from humble beginnings Bayne was at one with Burns's emphasis on the virtues of independence. This, as someone who was liberal but also 'discriminating' in his charitable giving, Bayne was keen to promote. As important was his fondness for and commitment to his adopted town, being recognised for his contribution, as a town councillor as well as an individual, to the welfare and improvement of Stirling. A 'simple and sincere Christian', his gifts to the town included, in 1910, a notable clock tower, and a Burns-themed clock for the new municipal building (*Stirling Observer*, 5, 8 January 1918).

How long the idea of a Burns statue had been gestating in provost Bayne's mind is unknown, nor if he had shared his thoughts with members of the Burns Club, of which he was a member. What is certain however is that by the late autumn of 1912 it had become a serious proposition. In September the town clerk David Morris, on behalf of provost Bayne had made contact through an intermediary (J Winter Buchan) with James CAW, the distinguished art critic and director of the Scottish National Portrait Gallery (Stirling Burgh Records, J Buchan to David Morris, 24 September 1912). The approach to Caw, '*judged to be the best qualified judge 'of artistic matters, so far as Scotland is concerned*', at the time, points to Bayne's ambition and affection for Stirling - as well as an admission that he needed some very basic advice about how to proceed.

He was to be disappointed by Caw's response to his proposal that he allocate £500 to the project. If the statue was to stand in the open air, this was insufficient: stone statues in Scotland weathered badly. Bronze was the solution. Furthermore, '*for an outside position the figure requires to be considerably larger than life to be at all effective*', a principle that applied to most heroic monumental sculpture of the period, if it was to inspire respect and even awe in the eye of the beholder (Murphy, 2010, vii). As the other statues of Burns were more than life-sized, Bayne could hardly opt for something smaller. The cost would be at least £800. Perhaps an even more pressing issue was to identify a suitable sculptor. On this matter Caw's views were to be strictly confidential. His opinions were frank (and

therefore offer a uniquely perceptive critique of the Scottish sculpture craft at the time).

D W Stevenson, who had created the bust of Burns for the Wallace monument would have been satisfactory, but he had 'passed over to the majority'. The best of the living Scottish sculptors (and there was a prevailing view that only Scots should be employed in national monumental work of this kind; the same was true of Ireland), he thought, was the fervently patriotic, Scottish nationalist James Pittendrigh MacGillivray, who had made the well-received Burns statue in Irvine which had broken with the tradition of basing Burns's head on the Nasmyth portrait. However, MacGillivray was 'very busy' and unlikely to be able to execute a commission for 'some time.' That MacGillivray had also 'done' Burns was an issue that arose with another two of the prospective sculptors, W G Stevenson (brother of D W Stevenson) and W Birnie Rhind.

Both had worked on at least two Burns productions, in one sense an advantage, but Caw was inclined to reject them. You 'do not want a copy of another work', he advised. This guiding principle had been established half a century earlier when James M'Kie in Kilmarnock, hoping he would be able to save money and acquire a duplicate of Ewing's Burns in Glasgow was rebuffed with the advice that, 'to have any attraction or value, your movement...should be original' (Whatley, 2016, 121). Anyway, whilst Caw judged Birnie Rhind to be 'a very capable workman' he 'lacks inspiration'.

Having offered these and other assessments of Scotland's sculpting talents, Caw made no recommendation until he was sure Bayne would pay a higher fee than he had originally envisaged. Having ascertained that he would, Caw had found his man, 'a leading sculptor', who would produce a larger than life bronze cast of Burns, with a '*suitable pedestal'* for £850 (Stirling Burgh Records, J Buchan to D Morris, 22 November 1912). Whether or not this was Albert H Hodge, the eminent, Islay-born, much sought-after London-based sculptor who was awarded the Stirling commission isn't entirely clear. What is however is that by the end of July 1913 Hodge had been to Stirling, met with the provost and council officials, identified and recommended a site for the statue, outlined its form and dimensions and explained how he intended to portray Burns (*Stirling Observer*, 29 July 1913). As far as we can tell, all present were in agreement. The aim was for Hodge to complete the commission by September 1914.

Figure 3. Burns statue, Stirling, by Albert H Hodge. (C.A. Whatley)

Accordingly, plans were laid for what was anticipated to be a momentous day in Stirling's history. There was no reason to doubt that as with most Burns statue inaugurations, a large, enthusiastic crowd would turn out for the occasion. Greatly anticipated was the guest speaker, Andrew Carnegie, who was in Scotland for the summer, at his residence near Dornoch, Skibo Castle. In August 1912 he had unveiled the Burns statue in Montrose, and there given an address the sentiments of which would have pleased provost Bayne. Carnegie had lauded Burns as 'the true Poet-Prophet' who admired

honest piety, had exposed the '*repulsive theocracy of his age*', and pointed the way to democracy that had been achieved without violence (*Address*, 1912, 6-10). In order to attract him to Stirling the town clerk had informed Carnegie that not only was the statue he was to unveil 'near to the Carnegie Library' (which, along with many others, Carnegie had endowed), but also that provost Bayne was a 'great admirer of Burns' and, also like Carnegie, was 'a self-made man' (Stirling Burgh Records, draft letter, D Morris to Andrew Carnegie, nd.). Invited too, to give a shorter address was Robert S Rait, recently appointed as the first professor of Scottish history and literature at the University of Glasgow (Stirling Burgh Records, R Rait to D Morris, 20 August 1914).

Yet within twenty fours of Professor Rait's acceptance of his invitation, the plans for the unveiling ceremony began to unravel. On 4 August Britain had entered the First World War. On the August 21, Carnegie, a lifelong pacifist who for new year 1914 had sent out greeting cards using Burns's lines that '*It's coming yet for a' that!/ When man to man the world o'er/Shall brothers be and a' that*' (Mackay, 1997, 289), intimated that he was pulling out. With his dreams of world peace shattering and '*In view of the impending destruction of the greatest number of civilised beings ever sacrificed in the history of the world*', his heart would not be in the right place if he were to unveil a statue of his hero. With the '*awful tragedy we are about to face*' he wrote, '*a pall would be thrown over the ceremony*.' (Stirling Burgh Records, A Carnegie to D Morris, 21 August 1914). Already he and his wife had booked a passage to the United States on the Cunard Line's *Mauretania*. Within three weeks he had left Skibo, and Scotland, for the last time.

It comes as no surprise then, that the unveiling ceremony on an overcast 23 September was conducted '*on a much less comprehensive scale than would otherwise have been the case*' (*Stirling Observer*, 29 September 1914). Tens rather than thousands turned out to watch. The platform party was largely confined to town council members and officials and Burns Club representatives. Instead of assemblies of the trades, freemasons and other local organisations that had been a feature of most other often cacophonous Burns statue inaugurations, the sparse crowd of onlooking townspeople was augmented by the presence of soldiers from the Royal Scots Fusiliers. Mainly recruits from Ayrshire, after the formal speeches were over, they had broken out in unison, singing 'The Star o' Rabbie Burns' and the 'Banks and Braes o' Bonnie Doon', before winding up with 'It's a Long, Long way to Tipperary', already a popular marching song amongst the troops.

Those giving speeches too found it hard to resist references to the war, and to the prospect of victory, in the cause of which Burns – just a few weeks earlier heralded by Carnegie as the poet of peace – was conscripted. Provost Bayne asked those present to pay tribute to the soldiers present. Baillie Thomson, in accepting the statue on behalf of the community, referenced to loud cheers the hard-won liberties won at Bannockburn, and the 'agonies' for the men who had much more recently 'gone under on the plains of Europe in the cause of liberty against despotism' (*Stirling Observer*, 29 September 1914). Following afternoon tea in the town's Golden Lion Hotel, Professor Rait maintained in a finely crafted, stirring and well-received speech that, while Burns was not 'distinctively' a martial poet, he could be 'stirred to martial song' and compose immortal lines about conflicts past along with 'the determination which wins battles of the present'. There was, he argued, drawing on Burns poem 'The Jolly Beggars', a nobility in the deaths of those who died in 'righteous and necessary' wars (*Burns Chronicle*, 1915, 86-93).

It was left to the two final speakers to express the growing anti-German spirit of the times. Alexander Pollock, vice president of the Burns Federation, who at the Burns Club's Burns Supper in January had claimed that '*no other poet*' had better condemned '*the curse of war*' than Burns (*Stirling Observer*, 27 January 1914), hoped that with Rait's elevation to his chair at Glasgow University we would hear no more '*German mechanical teaching in our schools*' and that he would become '*the prophet of Scottish teaching in Scottish schools*' – '*from that time forward*.' Hodge, the sculptor, lamented the impact of war on sculpture, citing the previous week's destruction by German forces of Reims cathedral, for which, he was sure, the '*day of reckoning...would not be long delayed*.'

All this, however, would pass. What would remain was the 6.4 metre-high plinth and statue (See Plate 19). It stands still on the spot Hodge, the provost and council officials had agreed late in July 1913, that is a raised triangular plot between Corn Exchange Road and Dumbarton Road, facing Albert Place. The statue is atop a hefty eighteen tons weight, 3.6 metre-high pedestal of 'finest' Aberdeen granite. This carries richly carved Scottish thistles and laurels and four panels, two of which represent Burns's two best-known poems – 'The Cotter's Saturday Night' and 'Tam o' Shanter', a third of Burns at the plough and, lastly, Burns heart-broken at the loss of his one-time lover Mary Campbell, the subject of his poem 'Though Lingering Star'. Burns, standing erect at 2.8 metres, is portrayed as he might have been at his prime in Edinburgh in 1787 shortly after

the publication and remarkable success of his *Poems, Chiefly in the Scottish Dialect*. Burns himself is modelled very much in the portrait statue tradition. He is represented as he was imagined during his Edinburgh sojourn, lionised as Scotland's heaven-taught ploughman poet, holding a pencil and scroll. His head was based on the Nasmyth portrait, albeit with a boyish mouth and more pointed nose.

Figure 4. Detail – head and shoulders – of Hodges' Burns statue. The *Burns Chronicle* declared that the sculptor had given '*a fine conception of the Poet, representing him as he appeared in his Edinburgh days.*' (C.A. Whatley)

Had the war not intervened, in contemporary art critical circles, partly influenced by French sculptors' rejection of realism for abstract work, it is possible that Hodge's Burns would have met with the kind of disapproval that was heaped on most Burns statues. There was an over-dependence on Nasmyth, while as Edward Pinnington wrote in an authoritative article in the *Art Journal*, whilst 'Art' could not hope to capture in one piece all of Burns's '*qualities of heart and intellect*', equally it was '*a mistake for a sculptor to represent him in one specialised mood or character*' (Pinnington, 1897, 238). This though is precisely what Hodge had done. Bayne however was delighted with '*one of the most realistic statues of Burns he had ever seen*', even if the final cost was in the region of £2,000, and happily handed it over to the care of the town council as a worthy addition to Stirling's modest stock of statues.

Conclusion

Stirling was the last town in Scotland to have erected a larger than life-sized statue of Burns until 1959 when, after a seventy-year wait, Arbroath's was unveiled. Albert Hodge's Burns marked the end stage of a movement that had borne its first fruits in 1877, with the unveiling of George Ewing's Burns statue in Glasgow. Although imposing, Hodge's Burns is not particularly exceptional. However, the bas relief panel he designed for the pedestal that depicts the ghoulish, grotesque and frantically energetic scene of 'Warlocks and witches' in Alloway kirk from Burns's 'Tam o' Shanter' is, in its expressiveness, arguably one of the best portrayals of this iconic scene by any sculptor (See Figure 5).

Yet, whatever its qualities as a work of art, the Stirling group is a striking reminder of the prominence of Burns in the century and more after his death, how deep and widespread was his influence on Scottish society, and of the endeavour that was devoted to preserving forever his legacy.

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Figure 5. Section from one of the four bronze bas relief panels from the pedestal of the Stirling Burns statue. This panel depicts the ghoulish scene in Alloway's old kirk as witnessed by Tam from Burns's 'Tam o' Shanter'. (C.A. Whatley)

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