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Cover: front– Leaf trap of the round leaf sundew *Drosera rotundifolia* (photograph by Roy Sexton).

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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 symposium called *Man and the Landscape* 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 symposia are ever welcome. **Visit website for instructions to authors.**

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## GREENLAND WHITE FRONTED GEESE *ANSER ALBIFRONS FLAVIROSTRIS* AT LOCH LOMOND NATIONAL NATURE RESERVE

Stephen Longster

### Background

The internationally rare Greenland white-fronted geese (GWFG) are about the size of the commoner pink-footed goose (Figure 1, Plate 8). They have a striking appearance, with a distinctive white patch above a bright orange bill and black stripes or 'tiger barring' across the belly. The juveniles have fewer or no tiger stripes and the white face patch is much smaller.

Figure 1. Grazing Greenland white-fronted geese at Loch Lomond SPA.
*Photo Courtesy of Ian Fulton*

GWFG are one of the most endangered of the UK populations of wintering geese. A 2011 census established a global population of 25,765. Of these 13,225 wintered in the UK mainly in Western Scotland with the largest flock of 6,911 on

Islay. The local Loch Lomondside population was 204. A further 12,510 wintered in Ireland mainly on the Wexford Slobs. A third group is thought to winter in Norway but no counts have been made (Fox, Francis and Walsh, 2011).

The population is monitored on their wintering area because their breeding grounds extend along 600 km of the west coast of Greenland making the logistics of summer counting impracticable. Every autumn they fly from these summer breeding grounds across the 3000 m high Greenland ice cap to Iceland and then on to Ireland and the West of Scotland with a few settling further south in England and Wales.

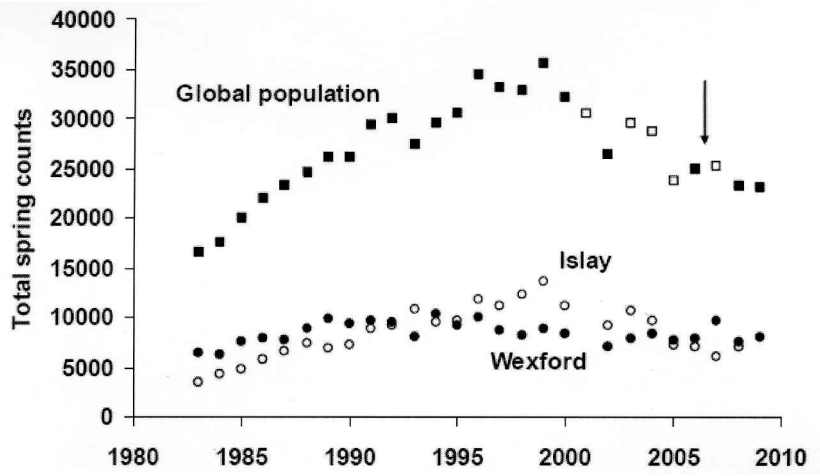


Figure 2. Combined global spring counts of Greenland white-fronted geese from Britain and Ireland showing actual total counts (filled squares) and counts involving estimates of the 'rest of the Irish population' (open squares). The arrow indicates when hunting in Iceland stopped. Spring counts for Wexford (solid circles) and Islay (open circles) are also shown (Courtesy of Fox et al. 2009).

The GWFG population rose from a low of circa 17,000 in the early 1980s to a peak of over 35,000 geese in the late 1990s (Figure 2). This general increase was attributed to restrictions placed on the shooting of wintering geese in both the UK and Ireland in 1983. Since the millennium the population has been declining despite a further ban on shooting in Iceland in 2006. The fluctuations in the wintering population are principally thought to reflect climatic conditions on their breeding grounds. In the northern part of their range it has been cooler than normal during the last 6 summers.

Canada Geese have also made their way, through natural population movements from Canada to the traditional Greenland breeding grounds of the GWFG. Observations made on a recent field visit by the Greenland White

Front Study Group found no significance evidence of a negative impact of Canadian geese on their breeding success (http://greenlandwhitefront.org).

**Greenland White Fronted Geese at Loch Lomond Special Protection Area**

Loch Lomond hosts 1.7 % of the UK GWFG population. Their roost sites fall within the boundaries of the Loch Lomond National Nature Reserve though most of the grazing sites fall outside. Regular counts are undertaken by SNH staff and volunteers as part of the national and international GWFG census. A good body of data has been compiled since the early 1980s which can be used to determine population trends and favoured grazing/roosting sites (Figure 3).

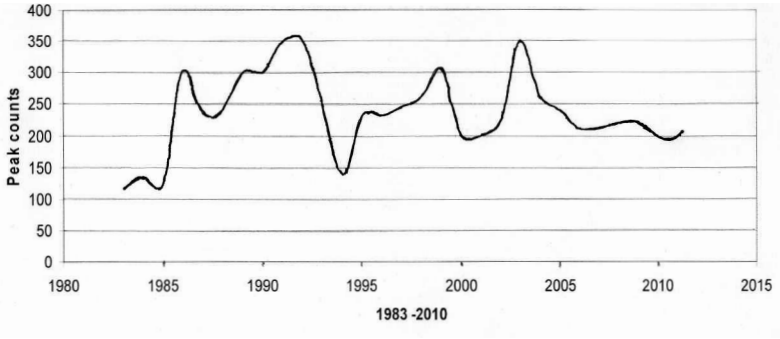


Figure 3. Annual peak counts of GWFG in the Loch Lomond Special Protection Area.

The local numbers have followed global trends peaking at 350 in the early 1990s before dropping back to the low 200s recently (Figure 3). The peak counts for the 2009/10 season reached 197 about 10 % down on the previous year however juveniles made up 13.4 % of this total which is slightly higher than on other wintering grounds. This raised value could indicate that the population is stabilising as the GWFG has a relatively low level of productivity. A 4 % increase in the 2010/11 peak count is consistent with this view.

Counting grazing GWFG is quite challenging as they have an uncanny ability to tuck themselves into folds in the ground and disappear. On one occasion several SNH staff watched the geese land in an apparently featureless convex shaped field. Upon approaching the edge of the field there was no sign of the flock and it was only when walking away that their distinctive call was heard. On turning round the geese had come into view; they had made themselves almost invisible by perfect positioning in a barely detectable fold in the ground.

**Roosting**

The two roost sites are in the Endrick Mouth region of SE Loch Lomond one adjacent to Ring Point (from NS 430 891 to NS 431 889) and the other in

Wards Pond (NN 446 883) near Wards Farm. Both are also used by Icelandic grey geese, whooper swans and Canada geese. Pre 2007 the main roost site was Wards Pond, with Ring Point very much the secondary choice. In late summer 2007 a swathe of scrub was cleared off Ring Point with the primary purpose of extending the open ground available for breeding Lapwing, Redshank and other ground nesting birds. During the following winter of 2007/8 the GWFG increased their use of this area and it became their primary roost site, perhaps because the more open aspect gave the geese a greater sense of security. This hypothesis is supported by the fact that several thousand pink-footed geese have sufficient confidence to feed before dawn on the grass at Ring Point, directly adjacent to the GWFG roost area. In the winter of 2009/10 Wards Pond was completely frozen over from the 21st December to the 15th of February and so Ring Point became the only roost site on the NNR.

**Grazing**

The grazing grounds of the Loch Lomond population of GWFG are small fields often surrounded by woodland close to major urban centres. This unusual habitat is very different to the open and isolated areas that the larger flocks frequent on Islay and the Wexford slobs.

In the winter of 2005/6 the geese adopted a small area of farm fields (NS 428 867) near the village of Gartocharn and were very faithful to this site until the winter of 2009/10. This made the counting process relatively easy, providing goose monitors with a fairly predictable location. In 2009 there was a change of ownership and while the area appears to have been kept as pasture a number of infrastructural improvement for access and drainage were made during the winter. The associated disturbance may have contributed to the alteration of the grazing sites, and in the early part of the winter the GWFG preferred site moved to the North bank of the Endrick at Gartfairn (NS 431 903). The geography of this location created difficulties in approaching the birds and it was only due to the patience and persistence of Ian Fulton a volunteer bird monitor that accurate counts were achieved. The geese had also split into smaller family groups and had separated across a variety of grazing sites, leading to a distinctly more complex picture than previous years. During the autumn of 2011 the GWFG started to reuse the Gartocharn fields and it was here that the peak 2011/12 count was made.

The GWFG were observed close to grazing Canada geese on the fields at Gartfairn. Unlike wintering Icelandic grey geese which tend to avoid the large and aggressive Canada geese, the GFWG seemed to be comfortable grazing close to them.

At the time of writing this article the population of GWFG is stable and productivity appears to be on the rise. However the future of this rare and intriguing long distance traveller is by no means certain. International efforts are being made by academics, wildlife organisations and governments to

understand and protect the species and further information can be found at: http://www.unep-aewa.org/meetings/en/stc_meetings/stc7docs/pdf/stc7_13_draft_ssap_gwgs.pdf

**Recent news**

Since preparing this manuscript The Royal Society for the Protection of Birds announced in April 2012 the purchase of Wards Estate and unveiled its plans for a 563 acre nature reserve that it will manage in partnership with Scottish Natural Heritage and Loch Lomond and the Trossachs National Park Authority. This welcomed venture which should do much to safeguard the local population of GWFG comes exactly 50 years after this part of Loch Lomond was first declared a National Nature Reserve.

**Acknowledgements**

The author wishes to thank the local GWFG recorders which included SNH reserve staff and the volunteers Margaret and Colin Stead and Ian Fulton who also kindly supplied the photographs. Ian Francis' help with the manuscript is also acknowledged.

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**PLANT REPORT 2011–2012**
**Local Carnivorous Plants**

Roy Sexton and Sarah Longrigg

Three groups of plants which trap and digest prey are found quite widely in the local area. Butterworts have a simple 'fly paper' mechanism whereby insects get entrapped in the sticky secretion which coats the surface of their rosettes of leaves. The sundews have a similar mechanism but successful entrapment is aided by the incurving of the tendrils which surround the edges of the leaf. Bladderworts are water plants some of whose submerged leaves develop into tiny bladders which function as suction traps to engulf prey. In addition there are other plants including our local rarity sticky catchfly (*Lychnis viscaria*) which, as its name implies, is covered with secretions that trap insects. In some cases these plants may derive nutritional benefit from the carcasses and the term *Protocarnivorous* is used to describe them.

Charles Darwin (followed by his son Francis) provided most of the basic information about the entrapment and digestion processes in these carnivorous plants. In the summer of 1860, just after he had published *Origin of the Species,* he embarked on a long series of investigative experiments which resulted some 15 years later in his book *Insectivorous Plants* (Darwin, 1875). This work has stimulated much subsequent research and discussion (Juniper et al., 1989).

**Butterworts**

The common butterwort *Pinguicula vulgaris* (Plate 3) is frequently encountered throughout the Forth Region. Pale butterwort or *P. lusitanica* is predominately a west coast plant but is present just to the north of Loch Lomond at Inverarnan (NN 314 187). Both species are found in areas of sparse vegetation with bare soil particularly in bogs, wet heaths, flushes, moors and fens. Other habitats include wet rock crevices and the banks of forestry drainage ditches.

Butterworts are recognised by their compact rosette of leaves which in the case of *P. vulgaris* is said to resemble a yellow starfish (Plate 3). The rosette is composed of 4-9 fleshy, yellow-green, 2-8 cm long, oval leaves, the lateral margins of which are usually in-rolled. The plants get their common name from the slimy, sticky, yellow surface of the leaves which resembles butter. The generic name is similarly derived from the Latin *pinguis* or greasy.

*P. vulgaris* has most attractive 10-18 mm violet flowers born at the apex of 4-10 cm leafless stalks which at a distance resemble large violets (Plate 3). These large showy flowers born on long stems are thought to have evolved so the

bigger insects involved in pollination are not entrapped when visiting the plant. *P. lusitanica* is distinguished by much smaller 6-7 mm pale lilac flowers and a rosette composed of 1-2 cm long olive green leaves. The two species also differ in that *P. lusitanica* retains its rosette in the winter while *P. vulgaris* loses its leaves and forms a rootless resting bud or hibernaculum.

In 1874 Theodosia Marshall and her father from Cumberland drew Charles Darwin's attention to the possibility that common butterwort trapped insects in the sticky coating on its leaves (Darwin 1875). They had carried out counts which showed that 80-90 % of leaves had insects on them. Darwin noted that besides insects, plant structures such as seeds, small ericaceous leaves and pollen masses also became firmly attached. He observed that butterworts grew well in mineral deficient soils although they only had a very rudimentary root system with which to absorb nutrients. He proposed that this shortcoming might be compensated by nutrients supplied by the digestion of insects. His hypothesis has been confirmed by subsequent experiments which show that nitrogen and phosphorous containing compounds are obtained by this means.

Darwin's microscopic observations of the upper surface of the leaves showed they were covered with two types of mushroom-shaped glands. The bigger glands borne on longer stalks seemed to provide the source of the viscous secretion which asphyxiates the prey. The shorter glands embedded in the leaf surface seemed to provided the digestive enzymes. Darwin describes how flies he placed upon the leaves excited the glands to secrete copiously. After a time these insects were*: rendered so tender that their limbs and bodies could be separated by a mere touch, owing no doubt to the digestion and disintegration of their muscles*. The glands in contact with the flies became filled with brown granular matter which led him to conclude they had absorbed digestion products from the fly. Darwin went on to demonstrate that the leaves were capable of degrading proteins from a range of sources including meat, blood, milk, eggs and gelatine. Butterworts could also digest pollen, the leaves of heather, and small seeds, leading him to propose that *P. vulgaris* was *partly a vegetable as well as an animal feeder*. It has since been shown that axenic (i.e. uncontaminated) cultures of *Pinguicula* which develop poorly in the absence of nitrogen and phosphorous will resume growth and produce flowers if pollen is applied to their leaves.

Modern research has confirmed most of Darwin's conclusions (Legendre, 2000). The liquid on the surface of the un-stimulated leaves contains only very weak digestive activity but within a few hours of entrapping an insect the amounts of protein, DNA and starch-degrading enzymes increases substantially in the area of immediate contact with the prey. This secretion is stimulated by soluble nitrogenous substances originating from the prey. Compared with other insectivorous plants like the Venus fly trap this release of digestive enzymes is very rapid suggesting they are stored in the resting glands. The mucilage secreted by the larger glands can be produced in copious quantities and is retained by the teaspoon-like in-rolled margins of the leaf

(Plate 3) which also serve to prevent struggling prey from escaping. The viscosity of the secretion defines the size of organisms that are unable to escape and remain glued to the leaf. If the secretion was too sticky, very large insects would be retained and the leaf below them would rot. The mucilage also serves to prevent the abrasive damage caused by struggling insects, and stops dehydration and the loss of soluble digestion products. Acids may be released with the mucilage since the pH declines from pH 5.0 down to pH 3.0 when prey is captured (Heslop-Harrison and Knox 1971).

**Sundews**

There are three species of sundews in Scotland. By far the most common in the Forth Valley is round-leaved sundew *Drosera rotundifolia* (Plate 4). It is found on raised and blanket bogs and in wet peaty places on heaths and moors. It can readily be seen from the raised walkways at the visitor complex on Flanders Moss, and almost anywhere where the habitat is suitable. The plants are composed of basal rosettes made up of 3 to 10 horizontal racquet-shaped, purple-green leaves. The round leaf blade or disc is covered in gland-bearing trichomes or 'tentacles'. Darwin described how on average a leaf had 192 glands, each surrounded by a large drop of glittering viscid secretion. This fails to dry in the sun and has given rise to the plants poetic name sun-dew. The tentacles in the central leaf disc are short stalked but towards the edge of the leaf they get much longer (up to 5 mm), significantly increasing the trapping area of the leaf. Each tentacle consists of a terminal purple oval gland which is multi-tasking and is responsible for the detection of prey, the production of the sticky trapping fluid, the secretion of digestive enzymes and the absorption of the soluble products of their action. The slender stalk on which the gland is born is swollen at its base and this is where the movement is generated that causes the outer tentacles to incurve and trap the struggling insect. The small white flowers arise near the centre of the basal rosette and are borne on a flowering stem 6-10 cm high.

The great sundew *D. anglica* is a taller plant than *D. rotundifolia*. Although the flowers are similar *D. anglica* is readily distinguished because its leaves have longer thinner blades (up to 4 cm) which gradually taper into the leaf stalk (Plate 4). It is found in wetter bogs principally in the NW of Scotland but can be found by two small streams on Beinn Bhreac (NS 418 956) to the east of Loch Lomond, by Geal Loch (NN 320 163) at the north end of Loch Lomond, and on Kirkton Farm (NN 364 296) between Crianlarich and Tyndrum. There are also pre-1970 records for it in NN50 and NS77 (Preston et al., 2002). Oblong-leaved sundew *D. intermedia* has narrow spoon-shaped leaves (Plate 4) the blades of which are usually no more than 1 cm long by 0.5 cm wide narrowing quickly to hairless stalks. It is most easily distinguished by its curved flower stalks which arise laterally from below the terminal rosette. Like *D. anglica* it is common in the NW but usually in even wetter conditions than the two preceding species. It has not been found locally recently, though there are historical records of its having been found at Inverarnan. *Drosera x obovata* – the

hybrid between *D. rotundifolia* and *D. anglica* – is frequently found when both parent species are present and is particularly abundant at the *D. anglica* site on Beinn Bhreac. The leaf shape is similar to *D. intermedia* but larger (Plate 4), and it is a much more robust plant with the flower stalks arising terminally. Although it is infertile, it often forms large clumps.

Darwin found that if he placed an object like an insect or small piece of meat in the centre of the leaf the tentacles nearest to it bent towards the source of food. Subsequently those further out became involved until ultimately even the peripheral tentacles became inflected over the prey pressing it against the leaf surface. Similarly if an insect alights on the peripheral tentacles they bend inwards carrying the insect into the centre of the leaf (Plate 4). The glands that come into contact with the prey are stimulated to increase secretion which helps asphyxiate the prey. Materials such as insects, meat and egg white which yield soluble nitrogenous compounds remain clasped for much longer (1-7 days) than inert inorganic bodies which are released within a day.

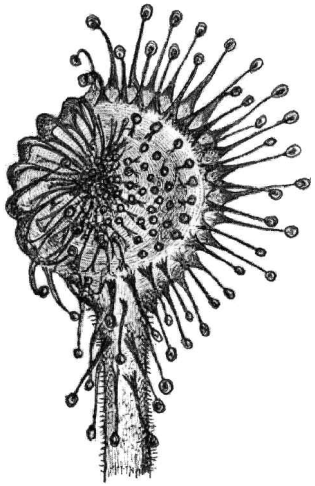

Figure 1. A leaf of *Drosera rotundifolia* the tentacles of which have inflected to focus over a piece of meat applied on the left hand side. After Darwin (1875)

Darwin was fascinated by the coordinated movement of individual tentacles which caused them to bend in different directions so their glandular tips all ended up focussed over the prey (Figure 1). The large outer tentacles sweep through an arc of 180° this movement being generated by differential growth in the sides of the tentacle base. He found that directly stimulating the tentacle tip produced rapid visible movement within a few minutes but the entire trapping process took 1 to 5 hours to complete.

If the gland on the tentacle tip was removed, the remaining tentacle stalk did not respond when stimulated, though it did still bend if a stimulus was applied to adjacent intact tentacles. These observations led Darwin to propose that a signal passed between the site of stimulus perception in the gland head and the area where the response was generated at the tentacle base. Nearly 100 years later Williams and Spanswick (1972) showed an electrical impulse is passed down the tentacle to trigger the movement.

Francis Darwin investigated if sundews were able to survive in low nutrient environments by supplementing root uptake with the acquisition of additional

nitrogen from the captured prey by growing plants in soup bowls covered with a fine gauze to keep insects out. Half the plants were fed with minute pieces of roast meat and their growth compared with starved plants. Although the fed plants were only 21 % bigger he found their seed production increased by 279 %. In the subsequent season the disparity increased and the plants that were fed in the previous summer became twice as big. Contemporary experiments using aphids and other natural food sources produced similar conclusions. Analysis of the carcasses of insects that had been applied to leaves revealed that 76 % of the available nitrogen was mobilised in 48 hours. There has been considerable debate concerning the relative importance of carnivory as a source of nutrients (Juniper, 1989). Several authors have demonstrated that wild plants deprived of insects are able to grow and flower successfully though usually not as well as counterparts provided with prey. Recently compelling support for the importance of prey has been provided by a stable isotope study of *D. rotundifolia* from Rannoch Moor in which 50 % of the plant's nitrogen appeared to be derived from insects (Millett et al. 2003).

The main natural prey of *D. rotundifolia* are nematocerian flies (i.e. gnats and midges) which make up about half the catch. Beetles and brachycerian flies are also significant sources of food but ants, calcid wasps, aphids and spiders each account for less than 5 % of the total kills. *D. anglica* has a similar diet but *D. intermedia* almost exclusively traps gnats and midges (Juniper, 1989). There are records of insects up to the size of damsel flies and harvestmen being caught by local plants.

**Bladderworts**

Bladderworts or *Utricularia* species are probably widely distributed across central Scotland. However they are seriously under-recorded, being inconspicuous water plants, and most species do not normally flower here. The plants have free floating stems that in the bigger species may be from 25 to 60 cm long. Like many submerged water plants the leaf blade or lamina has been much reduced leaving little more than the thread like green veins which surround the main stem. The leaves bear pear-shaped green bladders from 2-4 mm in diameter (Plate 5) which are involved in the capture of tiny water organisms like water fleas, ciliate protozoans, rotifers, nematodes as well as various insect larvae. It has been calculated that a greater bladderwort plant can grow 15,000 traps in a season and catch an estimated quarter of a million prey items. As bladderworts are often found in large mats like those at the north end of Loch Lubnaig, they can have a very significant effect on their habitat's micro-fauna. The 10-15 mm bright yellow two lipped flowers of greater bladderwort are held well above the surface of the water on 10-20 cm stems (Plate 6). Lesser bladderwort flowers are pale yellow, much smaller (6-8 mm) and born on stems 4-10 cm long (Plate 6). In the autumn large buds, known as turions, develop at the apices of the stems. The stems then die and the turions become detached, falling to the bottom of the pond where they remain in a dormant state until spring when they form new plants.

The 2-4 mm bladders are pear-shaped, and hollow with flexible sides (*Utriculus* is derived from the Latin term for a stoppered bottle with yielding sides) (Figure 2). The opening sits in a narrowed neck at the base of a strengthened outer rim or collar. This collar supports a pair of branched hairs or 'antennae' as well as some slender elongated bristles. Experiments involving removing these hairs have shown that they help funnel the prey into the trap. The trap door is hinged along one side and opens inwards. It fits snugly against the underside of the collar and is held shut by mucilage and lateral growth of the door which forces its edges against the surrounding collar. Four stiff hairs are attached to the outer surface of the trap door and when the prey touches these it triggers the opening mechanism. The inside of the bladder is covered with glandular hairs. Around the opening these have two arms mounted on a single stalk cell and are called 'bifids' while those over the rest of the surface are 'quadrifids' with four arms (Plate 6).

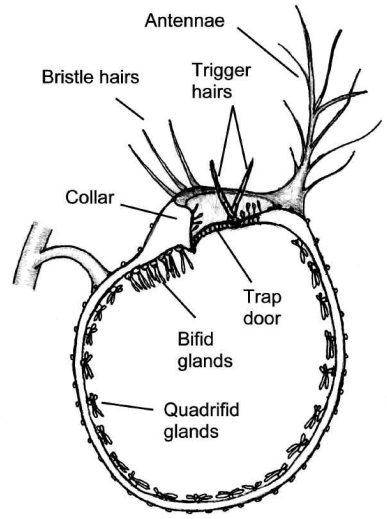


Figure 2. Diagram of the bladder of *Utricularia vulgaris* modified from Juniper et al., 1989

Although the early botanists knew that the bladders usually had dead organisms in them they had also observed that they contained air bubbles and as a consequence believed they were flotation aids, keeping the plant on the surface in summer and allowing it to sink in winter. However it was noticed that the plants float just as readily if the bladders were removed. Charles Darwin and his son Francis made a rare mistake when speculating about the mechanism of entrapment believing that organisms pushed their way past the inward opening trap to graze on the glands inside and once they had entered they could not force the one way door back to get out. They were uncomfortable with this explanation because some of the prey seemed too small to generate the required force. Later several observers noted the speed with which the prey suddenly entered the trap. However the key to the mechanism was the observation that as the prey was engulfed the bladder gave a spasmodic jump and widened a little. Brocher in 1911 deduced that water was removed from the bladder causing the sides to become concave generating a negative hydrostatic pressure inside. It was not until Francis Lloyd (Lloyd, 1942) carried out fresh experiments, that a better understanding was obtained. When the prey touched the trigger hairs the door was slightly deformed allowing an inrush of water which sucked the prey with it and allowed the walls to spring back into their resting convex shape. Subsequent measurements have shown that the bladders increase in

volume by 40 % when the trap is opened. High speed photography has revealed that initial opening and then closing of the door occurs in about 10 milliseconds, far too fast for the Darwins to see. The removal of water to reset the mechanism takes approximately 40 minutes (Sydenham and Findlay, 1973) and involves the 'bifid' glands around the inner-side of the collar pumping the water out (Juniper et al., 1989).

There has been considerable debate as to whether the quadrifid glands that line the bladder produce enzymes to digest the prey or whether the soup of bacteria usually found in the bladders is responsible. Recent experimental evidence seems to support the former view. It is generally accepted that the quadrifid glands are responsible for the uptake of the nitrogen-rich degradation products which nourishes the plant.

*Utricularia* is a difficult genus both to locate and to identify and there is some doubt as to the true number of British species. Until 1989 there were considered to be four British species: (i) *U. vulgaris* (greater bladderwort), (ii) *U. australis* or *U. neglecta* (common bladderwort), (iii) *U. intermedia* (intermediate bladderwort), and (iv) the diminutive *U. minor* (lesser bladderwort). In 1989 the Swedish botanist G. Thor discovered that *Utricularia intermedia* was actually three separate species.

The *Utricularia* species fall into three groups – *U. vulgaris senso lato*, *U. intermedia senso lato*, and *U. minor*. The first of these contains *U. vulgaris senso stricto* and *U. australis*. The *U. intermedia* group contains *U. intermedia senso stricto* (intermediate bladderwort), *U. ochroleuca* (pale bladderwort) and *U. stygia* (Nordic bladderwort). The third group contains *U. minor*, and the very similar *U. bremii*, which is also thought to occur in the UK. At least three of these occur locally: *U. australis*, *U. stygia*, and *U. minor* which is rare in the Forth Valley but flowers fairly profusely. In addition, an alien species was introduced to a pond near Milngavie Golf Course where it now thrives. This is thought to be the North American *U. macrorhiza*, which falls within the *U. vulgaris* aggregate.

*Utricularia* species are most easily separated by their flowers but, apart from *U. minor*, they are extremely shy flowerers in Scotland and depend on vegetative means of reproduction, so it is necessary to use other features. A useful aid to determination is microscopic examination of the angles between the shorter arms of the quadrifid hairs which are found on the interior walls of the bladders (Plate 6).

*Utricularia vulgaris* and *U. australis* have stems bearing leaves and bladders mixed together. *U. vulgaris* is found in base-rich locations while *U. australis* prefers more acidic conditions. Both tend to like deeper water. They are extremely hard to tell apart when not in flower. In flower, the lower lip of *U. vulgaris* has reflexed margins while that of *U. australis* has flat or upturned margins. Also the pedicel of *U. australis* elongates greatly after flowering.

*U. vulgaris sens. lat.* is found at Loch Achray (NN 524 062), Balvag (NN5618) and Loch Lubnaig (NN 558 152). Preston et al. (2002) additionally gives historical records in NS56, NS48 and also records specifically *U. australis* in NN51 and NN52. There are also historical records of both *U. australis* and *U. intermedia* sens. lat. as being present on Ben Lomond (Lee 1933).

If a *Utricularia* species is found in flower in our area, it will almost certainly be *U. minor* as, unlike the other Utricularia species, it flowers quite readily. It normally produces leaves and bladders on separate stems. It can be found at Aberfoyle (NN 528 008), Westerton Water Meadow (NN 728 030), Loch Lubnaig (NN 581 132 & NN 558 152), Balanton (NN 530 008), Kippen Pond (NS 655 943) and near Dumbrock Loch (NN 551 784).

Of the *U. intermedia group,* only *U. stygia* can be said with any certainty to be found locally, though there is a possible record for *U. ochroleuca* at West Loch Venachar. *U. stygia* is probably the commonest *Utricularia* species in the area, though this may be due to its preference for shallower water making it easier to find. It has been found at Ben Venue (NN 457 045), West Loch Venachar (NN 540 055), Brig O'Turk (NN 540 066), Loch Lubnaig (NN 558 157), Loch Achray (NN 514 063), Geal Loch (NN 320 163), and Dubh Lochan (NN 325 168). There is also a record for *U. intermedia sens. lat.* in Glen Finglas (NN 490 134). The New British Flora (Preston et al., 2002) does not distinguish between the three species, and also gives current records in NS57 (doubtful), NS49 and NS59, and historical records in NS48 and NN60. *U. stygia*, like the other two species in the group, has two distinct sorts of stem – those with leaves and those with bladders, though the leaf-bearing stems often also have some traps. It prefers shallow water, usually keeping near to margins or muddy banks, and normally buries its bladders in the substratum. The leaves of this group are broader than the *U. vulgaris* and *U. minor* groups, though they tend to become narrower and longer when they are in deeper water. Records for flowering *U. intermedia* species should be treated with caution and not accepted without at least photographic evidence as it is almost unheard of for them to flower in Scotland. They often grow with *U. minor*, the *U. minor* plants pushing flowering stems up through the *U. intermedia* lying above them, and this can cause confusion. Both *U. ochroleuca* and *U. stygia* are sterile and possibly of hybrid origin.

**Local Protocarnivorous Plants**

We do not have any true pitcher plants in our local flora though the purple pitcher plant *Sarracenia purpurea* from the eastern North America has been introduced onto a bog on Rannoch Moor. It has been suggested that the teasel *Dipsacus fullonum* may act as a primitive pitfall trap. In its second year this biennial plant has large opposite leaves which are united at their bases to form a reservoir around the stem which fills with rain water. Drowned decaying insects are commonly found in them which could provide nitrogen to the plant. Recent experiments to investigate if the plant benefitted nutritionally have proved inconclusive (Shaw and Shackleton, 2011).

We have a number of local plants like the catchflies (*Lychnis spp*.) and saxifrages whose stems, leaves and calyxes are covered with the glandular hairs which produce sticky secretions. It has been assumed that these glands have a protective function preventing crawling invertebrates like ants from reaching the sugary nectar in the flowers. The discovery that the glands of *Geranium viscosissimum* and *Potentilla arguta* produce protein-degrading enzymes and absorb the digestion products raises the possibility that they may have a nutritional role too.

**Acknowledgements**

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# LANDSLIDE CHANGES IN KIPPENRAIT GLEN AND RELATED EVENTS SINCE NOVEMBER 2011

Michael F. Thomas

## Introduction

This report was originally intended to document changes to the landslide-affected slopes of Kippenrait Glen as they appeared in 2012, shortly after heavy rainfall in early July. Subsequently, the major rainfall event of 29th August intervened and altered many features and also our perception of them. Previous reports by the author were published in 2009 and 2011.

In 2011, I reported on activity affecting the landslides in Kippenrait Glen, largely as a consequence of two cold winters (2009-2010; 2010-2011) with severe frosts, followed by heavy winter rains. By contrast the winter of 2011-2012 was characterised by prolonged heavy rain, which has recurred frequently during the first 8 months of 2012. Rainfall in the month of August culminated in a localised thunderstorm on the 29th, which brought intense rainfall to the Dunblane-Bridge of Allan-Causewayhead area and caused serious, localised flood damage and triggered renewed instability in Kippenrait Glen. In this report changes attributable to the winter events will be discussed first.

## Landslide changes between Autumn 2011 and July 2012

Three new slides took place in the Glen Road route during the winter of 2011-2012. Two landslides occurred on 29th November, 2011: one blocked the road downstream from the bridge over the Wharry Burn, and remains a clear demonstration of the inherent instability of the upper slopes (see Thomas, 2009); the other slide is adjacent to the uppermost of the three previously recorded slides for which protection work has been undertaken and can be seen behind the metal barrier. A third slide, just beyond the bridge, on the Dunblane side, occurred on 2nd January, 2012 and was sufficiently serious to require major clearance work.

Changes that occurred during the winter period thus include the following:

1. *Above the bridge*. This slide is situated higher in the landscape and appears to have involved sands and gravels lying on top of the boulder clay that is present throughout the valley. These materials are generally more sandy, and contain water worn pebbles and cobbles. While they are generally better drained than the boulder clay, they are also poorly consolidated, and it is likely that instability in the underlying clay triggered collapse of the upper slope.

2. *Landslides 3 and 3b* (annotation: the three landslides recorded in 2009 and 2011 are numbered 1-3 walking up-valley; suffix 'b' is used for *new* slides below the road; suffix 'a' describes invasive slides originating above the road). Landslide 3 was among the first to occur in the valley. It has been re-activated recently with downslope displacement of blocks of root-bound soil, the movement tracks of which could be clearly seen in summer 2012. Slide 3b is a separate failure and is immediately adjacent to slide 3 on the down-valley side. It has the character of the other slides, being a shallow, translational flow-slide. It has carried away materials supporting the fencing and metal crash barrier, which are now both at risk of becoming disconnected from their foundations.

   The two slides have similar dimensions: approximately 10 m wide at the road, widening to 13-15 m. About 6 m separates the two slides along the road edge but this narrows downslope as both slides widen. There has been 1.50 m greater recession at the original slide (3), and a new fence was constructed. Slide 3b terminates at the older metal barrier, which was constructed away from the road pavement. Each slide now threatens the integrity of their respective barriers, partly due to the exposure of the supporting posts, certain of which have rotted. Further instability at both head-scars can be anticipated.

   *Landslide 3a* is located only 20 m along the road towards the bridge from slides 3 and 3b, but it is not connected. This flow-slide originated upslope at a head-scar well above road. Uprooted trees and slide debris accumulated on the road. This was only the most recent of several such slides affecting the upper slopes, but many have not mobilised sufficient debris to invade the road and remain unnoticed on the hillslopes above (see Thomas, 2009). A second such slide took place on 29th August.

3. *Landslide 2* exhibits notable attrition of the road margin and was measured in 2011. This indicated recession from the fence of 0.70 m (see Fig 6 in that report). Re-measured in 2012 this figure at the same point is 0.74/0.75 m, which is nearly 5 cm in less than 12 months. A new measurement of 1.20/1.25 m farther along the head of the slip indicates the amount of recession since the first fence was erected in 1999. This represents an average of 10 cm per year over more than a decade, possibly indicating the kind of marginal retreat of this type of slide headwall, in the absence of further larger scale instability.

4. *Landslide 1* has changed its configuration and locus of main activity over the years. The original head-scar has eroded the road pavement, requiring the new fencing to be built. As noted here major new changes took place in August.

In early July heavy rainfall led to some changes to existing slides, but most of the movement was superficial.

**Landslides and Floods attributable to the storm of 29th August 2102**

The impacts of the intense storm on the afternoon on 29th August should probably be understood in the context of an already saturated landscape unable to respond without disruption to further heavy rainfall, which modified streams and slopes in the area, as well as disrupting road and rail communication. Analysis of this event requires more time and collation of data, but some indications of its nature can be offered. Local records[1] show that the 24h total for 29.08.2012 was 55 mm in Hopeton Drive, Bridge of Allan; 44 mm falling within a three hour period. This station also recorded 50 mm on 9th July. Overall July had more days with rain than August. Extreme rainfalls are logged nationally by The Meteorological Office and these demonstrate that the figures we have for the local event are no so exceptional. A short distance away from the hills, in Inverallan Drive only 23.5 mm was recorded for the 24 hours[2], and a similar figure was recorded from the University of Stirling campus. This suggests that the highest rainfall was constricted to a very limited zone, probably oriented along the Ochil escarpment. It is, therefore, likely that some small areas received much more rainfall than was recorded and, further, that the spectacular nature of the event was also a result of most of the rain falling within a very short period of 1-2 h. For example, while the water was flooding the A9 in front of the Meadowpark Hotel it was possible to drive into Stirling with no sign of flooding along Causewayhead Road. The impact on local rivers was similar. Some small catchments draining towards Glen Road clearly discharged huge amounts of surface water, and the Wharry Burn experienced a severe flood, while the Allan Water, though near to bankfull for a short time, did not flood the small park by the A9. Rainfall intensity recorded at the university site reached 96.8 mm per hour during the storm, but much higher figures were probably experienced elsewhere. It is also possible that increased outflow from the Cocks Burn reservoir contributed to the problems in Bridge of Allan.

The impacts of the storm included a small landslide affecting the Bridge of Allan to Dunblane section of the railway, and severe localised flooding, mainly by water draining the hills behind Bridge of Allan. Most of the environmental damage appears to have been concentrated in Glen Road and its immediate surroundings. Observations include: (representative photographs of some of the damage, taken by the author on 30th August, follow this paper)

1. Surface floodwater collected from pastureland and also channelled along Upper Glen Road converged on a culvert at the junction with Glen Road and appears to have overwhelmed the storm drains, opening a deep gully towards the local stream. This was probably rapidly enlarged by the surface flood water, leading to local slope failure and the opening up of the deep canyon gully that has led to the road closure.

2. Following the valley up Glen Road, a small stream draining into the left bank overwhelmed the natural drainage and disrupted the tarmac,

mainly by penetrating the sub-grade material. The catchment of this stream contains some man-made drainage channels, and it appears that a debris flow occurred, leaving behind a fan-shaped accumulation of coarse boulders.

3. A flood on the Wharry Burn carried large quantities of coarse debris, including many trees (left in the valley floor by the landslides in Kippenrait Glen), all of which can be seen from the bridge carrying the Darn Road. This, rebuilt after the 2004 floods, survived. Large boulders (0.5 m diameter) were carried down to the Allan Water, enlarging the bar at the confluence of the two rivers and confining the channel of the Allan Water to the far bank.

4. In Kippenrait Glen, a fresh landslide from the higher slopes buried the road some 200 m from the bridge. A new slide has opened up below the road and threatens a further section of the tarmac, though the head scar at present is well below the road level. A further slide of this kind can be glimpsed but it does not at present offer a threat.

5. Modifications to the pre-existing three main slides that have been fenced, and the additional winter slides have been important, but only at the largest slide (as you enter the gorge) has change been very serious. About 0.40-0.45 m of tarmac has been lost here, narrowing and threatening the surviving path. Interestingly winter events here had seen a new spring-head form low down on the slide face, developing a small gully. As the year progressed the upper slide became vegetated and appeared to be stabilising, but in the August 29 event this superficial cover was disrupted to open up an aggressive scar.

**Discussion**

The processes operating to effect these changes vary. The major new slides near the bridge have a rotational component, and this is associated with the formation of a pronounced head-scar and the shedding of comparatively large volumes of displaced material to the toe of the slide, the road in this instance. But the rotational component is small, affecting a depth of perhaps 3 m, and the sliding material broke up and became partially fluidised on the slope. Thus the slides became flows, which tend to continue to the base of any available slope. The instances here are not true debris flows, which are normally associated with large quantities of water, often coming from streams or gullies (as in Glen Ogle in 2004).

All of this renewed activity emphasises the instability and fluctuating activity on the slopes of Kippenrait Glen (other slides have also been active on the opposing slope). It also reveals a number of features of these, generally shallow, flow slides. The triggers of slope failure are complex, and can involve months or years of incremental changes to slope drainage. The three main

slides that occurred in 1999 took place 12 years after road closure and lack of maintenance. But slides coming from above the road and new slides below the road must reflect the inherent instability of the slopes and the build-up of moisture in the soil and sub-soil during periods of exceptional wetness.

There is now some evidence that weather events in central Scotland have become more aggressive in terms of re-modelling the land surface during the recent decades and this may be a portent of more to come in a world of changing climates. In my view there is an increased risk of events on these slopes causing hazards to people using the Glen Road. It would be wise to warn people of the dangers, though prediction of such hazardous events is very difficult both in time and in terms of precise location. As with all slope failures, much is dependent on the subsurface conditions, which are invisible the observer.

**Acknowledgements**

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Figure 1a. Canyon gully at the junction of Glen Road with Upper Glen Road.

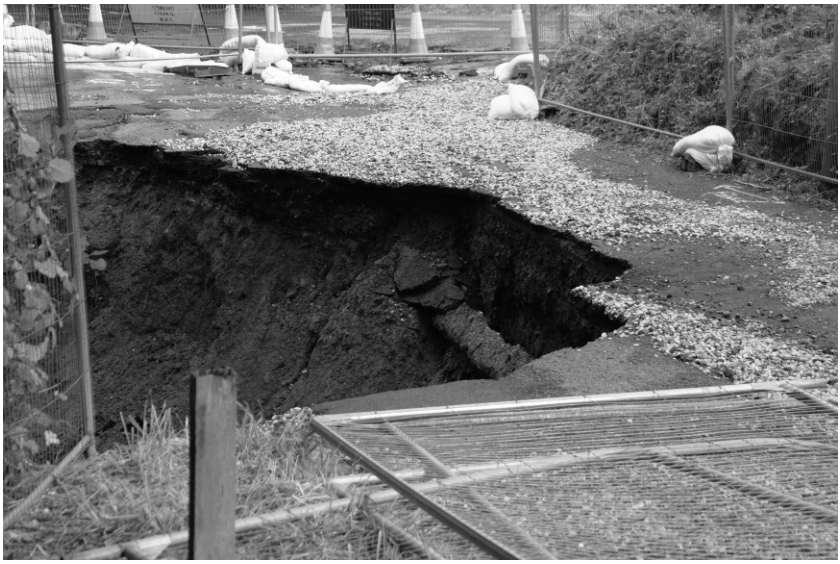

Figure 1b. Gully-head at location of 1a, showing exposure of service conduits and road closure.


Figure 1c. Closure of Glen Road after the landslip and gully formed on 29th August 2012.

Figure 2a. Further recession at Landslide 1 in Kippenrait Glen after the 29th August event.

Figure 2b. Exposure of fence posts and cracking of tarmac at location of 2a.

Figure 2c. View of the head-scar encroachment at landslide 1.

Figure 3a. Disruption of tarmac on the Glen Road.

Figure 3b. Tarmac forced into the side of the road by water pressure at location of 3a.

Figure 4. Debris from the stream blocking the Darn Walk.

Figure 5. New landslide close to the bridge on Glen Road, resulting from the storm of 29th August 2012.

## DUNBLANE WEATHER REPORT 2011

Neil Bielby

The weather station is in 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. (GR NN 78990143).

I have been recording the weather since 1995 and all averages etc. refer to the last 17 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 data and other weather records from Kirkton Farm, Strathfillan (NN 359283; 170 m a.s.l.) and Killin; (references to Tyndrum in this report are in fact values from Kirkton Farm but the former name is both used by the Met. Office and is the more familiar location to most readers). 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 (>0.2 mm), 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.

During **2011** it was a little milder and wetter than normal. The mean annual temperature of 8.71°C (8.13°C Kirkton) was 0.22°C above the average while total precipitation of 1293 mm was 15.9 % above the average. The mean minimum temperature of 5.04°C was 0.26°C above the average while the mean maximum temperature of 12.37°C was 0.16°C above the average. The minimum temperature of –9.8°C occurred on 7 January with the maximum temperature of 25.5°C being recorded on 3 June. The total number of 'rain days' (precipitation >0.2 mm) was 243 (66.6 % of days; mean = 207/56.7 %). There were 65 air frosts (mean = 59) and snow lay on the ground at 09.00 hours on 28 occasions. Winter (December-February) was colder (–2.54°C) and drier (–14 %) than normal; spring (March-May) was warmer (+0.70°C) and wetter (+8 %); summer (June-July) was cooler (–0.83°C) and wetter (+27 %) while autumn (September– November) was milder (+1.37°C) and wetter (+6 %).

Kirkton suffered its wettest year since records began with 3529.3 mm of precipitation (1991-2010 mean = 2528 mm) with May, September and autumn (September, October and November) being the wettest on record. The wettest

month was December with 526.2 mm whilst the driest was June with 101.7 mm. The total number of 'rain days' (precipitation >0.2 mm) was 289 (79.8 % of days). The minimum temperature recorded was –12.1°C (7 January) with a maximum of 23.3°C (3 June and 27 July). There were 70 air frosts while snow or sleet fell on 33 days. There were 10 days with gales while electrical storms were noted on 4 days.

Roughly 15 miles to the east of Tyndrum, Killin received 2480.5 mm of precipitation, 40 % above the 2000-2009 mean. The wettest month here was also December but the 338.0 mm recorded was 36 % less than that at Kirkton.

**January** was colder and drier than usual with the mean temperature of 0.91°C being 1.35°C below the average. The average minimum temperature was –1.78°C (mean 0.04°C) with the average high being 3.59°C (mean 4.48°C). Precipitation of 85.1 mm was 71 % of the norm with amounts of > than 0.2 mm being recorded on 17 days. Average pressure was 1013 mb with a high of 1042 mb and low of 987 mb. There were 23 air frosts (average 14) and snow lay on the ground at 09.00 hours on 15 days. Across Scotland it was a sunnier January than normal.

Although there were nightly frosts, spells of rain, mostly light, accompanied by daytime temperatures of up to 4.3°C (4th) caused a thaw of lying snow. The 6th-8th were cloudless and calm with the 7th being particularly cold with a night minimum of –9.8°C (–12.1°C Tyndrum) and a daytime maximum of only –4.1°C (–0.4°C Tyndrum). Snow showers during the night of the 7th/8th produced 4.0 cm of fine snow with a further 7.0 cm falling the following night. Edinburgh airport was again closed on the 8th due to lying snow. Seven cm of snow fell during the night of the 8th/9th but thereafter a slow thaw ensued with a mixture of snow, sleet and rain during the following 2 nights. The 11th was a rare day of unbroken sunshine. Night frosts continued until the 13th after which a strengthening south-westerly airstream raised temperatures (9.8°C, 15th) and this, along with 33.0 mm of rain in 24 hours on the 15th (114.0 mm Shap, Cumbria), caused a rapid thaw which removed all lying snow from my garden by the morning of the 16th thus ending 52 days of continuous snow cover. The weekend of the 15th/16th produced large rainfall totals all over the western half of Britain with 130 mm at Tyndrum and 174 mm at Capel Curig (Wales). A calmer, drier spell of weather then followed as high pressure built over Scotland (1042 mb). Although there were several days of unbroken sunshine not everywhere enjoyed these, as dense fog persisted all day in parts of the Carse of Stirling and along the Hillfoots. There were nightly frosts from the 18th-24th (–6.7°C, 21st). After falling to 1016 mb on the 25th high pressure built again over Scotland but this brought duller, damper weather than the previous one. An Atlantic south-westerly airstream became established from the 30th.

**February** was milder and wetter than usual with the mean temperature of 3.58°C being 0.53°C above the norm. There were ten air frosts and snow lay on

the ground at 09.00 hours on four occasions. The maximum temperature was 11.3°C (25th) with a low of –4.2°C (28th). The 151.3 mm of precipitation was 49 % above the norm making it one of the wettest Februarys in the past 100 years with amounts >0.2 mm being recorded on 24 days. Across Scotland mean temperatures were 1.0°C to 1.5°C above the 1971-2000 average.

Atlantic weather continued to dominate the weather with rain every day until the 10th. Two cm of snow fell during the night of the 2nd/3rd. Gale force winds (66 mph in the central belt; 93 mph in Shetland and 131 mph on Aonach Mor, Lochaber) and driving rain (19.0 mm) battered Scotland from mid-afternoon on the 3rd into the early hours of the 4th. Around 3,000 homes were left without power on the Western Isles along with a further 3,000 across the mainland. Persistent rain (18.1 mm), heavy at times, continued throughout the following day. Three cm of snow which fell during the early hours of the 7th lay until the 10th which was a rare day of cloudless skies. The weather turned dreich again the following day with heavy rain during the nights of the 11th/12th and 12th/13th depositing a further 25.0 mm. The Atlantic influence on the weather continued up until the 25th with rain virtually every day and very little sunshine. High pressure started to build over Scotland on the 25th giving the first sunny days since the 10th. The month ended with 2 calm days of unbroken sunshine and frosty mornings.

**March** was slightly cooler and quite a bit wetter than normal. The mean temperature of 4.74°C was 0.14°C below average while precipitation of 101.0 mm was 30 % above the norm. Precipitation of >0.2 mm occurred on 14 days while there were 12 air frosts (mean 10.7) and snow lay on the ground at 09.00 hours on four occasions. Average pressure of 1019 mb was 8 mb above the norm. It was exceptionally dry over much of eastern and central England with many stations receiving as little as 5 mm. East Anglia enjoyed the second driest March since1910. Sunshine amounts in Scotland were close to normal whereas Wales had its fifth sunniest March since 1929. The highest temperature across the UK was 19.8°C (Dorset, 25th) while the lowest was –7.5°C (Braemar, 18th).

The high pressure system remained over Scotland until the 7th peaking at 1040 mb (3rd). However, although it remained largely calm there was little sunshine. As the high pressure system deteriorated a succession of low pressure systems, moving into Scotland from the west, brought rain, then snow. There was a thin covering of wet snow at 09.00 hours on the 9th but snow during the night of the 10th/11th had deposited 6 cm by 09.00 hours. Another belt of snow moving slowly northwards through Scotland produced a further 5 cm of wet snow between 07.00 hours and 16.00 hours on the 12th (29.0 cm Aviemore and Balmoral) before turning to light rain. The weather remained unsettled with periods of heavy rain until a high pressure system established itself over the country from the 18th (1039 mb, 23rd). This resulted in several sunny days and higher temperatures (14.6°C, 21st). A band of light rain during the afternoon of the 26th was the first precipitation for 8 days. The month ended on a wet note as pressure dropped to 992 mb and successive

Atlantic fronts crossed the country depositing 18.6 mm of rain during the last 48 hours.

**April** was much warmer and drier than normal with the mean temperature of 10.4°C being 2.0°C above the mean making it the warmest at this station. There were no frosts and the lowest night-time temperature of 1.9°C (23rd/24th) was the highest for April in Dunblane as was the maximum night-time temperature of 11.3°C (5th/6th). Precipitation of 31.3 mm was only 51 % of the norm with amounts of >0.2 mm being recorded on only 10 days. Across the UK, the mean temperature was 3.7°C above the 1971-2000 average making it the warmest April in a series from 1910. It was exceptionally dry over most of southern, central and eastern England where less than 10 % of normal rainfall was recorded (some stations in the east of England recorded less than 1.0 mm during the whole month). It was a sunny month across all of the UK with amounts around 150 % of normal making it the sunniest April in a series dating back to 1929.

The unsettled Atlantic weather continued until the 6th when a high pressure system began to build over the country. The 6th displayed a classic east/west split with temperatures at Fyvie Castle (Aberdeenshire) reaching a year high of 21.1°C (13.7°C Dunblane, 23.9°C Suffolk) while heavy rain in the north-west of Scotland (80.7 mm at Achnagart, Highland) caused widespread flooding and a landslip closed the A87 near Kyle of Lochalsh. The Central Belt finally enjoyed these warmer temperatures with a year high 19.8°C on the 10th. Temperatures fell away sharply the next day under the influence of a north-westerly airstream, remaining depressed for several days reaching only 9.2°C on the 13th, a raw day with light rain on a south-westerly airstream. Three warmer, dry but largely overcast days followed. It was mostly sunny and dry from the 17th-21st with temperatures peaking at a very pleasant 19.6°C on the 19th (25.4°C London). An isolated Atlantic front deposited 6.1 mm of rain during the evening, night and morning of the 22nd/23rd after which the month remained dry and mostly sunny although a brisk easterly airstream depressed temperatures, especially on the east coast.

**May** was slightly cooler and quite a bit wetter than normal with the mean temperature of 10.67°C being 0.31°C below the average. Temperatures ranged from a night low of 1.0°C (31st) to a day high of 21.2°C (7th). There were no air frosts and one ground frost. Total rainfall of 93.2 mm was 34 % above the norm with amounts of >0.2 mm recorded on 20 days. With areas of low pressure to the north and west of the UK for much of the month the weather was often cloudy and at times, windy. There was a marked north-west to south-east rainfall gradient across both Scotland and especially, across the UK, with northern and western Scotland receiving over 250 % of the average while south-east England had less than 30 % of the normal rainfall for the month. Kirkton endured its wettest ever May with the 368.4 mm recorded being three times the norm for this month. Across Scotland as a whole it was the wettest May on record in a series dating back to 1910.

The first 4 days of May were virtually cloudless although cool easterly winds took the edge off the temperatures. Much more unsettled, although warmer, weather ensued with around 9.0 mm of rain during each of the next two 24 hour periods. A southerly airstream saw temperatures reach 21.2°C (7th). The unsettled weather continued as a low pressure system slowly moved from the west of Scotland, round the north of Scotland to the North Sea. This produced several days of sunshine and blustery showers. The latter were much heavier and prolonged to the north-west so that, whereas Dunblane averaged around 2.5 mm a day, Tyndrum received c.20 mm. The winds veered to the north-west on the 14th which depressed temperatures further. With the jet-stream lying just to the north of Scotland, the weather continued very unsettled as regular Atlantic fronts crossed the country dumping equally regular amounts of rain, accompanied by a largely, fresh to strong, south-westerly airstream. Southerly hurricane strength winds battered Scotland during the 23rd with a gust of 100 mph (161 kph) recorded at Glen Ogle while they reached 72 mph at Strathallan. Trees were brought down, crushing cars, damaging houses and blocking roads with one across the southbound A9 (just north of Dunblane at Balhaldie) causing long tail-backs. Ferry and train services were also disrupted and cancelled while power was cut-off to c.42,000 homes across the country due to fallen poles or trees and debris shorting the lines. The Forth and Tay bridges were eventually closed to all vehicles while only cars were allowed across the Erskine and Kessock bridges. It was considered to be the worst May gale in the UK since 1962. The winds slowly eased the next day as Scotland cleared up the debris. The weather remained very unsettled until the month end with blustery winds, mostly from the south-west, and regular showers/ spells of rain.

**June** was cooler and wetter than normal with the mean temperature of 12.98°C being 1.02°C below the norm. The average high of 17.86°C was 1.26°C below the norm and 3.68°C lower than that for June last year. Daily highs ranged from 25.5°C on the 3rd (26.7°C at Aboyne) to only 14.5°C the following day. Total rainfall of 102.2 mm was 37 % above the mean with 39 % falling in one 24 hour period. There was measurable rainfall on 17 days. Across Scotland it was the coolest June since 2001. It was generally drier and sunnier than normal in the north and west of the country but a little duller and somewhat wetter in southern, eastern and central areas with some places recording over 150 % of their normal rainfall.

The unsettled weather of May continued throughout the month but although most days had some rain, amounts were generally low. Apart from 2 days at the start of the month, temperatures remained below the seasonal norm during the first half but were around average during the second half. Continuous rain of varying intensity from 09.00 hours on the 17th to 18.00 hours on the 19th produced 22.5 mm. Persistent, sometimes heavy, rain from 21.00 hours (20th) to 10.00 hours (22nd) deposited 44.7 mm. The 24 hour total of 39.8 mm from 09.00 hours (21st) to 09.00 hours (22nd) was the 2nd highest at this station for any month (Gogarbank, Edinburgh recorded 47.0 mm during

this period). The final 3 days of the month were dry, warm and largely sunny as high pressure built over the country. Temperatures in the south of England soared during these last few days reaching 33.1°C in Kent (27th).

**July** was slightly cooler than normal with the mean temperature of 15.36°C being 0.46C below the norm. The mean daily high of 21.0°C was very close to the norm but the mean night low of 9.7°C was 1.0°C below the norm. Rainfall of 82.6 mm was close to the average making this the driest July in 5 years. Across Scotland it was the coolest July since 2000 and in terms of minimum temperatures, the coolest since 1993. The east of Scotland, from Inverness to the Borders, received roughly twice the normal amount of rainfall whereas Orkney and the Western Isles were relatively dry with about a third of the normal amount. Western Scotland enjoyed one of the sunniest Julys since 1929.

High pressure during the first 4 days produced sunny, warm weather with a high of 24.3°C, 4th (27.3°C Gravesend, Kent, 5th). Slow moving low pressure systems resulted in 12.0 mm of rain during the night/morning of the 5th/6th (34.0 mm Braemar) although temperatures dipped only slightly. As the last low pressure system drifted east into the North Sea from the 7th, the weather improved around the Stirling area with only the odd short shower and good sunny spells with temperatures climbing to 22.4°C (9th). However, the east coast fared less well with torrential thundery downpours on the 8th/9th from Edinburgh northwards causing localized flooding and washing out a whole day's play at the Scottish Open golf championship at Castle Stuart near Inverness (9th). A ridge of high pressure settled over the country from the 12th-14th giving sunny, warm and dry weather (24.0°C, 14th). However, a deep low (985 mb) remained stationary over Scotland from the 15th-17th. This produced 33.2 mm of rain in 9 hours in Dunblane with electrical storms and downpours causing flash floods across Scotland with flooding reported from Perth. The weather slowly improved as a weak ridge of high pressure (1015 mb, 22nd) developed over the country. The 22nd to 27th were virtually cloudless days with pleasant light breezes and temperatures reaching 23.5°C on the 25th (only 14.2°C at Dyce). Perfect summer weather at last. An Atlantic front then crossed Scotland from northwest to southeast depositing 19.5 mm of rain, much of it in the form of drenching 'Scotch Mist'. A weak ridge of high pressure formed again (1027 mb, 29th) to give two sunny, warm days (23.6°C, 30th) before yet another, weaker front passed eastwards over Scotland on the 31st.

**August** was cooler and wetter than normal. The mean temperature of 14.14°C was 1.1°C below the norm with the average maximum temperature of 18.34°C being 1.65°C and the average low of 9.93°C being 0.55°C below their norms. Precipitation of 126.4 mm was 44 % above average with measurable rainfall (>0.2 mm) occurring on 16 days. Average pressure of 1010 mb was 4.0 mb below the norm. Across Scotland it was the coolest August since 1993. The eastern half of the country received twice the normal rainfall amounts with the south-east having almost three times the average while Fife experienced its wettest first 8 months of the year since 1916. It was drier than

normal in the Western Isles however. It was also a dull month across Scotland with roughly 75 % of the average sunshine.

Most of the month was unsettled with rain on all but 7 days. The first week was reasonably warm with temperatures peaking at 23.7°C (3rd). Rain from 19.30 hours on the 6th continued all the next day produced 31.8 mm (70.9 mm Cupar, Fife). The 8th, a dry day with much sunshine, provided only a brief respite as a slow moving front crossed Scotland and the north of England depositing copious amounts of rain with the east coast of the UK, from Fife to Newcastle being particularly badly affected. The 24 hour total of 40.0 mm from 09.00 hours on the 10th to 09.00 hours on the 11th was the second highest for any month in Dunblane after 41.9 mm on 11/10/2005 (58.4 mm Salsburgh, Lanarkshire and 65.4 mm Lochgilphead, Argyll). The northerly and easterly winds which accompanied this low depressed temperatures, with a daily maximum of only 13.3°C on the 11th. Although there was some precipitation on almost every day until the 29th, amounts were normally small with the Stirling area escaping the persistent heavy rain and downpours which affected many other parts of the UK during this period, especially the south and east coastal areas. Slow-moving thunderstorms on the 26th deposited 30.2 mm at Kinloss (Moray) while gales and heavy rain produced 80.0 mm at Resallach (Highlands) on the 28th. The 28th had an autumnal feel as temperatures struggled to a high of only 12.2°C in a north-westerly airstream. A weak ridge of high pressure (1016 mb) resulted in the final 3 days of the month being dry although sunshine was limited.

**September** was slightly warmer and a little wetter than normal. The mean temperature of 12.44°C was 0.2°C above the norm. Rainfall of 101.8 mm was 15 % above the norm with measurable amounts (>0.2 mm) on 26 days, the most ever for Dunblane (mean 16 days). Kirkton received 420.8 mm – the highest September total since recording began there in 1991. The average barometric pressure of 1005 mb was also the lowest for September in Dunblane (mean 1014 mb) with a high of 1021 mb and a low of 981 mb.

Unsettled weather returned on the 1st with rain every day until the 14th when a brief ridge of high pressure resulted in two dry, sunny days. Rainfall amounts were never excessive in Dunblane but Tyndrum endured its wettest day of the year on the 12th when 76.8 mm was recorded. The regular Atlantic fronts brought some high winds such as on the 6th when gusts of 40-50 mph through the Central Belt caused the Tay Bridge to be closed to all vehicles. Regular Atlantic frontal systems again brought unsettled weather with almost daily rainfall and below seasonal temperatures until the 28th when a large 'blocking' high over central Europe kept the aforementioned fronts at bay with a southerly airstream drawing in warm air from as far south as North Africa. Temperatures peaked at 21.6°C on the 28th (28.8°C London).

**October** was milder with slightly less rainfall than normal. The mean temperature of 9.77°C was 1.21°C above the average with the mean low of

7.24°C and the mean high of 12.3°C being 1.91°C and 0.51°C above their respective norms. There was one air and one ground frost. Rainfall of 129.7 mm was 96 % of the norm with measurable amounts (>0.2 mm) on 29 days which equals the previous October high in 1995. The average pressure was 1008.9 mb with a high of 1022 mb and a low of 993 mb. The month was largely unsettled with western Scotland having over 150 % of the average rainfall and half the normal amount of sunshine.

While England continued to bask in its Indian summer with temperatures reaching a UK October record of 29.9°C at Gravesend, Kent, central Scotland was drenched by almost continuous rainfall from 20.00 hours on the 30th September to 09.00 hours on the 2nd of October with an accumulation of 32.5 mm. The weather remained very unsettled as regular Atlantic frontal systems brought rain and mostly south-westerly winds; a gust of 66 mph was recorded at Machrihanish (6th). The 7th was a rare dry, sunny and calm day. In the 24 hours up to 09.00 hours on the 9th, 62.0 mm of rain fell at Brodick Castle (Arran). A brief high pressure system lingered from the 11th to the 15th (1028 mb, 13th) but this just resulted in less precipitation as the weather remained dull and largely damp. Barometric pressure dropped again as a front moved westwards across Scotland during the night of the 15th/16th. The 16th was sunny with a fresh south-westerly wind but an even more vigorous cold front brought heavy rain on the 17th depositing 35.1 mm in 24 hours. This fell as snow over 500 metres giving the Trossach hills a coat of white. It remained windy with a gust of 67 mph recorded at Dundrennan (Dumfries and Galloway). The weather continued unsettled with rain most days and often windy from the south-westerly quarter. The19th was a scarce day of unbroken sunshine and light northerly breezes as a ridge of high pressure settled briefly over the UK. This also produced the first frost of the winter, –1.4°C on the morning of the 20th (–3.2°C, Oxfordshire). The unsettled weather returned with daily rainfall until the month end although amounts were low. Dunblane contrasted markedly with areas to the north and west, with Cluanie Inn (Highland) receiving 58.4 mm (22nd), and 38.4 mm falling at Tyndrum on the 29th when only 2.0 mm was recorded in Dunblane. It was largely overcast with only brief spells of autumnal sunshine. It was mild however, with daytime temperatures reaching 14.2°C on the 31st (17.8°C East Yorkshire).

**November** in Scotland was the warmest ever recorded with a mean temperature of 7.7°C (0.02°C above the previous high in 1994 and 3.0°C above the 1971-2000 average). It was also the warmest November in Dunblane (there were no air-frosts) with the mean temperature of 7.43°C being 2.69°C above the average and 5.2°C above November 2010. There was also a little more rain than usual with the recorded 130.4 mm being 11 % above the norm. It was quite a dry month up until the final 8 days when 73 % of the rainfall occurred. It was also the sunniest November on record over the Western Isles and northern Scotland.

The month started with a mild, sunny day. The following 3 days were also

unseasonably mild with temperatures reaching 13.6°C (3rd). A ridge of high pressure (1026 mb, 6th) then built over Scotland bringing night frosts (–2.6°C, 6th; –5.1°C Braemar) and calm, sunny days in Dunblane but fog, which formed in the Forth Valley, was slow to lift. However, dense fog did persist all day in Dunblane and the Forth and Teith valleys on the 7th. As the high pressure system drifted east into Europe, light to moderate easterly winds developed and it became mild again. Sunny days were interspersed with dull ones but any precipitation was light and it remained very mild for mid-November (15.0°C in both Edinburgh and Glasgow on the 10th). It was not until the high pressure moved further east across Europe that Atlantic weather returned with south-westerly, rain bearing winds depositing 11.0 mm during the evening and night of the 17th (81.0 mm fell during the 24 hour period up to 09.00 hours on the 18th at Benmore (Argyll and Bute)). A succession of deep Atlantic lows passing by and over the north-west of Scotland from the 23rd onwards brought strong south-westerly winds and heavy rainfall. It was particularly stormy during the night of the 26th/27th when a gust of 96 mph was recorded at Glen Ogle with Tyndrum receiving 54.6 mm of rain in the 24 hours up to 21.00 hours on the 26th (80.6 mm at Cluanie Inn, Highland). The stormy, wet weather continued up until the month end with a strong south-westerly airstream depositing copious amounts of rain. 36.0 mm fell during the 24 hours up to 16.00 on the 29th with the M9 being closed due to flooding south of junction 10 (Craigforth) and the Stirling to Falkirk railway line likewise near Larbert on the morning of the 29th.

**December** was milder and wetter than normal. The mean temperature of 2.09°C was 0.36°C above the mean and 5.85°C higher than December 2010. Precipitation of 158.9 mm was 60 % above the norm with measurable amounts (>0.2 mm) recorded on 28 days. There were 16 air and one ground frost while snow lay on the ground at 09.00 hours on five occasions.

The weather turned colder from the start of the month with a ground frost on the 1st and an air-frost (–2.2°C) the following day. Heavy showers produced c.5.0 mm of rain on the 2nd and 3rd. A centimetre of snow fell during the night of the 3rd/4th and this was added to by moderate snow showers during the 4th and subsequent night so that there was 6 cm lying by 09.00 hours on the 5th. Black-ice on the roads in the Stirling area on the morning of the 5th produced hazardous driving conditions. The lying snow remained until the 8th when a combination of heavy rain and higher temperatures (8.2°C) caused a rapid melt. The 8th was a remarkable day of gale force south-westerly winds across Central Scotland. Gusts of up to 84 mph on the Forth Road Bridge caused its full closure for 8 hours from 10.30. The Tay and Erskine Bridges were also closed for a similar length of time. Gusts of 77 mph in Edinburgh resulted in the airport being closed to incoming flights during the afternoon. Wind speeds of 130 mph and 165 mph were recorded on Rannoch Moor and Cairngorm summit respectively. There was widespread damage to roofs while buses, lorries and trees were blown over and wooden power poles snapped in half. A train was stormbound at Crianlarich. Electricity supplies were cut-off to

c.105,000 homes. Most schools in Scotland were closed for all or part of the day. The winds eased quickly during the night of the 8th/9th as the low pressure system (979 mb) moved towards Scandinavia. Snow fell again during the following night with 3.5 cm lying at 09.00 hours on the 10th. Rising temperatures and heavy rain showers during the night of the 10th/11th had removed all the snow by the following morning. A particularly deep depression (968 mb) crossed Scotland from the west on the 13th. This brought yet more gale force winds and heavy rain (22.0 mm Dunblane, 54.2 mm Tyndrum). Gusts of 70 mph were recorded in the Central Belt and the Tay Road Bridge was closed during the afternoon/evening. The weather turned more settled and colder (–4.7°C Dunblane, 18th) as pressure built from the 17th. This mini cold-spell lasted until the 21st when much milder air was drawn up from the south, raising the daytime maximum temperature to 9.6°C (22nd). Christmas Day was abnormally mild with a maximum temperature of 11.7 °C. Aberdeen recorded 15.1° C, the third warmest Christmas Day temperature in the UK on record after 15.6°C in 1896 and 1920. The weather remained very unsettled until the year end with rain every day and strong south-westerly winds on several days.

Table 1. Temperature and precipitation 2011. Climatological Station Dunblane.

| | Temp Mean maxima | Temp Mean minima | Number of air frosts | Total precipitation (mm) | Greatest 24 hour total (mm) | Number of days of measurable rain |
|---|---|---|---|---|---|---|
| January | 3.6 (4.5) | –1.8 (0.0) | 23/21 (15) | 85.1 (120.3/364.2) | 24.0 (35.0) | 18/20 (20) |
| February | 6.9 (5.9) | 1.0 (0.2) | 10/ 8 (13) | 151.3 (101.4/247.9) | 19.0 (38.0) | 24/26 (18) |
| March | 8.6 (8.5) | 0.9 (1.23) | 12/14 (11) | 101 (78.0/239.6) | 17.0 (30.5) | 16/26 (16) |
| April | 15.3 (12.5) | 5.5 (3.6) | 0/3 (4) | 31.3 (61.3/148.9) | 8.0 (27.8) | 12/16 (15) |
| May | 15.3 (16.2) | 6.1 (5.8) | 0/3 (2) | 93.2 (69.6/120.3) | 13.0 (27.1) | 23/28 (19) |
| June | 17.9 (19.1) | 8.1 (8.9) | 0/1 (0) | 102.2 (74.5/118.1) | 39.8 (39.8) | 18/22 (15) |
| July | 21.0 (21.0) | 9.7 (10.7) | 0/0 (0) | 82.6 (82.5/124.1) | 16.1 (33.5) | 14/18 (16) |
| August | 18.3 (20.0) | 9.9 (10.5) | 0/0 (0) | 126.4 (87.9/143.1) | 40.0 (40.0) | 16/23 (15) |
| September | 15.9 (16.1) | 9.0 (8.4) | 0/1 (<1) | 101.8 (88.5/196.3) | 10.5 (36.5) | 26/28 (16) |
| October | 12.3 (11.8) | 7.3 (5.3) | 1/2 (3) | 129.7 (135.2/261.8) | 35.1 (41.9) | 29/31 (22) |
| November | 9.8 (7.4) | 5.0 (2.1) | 3/3 (8) | 130.4 (117.1/282.0) | 27.0 (39.0) | 19/23 (20) |
| December | 4.3 (3.9) | -0.1 (-0.4) | 16/14 (16) | 158.9 (99.4/281.9) | 22.0 (26.8) | 28/28 (19) |
| Year | 12.4 (12.2) | 5.1 (4.8 ) | 65 / 70 (59) | 1293.9 (1115.7/2528.2) | 40.0 | 243/289 (208) |

The climatological means for Dunblane are shown in ( ). Where either two 2011 values or climatological means are given, the first relates to Dunblane and the second to Kirkton. Figure in parenthesis in the 'Greatest 24 hour total (mm)' table refer to the highest ever 24 hour value for that month (09.00 hours to 09.00 hours). Temperatures are given in degrees Celsius.

Correction: In 'Table 1' of the 2010 weather report (Volume 34, page 49) there are two lines for January. The top one is incorrect.

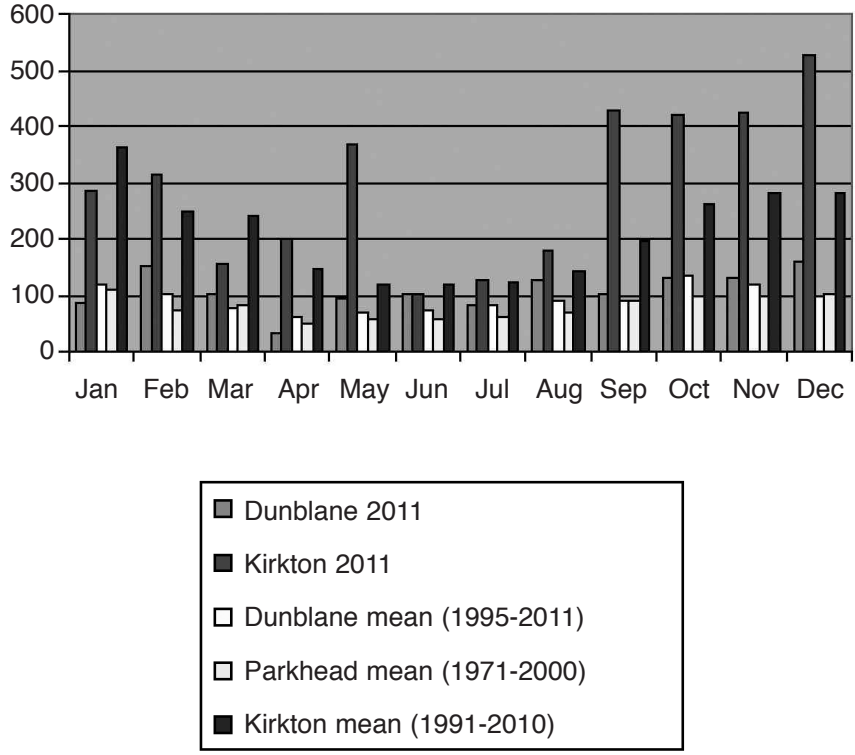


Figure 1. Rainfall 2011

# 2010 MOTH RECORDS FOR STIRLINGSHIRE AND WEST PERTHSHIRE (VICE COUNTIES 86 AND 87)

John T. Knowler

The recent increase in the recording of moths in central Scotland has been gratifying but has ensured that the *Annotated Checklist of the Larger Moths of Stirlingshire, West Perthshire and Dunbartonshire* that was published in April 2010 (Knowler, 2010) is already out of date. This report constitutes the second annual update for Stirlingshire and West Perthshire (vice counties 86 and 87)

## The Vice Counties 86 and 87

Because they are roughly equal in size and their boundaries have been stable for over a hundred years, the 112 Watsonian vice counties devised by Hewett Cottrell Watson have become a basis for biological recording in the UK. Modern Stirlingshire is roughly split between vice counties 86 and 87. Vice County 86 includes the local authority area of Falkirk and also encompasses areas of modern East Dunbartonshire west to parts of Milngavie and Mugdock Country Park. Vice County 87 includes the western ends of what historically were the counties Clackmannanshire (now part of Fife) and Perthshire.

## The Continuing Effects of Climate Change

Perhaps the moth find of 2011 for Stirlingshire and West Perthshire was the buff footman (*Eilema depressa*). The author was lucky enough to find the first in Lennoxtown, on the 11th July. Another was caught by David Bryant at Bridge of Allan on 11th August and a third was found in the catch for the 2nd August of the Rothamsted trap at Rowardennan on Loch Lomondside. Thus, the species is now recorded in vc86 and 87.

Central Scotland is accumulating an impressive list of species that have moved into the region in the 21st century. In recorded order of appearance within our area they include red-necked footman (*Atolmis rubricollis*) first recorded in 2002; slender brindle (*Apamea scolopacina*) and the micro-moth *Ypsolopha sequella* in 2004; alder moth (*Acronicta alni*) in 2006; oak-tree pug (*Eupithecia dodoneata*) and copper underwing (*Amphipyra pyramidea*) in 2009; pale pinion (*Lithophane hepatica*), buff footman and Blair's shoulder-knot (*Lithophane leautieri*) in 2011. It may be appropriate to add lesser treble-bar (*Aplocera efformata*) to this list (see below) but the species may have been previously over-looked. The spread of red-necked footman, slender brindle and pale pinion has been dramatic and has been documented (Knowler and Mitchell 2004; Knowler, 2005; Leverton and Palmer 2009). However, the range expansion of the buff footman may prove to be even more impressive. A map of the distribution of the species produced in 1979 (Heath and Maitland

Emmet, 1979) showed that the species had a patchy distribution mainly south of a line from the River Severn to the Wash. However, by the beginning of the 21st century it was showing considerable northward expansion. The first authenticated record in Lancashire came in 2000 and the species is now recorded in good numbers throughout the county, particularly in the north (S. Palmer, pers comm.). The Tullie House Museum, that currently holds the Cumbria moth database, has records from across the county that date from 1999 and the first record in Scotland would appear to be from Forest Moor, Wigtownshire (vc74) in 2006 (Dumfries and Galloway Moths website). In 2008, the species had spread to vc73, Kirkcudbrightshire, where it is now recorded at multiple sites and it has also been recorded annually from near Kelso since 2009. There is a single 2009 record from Ayrshire (N. Gregory, pers. comm.). Thus, it appears that the species is spreading rapidly in southern Scotland and has now reached the central belt.

Blair's shoulder-knot (*Lithophane leautieri*) is another species on the move**.** It first arrived in the UK (on the Isle of Wight) in 1951 and found that its preferred larval foodplants, Lawson's and Leyland cypress (*Chamaecyparis lawsoniana and x Cupressus leylandi*), are common garden trees in the UK. It spread rapidly. By 1996 it had reached Cumbria and by 2001 had crossed the border into Kirkcudbrightshire. Since then, it has spread to Ayrshire, the Borders, Lothians and into Fife as far north as Anstruther so it was not unexpected when one found its way into a trap in Milgavie on 4th November 2011

With all these species moving north, it is tempting to see their range expansion as a response to climate warming or, in the case of the lichen-feeding red-necked and buff footman, to the clean air act. However, the factors supporting northward range extension must be more complex because both dingy and scarce footman (*Eilema grieola and E.complana*) both occurred further north than buff footman in 1978 but they have not spread to central Scotland. Similar arguments could be made about many other species that have apparently stable range distributions.

**The Moths of Tory Burn Local Nature Reserve**

Although the Watsonian vice counties have provided a stable basis for biological recording, their exact boundaries can be hard to ascertain. One has only to look at the boundaries between the vice counties of Stirlingshire and Lanarkshire to see that they can be very contorted and hard to follow. Until 2011, the author thought that the boundary of vc87 terminated on the Forth Estuary at Kincardine Bridge. In fact it extends in a thin finger along the estuary following course of the Tory Burn to Tory Bay. Thus, the vice county has a stretch of esturine coast that might be expected to have a moth assemblage similar to that of coastal Fife and the Lothian's. Because of this, a list forwarded to me in the autumn of 2011 of moths caught by Stephanie Little (then Stephanie Smith) in Torry Burn LNR during 1999 and 2000 was always going to be exciting. Indeed, it proved to include records of silky wainscot

(*Chilodes maritimus*) never previously recorded in the vice county, white-line dart (*Euxoa tritici*) with one unverified previous record and heart and club (*Agrostis clavis*), lunar underwing (*Omphaloscelis lunosa*) and large wainscot (*Rhizedra lutosa*) that are seldom recorded in vc87. It also included two most unexpected species, the crescent-striped (*Apamea oblonga*) and the annulet (*Charissa obscurata*). The crescent-striped is a saltmarsh species. The recently published *Provisional Atlas of the UK's Larger Moths* (Hill et al., 2010) shows no recent records of the species north of Lincolnshire although it has since been recorded on a small area of saltings in the Tees Estuary (Woods, 2012). Similarly, the annulet is very much a coastal moth in Scotland. There are recent records from Kincardineshire and Banffshire and older records from the Lothian coast; however the only Forth Estuary record appears to be from North Queensferry where E.C. Pelham-Clinton recorded it in 1966 (D. Davidson, pers. comm.)

Stephanie Little sent all key species to Keith Bland at the Museum of Scotland who confirmed their identification. Interestingly, Silky Wainscot was also recorded in Stirlingshire for the first time in 2011. Bob Dawson caught four at Polmaise Lagoons on the 2nd August.

**The Importance of Moth Recording in the Wild**

Although, as indicated above, there has been a gratifying increase in moth recording in central Scotland it has mainly been by observers running moth traps in their gardens. Some of the most outstanding records for 2011, however, show the importance of recording in more natural habitats. The following are examples.

A colony of lesser treble-bar (*Aplocera efformata*) was found by Bob Dawson associated with extensive St John's wort (*Hypericum sp*.) on Fallin Bing near Stirling. A number of previous claims for this species have not been presented with the evidence necessary to differentiate it from the closely related and very similar treble-bar (*Aplocera plagiata*).

The day-flying and very local marsh pug (*Eupithecia pygmaeata*) had not been recorded in the Stirlingshire before Martin Culshaw caught one near Killearn on 3rd June and another on 14th August 2011. These were close to the River Endrick so it is interesting that up to 1983 there were occasional Dunbartonshire records of the species from close to where the Endrick River enters Lock Lomond. Thus, the banks of this river may prove to be an important site for this uncommon moth. Available sources state that the preferred foodplant of the species is field mouse-ear chickweed (*Cerastium arvensie*). However this plant is rare, indeed probably absent from vice counties 86, 87 and marsh pug larvae are probably feeding on common mouse-ear chickweed (*C.fontanum*) which is common in the area that it was found.

The thyme pug (*Eupithecia distinctaria*) has been re-found in Stirlingshire. Iain Christie first discovered this uncommon, largely coastal species in 1981 on

Conic Hill near Balmaha at the south eastern corner of Loch Lomond. After multiple failed attempts to find the species on Conic Hill, the author re-discovered it on a ridge to the NW called Druim nam Buraich. On 27th July, two hours of tapping thyme plants over a lunch box produced two small caterpillars.

**A New Micro Moth for Stirlingshire**

In central Scotland we regularly see bird cherry trees (*Prunus padus*) defoliated by the larvae of bird cherry ermine (*Yponomeuta evonymella*). We do not however usually see spindle ermine (*Yponomeuta cagnagella*) because its main foodplant, spindle (*Euonymus europeus*), is mainly a plant of the chalky soils of southern England. However, Japanese spindle (*Euonymus japonicus*), is less calcium-dependent, is often grown as a garden hedge and can be an alternative foodplant for spindle ermine. During the summer of 2011, such a hedge at the Wickes Home Improvement Store in Stirling was totally defoliated by the larvae of Spindle Ermine – a new species for Stirlingshire.

**Keeping up-to-date**

Recent moth highlights for vice counties 86, 87 can be followed in the Central Scotland Moths Blog (http://centralscotlandmoths.blogspot.com/). Moth records should be sent to John T. Knowler, the moth recorder for vice counties 86 and 87 (and 99). He will be very happy to assist those who would like to start moth recording or anyone who would like help with moth identification; particularly if reasonable quality photographs are sent to john.knowler@ntlworld.com.

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# FORTH AREA BIRD REPORT 2011

A.E. Thiel and C.J. Pendlebury

This is the 37th bird report for the Forth Area (or Upper Forth). The area covered by the report comprises the council areas of Falkirk, Clackmannan and Stirling but excludes Loch Lomondside and other parts of the Clyde drainage basin as well as the Endrick Water, i.e. Fintry and Balfron, all of which are currently covered by the Clyde bird report.

The report was written by Chris Pendlebury (non-passerines, excluding waders) and Andre Thiel (waders, passerines and escaped/introduced species). Chris Pendlebury, the current SOC recorder, can be contacted by e-mail at chris@upperforthbirds.co.uk, by leaving a message on 07798 711134 or by mail to 3 Sinclair Street, Dunblane FK15 0AH.

The main part of the report consists of detailed species accounts presented in a systematic list arranged in the latest taxonomic order, as adopted by the BOU, and using the now internationally agreed nomenclature for English names of Gill and Wright (2006), as also adopted by the BOU and recommended by the SOC. This is preceded by a summary of the main bird news from 2011 and a Ringing Report, both compiled by Andre Thiel.

## ROUND-UP OF THE YEAR

### January

The year in Scotland started with generally cold weather during the first ten days with wintry showers, especially on 8th when there was 7 cm of snow at Gogarbank, Edinburgh. Milder conditions by mid-month were accompanied by windy and wet weather. The last 10 days were more settled but colder. January started with 20 Bramblings and a Twite in Aberfoyle, a Eurasian Nuthatch at Ledcameroch, Dunblane, and an amazing flock of 1100 Common Linnets at Stonehill, Dunblane on 2nd. There was a good count of 375 Eurasian Oystercatchers at Kinneil on 3rd. A Common Redpoll at Auchlyne, Glen Dochart on 4th was the first of two this year and the 6th for the recording area. A Northern Goshawk was spotted at Carron Valley Reservoir on 7th. The same day saw the largest flock of Bohemian Waxwings: 33 birds in Bo'ness, however, compares poorly with previous years. 2500 Dunlins were at Kinneil on 9th, while 1004 Teal, 1990 Northern Lapwings and 456 Bar-tailed Godwits, the highest year count for this species, were there on 16th. The same day a male Eurasian Blackcap was at Alexander Drive, Bridge of Allan, which has become a recent regular wintering locality for this species. A Snow Bunting was at Gleann a'Chlachain on 19th and a White-tailed Eagle, thought to be from the Fife re-introduction scheme, at Argaty, Braes of Doune, on 26th. A Great Grey Shrike at the Duke's Pass in Aberfoyle was one of two records this year. 500

Chaffinches at Thornhill and 40 Eurasian Tree Sparrows at Coldoch, Blairdrummond Moss, on 29th were the largest flocks of the year of these species, while the same day that a Red-throated Loon was off Kinneil.

**February**

A mostly mild and unsettled month with rain and showers at times and strong winds during the first week. The middle of the month consisted of a mixture of rain and sunny spells. The last 10 days were generally cloudy but mainly dry. Rainfall was well above normal in the southern half of Scotland with twice the average rainfall recorded in places and one of the wettest Februarys in the last 100 years. A White-tailed Eagle, probably from the Fife re-introduction scheme, was at L. Ard on 7th. Two hundred Bramblings at Nappyfaulds, Slamannan, on 9th was an excellent record. A flock of 90 Siskins at Newton Crescent, Dunblane, on 11th was a good count, as was 60 Twite near the Kincardine Bridge the same day. An exceptional 15 Common Greenshanks were at Kinneil on 15th. The second Great Grey Shrike of the year on 16th to 17th was at Carron Valley Reservoir, where the species has been present before and which may well be a traditional site worth keeping an eye on. 3750 Dunlin were counted at Kinneil on 18th. Two Common Redpolls in Bridge of Allan on 25th constituted the 7th record of this species for the recording area. Two Eurasian Blackcaps at Carron Valley Reservoir on 28th was the latest of three winter records.

**March**

March was generally rather settled. Locally significant rain, snow and gales, however, characterized the weather during the second week. It was quite mild with sunny spells and only occasional outbreaks of rain during the second half of the month. There were 5 Snow Buntings at Blairdenon Hill, Ochils, on 5th. This was followed by 13 Ruddy Turnstones and the last 20 Bohemian Waxwings of the year at Grangepans, Bo'ness on 7th. The Green-winged Teal, which had been present at Kinneil since 14th October 2010, was last seen there on 6th. The first sign of spring arrived with a Northern Wheatear in Callander on 14th. This was quickly followed by a Common Chiffchaff at Skinflats lagoons on 19th. Fifty-two Northern Pintail were recorded at Kinneil on 20th, when a flock of 885 Common Redshanks were counted on the Skinflats estuary. The first Osprey of the year at St. Ninians, Stirling, and the first Sand Martin at Kirkton, Tyndrum, on 24th swiftly followed by two Swallows in Dunblane on 26th left no doubt that spring had finally arrived. A Common Greenshank was at L Dochart on 29th, while 450 Lesser Black-backed Gulls at Lake of Menteith the same day was the maximum count of that species this year.

**April**

With high pressure around the UK for much of the month April had plenty of fine and warm weather. The second half was settled and dry with several warm days. Overall the mean temperature in Scotland was 3.4°C above the 1971-2000 average and April was the warmest in Scotland since 1910. With amounts of sunshine generally 1.5 times the average April was one of the

sunniest since 1929, resulting in 40 % less than normal rainfall along the east coast. The start of April saw opposite ends of migration. The first Garden Warbler of the year at The Pineapple, Airth and the first 2 Willow Warblers of the year at Gartmorn Dam on 5th, the first 2 Eurasian Blackcaps at Blairlogie on 7th and the first three Ring Ouzels at Leum an Eireannaich, Balquhidder on 9th contrasted with the last 4 Fieldfares and a singing Redwing at Kirkton, Tyndrum on 8th. There were 5 Gadwall at the Blackdevon Wetlands and the first four Common Redstarts were seen at the head of Loch Tay on 10th. The first two Common House Martins appeared at Skinflats lagoons on 14th followed by 4 Tree Pipits at Balquhidder Station on 15th. The same day a Common Greenshank was at the Loch Tay Marshes. African migrants continued to pour in after mid-month. Six Eurasian Dotterel were on Ben Ledi on 18th and a total of 30 Willow Warblers were logged at Gartmorn Dam on 19th. The first Common Cuckoo was heard at Auchreoch, Tyndrum on 20th. Skinflats recorded a series of first for the year with 2 Common Grasshopper Warblers and a Common Whitethroat on 20th, 2 Sedge Warblers on 21st, an excellent count of 30 Northern Wheatears on 22nd and a Whinchat on 24th. The same day saw a mini-influx of Wood Warblers at Glen Finglas, Brig o'Turk and Aberfoyle as well as a Eurasian Pied Flycatcher at the latter location, all on 24th. The same day two Pied Avocets at Skinflats constituted the 7th record of this species in the recording area since 1974 and continue the almost annual trend now. The 28th was a good day to be out. Blackdevon Wetlands hosted a pair of Garganey as well as 15 singing Sedge Warblers, while Stob Binnein held a Rock Ptarmigan, three Eurasian Dotterel and two Golden Eagles. Boreland, Glen Lochay hosted an excellent 10 male Wood Warblers on 29th, while the last day of the month saw the first arrival of 2 Common Swifts in Doune.

**May**

After a few dry and sunny days, the weather was unsettled with rain and showers alternating with sunny spells. Winds picked up from 20th with severe gales on 23rd causing widespread disruption. The remainder of the month was a mixture of rain and sunny spells with more gales on 29th. Rainfall was well above normal and it was the wettest May in Scotland since 1910. The 6th May witnessed opposite aspects of migration: 2 male Garganey and the only 2 Wood Sandpipers of the year were at Blackdevon Wetlands, 8 Whimbrel were at Kennetpans and 10 at Tullibody Inch, while the last flock of 282 Pink-footed Geese were at Alloa Inch. The next day saw the first of a remarkable run of three Reed Warbler records, the 1st accepted record for the recording area coming from Cambus Pools. Golden Eagles were seen in Glen Balquhidder on 11th and at Lake of Menteith on 14th. A Marsh Harrier was recorded at the Braes of Doune wind farm on 13th. The next day saw the arrival of the first Spotted Flycatchers: 2 males each at Balquhidder and Inverlochlarig, Loch Voil. Eighty-four migrating Common Ringed Plovers roosted at the Blackdevon Wetlands on 18th. The next day saw a Pectoral Sandpiper, only the 4th for the recording area, at the Skinflats tidal exchange. A Little Ringed Plover in Cowie on 20th heralded the first successful breeding occurrence of the species in our area, with 2 young fledging by mid-June. An Arctic Loon was at Loch Tay on 21st,

while 10 Sanderlings at the Loch Tay Marshes the same day were at an unusual location. Two Merlins were seen at Cringate Muir on 30th, the same day another Reed Warbler was recorded at Skinflats lagoons.

**June**

Apart from a warm spell at the start and the end of the month, with temperatures in some areas above 25°C, June was unsettled with showers and longer spells of rain, some thundery. It was the coolest June in 10 years and eastern Scotland was wetter than normal. June was marked by uncommon and rare birds for the recording area. The 9th Spoonbill of the recording area at Kinneil and Skinflats on 4th began a good run of records. This was followed by a Common Quail at Cowie on 6th and 19th, at California on 12th and at Sheriffmuir on 23rd. A Wryneck at Kirkton, Tyndrum, on 6th was the 1st for the recording area since 2002. A Lesser Whitethroat singing at Bracklinn Falls, Callander, the same day was the 8th record for the recording area. The same day saw the 8th Pied Avocet for the recording area since 1974 appear at Kinneil before it moved to Skinflats on 9th, the day that the 4th Rosy Starling for the recording area was in a Lochearnhead garden. The 8th Common Rosefinch for the recording area, all records since 1997, was at Ledcharrie, Glen Dochart on 11th. An immature female Northern Goshawk was seen over Stirling on 12th. On 19th a singing Reed Warbler and one carrying a faecal sac at Tullibody Inch confirmed the 1st breeding record in the recording area. A first sign of autumn came in the form of 4 Sandwich Terns at Skinflats on 20th and two Common Greenshanks at Skinflats on 22nd. In between the 3rd Hobby for the recording area was at Sheriffmuir on 21st. A family party of Eurasian Woodcock at Loch Katrine on 23rd was notable.

**July**

July was chartacterised by alternating warm and settled weather and cooler spells with periods of rain and showers, some heavy and thundery. Warm conditions on 13th and 14th pushed temperatures to 23°C. Overall July was the coolest since 2000, with the mean temperature in Scotland 0.5°C below average. Eastern Scotland had twice the average rainfall or more and it was rather dull near the east coast. July was unsurprisingly quiet. An adult Long-eared Owl at Skinflats on 7th later fledged 3 young. A Common Quail was at Thornhill on 8th, the same day that the first 2 Dunlins arrived at Blackness and Common Sandpipers started their southward migration with 2 at Kinneil and 1 on the River Fillan at Strathfillan. Two Whimbrels at Skinflats lagoons on 13th were the first of the autumn migration movement for that species. A Hobby at Flanders Moss on 16th was one of only two records of the species this year and the fourth for the recording area. The second Lesser Whitethroat of the year and the 9th for the recording area was heard singing in Camelon on 26th. A moulting flock of 4582 Common Shelduck at Grangemouth on 29th was a good count. The same day the first 3 Ruff were recorded at Skinflats lagoons. A count of 12 Rock Ptarmigan at Ben More on 30th was excellent.

**August**

Low pressure over or close to the UK for most of the month created mainly

unsettled and cool conditions. Showers and persistent rain occurred on many days across Scotland. Dry conditions on 3rd with temperatures widely between 21°C to 23°C were the exception, making it the coolest August since 1993. Rainfall was over twice the average in the eastern half of Scotland. The 11th Little Egret for the recording area ranged in the Grangemouth area between 1st August and 24th September. Three juvenile Long-eared Owls called at California around 3rd. After a presence in our recording area of barely three and a half months the last Swift was seen in Grangepans, Bo'ness, on 11th. Twenty-two Whimbrels flying along the River Carron on 21st constituted the largest flock this year. An immature Marsh Harrier from the Tay reedbeds was at Skinflats on 22nd, the same day that the 19th Little Ringed Plover for the recording area since 1974 appeared at Kinneil. The following day a flock of 23 Red Knots at Blackness were the first returning birds. A flock of 15 migrating Willow Warblers were at Skinflats lagoons on 21st. A Shag off Bo'ness on 24th was not far from 9 Ruff at Skinflats lagoons with between 7 and 9 there until 3rd September. Seventy-one Common Ringed Plovers were at Blackness on 26th. The arrival of 9 Curlew Sandpipers at Skinflats lagoons on 29th heralded a very good passage year for this species. The same day an exceptional flock of 165 Stock Doves was logged in rape stubble at Kinneil. Grangemouth was the place to be on 30th: two Sanderlings at Kinneil were the first of the autumn, a flock of 365 Black-tailed Godwits there was the largest of the year and the adult Ring-billed Gull re-appeared the same day for its fifth consecutive autumn/ winter stay, while 7 Common Greenshanks and a juvenile Little Stint were over at the Skinflats lagoons. Upriver five White Wagtails of the European *alba* race were at Cambus Pools the next day.

**September**

Changeable conditions lasted most of the month with showers or longer spells of rain and strong winds at times. There were widespread severe gales in central Scotland on 12th with gusts over 112 km/h. Drier conditions set in from 24th with bright and increasingly warm conditions, culminating in unusually high temperatures (widespread maxima of 22-23°C on 28th and 30th) for the time of year. It was one of the seven warmest Septembers in the last 100 years. Migration was in full swing at the start of the month with 12 Ring Ouzels at Stuc a' Chroin and a Common Quail at Skinflats on 1st. Seawatching produced a Shag off Blackness the next day and two immature Little Gulls past Kinneil on 4th were followed by Northern Fulmars there on 5th, 10th and 14th. On the latter day one was also at Lake of Menteith. A female/immature Northern Pintail was at Pendreich, Bridge of Allan on 6th. The only Green Sandpiper of the year was at Skinflats lagoons on 7th, with a Red-throated Loon off Bo'ness on 9th. Thirty Sandwich Terns at Skinflats on 10th was the maximum count this year, while a Sedge Warbler there and a Garden Warbler, a late Common Cuckoo and 4 Sand Martins at Cocksburn, Bridge of Allan, were the last of the year. A brood of 3 Spotted Flycatchers at Vale of Coustry, Blairdrummond, on the same day would have been around for a little longer before setting off south. Eight Ruddy Turnstones between Carriden and Grangepans on 11th was a good record. The middle of the month was the time to be at Skinflats. A juvenile Little Stint was

there on 10th, as were the last Whinchat and Common Whitethroat of the year. Five Sanderlings there on 11th increased to 6 on 13th, while 25 Curlew Sandpipers on 11th and 12th increased to an unprecedented 57 on 14th, the second good passage year in a row. The same day saw the arrival of 47 Pink-footed Geese. Meanwhile two Spotted Redshanks were at Kinneil on 13th. On 14th an Arctic Tern was at Lake of Menteith and on 15th one was at Blair Drummond. Three Common Sandpipers on the Bridge of Frew-Gargunnock Bridge stretch of the River Forth on 16th were the last ones seen this year. Five Parasitic Jaegers at Kinneil on 17th were the largest of only six records of the species this year, with a Pomarine Skua there as well. The same day the last Eurasian Blackcap was recorded at Scouring Burn, Dunblane, and the last 8 Willow Warblers in the Cambus area. Nine Ruff were at Kincardine Bridge on 24th, while Lake of Menteith hosted four Gadwall on 26th. The last migrant Common Chiffchaff of the year was heard at Broomridge, Stirling, on 29th.

**October**

October in Scotland was largely unsettled with rain or showers and strong winds at times. The exceptionally high temperatures recorded elsewhere in the UK at the start of the month failed to materialise in Scotland. Most of Scotland was affected by heavy rain and strong winds on 17th, with more heavy showers on 29th depositing 38 mm of rain at Tyndrum, Stirling. The first 4 Redwings of the winter were spotted at Airthrey, Bridge of Allan on 5th. The 9th saw the arrival of the first Whooper Swans with 14 at Skinflats. Three Pomarine Skuas off Kinneil on 11th was the largest of only 4 counts of this species this year. Ten Curlew Sandpipers at Kinneil on 15th rounded up an excellent autumn passage for this species, while Blackness saw the first Fieldfare of the year. A maximum count of 250 Canada Geese were at Gargunnock Bridge on 18th, the site which also supported 210 Mallards that day, the largest flock this year of this declining species, while over at Skinflats lagoons the last Northern Wheatear of the year was recorded. Upstream at Cambus Pools a Long-tailed Duck was present on 19th. The last Swallows of the year – 4 in Doune and 4 in Dunblane – were logged on 22nd, followed by the last two Common House Martins in Doune on 24th. A Red-throated Loon, 5 Little Gulls and 19 Black-legged Kittiwakes flew past Bo'ness the same day, the latter record being the only one of this species in 2011. A Great White Egret at Kinneil on 26th was an excellent record, if accepted. The same day also saw a good count of 17 Guillemots off Skinflats. A female Long-tailed Duck was at Lake of Menteith on 27th to 28th. On the latter date a blue phase Snow Goose at South Alloa stayed to 30th. Also on 28th the returning Green-winged Teal, present until March earlier in the year, re-appeared and stayed into the second half of December. In an influx year the first of several Greater White-fronted Geese – a bird of the Greenland race – appeared in South Alloa on 30th.

**November**

The first half of the month was generally dry and mild in Scotland, with just the occasional wet day. It then turned much more unsettled with rain or showers, especially in the last week of the month when a strong westerly

system produced very strong winds at times. Overall the mean temperature in Scotland was 3.0°C above the 1971-2000 average, making this the warmest November in 100 years. The month started with an overwintering Common Chiffchaff at Kinneil on 1st. Two Golden Eagles were at Tyndrum on 4th and three Jack Snipe at Carse of Lecropt, Bridge of Allan, on 8th. A Ruff at Tullibody Inch on 10th was unusually late and could have been a bird that had decided to overwinter; more seasonal was a Eurasian Rock Pipit there on the same day. A flock of 430 Eurasian Curlews at Skinflats lagoons on 13th was the largest count this year, as were 897 Common Redshanks at Kinneil. The fifth Black Redstart for the recording area took up a short residence at Blackness between 20th and 28th. A Brambling was spotted on the Carse of Lecropt, Bridge of Allan, on 21st. The next day was a good day for waterfowl at Lake of Menteith with a female and first-winter Long-tailed Duck and two first-winter Ruddy Ducks. Incredibly, a count of 15 Common Pochards there was the largest flock recorded this year of this declining species. The same day a Red-throated Diver was off Kinneil. An adult female Northern Goshawk flew over Gartmorn Dam on 27th, while a male Eurasian Blackcap at Alloa Tower Park on 28th was the latest record of this increasingly overwintering African summer migrant.

**December**

A persistent Atlantic airstream brought changeable, sometimes stormy weather. There was rainfall on most days. The last 10 days were milder with unseasonal temperatures. The mean temperature was equal to the 1971-2000 average and almost over 5°C warmer than December 2010. The start of the month was of interest for larid enthusiasts. An Iceland Gull at Tullibody Inch on 3rd was only one of two records this year and there were four Mediterranean Gulls at Airth on 3rd to 4th, at one of the most regular sites for this species in the recording area. Lecropt Carse held a Northern Pintail, 330 Sky Larks and a massive flock of 8900 Common Wood Pigeons on 6th, the latter thought to be evading snow cover further north. On the same day 8 Short-eared Owls frequented the old landfill site at Kinneil. The following day was a good day for seeing large flocks of geese: Fallin saw the highest count of Pink-footed Geese of the year with 7420 birds recorded, the second largest flock of (European race) Greater White-fronted Geese this year with 25 birds followed by 34 there on 9th and 90 Barnacle Geese, though there is no way of telling whether these were wild or feral birds. The 7th saw an excellent count of 250 European Goldfinches at the nearby Haugh of Blackgrange. A first-winter Long-tailed Duck at the head of Loch Tay on 10th was followed by two females at Lake of Menteith on 15th. Flocks of 3200 Common Black-headed Gulls and 4000 Mew Gulls at Skinflats on 11th were the largest flocks of these species recorded this year, while an Iceland Gull was at Kinneil and a Eurasian Rock Pipit at Blackness. The 12th saw the highest count of Whooper Swans with 60 at Thornhill. A flock of 1000 Herring Gulls on the Larbert-Carron stretch of the River Carron on 15th was a good record, as was the largest flock of Fieldfares – 900 – at Mossneuk, Airth. Three Jack Snipe were at Netherton Marsh, Carse of Lecropt, on 16th. 3500 Dunlins at Kinneil and 200 European Greenfinches at Keir, Dunblane, on 17th were the highest counts of these species the year. The

same day an overwintering Common Chiffchaff was seen in South Alloa. The Green-winged Teal was last seen at Kinneil on 18th. The same day a flock of 200 Redwings at Ochtertyre, Blairdrummond, was surprisingly the largest of the year. The Tundra Bean Goose flock at Slamannan reached its peak on 21st when 240 birds were present. There was a flock of 79 Northern Pintail at Skinflats on 25th. Three Gadwalls were at North Third Reservoir on 27th, the same day that saw the only Smew of the year, a redhead, at East Frew on the River Forth. The year ended with a white-phase Snow Goose in Alva on 29th.

## RECORD SUBMISSION AND REPORT FORMAT

Due to restrictions on space, details of record submission and report format are no longer indicated but can be found in previous versions of the *Forth Naturalist and Historian*. Suffice to say that contributors are strongly encouraged to submit their data as soon as possible after the end of the year. A standard spreadsheet is available from Chris Pendlebury.

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 flocks of more than ten birds |
| w | Winter status: local, scarce or usually in flocks of less than ten birds |
| P or p | Passage (used for species usually absent in winter); P and p used for widespread and local/scarce, respectively, as in the 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 the winter status above. |

Thus, BW would be appropriate for European Robin, B for Barn Swallow, p for Ruff and SW for Great Cormorant. No status letter is used if a species occurs less than annually.

The following abbreviations have been used in this report: Ad(s) - adult(s), AoT - apparently occupied territory, b/lkm - birds per linear kilometre, Br - bridge, BoA - Bridge of Allan, BoD - Braes of Doune, ca - circa, c/n - clutch of n eggs, conf - confluence, BBS - Breeding Bird Survey, CP - Country Park, E - east, Est - estuary, Fm - farm, F - Female, G - Glen, GP - gravel pit, imm - immature, incl - including, juv - juvenile, L - Loch, N - north, NR - Nature Reserve, nr - near, M - Male, max - maximum, ON - on nest; pr - pair; Res - Reservoir, R - river, Rd - road, S - south, SP - summer plumage, W - west, WeBS - Wetland Bird Survey, Y - young, > flying/flew.

## 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 which are rare, uncommon or otherwise noteworthy. Thanks also go to M. Bell and N. Bielby who made available WeBS and BBS count data and to C. Henty for commenting on a draft of this report. Apologies to anybody who has been inadvertently missed out.

J. Aitkin (JA), L. Albert (LA), P.A. Álvarez Valdés (PAV), P. Ashworth (PMA), S. Bairner (SB), M. Beard (MFB), M. Bell (MVB), M. Betts (MB), N. Bielby (NB), Birdguides, A. Blair (AB), A. Baird, J. Bray (JFB), R. Broad (RAB), K. Broomfield (KB), D. Bryant (DMB), J. Calladine (JRC), A. Carrington-Cotton (ACC), Central Scotland Raptor Study Group (CSRSG), R. Chapman (RAC), D. Christie (DC), C. Clark (CMC), L. Coiffait (LC), C. Convery (CC), J. Cottrell (JCt), T. Craig (TC), D. Crosbie (DCr), M. Cubitt (MC), R. Daly (RDy), R. Dalziel (RDz), B. Darvill (BD), B. Dawson (BoD), R. Devine (RDv), R. Dobson, J. Dormer (JD), K. Duffy (KD), L. Duncan (LD), D. Eggerton (DE), A. Everingham (AE), K. Findlater (KF), A. Finlayson (AMF), D. Flynn (DJF), J. Fulton (JF), G. Garner (GG), P. Gentleman (PG), T. Goater (TG), R. and P. Gooch (RGo), W. Gray, S. Green (SRG), R. Griffiths (RG), C. Henty (CJH), G. Hetherington (GH), J. Holland (JH), M. Horne (MH), S. Humphris (SH), D. Irving (DI), D. Jackman (DJa), M. Johnson (MJ), D. Jones (DJ), D. Kerr (DSK), G. Kett (GK), R. Knight (RKn), G. and E. Leisk (GEL), S. Love (SL), B. Lynch, E. MacAlpine (EAM), D. Matthews (DM), I. McCallum (IMcM), M. McDonnell (MMcD), M. McGinty (MMcG), J. Miller (JM), S. Milligan (SMi), C. Mills (CHM), M. Moir (MM), N. Moran (NJM), F. and L. Murray (FAM), G. Murray (GM), J. Nadin (JSN), P. Nolan (PN), L. Oldershaw (LO), D. Orr-Ewing (DOE), B. Osborn (BO), G. Owens (GO), B. Paterson (BP), S. Paterson (SP), J. Pearson (JP), C. Pendlebury (CJP), K. Pilkington (KP), F. Poulter (FP), L. Pryde (LP), S. Renwick (SR), A. Robinson (AR), T. Rogers (ACR), S. Roos (CSR), R. Shand (RS), G. Shaw (GTS), C. Smith (CS), C. Spray (CJS), A. Thiel, D. Thorogood (DT), A. Tongue (AT), L. Turner (LT), C. Watson (CWt), T. Wells (TJW), C. Wernham (CVW), Robbie Whytock (RCW), Rory Whytock (RTW), G. Wilson (GWI), V. Wilson (VW), R. Wiseman (RW), G. Withers (GWt) and M. Wood (MJW).

## RINGING REPORT

This is the eighth ringing report. The following section lists birds ringed and/or reported in the recording area during 2011 (plus some earlier ones). A large part of these come from the BTO web site. Contributors are encouraged to report all ringed, especially colour-ringed, birds to the relevant organizers and/or the BTO and not to assume that somebody else has already done so, as all movements are of interest to the ringers and add to the understanding of bird ecology and migration patterns. In addition data should also be submitted to the bird recorder for inclusion in the bird report.

There were thirty-six reports of birds ringed or recovered in the recording area, involving 19 species. There were movements of birds from Finland, from and to Iceland and to Norway, France, Spain and Guinea Buissau.

Recoveries are listed in the same order as for the systematic list. After the species heading, data are presented as follows:

| Ring number | Date ringed<br>Date recovered | Location ringed<br>Location recovered | Observer<br>Distance and direction |
|---|---|---|---|

Additional information

**•MUTE SWAN**

| | | | |
|---|---|---|---|
| W07548 | 24 Aug 2002 | Linlithgow Loch (West Lothian) | BTO |
| | 15 Nov 2010 | Falkirk stadium | 12 km WNW |

Ringed as a nestling. Found freshly dead.

| | | | |
|---|---|---|---|
| W12545 | 22 Sep 2007 | Colzium Pond, Kilsyth (Strathclyde) | NB |
| Orange 3DFT | 05 Jan 2009 | Airthrey Loch, Bridge of Allan | |

Ringed as a (male ?) cygnet. Seen alive.

**•PINK-FOOTED GOOSE**

| | | | |
|---|---|---|---|
| ISR131504 | 22 Jul 2000 | Nordurardalur, Skagafjordur, **N ICELAND** | CJP |
| Colour ring: | 10 Dec 2000 | Littleward Farm, Flanders Moss (FORTH) | |
| Grey FPY | 02 Feb 2002 | Blairdrummond Moss (FORTH) | |
| | 18 Jan 2004 | Gartarry Toll, Clackmannan (FORTH) | |
| | 02 Jul 2008 | Thorleifsstadir, Varmahlid, **N ICELAND** | |
| | 30 Oct 2011 | South Alloa (FORTH) | |

Ringed as an adult male. Repeatedly seen alive (colour-ring read) in Aberdeenshire, Perth & Kinross, Lancashire, Northumberland and Moray.

| | | | |
|---|---|---|---|
| GBT1399855 | 20 Nov 2005 | Loch of Lintrathen (Angus) | JSN |
| Colour ring: | 10 Mar 2007 | Annfield Farm (Fife) | |
| Grey PXU | 01 Nov 2007 | Brograve Farm, Waxham (Norfolk) | |
| | 07 Apr 2008 | Drumtenant Farm, Kingskettle (Fife) | |
| | 02 Dec 2008 | West of Shammer House (Norfolk) | |
| | 13 Dec 2008 | North of Langham (Norfolk) | |
| | 22 Mar 2009 | Drumline, Dallcross (Aberdeenshire) | |
| | 23 Oct 2010 | Sele, Jaeren, Rogaland, **NORWAY** | |
| | 30 Oct 2011 | South Alloa | |

**•COMMON MERGANSER**

| | | | |
|---|---|---|---|
| MA01132 | 18 May 2006 | Glenbranter Forest, Strachur (Strathclyde) | BTO |
| | 09 May 2010 | Achray Forest | 42 km ENE |

Ringed as an adult female. Found freshly killed by a mammal.

**•GREY HERON**

| | | | |
|---|---|---|---|
| 1504504 | 06 Jun 2010 | Eilean A'chuillinn, Loch Sunart (Highlands) | BTO |
| | 25 Jan 2011 | Doune | 117 km ESE |

Ringed as a nestling. Found long dead.

**•RED KITE**

| | | | |
|---|---|---|---|
| GC74454 | 05 Jun 2009 | Confidential site (Buckinghamshire) | BTO |
| | 15 Aug 2010 | Argaty, BoD | 560 km NNW |

Alive, wing-tag seen.

| | | | |
|---|---|---|---|
| Black tag with blue code on right wing; red tag on left wing | 2010 | Braes of Doune | PAV |
| | 21 Mar 2011 | La Espina, Asturias, **N SPAIN** | |

Alive, wing-tag seen.

| | | | |
|---|---|---|---|
| Red tag on left wing; white tag on right wing | 2011 | Braes of Doune | PG |
| | 2011 | Between Bo'ness and Linlithgow | |

Alive, wing-tag seen.

| | | | |
|---|---|---|---|
| No details | 16 Jun 2010 | Doune Lodge Estate | DOE |
| | Aug 2011 | Britanny, **FRANCE** | |

Found dead under powerline, electrocuted.

**•MARSH HARRIER**

| | | | |
|---|---|---|---|
| FP26767 | 24 Jun 2011 | Confidential site, near Tay Lodge, Errol (Tayside) | BTO |
| | 22 Aug 2011 | Skinflats | 53 km SW |

Ringed as a nestling. Alive, wing-tag seen.

**•COMMON BUZZARD**

| | | | |
|---|---|---|---|
| GN32266 | 24 Jun 2001 | Doune | BTO |
| | 21 Oct 2011 | Near Kirkton Farm, Doune | 3 km |

Ringed as a nestling male.Found freshly dead due to injury.

| | | | |
|---|---|---|---|
| GN19963 | 01 Dec 2005 | Loch Ard Forest | BTO |
| | 20 Feb 2011 | High Garchell, Buchlyvie | 9 km SE |

Ringed as an adult female. Found freshly dead.

| | | | |
|---|---|---|---|
| MA16702 | 10 Jun 2010 | Strathyre Forest | BTO |
| | 12 Mar 2011 | Newton Bridge, Sma Glen (Tayside) | 36 km ENE |

Ringed as a nestling. Found freshly shot.

| | | | |
|---|---|---|---|
| | 24 Jun 2001 | Doune | BTO |
| | 21 Oct 2011 | Kirkton Farm, Doune | 3 km |

Ringed as a nestling. Found freshly dead, starved as a result of foot injury.

**•OSPREY**

| | | | |
|---|---|---|---|
| 1337831 | 20 Jul 1999 | near Tulliemet (Tayside) | BTO |
| | 07 Aug 2010 | Drummond fish farm, Lochearnhead | 49 km SW |

Ringed as a nestling. Found freshly dead in net or cage.

| | | | |
|---|---|---|---|
| 1412301 | 28 Jun 2008 | Confidential site, near Killin | BTO |
| | 25 May 2010 | Balgavies Loch (Tayside) | 97 km E |
| | 14 Apr 2011 | Upper Dicker, Hailsham (Sussex) | 690 km SSE |

Ringed as a nestling. Colour rings seen.

| | | | |
|---|---|---|---|
| 1397379 | 06 Jul 2006 | Loch of Skene (Grampian) | BTO |
| | 25 Jul 2011 | Confidential site (Central Region) | 164 km SW |

Ringed as a nestling. Found long dead (accidental cause).

| | | | |
|---|---|---|---|
| 1366529 | 06 Jul 2009 | Loch Ard Forest | BTO |
| | 15 Jan 2011 | Confidential site, **GUINEA BISSAU** | 4,975 km SSW |

Ringed as a nestling. Found dead.

**•EURASIAN WOODCOCK**

| | | | |
|---|---|---|---|
| SFHB129889 | 09 Oct 2008 | Jurmo, Korppoo, Turku-Pori, **FINLAND** | BTO |
| | 13 Mar 2011 | near Callander | 1,571 km WSW |

Ringed as a fully grown bird. Found dead.

**•COMMON BLACK-HEADED GULL**

| | | | |
|---|---|---|---|
| ES85820 | 11 Jun 1995 | North Esk Reservoir (Borders) | BTO |
| | 18 Mar 2011 | Bo'ness | 30 km NNW |

Ringed as a nestling. Found long dead.

**•HERRING GULL**

| | | | |
|---|---|---|---|
| GG58768 | 21 Jun 1989 | Isle of May (Fife) | BTO |
| | 05 Jan 2011 | Landfill site, Falkirk | 73 km WSW |

Ringed as a nestling. Found dead, hit by car.

**•BARN OWL**

| | | | |
|---|---|---|---|
| GC66841 | 24 Jun 2010 | L Ard Forest | BTO |
| | 08 Dec 2010 | nr. Drummore, Stranraer (Dumfries & Galloway) | 166 km S |
| | 21 Mar 2011 | Logan Mains (Dumfries & Galloway) | 159 km SSW |

Ringed as a nestling. Found sick (hit by car), then found long dead.

| | | | |
|---|---|---|---|
| GC66083 | 12 May 2010 | L Ard Forest | BTO |
| | 16 Apr 2011 | Lairds Hill (Dumfries & Galloway) | 135 km SSW |

Ringed as an adult female. Caught by ringer

**•TAWNY OWL**

| | | | |
|---|---|---|---|
| GF84146 | 26 Apr 2004 | Brenachoile, Katrine | BTO |
| | 25 Apr 2011 | Loch Katrine | 5 km |

Ringed as a nestling female. Caught by ringer.

| | | | |
|---|---|---|---|
| GC66457 | 18 May 2010 | Argaty | BTO |
| | 27 Jan 2011 | Callander | 11 km |

Ringed as a nestling. Found long dead.

**•WESTERN JACKDAW**

| | | | |
|---|---|---|---|
| EN37421 | 07 Jun 1996 | Corrie, Gartmore | BTO |
| | 18 May 2011 | Barcaldine, Oban (Strathclyde) | 70 km NW |

Ringed as a nestling. Freshly dead, killed by bird of prey.

**•GREAT TIT**

| | | | |
|---|---|---|---|
| X420824 | 31 Oct 2008 | Menteith Cottage, Aberfoyle | BTO |
| | 16 May 2011 | Antomie, Port of Menteith | 6 km |

Ringed as a first-year female. Found freshly dead in building.

**•COMMON BLACKBIRD**

| | | | |
|---|---|---|---|
| LB49843 | 19 May 2011 | Falls of Dochart, Killin | BTO |
| | 28 Jun 2011 | Killin | 2 km |

Found freshly dead, hit glass.

**•CHAFFINCH**

| | | | |
|---|---|---|---|
| P471976 | 13 Aug 2009 | Aberfoyle Forest | BTO |
| | 08 Feb 2011 | Aberfoyle | 0 km |

Ringed as an adult female. Long dead.

| | | | |
|---|---|---|---|
| L285304 | 20 Nov 2010 | Tarbet, Cnoc, Loch Lomond (Strathclyde) | BTO |
| | 20 Feb 2011 | Croftamie | 24 km SE |

Ringed as a first-year male. Found freshly dead, killed by cat.

**•EUROPEAN GOLDFINCH**

| | | | |
|---|---|---|---|
| P080013 | 11 Nov 2010 | Aberfoyle Forest | BTO |
| | 03 Oct 2011 | Glenstockadale, Stranraer (Dumfries/Galloway) | 149 km SSW |

Ringed as an adult male. Caught by ringer.

**•EURASIAN SISKIN**

| | | | |
|---|---|---|---|
| N839441 | 10 Apr 2009 | Aberfoyle Forest | BTO |
| | 18 May 2011 | Shebster (Highlands) | 268 km N |

Ringed as a first-year male. Caught by ringer.

| | | | |
|---|---|---|---|
| P080308 | 10 Jan 2011 | Aberfoyle Forest | BTO |
| | 26 Jun 2011 | Drummond, Inverness (Highlands) | 142 km N |

Ringed as a first-year male. Caught by ringer.

| | | | |
|---|---|---|---|
| X769337 | 28 Jun 2009 | Inverarnie (Highlands) | BTO |
| | 04 Jan 2011 | Aberfoyle Forest | 136 km S |

Ringed as a second-year male. Caught by ringer.

## SYSTEMATIC LIST

Codes - S, F and C refer to Stirling, Falkirk and Clackmannanshire Council Areas.

MUTE SWAN *Cygnus olor* (B,W)

Inland WeBS: 255 in Jan, 291 in Feb, 246 in Mar, 195 in Sep, 183 in Oct, 194 in Nov and 289 in Dec.

Forth Est WeBS: 2 in Jan, 11 in Feb, 12 in Mar, 1 in Sep, 12 in Oct, 2 in Nov and 17 in Dec.

F Max: 25 Skinflats 6 Jun; 12 Forth/Clyde canal, Bonnybridge Sep to Dec.

C Breeding: 1 ON Cambus Pools 6 Apr; 2 prs with 4 and 2 Y Gartmorn Dam 29 Jun; pr and 1 Y Delph Pond, Tullibody 13 Jul; pr and 6 Y Aberdona 21 Jul. Max: 21 R Devon, Alva-Tullibody 21 Jan; 22 Blackdevon Wetland 25 Feb; 48 Gartmorn 17 Dec.

S Breeding: 1 ON Lake of Menteith 29 Mar; 2 prs with 5 and 1 Y Airthrey L, BoA 22 Jul; pr and 7 Y L Daira, Blairdrummond 1 Sep; pr and 7 Y Gart GP, Callander 4 Sep; pr and 5 Y Doune Ponds 19 Sep; pr and 6 Y Ochlochy Pond, Dunblane 30 Sep. Max: 90 Airthrey L, BoA 7 Feb; 79 R Forth, Stirling 11 Mar.

WHOOPER SWAN *Cygnus cygnus* (W)

Autumn arrival: 14 Skinflats 9 Oct (AB); 4 L Dochart 13 Oct (JH).

Inland WeBS: 25 in Jan, 28 in Feb, 30 in Mar, 2 in Sep, 16 in Oct, 48 in Nov and 36 in Dec.

Forth Est WeBS: 0 in Jan, 0 in Feb, 0 in Mar, 0 in Sep, 17 in Oct, 14 in Nov and 38 in Dec.

F Winter: 4 R Carron, Larbert 4 Jan; 5 Skinflats 26 Jan; 6 Kinneil 29 Jan. Winter max: 47 Skinflats 15 Dec; 9 Kinneil 5 Dec.

C Two Blackdevon Wetlands 7 Mar. 14 R Devon, Tillicoultry 20 Mar. 10 Gartmorn Dam 24 Oct. 32 R Devon, Glenfoot 1 Dec.

S Winter/spring max: 11 Crianlarich 25 Feb; 14 L Venachar 20 Mar; 24 L Dochart 22 May. Summer: 2 Craigforth, Stirling 16 May and 24 Sep. Autumn/winter max: 38 Blairdrummond Moss 14 Nov; 31 Gargunnock Br 18 Nov; 25 Doune 6 Dec; 60 Thornhill 12 Dec.

BEAN GOOSE *Anser fabalis* (W)

F Regular wintering flock of Taiga (*fabalis*) race birds in the vicinity of the Slamannan Plateau. Winter/spring max: 196 Parkhead 6 Jan (RS). Autumn/winter: 24 Slamannan 19 Oct (NB); max of 240 at Slamannan 21 Dec (SRG).
Tundra (*rossicus*) race birds: 3 Airth 9 Dec (JSN).

C Tundra (*rossicus*) race birds at Blackgrange: 1 on 6 Dec; 8 on 11 Dec; 1 on 15 Dec (MVB, BoD, DMB).

S Four over Dunblane 14 Nov (CJP). Tundra (*rossicus*) race birds at Fallin: 3 on 7 Dec; 6 on 9 Dec (DMB).

PINK-FOOTED GOOSE *Anser brachyrhynchus* (W)

Spring departure: 282 Alloa Inch 6 May (DMB). Autumn arrival: 47 over Skinflats 14 Sep (DMB).

Forth Est WeBS: 81 in Jan, 1745 in Feb, 2282 in Mar, 0 in Sep, 1975 in Oct, 2655 in Nov and 216 in Dec.

F Winter/spring max: 1295 Skinflats 20 Feb. Autumn/winter max: 1530 Skinflats 15 Oct.

C Winter/spring max: 1429 Clackmannan 5 Feb. Summer: 1 Blackdevon Wetlands 11 May; 1 Alloa Inch 22 Jun. Autumn/winter max: 6900 Blackgrange 11 Dec.

S Winter/spring max: 2500 Flanders Moss 13 Apr. Summer: 1 Gart GP, Callander 5 Jun. Autumn/winter max: 7420 Fallin 7 Dec; 3000 Thornhill 14 Dec; 4200 Lecropt Carse 19 Dec.

GREATER WHITE-FRONTED GOOSE *Anser albifrons*

There was an influx of this species, particularly of European race (*albifrons*) birds, this year. This is thought to potentially have been linked to a particularly successful breeding season in the Arctic, linked to a good numbers of lemmings there, which are an alternative food source for predators of geese.

F Greenland (*flavirostris*) race birds: 1 S Alloa 30 Oct and 22 Nov (DT)

C European race birds at Blackgrange: 4 on 27 Nov; 14 on 9 Dec; 10 on 11 Dec (ACC, MVB, BoD).

S European race birds: 22 Gargunnock Br 18 to19 Nov (RCW, RAB); 2 Blairdrummond Moss 18 Nov (DOE); 25 Fallin 7 Dec and 34 there 9 Dec (DMB); 5 Thornhill 12 Dec (RCW, RTW); 3 Lecropt Carse 16 Dec (MVB).
Greenland race birds: 1 Fallin 7 Dec (DMB); 1 Thornhill 14 Dec (DT).

GREYLAG GOOSE *Anser anser* (b, W)

Spring departure and autumn arrival are muddied by the presence of resident feral birds.
Forth Est WeBS: 17 in Jan, 12 in Feb, 0 in Mar, 291 in Sep, 28 in Oct, 222 in Nov and 0 in Dec.

F Winter/spring max: 35 Kinneil 5 Mar. Summer max (feral): 197 Skinflats 20 Aug. Autumn/winter max: 222 R Forth, Alloa to Cambus 13 Nov.

C Winter/spring max: 423 Alva 12 Feb. Autumn/winter max: 370 Blackgrange 11 Dec.

S Winter/spring: 100 Gargunnock 17 Jan; 120 Touch, Stirling 27 Jan; 105 N Third Res 28 Feb. Summer: 2 Cringate Muir 30 May. Autumn/winter: 300 Gargunnock 18 Nov; 250 Fallin 7 Dec; 655 N Third Res 27 Dec.

*SNOW GOOSE *Anser caerulescens*

F One blue phase S Alloa 28 to 30 Oct (GG, CJP, LT, JSN, RS *et al*.).

C One white phase Alva 29 Dec 6 (DI).
Altogether there have been 15 records of this species, involving an estimated 10-12 separate occurrences; some may include escaped birds. Indeed recent evidence has shown that birds from the large feral populations of Snow Geese in Germany and the Netherlands have turned up in Britain and many of the Snow Geese seen here may originate from these populations, especially if not in the company of classical carrier species, such as Pink-footed, Greenland Greater White-fronted and Greylag Geese.

CANADA GOOSE *Branta canadensis* (b W)

Inland WeBS: 129 in Jan, 484 in Feb, 263 in Mar, 752 in Sep, 1039 in Oct, 736 in Nov and 667 in Dec.
Forth Est WeBS: 6 in Jan, 0 in Feb, 0 in Mar, 172 in Sep, 0 in Oct, 0 in Nov and 0 in Dec.

F Breeding: pr and 6 Y Darnrig Moss 31 May and 30 Jun. Max: 88 Skinflats 1 Sep; 111 Kincardine Br 11 Sep; 111 Little Denny Res 15 Sep; 167 St Helen's L, Bonnybridge 9 Dec.

C 23 Blackgrange 27 Nov. 56 Alloa Inch 15 Dec.

S Breeding: broods of 5 and 2 Y Gart GP, Callander 15 May. Max: 220 Blairdrummond Moss 18 Sep; 250 Gargunnock Br 18 Oct; 196 L Coulter 19 Oct; 130 L Venachar 19 Oct; 186 Lake of Menteith 22 Nov.

*BARNACLE GOOSE *Branta leucopsis* (w)

In our area there is no way of distinguishing between wild migrants and feral birds resident in Britain.

F Skinflats: 2 on 19 Mar, 2 on 9 Apr, 8 on 11 Apr, 11 on 12 Apr, 5 on 9 Oct, 4 on 5 Nov, 6 on 26 Nov (AB, GO, GG, AE). S Alloa/Airth: 64 on 30 Oct, 5 on 11 Nov, 12 on 12 Nov, 10 on 22 Nov (DT, RS).

C Eight Cambus 8 Oct (RCW, RTW). 3 Kennetpans 15 Oct (TG). Blackgrange: 68

on 27 Nov, max of 45 on 9 and 11 Dec (ACC, MVB).

S One BoA 13 Feb (DMB). 4 Aberfoyle 27 Oct (NB). 1 Blairdrummond Moss 18 Nov (DOE). 1 Gargunnock Br 18 Nov and 1 Thornhill 22 Nov and 14 Dec (RCW, RTW, DT). 90 Fallin 7 Dec (DMB). 1 Lecropt Carse 11 Dec, with 32 there 16 Dec (DOE, MVB).

COMMON SHELDUCK *Tadorna tadorna* (b, W)

Inland WeBS: 26 in Jan, 35 in Feb, 17 in Mar, 0 in Sep, 0 in Oct, 1 in Nov and 1 in Dec.

Forth Est WeBS: 386 in Jan, 712 in Feb, 657 in Mar, 3165 in Sep, 1905 in Oct, 1009 in Nov and 716 in Dec.

F Moult flock: 4582 Grangemouth 29 July (DMB). Breeding: 3 prs with broods of 3, 5 and 8 Kinneil 1 Jul.

C Max: 21 Cambus 16 Jan; 126 Kennetpans 20 Feb; 20 Blackdevon Wetlands 20 May.

S Five Fallin 16 Jan. 2 Lecropt 13 Mar. 1 pr Howietoun, Stirling 20 Apr.

EURASIAN WIGEON *Anas penelope* (b, W)

Inland WeBS: 242 in Jan, 317 in Feb, 161 in Mar, 33 in Sep, 220 in Oct, 397 in Nov and 411 in Dec.

Forth Est WeBS: 918 in Jan, 314 in Feb, 266 in Mar, 38 in Sep, 180 in Oct, 392 in Nov and 468 in Dec.

F Winter/spring max: 92 Skinflats and 45 Kinneil 16 Jan; 367 Kincardine Br 17 Jan. Autumn/winter max: 92 Kennetpans 13 Nov; 207 Kincardine Br and 65 Skinflats 11 Dec.

C Winter/spring max: 89 Gartmorn Dam 15 Feb. Summer: 2 Blackdevon Wetlands on several dates in May. Autumn/winter max: 100 Gartmorn Dam 17 Dec.

S Winter/spring max: 80 Lecropt Carse 16 Jan; 70 Gargunnock Br 13 Feb. Summer: pr Gart GP, Callander 4 May. Autumn/winter max: 106 Gart GP, Callander 13 Nov; 67 L Dochart 6 Dec; 80 Lecropt Carse 11 Dec.

GADWALL *Anas strepera* (s, w)

F Skinflats: 2 on 1 Jan; 1 F on 27 Mar; 1 M on 17 Apr; 3 on 20 May; 1 on 19 June (GO, RG, AB). 1 Kinneil 27 Sep (MVB).

C Blackdevon Wetlands: max of 3 M and 2 F 9 Apr; max of 3 on 11 May (DMB, NB). 1 Gartmorn Dam 17 Dec (TC).

S One R Forth, Fallin 17 Sep (JF). 1 M and 3 F Lake of Menteith 26 Sep (NB). 3 N Third Res 27 Dec (NB).

EURASIAN TEAL *Anas crecca* (b, W)

Inland WeBS: 736 in Jan, 744 in Feb, 696 in Mar, 275 in Sep, 833 in Oct, 1398 in Nov and 1120 in Dec.

Forth Est WeBS: 2092 in Jan, 1426 in Feb, 1140 in Mar, 557 in Sep, 1202 in Oct, 1682 in Nov and 1623 in Dec.

F Winter/spring max: 1004 Kinneil and 345 Skinflats 16 Jan. Autumn/winter max: 773 Kinneil 15 Oct; 379 Skinflats 11 Dec.

C Winter/spring max: 108 R Devon, Tillicoultry-Alva 23 Jan; 157 Kennetpans 20 Feb. Summer: 4 ads and 8 Y Blackdevon Wetlands 13 Jul. Autumn/winter max: 147 Kennetpans 11 Sep; 200 Blackgrange 27 Nov.

Addition from 2010: 375 Kennetpans 8 Oct.

S Winter/spring max: 302 R Forth, Stirling 12 to 15 Feb; 72 L Mahaick 24 Feb. Summer: pr L Ard 23 Jul. Autumn/winter max: 172 L Watston 13 Nov; 140 L Venachar 16 Nov; 200 Lecropt Carse 20 Nov; 300 R Forth, Stirling 17 to 18 Dec.

*GREEN-WINGED TEAL *Anas carolinensis*

F M Kinneil from 14 Oct 2010 to 6 Mar (GO, RS, MVB, AB *et al.*) and from 28 Oct to 18 Dec (DT, GG, DMB *et al.*). This bird has been recorded annually since December 2006 and may even be the same bird as recorded on the R Forth near

Stirling in 2004. This is the 9th record of this species, thought to involve 2-3 individuals.

MALLARD *Anas platyrhynchos* (B,W)

Inland WeBS: 1631 in Jan, 1618 in Feb, 1237 in Mar, 1443 in Sep, 2300 in Oct, 2015 in Nov and 2244 in Dec.

Forth Est WeBS: 296 in Jan, 107 in Feb, 93 in Mar, 284 in Sep, 280 in Oct, 148 in Nov and 226 in Dec.

F Max: 45 Kinneil and 76 Skinflats 16 Jan; 193 Kincardine Br 15 Oct; 55 Bo'ness 22 Oct.

C Max: 57 Alva 7 Mar; 108 Cambus 23 Oct.

S Max: 130 Airthrey L 27 Jun; 126 Callander 4 Sep; 210 Gargunnock Br 18 Oct; 105 Killin Marshes 6 Dec.

NORTHERN PINTAIL *Anas acuta* (W)

Forth Est WeBS: 59 in Jan, 46 in Feb, 52 in Mar, 0 in Sep, 6 in Oct, 55 in Nov and 95 in Dec, all at Skinflats/Kinneil.

F Max: 52 Kinneil 20 Mar; 79 Skinflats 25 Dec.

S One F/imm Pendreich, BoA 6 Sep (NB). 1 Lecropt Carse 6 Dec (MVB).

GARGANEY *Anas querquedula*

C Pr Blackdevon Wetlands 28 Apr to 2 May, 2 M there 6 May (DMB, JSN, NB *et al*.). This the 20th record of this species in our recording area.

NORTHERN SHOVELER *Anas clypeata* (p)

F Pr Kinneil 6 Mar (AB). Skinflats: max of 2 (1 pr) 9 June; F and 2 juv 31 Jul; F on 20 Aug (AB, MVB, GO).

C Blackdevon Wetlands: max of 4 (3 M, 1 F) 28 April; max of 5 (2 prs) 11 May (NB, DMB).

COMMON POCHARD *Aythya ferina* (W)

Inland WeBS: 0 in Jan, 0 in Feb, 5 in Mar, 1 in Sep, 3 in Oct, 17 in Nov and 8 in Dec.

F Skinflats: M on 26 Jan; 8 M on 18 to 19 Jun; 1 on 25 Jun to 10 Jul; 4 M 11 Sep. Kinneil: 1 on 23 Sep with 6 there 29 Sep. 1 Skinflats 5 Nov. 2 Kinneil 6 Dec. 2 Skinflats 11 Dec.

C One Blackdevon Wetlands 7 Mar. M Gartmorn Dam 28 Mar and 5 Apr.

S Head of L Tay: 2 on 8 Jan; 3 on 6 Feb, 4 on 19 Feb. 2 Craigforth, Stirling 25 Jan. 2 Gart GP, Callander 14 Mar. Lake of Menteith: 15 on 22 Nov, 3 on 15 Dec. 1 Gart GP, Callander 4 Dec.

TUFTED DUCK *Aythya fuligula* (B, W)

Inland WeBS: 262 in Jan, 284 in Feb, 323 in Mar, 252 in Sep, 412 in Oct, 342 in Nov and 336 in Dec.

F Skinflats: 14 on 2 Jul and 12 on 7 Jul. Kinneil: 2 on 23 Jul, 5 on 1 Sep and 3 on 29 Sep. 12 St Helen's L, Bonnybridge 19 Oct.

C Breeding: 2 F and broods of 1 and 8 Gartmorn Dam 17 Jul. Winter/spring max: 42 R Devon, Menstrie-Tullibody 22 Jan; 160 Gartmorn Dam 13 Mar. Autumn/winter max: 216 Gartmorn Dam 24 Oct.

S Winter/spring max: 16 L Dochart 18 Jan; 58 Airthrey L, BoA 19 Jan; 42 Blairdrummond 22 Feb. Autumn/winter max: 31 Gart GP, Callander 14 Mar; 42 Carron Valley Res 16 Oct; 27 Lake of Menteith 15 Dec; 69 Blairdrummond 20 Dec.

GREATER SCAUP *Aythya marina* (s, w)

Forth Est WeBS: 36 in Jan, 22 in Feb, 13 in Mar, 7 in Sep, 9 in Oct, 4 in Nov and 10 in Dec.

F Kinneil: up to 36 in Jan, up to 31 in Feb, up to 24 in Mar, 10 on 9 Apr, 7 on 23 Jul, 2 on 31 Jul, up to 4 in Aug and Sep, up to 9 in Oct and Nov and up to 13 Dec

(DT, AB, JRC *et al*.). Skinflats: 2 M 31 May to 10 Jul, F 21 Aug, up to 2 in Sep, up to 7 in Oct, up to 4 in Nov and up to 5 in Dec (MVB, GO, AB, RS).

S Two Blairdrummond 17 Dec (DOE).

COMMON EIDER *Somateria mollissima* (w, s)

Forth Est WeBS: 14 in Jan, 27 in Feb, 39 in Mar, 3 in Sep, 8 in Oct, 17 in Nov and 7 in Dec.

F Blackness: 2 on 2 Feb, 14 on 14 Mar, 7 on 6 May, 40 on 8 Jul, 3 on 2 Aug and 3 on 24 Dec (AMF). Kinneil: up to 35 in Jan, 15 on 27 Feb, 8 on 13 Mar, up to 20 in Apr, 1 on 1 Jun, 1 on 23 Jul, 2 on 31 Aug, up to 5 in Sep, up to 20 in Oct and 4 on 1 Nov (DT, CJP, RS, GO). Skinflats: up to 19 in Feb, 39 on 20 Mar, 3 on 11 Sep, 11 on 13 Oct, up to 17 in Nov and 5 on 11 Dec (MVB, GO).

C Addition from 2010: 7 off Kennetpans 23 Mar (DMB).

*LONG-TAILED DUCK *Clangula hyemalis*

C One Cambus Pools 19 Oct (DE).

S Lake of Menteith: F 27 to 28 Oct; F and 1st winter 22 Nov; 2 F 15 Dec (NB). One 1st-winter Head of L Tay 10 and 17 Dec (JH).

COMMON GOLDENEYE *Bucephala clangula* (W)

Inland WeBS: 312 in Jan, 428 in Feb, 299 in Mar, 3 in Sep, 91 in Oct, 242 in Nov and 325 in Dec.

Forth Est WeBS: 100 in Jan, 41 in Feb, 20 in Mar, 0 in Sep, 24 in Oct, 15 in Nov and 59 in Dec.

F Max: 26 Skinflats 16 Jan; 28 Black L, Limerigg 10 Feb.

C Max: 67 Kincardine Br-Alloa 17 Jan; 65 Gartmorn Dam 15 Feb; 40 R Devon, Tullibody 20 Dec.

S Max: 31 L Dochart 17 Feb; 112 Lake of Menteith 24 Feb with 104 there 15 Dec.

*SMEW *Mergellus albellus*

S One redhead R Forth, E Frew 27 Dec (RCW).

RED-BREASTED MERGANSER *Mergus serrator* (B, W)

Inland WeBS: 9 in Jan, 6 in Feb, 2 in Mar, 2 in Sep, 5 in Oct, 1 in Nov and 3 in Dec.

Forth Est WeBS: 23 in Jan, 35 in Feb, 41 in Mar, 34 in Sep, 52 in Oct, 63 in Nov and 57 in Dec.

F Max: 18 Skinflats 20 Mar; 50 Kinneil 15 Oct.

C Tullibody: 1 on 5 Feb; 2 on 20 Feb. 16 Kincardine Br – Alloa 16 Nov.

S 1-2 R Forth, Stirling, head of L Tay and L Achray throughout the year.

COMMON MERGANSER (GOOSANDER) *Mergus merganser* (B, W)

Inland WeBS: 83 in Jan, 116 in Feb, 61 in Mar, 30 in Sep, 60 in Oct, 83 in Nov and 125 in Dec.

Forth Est WeBS: 3 in Jan, 0 in Feb, 2 in Mar, 20 in Sep, 3 in Oct, 26 in Nov and 14 in Dec.

F Max: 10 Forth/Clyde canal, Bonnybridge 16 Jan; 14 Kinneil 1 Aug; 18 Skinflats 29 Oct; 12 Larbert 18 Dec.

Addition from 2010: 65 off Airth 31 Jan.

C Max: 15 R Forth, Stirling 29 Jan; 19 Cambus pools 10 Nov.

S Breeding: pr Callander 24 Apr; F and 4 Y R Fillan, Crianlarich; pr Lochearnhead 21 May. Max: 21 R Forth, Stirling 15 Oct; 21 Blairdrummond 30 Apr.

*RUDDY DUCK *Oxyura jamaicensis*

S Two first-winters Lake of Menteith 22 Nov (RCW, NB).

WILLOW PTARMIGAN (RED GROUSE) *Lagopus lagopus* (B, W)

S One Kenknock, G Lochay 4 Jan (DOE). 12 Cairnoch Hill, Carron Valley Res 14 Jan (AT). 5 Sheriffmuir 6 Mar (DOE). 1 Ballochleam, Kippen 16 Apr (CC). 1 Ben A'an 2 May (DSK). 2 Monachyle, L Voil 14 May (DOE). 3 Corriecharmaig, G Lochay 29 Apr (DOE).

ROCK PTARMIGAN *Lagopus muta* (B, W)
S One Stob Binnein 28 Apr (GG). 12 Ben More 30 Jul (GWI).
BLACK GROUSE *Tetrao tetrix* (B, W)
S Records from: Carron Valley, Callander, G Finglas, Strathyre, G Lochay and Tyndrum (JH, DOE, DMB *et al*.).
*CAPERCALLIE *Tetrao urogallus*
S F Trossachs Apr and Mar (per DOE).
GREY PARTRIDGE *Perdix perdix* (B, W)
F Skinflats max: 5 on 21 Aug (AB); 2 on 20 Oct (GO).
C Ten Kersiepow, Alva 5 Feb (NB). Pr Alloa 23 May (DMB).
*COMMON QUAIL *Coturnix coturnix*
F M calling California 12 Jun (LP). 1 Skinflats 1 Sep (DMB).
S M calling Cowie 6 and 19 Jun (DMB). 1 Sheriffmuir 23 Jun (KD). One Thornhill 8 Jul and 1 Aug (AR).
COMMON PHEASANT *Phasianus colchicus* (B, W)
Very large numbers released on shooting estates, otherwise widespread but in smaller numbers.
S Max: 50 Lanrick, Doune and 50 Keir, Dunblane 13 Nov.
RED-THROATED LOON *Gavia stellata* (b, w)
F One off Kinneil 29 Jan (DT). Bo'ness: 1 offshore on 9 Sep; 3 < W 24 Oct (GG). 1 off Kinneil 22 Nov (DT).
S One at an undisclosed location in the Trossachs 14 Jul (MVB).
*ARCTIC LOON (BLACK-THROATED DIVER) *Gavia arctica*
S One L Tay 21 May (JH).
LITTLE GREBE *Tachybaptus ruficollis* (B, w)
Inland WeBS: 21 in Jan, 27 in Feb, 22 Mar, 86 in Sep, 69 in Oct, 40 in Nov and 43 in Dec.
F Max: 7 Little Denny Res 8 Sep; 7 Skinflats 17 Sep; 4 R Carron, Larbert 20 Sep; 8 Black L, Limerigg 19 Oct.
C Breeding: 4 prs with broods of 3, 4, 2 and 1 at East Pond, Aberdona 21 Jul; 8 and 2 Y Blackdevon Wetlands 1 Sep.
S Breeding: 2 prs Cocksburn L, BoA 4 May; 4 ads and 1 Y Pendreich, BoA 1 Sep. Max: 6 L Ard 17 Feb, 24 Gart GP 4 Sep, 7 L Dochart/Lubhair 18 Sep and 7 L Voil 8 Nov.
GREAT CRESTED GREBE *Podiceps cristatus* (b, W)
Inland WeBS: 5 in Jan, 12 in Feb, 47 in Mar, 40 in Sep, 18 in Oct, 30 in Nov and 21 in Dec.
Forth Est WeBS: 6 in Jan, 3 in Feb, 0 in Mar, 3 in Sep, 13 in Oct, 6 in Nov and 16 in Dec.
F Max: 23 Kinneil 7 Dec.
C Breeding: 2 prs and 1 Y Gartmorn Dam 4 May.
S Breeding: pr and 4 Y Gart GP, Callander 4 Sep; 14 ads and 8 Y Lake of Menteith 26 Sep. Elsewhere: 6 Carron Valley Res 19 Mar.
*NORTHERN FULMAR *Fulmaris glacialis*
F Kinneil: singles offshore 5 Sep, 10 Sep and 14 Sep (DT, DMB).
S One Lake of Menteith 14 Sep (RCW, RTW).
NORTHERN GANNET *Morus bassanus* (p)
F Imms off Kinneil: 10 on 5 Sep, 4 on 10 Sep, 54 < W 14 Sep, 2 < E 17 Sep, 6 < W 20 Sep, 1 < W 25 Sep, 1 < W 24 Oct, 1 < W 22 Nov (DT, DMB). Imms off Bo'ness: 1 on 9 Sep, 2 < E 11 Sep, 9 < W 9 Sep, 2 < W 24 Oct (GG). Imms Skinflats: 1 on 11 Sep, 13 < W 14 Sep, 3 on 24 Sep, 1 < W 9 Oct (MVB, DMB, ACC, AB). Kincardine Br: imm 24 Sep (BD).

S Imms: 1 < NW Stirling 7 Sep (KD), 1 < E Gargunnock 16 Sep (RCW, RTW), 1 over Doune 17 Sep (DOE).

GREAT CORMORANT *Phalacrocorax carbo* (S, W)

Inland WeBS: 44 in Jan, 64 in Feb, 39 in Mar, 36 in Sep, 50 in Oct, 52 in Nov and 71 in Dec.

Forth Est WeBS: 37 in Jan, 32 in Feb, 48 in Mar, 76 in Sep, 73 in Oct, 113 in Nov and 77 in Dec.

F Max: 36 Skinflats 11 Sep; 41 S Alloa roost 11 Dec.

C Max: 45 R Forth, Alloa to Cambus 13 Nov.

S Max: 17 L Lubnaig 1 Feb, 19 Lake of Menteith 26 Sep.

*SHAG *Phalacrocorax aristotelis*

F One off Bo'ness 24 Aug (GG). 1 off Blackness 2 Sep (AMF).

*LITTLE EGRET *Egretta garzetta*

F One ranging between Kincardine Br, Skinflats and Kinneil from 1 Aug to 24 Sep with 2 Kinneil and Skinflats Tidal Exchange 21 to 23 Aug (DMB, RDz, BD *et al*.). These two birds become the 11th and 12th records for the recording area.

*GREAT WHITE EGRET *Ardea alba*

F One Kinneil 26 Oct (CS) was also seen earlier that day at Carsebreck L, Perthshire. This record is pending acceptance by SBRC. If accepted, this would be the first record of this species in the recording area since modern recording began in 1974, with possibly a previous record from 1887.

GREY HERON *Ardea cinerea* (B,W)

Inland WeBS: 44 in Jan, 60 in Feb, 44 in Mar, 95 in Sep, 90 in Oct, 73 in Nov and 82 in Dec.

Forth Est WeBS: 14 in Jan, 10 in Feb, 8 in Mar, 37 in Sep, 47 in Oct, 38 in Nov and 32 in Dec.

F Max: 27 Skinflats 11 Sep.

C Max: 6 Gartmorn Dam 15 Feb, 6 Alva floods 18 Sep, 6 Cambus Pools 16 Dec.

S Breeding: 29 AONs Nyadd, Blairdrummond 2 May (CC). Max: 14 Gart GP, Callander 4 Sep.

*SPOONBILL *Platalea leucorodia*

F Imm initially at Kinneil then Skinflats 4 Jun (CJP, GO). This is the 9th record of this species in the recording area.

RED KITE *Milvus milvus* (b ,W)

C One Menstrie 3 May (RCW, RTW).

S Breeding: of 23 prs 22 laid eggs, 11 prs successfully fledging 21 Y (DOE, DA, MMcD). Argaty, BoD: max number recorded was 49 (MMcD). Away from BoD: Lochearnhead Jan, Dunblane Apr/May, Blairlogie Apr, Lake of Menteith May, Flanders Moss Sep, L Ard Oct, Crianlarich Oct.

*WHITE-TAILED EAGLE *Haliaeetus albicilla*

All records likely to refer to birds from the Fife reintroduction scheme.

S One Argaty, BoD 26 Jan (DOE). 1 L Ard 7 Feb (DOE). 1 feather found Drumloist, BoD 27 Mar (DOE). The first two records are the 11th and 12th records, respectively, of this species in the recording area since 1974 but may refer to the same bird.

MARSH HARRIER *Circus aeruginosus*

F Wing-tagged imm from Tay reedbeds seen Skinflats 22 Aug (MM).

S One BoD wind farm 13 May (DOE).

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

S Ad M Gargunnock 13 Mar (RCW). Imm M Lochearnhead 16 Apr (DOE). M L Katrine 13 May (FAM). 2 Callander 22 May (DOE). Ringtail Cocksburn L, BoA 19 Oct (ACR).

*NORTHERN GOSHAWK *Accipiter gentilis*

C Ad F over Gartmorn Dam 27 Nov (MVB).

S One Carron Valley Res 7 Jan (AT). Imm F Touch, Stirling 12 Jun (DMB). Pr and 4 Y bred at BoD (CSRSG).

EURASIAN SPARROWHAWK *Accipiter nisus* (B, W)

Recorded throughout the majority of the recording area. Contributors are encouraged to submit breeding records.

COMMON BUZZARD *Buteo buteo* (B,W)

Inland WeBS counts: 35 in Jan, 38 in Feb, 42 in Mar, 52 in Sep, 38 in Oct, 53 in Nov and 39 in Dec.

2011 breeding: 143 occupied sites; of 94 prs with eggs, 54 prs successfully fledged 70+ Y (DA, MMCD, DOE).

2010 breeding: 149 occupied sites; of 109 prs with eggs, 87 prs successfully fledged 137+ Y (DA, MMCD, DOE).

GOLDEN EAGLE *Aquila chrysaetos* (b, w)

S Two Stob Binnein 28 Apr (GG). 1 G Balquhidder 11 May (FAM). 1 Lake of Menteith 14 May (JCt). 2 Tyndrum 4 Nov (GTS).

OSPREY *Pandion haliaetus* (B)

C One R Devon, Dollar 28 May. 1 Gartmorn Dam 17 Jul.

S First records: 1 St Ninians, Stirling 24 Mar; 1 Doune 28 Mar; 1 Lake of Menteith 29 Mar; 1 L Rusky 30 Mar. Other records from Kinbuck, BoA, Stirling, Carron Valley Res, Flanders Moss, Kippen, L Earn, L Achray, L Tay and G Dochart.

COMMON KESTREL *Falco tinnunculus* (B,W)

Recorded throughout most of the recording area. Contributors are encouraged to submit breeding records.

MERLIN *Falco columbarius* (b?, w)

F F Skinflats 22 Jan (DMB). 1 Tod Hill, Larbert 6 Feb (RS). 1 Mossneuk, Airth 18 Nov (DT). 1 Skinflats 11 Dec (MVB).

C F Commonedge Hill, Ochils 21 Aug (KB).

S One Kenknock, G Lochay 29 Apr (DOE). 1 L Tay marshes 30 Apr (JH). 1 > Sheriffmuir 3 May (DMB). 2 Cringate Muir 30 May (ACC). F Gargunnock 18 Nov (RCW). 1 Pendreich, BoA 27 Nov (DMB). 1 Lecropt Carse 12 Dec (DT).

HOBBY *Falco subbuteo*

S One Sheriffmuir 21 Jun (CL). 1 Flanders Moss 16 Jul (DI). These are the 3rd and 4th record, respectively, of this species, since modern recording began in 1974.

PEREGRINE FALCON *Falco peregrinus* (B, W)

F One Kinneil 3 Jan and 8 Mar. M Skinflats 11 Sep, 17 Sep and 15 Oct.

C Up to 2 Menstrie Feb to May. 1 Forestmill 14 Nov.

S One Stirling 15 Jan. Pr Airthrey, BoA 11 Mar. 1 Blairlogie 14 Apr. 1 Blairdrummond 11 Sep. Imm M Sheriffmuir 30 Sep. 1 Stirling 19 Oct. 1 juv Killin 8 to 24 Nov. 2 Lecropt, BoA 11 and 12 Dec.

WATER RAIL *Rallus aquaticus* (b, w)

F One Carronshore 8 Jan (DCr). Kinneil: 2 calling 9 Apr and singles heard there 1 Jul and 1 Nov (DT). Skinflats Lagoons: 1 on 24 Apr, 1 (in village) 6 Aug, 2 calling 1 Sep and 1 calling 15 Oct (AB, DT, DMB).

C One calling Cambus Pools 17 Apr (CJH). 2 calling Tullibody Inch 6 May (DMB). 1 R Devon, Alva-Tullibody Br 19 Nov (CVW).

COMMON MOORHEN *Gallinula chloropus* (B,W)

Inland WeBS: 40 in Jan, 40 in Feb, 48 in Mar, 64 in Sep, 63 in Oct, 71 in Nov and 69 in Dec.

F Breeding: Y Darnrig Moss 30 Jun. 8 Kinneil 23 Jul included 2 ads, 2 imms and 3 downy Y, suggesting low breeding success. Max.: 11 Callendar Park L, Falkirk

22 Jan with 9 there 15 Nov; Forth-Clyde Canal, Lock 16 on 27 Oct; 5 Larbert House L 20 Nov.

C Breeding: 2 Y Blackdevon Wetlands 13 Jul. 5 (3 Y) Cambus Pools 4 Oct. 3 (1 Y) Delph Pond, Tullibody 4 Oct. Non-breeding: 7 R Devon, Alva-Tullibody Br 24 Dec.

S Breeding: broods of 4 and 2 Airthrey L 22 Jul with 14 there 26 Aug; Callander: 1 Y Gart GP 4 Sep, 1 Y Mollands Pond 4 Sep; Doune: 3 Y Wester L of Daldorn 4 Sep, 1 Y at ponds 19 Sep; BoA: 2 Y Cocksburn L 19 Oct. Max: 5 R Teith, Callander 27 Jan; 6 Cultenhove Pond, Stirling 15 Nov; 14 Airthrey L 16 Dec; 5 Castle Park Pond, Stirling 20 Dec.

COMMON COOT *Fulica atra* (B, W)

Inland WeBS: 70 in Jan, 132 in Feb, 104 in Mar, 93 in Sep, 75 in Oct, 132 in Nov and 151 in Dec.

F Breeding: 2 very small Y Darnrig Moss 31 May. Max: 21 Falkirk, Callendar Park L 22 Jan with 20 there 18 Sep.

C Breeding: 6 small Y Blackdevon Wetlands 22 Jun with 4 large Y there 13 Jul. Max: 27 Gartmorn Dam 15 Feb with 22 there 17 Nov and 43 on 17 Dec.

S Breeding: 3 ON Cocksburn L, BoA 24 Apr with 2 Y from one nest 27 Apr. Airthrey L, BoA: 2 ON and 3 broods of 4, 5 and 6 Y (one a 2nd brood) 22 Jul. 2 prs Ochlochy Pond, Dunblane 10 May hatched 2 and 2 Y. Max: 21 Lake of Menteith 1 Mar; 20 L Watson 13 Nov and 66 Airthrey L, BoA 16 Dec.

EURASIAN OYSTERCATCHER *Haematopus ostralegus* (B, W)

Forth Est WeBS: 88 in Jan, 226 in Feb, 366 in Mar, 279 in Sep, 228 in Oct, 291 in Nov and 237 in Dec.

Inland WeBS: 0 in Jan, 309 in Feb, 336 in Mar, 0 in Sep, 0 in Oct, 0 in Nov and 0 in Dec.

F Return inland: 1 St Helen's L, Bonnybridge 10 Feb. Kinneil: 375 on 3 Jan was more than usual followed by 120 there 23 Jan, 30 on 5 Mar and 3 Apr and 120 on 15 Apr with no counts thereafter received. Skinflats lagoons: 12 on 27 Mar, 15 on 22 Apr, 25 on 12 Jun, 11 on 25 Jun, 42 on 6 Aug and 64 on 11 Sep. Blackness: 161 on 18 Feb with 103 on 4 Mar, 92 on 16 Apr, 13 on 6 May, 47 on 8 Jul, 33 on 2 Aug and 105 on 10 Sep.

C Breeding: pr fed chick at R Devon, Alva 5 Jun with 2 chicks there 17 Jul.

S Return inland: 1 Craigforth, Stirling 16 Jan with 25 there 16 Feb. Marked arrival from mid Feb: 1 Doune 10th; 5 E Frew-Gargunnock Br, R Forth 13th; 11 Airthrey L, BoA 14th; 60 Lecropt Carse and 29 Forthbank, Lecropt 20th; 114 Vale of Coustry, Blairdrummond 22nd; 45 Ashfield 24th; 15 Carron Valley Res 28th; in Mar: 13 Gart GP, Callander 14th and 24 L Tay Marshes, head of L Tay 24th. Max: 15 Airthrey L, BoA 14 Apr; 16 Cambuskenneth, Stirling 2 May. Breeding: c/4 Cloichran, L Tay 27 May. Ad with Y Airthrey L, BoA 27 Jun.

*PIED AVOCET *Recurvirostra avosetta*

F Two Skinflats Lagoons 24 Apr (AB, GO). One Kinneil 4 Jun moved to Skinflats Lagoons the following day where it stayed until 9 Jun (Birdguides, RCW, RTW, RS, AB, MVB, GO). These are the 7th and 8th records for the area since modern recording began in 1974, with 7 records in the last 10 years.

*LITTLE RINGED PLOVER *Charadrius dubius*

F One Kinneil 22 Aug (GG).

S A single in Cowie 20 May was with another ad and 2 Y on 8 Jun, both of which had fledged by 19 Jun (DMB).

These are the 18th and 19th records, respectively, for the area since modern recording began in 1974 and the latter record represents the first successful breeding occurrence in the Forth area.

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

Forth Est WeBS: 0 in Jan, 0 in Feb, 0 in Mar, 147 in Sep, 6 in Oct, 3 in Nov and 2 in Dec.

F Kinneil saw the largest autumn flocks since the mid 2000s. 3 on 29 Apr and 16 on 8 Sep were followed by 57 on 11 Sep, 30 on 17 Sep and 15 on 24 Sep and 1 Nov. Skinflats lagoons: 2 on 12 Jun were followed by 23 on 30 Aug, 22 on 7 Sep, 47 on 9 Sep, 85 on 11 Sep, down to 4 on 13 Sep. Blackness: 4 on 8 Jul, a good count of 71 on 26 Aug, 34 on 23 Sep and 35 on 11 Dec. Elsewhere 3 Darnrig Moss 26 Jul.

C Twenty Kennetpans 22 Apr with 5 there 11 Sep. Roosting flock of 84 migrants Blackdevon Wetlands 18 May.

S Stirling: pr at Kildean had 3 chicks on 28 Apr, which were fully grown on 21 May with a 2nd pr thought to be incubating. Westleys, Lecropt on AON 30 Jun with pr there but no Y seen 30 Jul. Callander: pr Gart GP 15 May.

Addition from 2010: 134 Kennetpans 24 May was the spring peak count there.

*EURASIAN DOTTEREL *Charadrius morinellus*

S Six Ben Ledi 18 Apr (AR). F and 2 M Stob Binnein 28 Apr (GG).

These are the 10th and 11th records of this species in the Forth area since modern recording began in 1974.

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

Forth Est WeBS: 24 in Jan, 0 in Feb, 0 in Mar, 13 in Sep, 700 in Oct, 637 in Nov and 46 in Dec.

F Skinflats: 28 at Powfoulis/Muirdyke Burn 20 Mar with 45 there 9 Oct. 550 at the lagoons 15 Oct with 547 there 13 Nov. Kinneil: 30 on 10 Sep rose to 100 on 13 Oct, 110 on 26 Oct, then 50 on 14 Nov and 200 on 6 Dec. Blackness: 7 on 8 Jul increased to 13 on 2 Aug, 20 on 13 Aug and 29 on 2 Sep.

C Twenty-eight between Menstrie and Tullibody 5 Oct was a good count at an unusual location.

S Five Auchlyne, G Dochart 4 Apr. Pr Kenknock, G Lochay 29 Apr.

GREY PLOVER *Pluvialis squatarola* (W)

Forth Est WeBS: 1 in Jan, 0 in Feb, 0 in Mar, 0 in Sep, 10 in Oct, 9 in Nov and 6 in Dec.

F Two Blackness 17 Jan and 7 Feb were the only counts during the first winter season. Skinflats: 1 at lagoons 27, 29 and 30 Aug, 7 at tidal exchange 30 Oct and 10 at lagoons 1 Nov. Kinneil: 1 on 21 Aug with 5 there 20 Sep. Blackness: 3 on 8 Oct with 7 there 24 Oct and 3 on 12 Nov. Kincardine Br: 9 on 15 Oct and 13 Nov, 6 on 11 Dec.

NORTHERN LAPWING *Vanellus vanellus* (B, W)

Forth Est WeBS: 42 in Jan, 82 in Feb, 27 in Mar, 1099 in Sep, 1289 in Oct, 1001 in Nov and 1201 in Dec. Numbers slightly up from previous years. Inland WeBS: 83 in Jan, 154 in Feb, 127 in Mar, 251 in Sep, 490 in Oct, 164 in Nov and 471 in Dec.

F Kinneil: 80 on 23 Jan with 60 on 8 Feb and 45 on 15 Feb, 40 on 20 Aug, 300 on 25 Aug, 400 on 17 Sep, 620 on 27 Sep, 250 on 13 and 26 Oct, 360 on 1 Nov, 500 on 22 Nov and 658 on 11 Dec. Skinflats lagoons: 70 on 26 Jul, 230 on 6 Aug, 150 on 24 Aug, 420 on 29 Aug and 50 on 7 Nov. Blackness: 19 on 26 Aug, 28 on 10 Sep and 6 on 12 Nov. Elsewhere nest with 4 eggs Darnrig Moss 31 May; 54 Gardrum Moss 15 Nov.

C Cambus: 80 on 16 Jan with 50 there 17 Sep, 99 on 19 Oct, 200 at the pools 23 Oct, 200 on the R Forth 13 Nov and 360 at Devonmouth 22 Nov. 435 Alloa to Cambus 15 Oct with 510 on 13 Nov and 543 on 12 Dec. 230 Tullibody Inch 15 Aug. 350 East Gogar 4 Dec. 370 Haugh of Blackgrange 11 Dec.

S Breeding: 17 in incubation posture Carse of Lecropt, west of A9 3 May; occupied nest Gart GP, Callander 15 May. Non-breeding: R Forth: 30 Gargunnock to E Frew 13 Feb; 60 Vale of Coustry 18 Aug; 76 Gart GP, Callander 4 Sep; ca. 200 East Gogar, Tullibody 4 Oct; 169 Carse of Lecropt, BoA 19 Oct with 123 there 6 Dec; 132 Upper Taylorton to Fallin 30 Oct; 69 Gartaran, Aberfoyle 22 Nov with 47 there 15 Dec.

RED KNOT *Calidris canutus* (W)

Forth Est WeBS: 1990 in Jan, 1862 in Feb, 86 in Mar, 361 in Sep, 178 in Oct, 490 in Nov and 988 in Dec.

F Good counts again from Kinneil: 1990 on 16 Jan, 2800 on 18 Feb, 50 on 5 Mar. Skinflats lagoons: 100 on mudflats 7 Jan. Elsewhere: 36 Blackness 19 Mar. As in 2009 and 2010 late return of small numbers. Kinneil: 16 on 30 Aug, 60 on 14 Sep, 155 on 20 Sep, 350 on 27 Sep, 200 on 14 Nov and 10 Dec. Skinflats lagoons: 198 on 11 Sep and 85 on 13 Sep. Blackness: 25 on 13 Aug and 2 on 10 Sep.
Addition from 2010: 3500 Kinneil 28 Feb. 5 Tullibody Inch 25 Mar. Winter-plumaged bird Kennetpans 24 May.

SANDERLING *Calidris alba*

Forth Est WeBS: 2 in Jan was the only time the species was present during counts.

F Kinneil: 2 on 30 Aug (DMB). Skinflats: 1 (juv) on 9 Sep was followed by 5 there on 11 Sep, 6 on 13 Sep and 4 on 14 Sep (MVB, AB, RCW, RTW, DMB, GO).

S Ten L Tay Marshes (East), Head of L Tay 21 May was an unusual inland location (JH).

*LITTLE STINT *Calidris minuta*

F Juv Skinflats lagoons 28 Aug to 1 Sep (GO, DMB, RS, RCW, RTW, JSN, DMB, DT) and juv there 10 Sep (GO).
Addition from 2010: summer-plumaged bird Kennetpans 24 May.

*PECTORAL SANDPIPER *Calidris melanotos*

F One Skinflats tidal exchange 19 May (SP, CJP, LT, GG).
This is the 4th for the area record since modern recording began in 1974.

CURLEW SANDPIPER *Calidris ferruginea* (p)

Forth Est WeBS: 0 in Jan, 0 in Feb, 0 in Mar, 16 in Sep, 10 in Oct, 0 in Nov and 0 in Dec.

F A very good year for this species. Skinflats lagoons: 9 on 29 Aug, 14 on 30 Aug, 2 on 31 Aug, 4 on 1 Sep (MVB, DMB, JSN, GO), 5 on 9 Sep and 6 (mostly juvs) on 10 Sep (GO, MVB, AB), 25 on 11 and 12 Sep, 15 on 13 Sep (AB, GO, RCW, RTW) and an unprecedented 57 on the foreshore 14 Sep (DMB). 3 on 17 Sep and 1 on 27 Sep (GO, MVB). Kinneil: 8 on 31 Aug, 9 on 1 Sep and 17 on 2 Sep (DT, DMB, RS), 3 on 3, 4 and 11 Sep (CJP, MMcG, JRC), 2 on 29 Sep and 10 on 15 Oct (DT, JRC).

| Autumn passage, area summary (minimum number/half month) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Jul | | Aug | | Sep | | Oct | |
| 0 | 0 | 0 | 22 | 74 | 5 | 10 | 0 |

DUNLIN *Calidris alpina* (b?, W)

Forth Est WeBS: 5167 in Jan, 1698 in Feb, 362 in Mar, 574 in Sep, 2700 in Oct, 4122 in Nov and 3021 in Dec.

F Skinflats: 2000 on mudflats 7 Jan, 2330 on 16 Jan and 6 on 15 May. Late autumn return there: 270 on 29 Aug, 275 on 9 Sep, 150 on 11 Sep, 200 on 13 Sep, then 2230 on 13 Nov and 50 on 24 Dec. Kinneil: high numbers again with 2500 on 9 Jan, 2837 on 16 Jan, 1000 on mudflats 23 Jan, 1500 on 8 Feb, 3750 on 18 Feb and 450 on 6 Mar. Late autumn return there, too: 3 on 21 Aug, then 100 on 13 Oct, a

partial albino with white body 16 Oct, 220 on 26 Oct, 1000 on 27 Nov, 2163 on 11 Dec and 3500 on 17 Dec. Blackness: 33 on 17 Jan. Autumn return there: 2 on 8 Jul and 2 Aug, 13 on 26 Aug, then 58 on 26 Oct, a good count of 420 on 12 Nov and 4 on 11 Dec.

C Two Kennetpans 22 Apr. Blackdevon Wetlands: 9 on 11 May with 50 there 18 May and 27 on 20 May.

RUFF *Philomachus pugnax* (w, p)

Forth Est WeBS: 5 in Sep was the only time the species was present during counts.

F Skinflats lagoons: 3 on 29 Jul (DMB), then 3 on 20 Aug, 4 juvs on 21 Aug, 9 juvs on 24 Aug (GO, AB, ACC), 7 to 9 juvs between 25 Aug and 3 Sep (GO, RCW, RTW, AB, MVB, DMB), 4 on 7 Sep were followed by 2 juvs on 9 Sep, 4 juvs on 10 Sep, 3 on 11 Sep and 2 on 14 Sep (GG, GO, MVB, AB). Kinneil: a poor year with a single on 3 to 4 and 14 Aug and 30 Aug to 1 Sep (DT, RS, DMB), 1 to 2 on 4 to 5 Sep (MMcG, RS), 2 on 11 Sep and 1 on 25 Sep (JRC, DT). Kincardine Br: 9 on 24 Sep (BD).

C One Tullibody Inch 10 Nov was very late, possibly an overwintering bird (DMB).

| Autumn passage, area summary (minimum number/half month) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Jul | | Aug | | Sep | | Oct | |
| 0 | 3 | 1 | 10 | 10 | 10 | 0 | 0 |

JACK SNIPE *Lymnocryptes minimus* (w)

Inland WeBS: 0 in Jan, 0 in Feb, 0 in Mar, 0 in Sep, 0 in Oct, 2 in Nov and 4 in Dec.

F Singles Kinneil 1 and 11 Nov (DT, RS) and St. Helen's Loch, Bonnybridge 15 Nov (NB).

S Three Carse of Lecropt, BoA 8 Nov and 16 Dec (DT). Single Gart GP, Callander 13 Nov (NB). Single R Forth, Gargunnock to E Frew 27 Dec (RCW, RTW).
Addition from 2010: single Kennetpans 10 Nov.

COMMON SNIPE *Gallinago gallinago* (B,W)

Forth Est WeBS: none counted on any dates.
Inland WeBS: 2 in Jan, 5 in Feb, 0 in Mar, 32 in Sep, 27 in Oct, 150 in Nov and 50 in Dec.

F Five Skinflats lagoons 24 Sep.

C Twenty-five Blackdevon Wetlands 18 Sep with an exceptional count there of 85 on 20 Nov and 25 at Craigknowe, Alva the same day (RGo).

S Breeding: 3 Braeleny, Callander 2 Jun; 2 ads with 2 Y Gargunnock 24 Jun. Non-breeding: 8 Ashfield Pools 24 Oct. BoA: 19 Carse of Lecropt 8 Nov with 15 there 5 Dec, 6 on 11 Dec and 30 on 16 Dec; 10 Netherton Marsh 21 Nov and 29 there 16 Dec. 6 Howietoun, Stirling 15 Nov. 5 Gart GP, Callander 13 Nov.

EURASIAN WOODCOCK *Scolopax rusticola* (B, W)

Grossly under-recorded during the breeding season.
Inland WeBS: 0 in Jan, 0 in Feb, 1 in Mar, 0 in Sep, 0 in Oct, 1 in Nov and 2 in Dec.

C Dollar: singles Aberdona Ponds 7 Mar and in known territory Dollarfield 25 Dec.

S Breeding: one roding L Tay Marshes (East), head of L Tay 24 Mar, 14 and 15 Apr; singles Wester Moss, Fallin 19 May and Plean CP 3 June; family party L Katrine 23 Jun. First winter season: singles Flanders Moss 21 Feb and Homehill, Dunblane 26 Feb. Second winter season: apparent influx with singles Kirkton, Tyndrum 9 Nov; Keir, Dunblane 13 Nov; L Katrine 18 Nov; Kinbuck 19 Nov; Stirling 25 Nov; R Teith, Blue Banks, Carse of Lecropt 5 Dec; R Forth, A91-Stirling Br 18 Dec and Doune 30 Dec.

BLACK-TAILED GODWIT *Limosa limosa* (W)

Forth Est WeBS: 36 in Jan, 52 in Feb, 146 in Mar, 193 in Sep, 253 in Oct, 0 in Nov and 159 in Dec.

Several birds at Kinneil carry colour rings, with birds ringed in France and Iceland using this site as a stop-over. Please scrutinize flocks carefully and submit details to the BTO and the recorder.

F Recorded all year in the Grangemouth area, apart from Nov. Monthly peaks at Kinneil: 83 on 13 Jan, 52 on 11 Feb, 93 on 20 Mar, 179 on 14 Apr, 72 on 30 May, 100 on 23 Jul, 365 on 30 Aug, 352 on 25 Sep, 253 on 15 Oct and 180 on 17 Dec. Much smaller numbers again at Skinflats lagoons where also not recorded year-round with monthly peaks of 159 (mostly breeding-plumaged *islandica* race) 10 Apr and 274 on 17 Apr, 14 on 7 May, 41 on 4 Jun, 36 on 30 Aug and 16 on 1 Sep. Elsewhere: 100 Kincardine Br to Alloa 11 Dec.

C Twenty-six Kennetpans 20 Feb and 73 Tullibody Inch 2 Apr.

BAR-TAILED GODWIT *Limosa lapponica* (W)

Forth Est WeBS: 456 in Jan, 162 in Feb, 69 in Mar, 199 in Sep, 106 in Oct, 88 in Nov and 177 in Dec.

F Higher monthly peaks and recorded in more months than in 2010. Kinneil: 456 on 16 Jan, 245 on 18 Feb, 30 on 15 Apr, 24 on 30 and 31 May, 200 on 20 Aug, 180 on 11 Sep, 137 on 26 Oct, 20 on 14 Nov and 90 on 17 Dec. Monthly maxima at Blackness: 9 on 17 Jan, 56 on 19 Mar, 45 on 16 Apr, 2 on 8 Jul, 20 on 26 Aug, 21 on 10 Sep, 45 on 12 Oct and 25 on 11 Dec. Elsewhere: 2 Skinflats 10 Sep; 31 Kincardine Br 15 Nov with 23 there 11 Dec; 20 Bo'ness 22 Oct.

C Twenty-three Kennetpans 20 Feb with 12 there 13 Nov. 3 Tullibody Inch 15 Sep. Addition from 2010: 58 Kennetpans 23 Mar.

WHIMBREL *Numenius phaeopus* (p)

None recorded during the WeBS estuary counts.

F Skinflats lagoons: 2 on 13 Jul and 20 Aug with 22 >W along R Carron 21 Aug (Birdguides, GO, RCW, RTW), 7 on 27 Aug, single (tidal exchange) 3 Sep and one 10 Sep with 2 in flight over river 11 Sep (GO, CJP, JSN, AB). Kincardine Br: 2 on 1 Aug and 24 Sep (DMB, BD).

C Eight Kennetpans 6 May flew off N. 10 Tullibody Inch on same day, where also 1 on 15 Sep (DMB).

Addition from 2010: 6 Tullibody Inch 2 May, 9 Airth 4 May and 1 Kennetpans 13 Jun.

| Autumn passage, area summary (minimum number/half month) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Jul | | Aug | | Sep | | Oct | |
| 2 | 0 | 2 | 2 | 2 | 2 | 0 | 0 |

EURASIAN CURLEW *Numenius arquata* (B, W)

Forth Est WeBS: 246 in Jan, 824 in Feb, 403 in Mar, 206 in Sep, 759 in Oct, 903 in Nov and 783 in Dec.

Inland WeBS: 18 in Jan, 76 in Feb, 198 in Mar, 16 in Sep, 121 in Oct, 18 in Nov and 0 in Dec.

F Skinflats lagoons: 50 on 7 Jan, 200 on 13 Feb, 334 on 20 Feb, 327 on 15 Oct, 100 on 5 Nov, 430 on 13 Nov, 361 on 11 Dec and 75 on 24 Dec. Kinneil: 20 on 15 Feb, 55 on 6 Mar, 200 on 8 Jul, 287 on 1 Aug, 360 on 3 Aug, 50 on 17 Sep and 100 on 14 Nov. Blackness: 240 on 18 Feb and 107 on 24 Oct.

C Cambus: 20 on 16 Jan, 33 on 7 Mar and 43 on 4 Oct. Kennetpans: 276 on 20 Feb, 145 on 13 Nov and 131 on 17 Nov. 198 Alloa to Cambus 12 Dec.

S R Forth: 43 on Teith-R Allan conf 20 Feb, 38 A91 to Stirling Br 11 Mar and 71 on

same stretch up to Fallin 30 Nov. Elsewhere: 127 Lecropt 2 Mar; 50 Powis Mains, Stirling 4 Mar and 41 R Teith, W Row-Teith conf 13 Mar.

COMMON SANDPIPER *Tringa hypoleucos* (B)

Forth Est WeBS: 1 in Sep was the only time the species was present during counts.

Inland WeBS: 3 in Sep was the only time the species was present during counts.

F Kinneil: 2 on 8 Jul with 10 there 23 and 24 Jul and 9 on 29 Jul. Skinflats: singles 2 Jul, 6 and 21 Aug and on R Carron 11 Sep.

C Two Cambus Pools 13 Aug.

S Breeding season: 1 Kirkton, Tyndrum 18 Apr and 6 Jun; 6 L Dochart 26 Apr; 1 Kenknock, G Lochay 29 Apr; pr Gart GP, Callander 4 May with 3 there 15 May; 1 Allan Water, Dunblane 11 May; 1 G Balquhidder 11 May, pr L Voil 14 May; 2 Balquhidder 3 Jun; 1 G Buckie 3 Jun and 1 Ledcharrie, G Dochart 12 Jun. Passage: 2 R Fillan shingle, Strathfillan 8 Jul and 3 R Forth, B of Frew-Gargunnock Br 16 Sep.

| Autumn passage, area summary (minimum number/half month) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Jul | | Aug | | Sep | | Oct | |
| 5 | 10 | 3 | 1 | 1 | 3 | 0 | 0 |

*GREEN SANDPIPER *Tringa ochropus* (w, p)

This species occurs as a wintering bird in small numbers as well as a passage migrant.

F One Skinflats lagoons 7 Sep (GG, GO).

*SPOTTED REDSHANK *Tringa erythropus* (p)

Forth Est WeBS: 1 in Sep was the only time the species was present during counts.

F Kinneil: 1 on 10 Feb (RS), 1 on 5 and 11 Sep (RS, JRC), 2 there 13 Sep and 1 on 14 Sep (RTW, DMB).

COMMON GREENSHANK *Tringa nebularia* (w, p)

Forth Est WeBS: 1 in Jan, 2 in Feb, 1 in Mar, 5 in Sep, 3 in Oct, 4 in Nov and 3 in Dec.

F Present at Skinflats in all months, except Apr, May and Jul. Monthly maxima: 1 on 16 and 29 Jan, 1 on 20 Feb, 1 on 21 Mar (MVB, AB). Autumn passage: 2 on 22 Jun, 4 on 20, 21, 25 and 28 Aug, 3 on 29 Aug and 7 on 30 Aug, 1-2 on 1, 3, 9 to 11 and 13 Sep, 1 on 9 and 15 Oct (Birdguides, GO, RCW, RTW, AB, ACC, RS, MVB). Winter monthly maxima: 2 on 5 Nov, 2 on 11 and 24 Dec (AB, MVB, AE). Present at Kinneil in all months, except May and Jun. Monthly maxima: 2 on 9 Jan, an exceptional 15 on 15 Feb (DT, ACR), singles on 1, 3, 5, 8, 13 Mar and 3 Apr (RS, Birdguides, GO, SMi, AB). Autumn passage: 2 on 23 Jul, 2 on 3 Aug, 3 on 25 Aug, 4 on 29 Aug, 5 on 31 Aug (DT, AB, RS), 4 on 3 Sep, 5 on 5 Sep, 7 on 8 Sep, 3 on 10, 11 and 17 Sep, 4 on 20 Sep, 5 on 25 Sep and 26 Oct (CJP, ACC, RS, DT, DMB, JRC). Winter monthly maxima: 2 on 14 and 20 Nov, 2 on 6, 7 and 10 Dec (RCW, RTW, RDz, DMB, DT, MB). Elsewhere: 1 Bo'ness 17 Jan and 3 Kincardine Br 24 Sep (DMB, BD).

C Singles Cambus Pools 6 May and Blackdevon Wetlands 11 May (DMB, NB).

S Singles L Dochart 29 Mar and 26 Apr. 1 L Tay Marshes (East), Head of L Tay 15 Apr (JH).

| Autumn passage, area summary (minimum number/half month) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Jul | | Aug | | Sep | | Oct | |
| 0 | 2 | 2 | 12 | 9 | 8 | 1 | 5 |

*WOOD SANDPIPER *Tringa glareola* (p)

C Two Blackdevon Wetlands 6 May (NB). This is the 19th record for the recording area since modern recording began in 1974.

COMMON REDSHANK *Tringa totanus* (B, W)

Forth Est WeBS: 1277 in Jan, 825 in Feb, 1324 in Mar, 1164 in Sep, 1439 in Oct, 1788 in Nov and 1419 in Dec.

Inland WeBS: 0 in Jan, 1 in Feb, 8 in Mar, 10 in Sep, 0 in Oct, 0 in Nov and 6 in Dec.

F Much lower numbers at Skinflats estuary (WeBS) than in previous years: 627 on 16 Jan, 491 on 20 Feb, 391 on 20 Mar, 476 on 11 Sep, 624 on 15 Oct, 813 on 13 Nov and 766 on 11 Dec. Kinneil: 100 on 8 and 15 Feb, 300 on 6 Mar, 885 on 20 Mar, 250 on 15 Apr, 350 on 25 Aug, 810 on 29 Aug, 250 on 17 Sep, 200 on 24 Sep, 80 on 13 Oct, 897 on 13 Nov, 250 on 14 Nov and 200 on 6 Dec. Elsewhere: 71 Blackness on 13 Aug with 59 there 10 Sep.

C Six Blackdevon Wetlands 16 Dec.

S Two R Forth, R Teith-Allan conf 19 Mar. 2 Allan Water, Cambushinnie-Ashfield 24 Mar. 1 L Tay Marshes (East), Head of L Tay 24 Mar with a maximum of 8 there 15 Apr. 2 Leskine, G Dochart 4 Apr. Callander: 1 over Colhallan 4 May with 1 Gart GP 15 May. 10 R Teith, W Row-Teith conf 18 Sep.

RUDDY TURNSTONE *Arenaria interpres* (W)

Forth Est WeBS: 1 in Jan, 5 in Feb, 0 in Mar, 8 in Sep, 3 in Oct, 3 in Nov and 0 in Dec.

F Skinflats lagoons: 1 at R Carron mouth 16 Jan with 5 there 20 Feb and 3 on 13 Nov (MVB). Blackness: 6 on 4 Mar, with 3 there 13 Aug, 2 on 8 Oct, 3 on 24 Oct, 1 on 12 Nov and 5 on 11 Dec (AMF). 13 Grangepans, Bo'ness 7 Mar with 8 Carriden to Grangepans 11 Sep (GG, JRC).

Addition from 2010: 3 in summer plumage Airth 17 May.

*POMARINE SKUA *Stercorarius pomarinus*

F One off Kinneil 17 Sep (DT). Off Bo'ness: 3 <W 11 Oct, 1 on 29 Oct, imm 30 Oct (GG).

*PARASITIC JAEGER (ARCTIC SKUA) *Stercorarius parasiticus* (p)

F Off Bo'ness: 2 pale phase <W 9 Sep; 2 <W 24 Oct, 1 on 29 Oct (GG). Kinneil: 2 on 10 Sep, 5 on 17 Sep (DT). 1 dark-phase imm off Skinflats 13 Oct (GO).

*BLACK-LEGGED KITTIWAKE *Rissa tridactyla* (P, w)

F Nineteen <W off Bo'ness 24 Oct (GG).

COMMON BLACK-HEADED GULL *Larus ridibundus* (B,W)

Inland WeBS: 934 in Jan, 1714 in Feb, 663 in Mar, 504 in Sep, 762 in Oct, 930 in Nov and 1036 in Dec.

Forth Est WeBS: 302 in Jan, 629 in Feb, 166 in Mar, 2393 in Sep, 854 in Oct, 865 in Nov and 3653 in Dec.

F Max: 400 Kinneil 15 Feb; 3200 Skinflats 11 Dec; 960 S Alloa 18 Dec.

C Max: 200 Alva 6 Feb; 5060 <E at dusk over Cambus 13 Nov.

S Max: 300 <E at dusk over Bannockburn 12 Feb; 514 R Forth, Fallin 15 Feb; 400 Tullibody 1 Dec.

*LITTLE GULL *Larus minutus*

F Two imms <W at Kinneil 4 Sep (MC). 5 <W off Bo'ness 24 Oct (GG).

*MEDITERRANEAN GULL *Larus melanocephalus*

F One Kinneil 20 Feb (JRC). 1 S Alloa 19 Nov (BoD). 2 ads and 2 first-winters Airth 3-4 Dec (BoD).

C One leaving Tullibody Inch roost 3 Dec (JRC).

S One first-summer Carron Bridge 22 May (CJP).

MEW GULL (COMMON GULL) *Larus canus* (B,W)
Inland WeBS: 600 in Jan, 1148 in Feb, 353 in Mar, 316 in Sep, 346 in Oct, 232 in Nov and 198 in Dec.
Forth Est WeBS: 163 in Jan, 59 in Feb, 44 in Mar, 201 in Sep, 694 in Oct, 441 in Nov and 4127 in Dec.
F Max: 4000 Skinflats 11 Dec.
C Max: 40 Alva 27 Dec.
S Max count: 442 Aberfoyle 24 Jan; 311 Lake of Menteith 24 Feb.

*RING-BILLED GULL *Larus delawarensis*
F Ad at Kinneil from 30 Aug to 11 Nov (DMB, RS, JSN, DT *et al.*). This is the bird that has been returning since 2007. This is the 9th record of this species, involving 4 different birds.

**Adult Ring-billed Gull Kinneil 2 Sep**
(Photo: John Nadin)

LESSER BLACK-BACKED GULL *Larus fuscus* (b, S)
Inland WeBS: 9 in Jan, 107 in Feb, 471 in Mar, 444 in Sep, 428 in Oct, 271 in Nov and 54 in Dec.
Forth Est WeBS: 1 in Jan, 3 in Feb, 50 in Mar, 184 in Sep, 60 in Oct, 16 in Nov and 3 in Dec.
F Max: 40 Skinflats 21 Aug; 76 Little Denny Res 8 Sep.
C Max: 30 Cambus 17 Sep.
S Max: 450 Lake of Menteith 29 Mar; 287 Aberfoyle 27 Oct.

HERRING GULL *Larus argentatus* (b, W)
Inland WeBS: 102 in Jan, 115 in Feb, 37 in Mar, 46 in Sep, 173 in Oct, 63 in Nov and 1086 in Dec.
Forth Est WeBS: 70 in Jan, 301 in Feb, 106 in Mar, 1930 in Sep, 496 in Oct, 560 in Nov and 690 in Dec.
F Max: 1000 R Carron, Larbert-Carron 15 Dec.

*ICELAND GULL *Larus glaucoides*
F One Tullibody Inch 3 Dec (JRC). 1 Kinneil 11 Dec (JRC).

GREAT BLACK-BACKED GULL *Larus marinus* (S,W)
Inland WeBS: 6 in Jan, 5 in Feb, 1 in Mar, 4 in Sep, 5 in Oct, 4 in Nov and 8 in Dec.
Forth Est WeBS: 1 in Jan, 3 in Feb, 5 in Mar, 6 in Sep, 16 in Oct, 11 in Nov and 18 in Dec.
F Max: 10 Kinneil 8 Feb.

SANDWICH TERN *Sterna sandvicensis* (P)
F First of autumn: 4 on 20 June at Skinflats (AB). Max: 30 Skinflats 10 Sep; 28 Blackness 23 Sep.

COMMON TERN *Sterna hirundo* (B)

F First of spring: 3 on 26 Apr at Grangemouth docks (GWt). Max: 9 Grangemouth docks 29 Apr; 11 Skinflats 9 Sep.

*ARCTIC TERN *Sterna paradisaea*

S Singles Lake of Menteith 14 Sep and Blair Drummond 15 Sep (RCW, RTW). These are the 18th and 19th records of this species for the recording area.

*GUILLEMOT *Uria aalge*

F Off Kinneil: 2 on 17 Sep, 4 on 24 Oct, 1 on 28 Oct, 1 on 11 Nov (DT). Off Bo'ness: 1 on 11 Oct, 1 on 24 Oct, 10 on 12 Nov (GG). Off Blackness: 4 on 15 Oct (AMF). 17 off Skinflats 26 Oct (GO).

COMMON PIGEON (FERAL PIGEON) *Columba livia* (B,W)

F Thirty Kinneil 24 Sep.

C Alloa: 100 on factory roof 10 Feb with 120 there 25 Feb and 44 on 28 Nov. 30 Cambus Pools 23 Oct.

S Thirty Hill of Row, Dunblane 22 Oct.

STOCK DOVE *Columba oenas* (B, W)

F Kinneil: 13 on 15 Feb, an exceptional 165 on rape stubbles on 29 Aug and 8 there 24 Sep. Skinflats lagoons: 4 on 6 Mar, 2 on 22 Apr, 5 in village 8 May, 1 on 1 Sep, 3 on 3 Sep and 1 on 13 and 24 Sep.

C Two Menstrie 17 Apr with 1 there 26 May.

S Forty Bandeath, Throsk 16 Jan. Airthrey L, BoA: 6 singing 26 Jan, 1 there 14 and 18 Apr, 5 there and in Hermitage Wood on 3 May, 1 on 22 Jul and 20 Oct. Dunblane: 4 Holmehill 29 Jan, 26 Feb and 19 Mar with 5 there 16 Apr, 1-2 May to Aug, 6 on 17 Dec; nest at Kilbryde 1 May; 2 Hill of Row 22 Oct and 1 Glenhead 22 Nov. Elsewhere in breeding season: 1-2 at Sheriffmuir; Doune Lodge; Plean CP and Vale of Coustry, Blairdrummond. Non-breeding: 3 Carse of Lecropt, BoA 11 Dec.

COMMON WOOD PIGEON *Columba palumbus* (B, W)

BBS[1]: recorded at 4.0 b/lkm

C Cambus Pools: 150 on 23 Oct with 1200 there 17 Dec. 5000 Haugh of Blackgrange 16 Dec.

S Dunblane: 1150 Kippenross 2 Jan with 2560 there 13 Feb and 450 on 1 Mar; 250 Hill of Row 22 Oct. BoA: 8900 Lecropt on unharvested cereals 6 Dec, with 4000 there on 12 Dec, ca. 2000 on 20 Dec and 400 on 29 Dec. 1500 Plean 6 Dec.

EURASIAN COLLARED DOVE *Streptopelia decaocto* (B, W)

Greatly under-reported, especially breeding records.

F Four Skinflats lagoons 7 Jan. 25 Blackness 15 Oct. 2-3 Langless and Carronshore, Stenhousemuir and Falkirk.

C Two Menstrie 26 May. 4 Cambus area 23 Oct. 1-2 R Devon, Alva; Haugh of Blackgrange and Alloa.

S Breeding: singing Coneyhill, BoA 2 Jan with 2-3 there 19 Apr and 1 on 5 Jun; 2 Kinbuck 8 Feb and 15 Jul; 2 Ochiltree, Dunblane 16 Apr; 1 King's Park, Stirling 10 May. Oct-Dec: prs reported L Watston; Dunblane: Hill of Row, Craigarnhall, Keir and Argaty; Blairdrummond Moss; Thornhill: Brae of Boquhapple Fm and Whirrieston. 4 Doune 4 Dec.

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[1] Due to the small and varying number of squares, turn-over of surveyors and different percentages of habitats covered each year, inter-annual comparisons are unlikely to be valid. Breakdown into habitat categories is not valid due to the unrepresentativeness of the squares surveyed and the varying percentage of each habitat category covered each year. Figures should therefore be seen as reflecting the situation in any one year for those squares covered.

COMMON CUCKOO *Cuculus canorus* (B)

Arrival[2] in Apr: 1 Auchreoch, Tyndrum 20th was 5 days later than in 2010, 4 days earlier than in 2009 and 5 days earlier than in 2008 and 2007. This was followed by 1 Kirkton, Tyndrum 26th; 2-3 Cocksburn L, BoA 27th; 1 Inverlochlarig, L Voil 28th; M G Lochay 29th; 3 M Flanders Moss 30th.

S May: M Kilbryde, Dunblane 1st; 1 SW L Earn 2nd; 1 Kirkton, Tyndrum 3rd, 4th and 31st and 6th, 8th and 9th Jun; 1 Lower Boturnie, G Lochay 11th; 1 Stronachlachar, L Katrine 13th; M Argaty, Dunblane, 14th; 1 Balquhidder 14th; 1 Monachyle, L Voil 14th; M Colhallan, Callander 14th; 1 seeking Meadow Pipit nests Pendreich, BoA 16th; 2 L Katrine 17th; 4 M G Lochay 30th. Jun: 1 Ledcharrie, G Dochart 12th; 1 Lairhill, Sheriffmuir 23rd. Late bird Cocksburn L, BoA 10th Sep.

BARN OWL *Tyto alba* (b, w)

Following two successive harsh winters few birds were reported in what looks like a poor breeding season. There were no breeding pairs in the Doune area. The previous apparent spread of the species in the recording area thus seems to have been at least temporarily halted.

S Breeding season: singles Plean CP 3 Jun; Inverherive, Crianlarich 9 Jun (CHM, NJM). Non-breeding season: singles Kirkton, Tyndrum 8 Nov; calling Manse Road, Aberfoyle 11 Nov and R Forth, S Flanders 20 Nov (JH, KF, FP).

TAWNY OWL *Strix aluco* (B, W)

F Singles Roughcastle, Cameron 14 Jun and calling Carron, Stenhousemuir 2 Sep.

S Singles Aberfoyle 30 Jan; Clifton, Tyndrum 9 Feb; Pier Rd, Head of L Tay 15 Apr; calling Coneyhill BoA 19 Apr and 4 Sep; Wester Moss, Fallin 19 May; Doune Lodge 21 May. Fledged Y Bows, BoD 26 May and Auchtertyre, Tyndrum 30 May. Single Lower Boturnie, G Lochay 8 Jul. Ad flew into building Airthrey L, BoA 23 Aug and was stunned before being taken into care. 1 calling several nights up to 13 Oct Manse Rd, Aberfoyle.

LONG-EARED OWL *Asio otus* (b, w)

F Ad Skinflats 7 Jul; 3 Y fledged seen there. Three juveniles called over four nights California around 3 Aug (GO, AB, LP).

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

For this rather local breeder, a more systematic survey of known breeding areas and potential breeding sites would be of value.

F Kinneil: 1 on 27 Oct (DMB), 3 old landfill site 27 Nov with 8 there on 6 Dec and 7 on 7 Dec. 1 S Alloa 17 Dec (DT).

S One Gleann Breac-nic 15 May (CVW). 1 Wester Moss, Fallin 19 May (RCW, RTW). 2 G Beich 21 May (CSR).

COMMON SWIFT *Apus apus* (B)

Spring arrival: 2 Doune 30 Apr was within the narrow range of the past 6 years (range: 27th April to 4th May). This was followed in May by 1 Gart GP, Callander 4th; 2 Carronshore, Stenhousemuir 6th; 12 Dunblane Hydro 7th; 2 Coneyhill, BoA and 1 Holmehill, Dunblane 8th; 3 Stirling 9th and present Skinflats lagoons and G Balquhidder 11th.

Autumn departure: Aug: 5 Blackness 2nd; Dunblane Hydro 5th; 3 Broomridge, Stirling 13th; 3 Coneyhill, BoA 17th; 3 Carronshore, Stenhousemuir 25th. Sep: 3 Skinflats lagoons 1st and 1 Grangepans, Bo'ness 11th. The latter was 12 days later than during the preceding 6 years (range: 6th to 30th August).

[2] Spring arrival and autumn departure dates are not recorded systematically at the same locations with the same effort and coverage across years. Changes between years should therefore be seen as indicative only and not be interpreted as reflecting true phenological variation.

F Forty Skinflats lagoons 9 Jun. 6 Blackness 8 Jul.
C Two Carsebridge Rd, Alloa 20 May. 14 Dollarfield 21 May.
S Small numbers reported in May at King's Park and Drip Moss, Stirling and Kirkton, Tyndrum. Up to 6 during late evenings Coneyhill, BoA in Jun with 7 feeding there 28 Jul.

COMMON KINGFISHER *Alcedo atthis* (b, w)

The very few records this year may be a consequence of the second successive harsh winter in a row.

F R Carron: singles Carmuirs 17 Apr and 7 May, 2 Camelon 8 Jul. Skinflats lagoons: 1 on saltmarsh 6 Jun, singles on 18 Sep, 9 Oct and 13 Nov. 1 Polmont 6 Jul. 1 Carron, Stenhousemuir 19 Sep.
S One Kirkton, Tyndrum 13 Oct. Singles Gart GP, Callander 16 and 23 Oct. 1 Kinbuck Br 1 Dec.

*WRYNECK

S One singing Kirkton, Tyndrum 6 Jun (JH) was the 5th record for the recording area and the first since 2002.

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

Mainly concentrated in SE of recording area but a few records from further afield this year.

C Two Menstrie Woods 19 Feb. Alva: singles along R Devon 24 Apr, 22 May and 30 Oct; 1 Alva G 25 Apr and 27 Jun. 1 Dollar G 8 May.
S L Tay: singles dismantled railway and Pier Road, West Marshes 6 and 27 Feb and 10 Apr with 1 at the East Marshes 6 Mar. BoA: 2 Pendreich 10 Feb with 1 there 3 Apr and 2 on 16 May; 3 Airthrey L 14 Apr with singles there 3 May, 27 Jun and 22 Jul; 1 Cocksburn L 27 Apr with 2 there 19 Oct; 2 juveniles calling Dumyat 14 Aug. Doune: 2 at Lodge 27 Mar and 2 at Ponds 29 Mar. 1 Sheriffmuir 24 Apr with 1 calling at White Hill 14 Jun. 2 Argaty, Dunblane 27 Apr. 1 Ben Venue 12 Jun. 2-3 AOT Touch, Stirling 12 Jun.1 Braeval, Aberfoyle 30 Oct.

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

F Singles Roughcastle, Cameron 11 Jan; Larbert Pond 13 Mar; Larbert House 13 Apr; The Pineapple, Airth 17 Aug; Skinflats 25 and 29 Aug and Kinneil 26 Oct.
C Castlebridge Business Park, Forestmill: regular Jan-early Mar and late Oct-Dec with 3 there 11 Nov. Singles Menstrie 19 Feb and 26 May; Gartmorn Dam 19 Apr and R Devon, Alva 4 Sep.
S Single CVR 28 Jan. BoA: 1 Airthrey L 7 Feb and 3 May with 2 there 27 Jun; 3 Pendreich 10 Feb with 1 there 19 May. Flanders Moss: singles 5 Apr and 14 Apr (Killorn Moss N) with 2 there 14 Sep. 2 Plean CP 12 Apr. Dunblane: 1 calling Argaty 3 Jan; 2 Holmehill 16 Apr with 1 there 14 May; 1 Keir 13 Nov. 1 drumming Vale of Coustry, Blairdrummond 19 Apr. 1 David Marshall Lodge, Aberfoyle 22 Apr. Pr taking food to a nest hole Lochearnhead 17 May. Juv Kinbuck 15 Jul. 1 Coilhallan wood, Callander 30 Jul. 1 E end L Venachar 30 Jul. 1 Gathering Stone, Sheriffmuir 5 Sep. 1 Knockhill, Lecropt 15 Sep. 1 L Voil 8 Nov. Doune: 2 at Lanrick 13 Nov with 1 there 18 Dec, singles 27 and 30 Dec. 1 L Watston 19 Nov. 1 Lake of Menteith 22 Nov. 2 Brae of Boquhapple Fm, Thornhill 16 Dec.

SKY LARK *Alauda arvensis* (B, W)

BBS: recorded at 1.7 b/lkm.

F Two hundred Blackness 10 Dec.
S Forty-five Stonehill, Dunblane 16 Feb. 80 Lecropt, BoA 2 Mar with 330 there 6 Dec and 50 on 11 Dec. 10 R Forth, Gargunnock-E Frew 13 Mar. 25 Hill of Row, Dunblane 22 Oct. 12 L Watston 17 Dec.

SAND MARTIN *Riparia riparia* (B)

BBS: recorded at 1.1 b/lkm. Arrival in Mar was slow: 1 Kirkton, Tyndrum 24th was towards the end of the arrival window of the past 6 years (range: 4th to 30th Mar). The next birds were 1 Laighhills, Dunblane 26th and 2 Skinflats 27th. A more substantial arrival took place from 3rd Apr with 2 Kinneil and 30 Pendreich, BoA, then 40 Lochearnhead 4th Apr. Autumn departure in Sep: 1 Kinneil 3rd, 2 Skinflats 9th and 4 Cocksburn Res, BoA 10th were standard departure dates compared to the past 6 years (range: 17th Aug to 8th Oct).

F Skinflats lagoons: 80-90 on 11 Apr, 100 on 13 May and 130 on 9 Jun.

C Twenty R Devon, Alva 24 Apr investigated a sandy bank with holes. 5 Gartmorn 4 May showed no interest in sand bank, no use either on 29 Jun. 140 Back Rd, Dollar 16 May at holes in sand bank. 50 Blackdevon Wetlands 20 May.

S Forty Laighhills, Dunblane 15 Apr with 20 there at Allan Water 11 May. 100 Gart GP, Callander 15 May. 35 Pendreich, BoA 16 May. Ca. 30 apparently active holes R Fillan, Crianlarich 19 May. 30 Airthrey L, BoA 27 May. 4 R Teith, Lecropt 14 Jun made no use of the nest holes there.

BARN SWALLOW *Hirundo rustica* (B)

BBS: recorded at 2.0 b/lkm.

Spring arrival in Mar: 2 Dunblane 26th was within the typical arrival window since 2005 (range: 6th Mar to 6th Apr). This was followed by 1 Falkirk 28th. In Apr: 1 Aberfoyle and 2 Lochearnhead 4th; 2 BoA 7th; singles Torwood, Stenhousemuir and Powis Mains, Stirling 8th; singles L Tay Marshes (East) and Kinneil and 3 California 9th; 1 Grangepans, Bo'ness 10th; 5 Skinflats 11th and 2 Killorn Moss N, Flanders Moss 14th.

Autumn departure: birds still widespread in second half Sep with 8 Cambus 17th; 2 Vale of Coustry 18th; 6 Skinflats lagoons 24th; 8 Airthrey L 22nd; 1 Gartartan, Aberfoyle 26th; 16 Plean CP 28th. Oct: 3 Aberdona Ponds 4th; 10 Larbert Pond 6th; 2 Dunblane 8th; 4 Grangepans, Bo'ness 14th; 4 Doune and 4 Hill of Row, Dunblane 22th. This was well within the departure window since 2005 (range: 3rd Oct to 2nd Nov).

F Skinflats lagoons: 150 on 13 May and 5 Jun with 100 (in village) 10 Sep and 13 Sep. 100 R Avon, Kinneil 25 Aug.

C Twenty R Devon, Alva 22 May with 40 there 14 Aug and 30 on 4 Sep.

COMMON HOUSE MARTIN *Delichon urbica* (B)

BBS: recorded at 1.0 b/lkm. Arrival in Apr: two Skinflats lagoons 14th was towards the end of the arrival window since 2005 (range: 6th to 16th). Then two Ballochleam, Kippen 16th; 1 Carronshore, Stenhousemuir 17th; 1 Doune 21st; 2 Cocksburn, BoA 24th.

Departure autumn: Sep: 1 Coneyhill, BoA still visiting eaves 12th; 5 Cambus area 17th; 6 Airthrey L 22nd; 20 Vale of Coustry 25th; 3 Plean CP 28th. Oct: 2 Kippenross Dunblane 5th; 2 Doune 24th might still have had a nest. The latter was 12 days later than the latest departure date since 2005 (range: 11th Sep to 12th Oct).

F Forty Skinflats lagoons 9 Jun.

S BoA: 12 Cocksburn 4 May; of 3 Coneyhill 8 May one entered an old nest, prolonged calling and visits to old nest there 3 Jul was thought due to presence of a fledling, 8 birds active around nests 23 Aug with Y thought fledged.

TREE PIPIT *Anthus trivialis* (B)

Arrival in Apr: 4+ singing Balquhidder Station 15th was within the arrival window since 2005 (range: 12th to 27th). Then 5 singing Tyndrum 16th; 2 singing L Tay Marshes (East) 20th; 1 Skinflats lagoons 22nd; 1 L Rusky 23rd; 7 M Aberfoyle, 1 singing Whiteson Wood, Dunblane and 2 singing Sheriffmuir 24th; 1 singing Boreland, G Lochay 25th; 2 singing Touch, Stirling 26th; 1 Inverlochlarig, L Voil 28th.

S Twenty M G Lochay 29 Apr. 17 AOT Tyndrum 30 Apr with 21 AOT there 6 Jun. M Kilbryde, Dunblane 1 May. 6 M Collhallan, Callander and 2 M Westerton, Argaty, BoD 4 May. Present G Baquhidder 11 May. 3 Pendreich, BoA 16 May. 5 L Katrine 17 May. 1 singing Kirkton, Tyndrum 20 May. 1 singing Pier Rd, Head of L Tay 21 May. Singing Auchlyne, G Dochart 11 Jun and at Ledcharrie there 12 Jun. Singing Flanders Moss 29 Jun.

MEADOW PIPIT *Anthus pratensis* (B, W)

BBS: recorded at 5.2 b/lkm. Scarce mid-winter.

F Seventy-five Skinflats 9 Sep with 20 there 10 Sep.

C Twenty Cambus area 17 Sep.

S Ten Flanders Moss 29 Mar with 30 there 5 Apr. 150+ Kirkton, Tyndrum 30 Mar. Sheriffmuir: 70 Harperstone 6 Aug with 40 at Stonehill 20 Sep and flocks of 80 and 90 in the area 26 Sep. BoA: 20 Dumyat 14 Aug with 22 Cocksburn 18 Sep. Carse of Lecropt: 100 on 17 Sep with 60 there 20 Nov and max of 95 in Dec when snow further N. 30 Glen Finglas 13 Nov. 17 L Watston 17 Dec.

*EURASIAN ROCK PIPIT *Anthus petrosus* (w)

F One Blackness 11 Dec (AMF).

C One Tullibody Inch 10 Nov (DMB)

GREY WAGTAIL *Motacilla cinerea* (B, w)

F Two Carronshore, Stenhousemuir 10 Apr with singles Carron 8 Sep and 2 Nov and 1 R Carron, Larbert 15 Dec.

C R Devon, Tillicoultry-Alva: singles 23 Jan and 18 Dec. 1 Alva Glen 2 Apr. 1 Forestmill 11 Nov.

S One Lake of Menteith 28 Feb. 2 Aberfoyle 24 Apr. 1 Allan Water, Dunblane 11 May. 1 L Watston 22 Oct. Singles Doune 28 Oct and 27 Dec.

WHITE WAGTAIL (PIED WAGTAIL) *Motacilla alba yarrellii* (B, w)

Very few winter records received again compared to the 2005-2009 period: no Jan and Feb records. 1-2 regular Castlebridge Business Park, Forestmill Nov-Dec. 30 Carse of Lecropt, BoA 11 Dec with 40 there 29 Dec. 25 East Gogar 17 Dec.

F Twenty Skinflats 10 Sep. Birds of the Continental European race *M.a.alba*: 1 Skinflats lagoons 9, 14 and 16 Apr with 3 there 17 Apr, 8 on 30 Aug and 2 on 9 Sep.

C Twenty-six (15 juvs) Gartmorn Dam 17 Jul. Birds of the Continental European race *M.a.alba*: 1 Blackdevon Wetlands 18 May, 5 Cambus Pools 31 Aug.

S Birds of the Continental European race *M.a.alba*: 1 Kildean, Stirling 28 Apr; 1 G Balquhidder 11 May.

Addition from 2011: Birds of the Continental European race *M.a.alba*: 2 Carse of Lecropt 16 Apr.

BOHEMIAN WAXWING *Bombycilla garrulus* (w)

Following the invasions of late 2008 and late 2010, there was a more standard scattering of records this year. As usual these came primarily from the Falkirk-Grangemouth and the Stirling-Dunblane-Doune areas. Few birds were left during the very cold December of 2010 and only small flocks were seen into early March. Very small numbers only were seen during the second winter period.

F Two Carron, Stenhousemuir 2 Jan. 33 Bo'ness 7 Jan. 34 Falkirk 16 Feb and 17 there 19 Feb. 20 Grangepans, Bo'ness 7 Mar. 4 Inchyra, Grangemouth 20 Nov. 14 Stenhousemuir 23 Dec.

S Dunblane: 25 on 3 Jan with 6 Keir 5 Jan, 2 Margaret's Drive 3 Feb and 4 Newton Crescent 14 Feb. Stirling: 32 Royal Infirmary 5 Jan with 5 Broomridge 16 Jan, 6 Causewayhead 18 Jan, 20 Cornton 29 Jan, 6 Manor Powis 4 Mar. 30 BoA 30 Jan. 6 Argaty, BoD 12 Feb. 9 Callander High School 22 Feb. Stirling: 2 on 18 Nov with 10 at supermarket 21 Nov and 17 there 23 Nov, 20 on 30 Nov and 1 on 30 Dec.

WHITE-THROATED DIPPER *Cinclus cinclus* (B, W)

F R Carron: 1 at Larbert 25 Jan, 6 on A9-M876 stretch 14 Mar and 5 on M876-Larbert stretch 16 Oct. 1 Fankerton, Denny 5 Mar. 2 Larbert Viaduct 17 Apr with 1 there 28 May and 1 at Larbert 4 Jul.

C R Devon, B934-Crook of Devon: 5 on 18 Jan, 6 (Dollar-Tillicoultry stretch) 26 Jan, 6 on 13 Oct, 5 on 22 Nov and 7 on 16 Dec. One Alva Glen 2 Apr. 1 Black Devon, Forestmill 11 Nov.

S Doune: 5 R Teith, Doune Br-W Row 24 Jan; 3 Lanrick 13 Nov and 2 (no further information) 27 and 30 Dec. Callander: 2 Eas Gobhain 27 Jan and singles there 20 Feb, 4 Sep and 16 Oct; 3 Pass of Leny 2 May. 1 Brig o'Turk 26 Feb. 2 (one carrying food) Leckie Burn, Gargunnock 9 May. Present Balquhidder 11 May. 1 Achray Water, L Katrine 12 May. Ad feeding other bird Allt Breaclaich 27 May. 1 L Ard Forest 9 Aug.

WINTER WREN *Troglodytes troglodytes* (B, W)

Widespread and common but under-recorded. BBS: recorded at 0.8 b/lkm.

F Six Langlees, Stenhousemuir 24 Feb.

C Five Cambus area 17 Sep.

S Dunblane: 6 Holmehill 16 Apr with 7 there 14 May, 5 on 24 Jun, 8 on 31 Jul and 6 on 21 Aug; 5 Hill of Row 22 Oct. 5 King's Park, Stirling 26 Apr. Airthrey L, BoA: 8 (loch and Hermitage Wood) on 3 May, 8 on 27 Jun, 5 on 22 Jul and 6 on 26 Aug.

DUNNOCK *Prunella modularis* (B, W)

Widespread and common but under-recorded. BBS: recorded at 0.5 b/lkm.

F Six Kinneil 13 Oct.

S Holmehill, Dunblane: 7 on 26 Feb with 4 there 29 Mar, 5 on 14 May and 4 on 24 Jun. Airthrey L, BoA: 4 on 22 Jul and 8 on 26 Aug.

EUROPEAN ROBIN *Erithacus rubecula* (B,W)

Widespread and common but under-recorded. BBS: recorded at 0.8 b/lkm.

F Eight Kinneil 13 Oct.

C R Devon, Alva: 7 on 20 Mar and 30 Oct. 10 Cambus area 17 Sep.

S Holmehill, Dunblane: 11 on 26 Feb with 7 there 19 Mar, 9 on 14 May, 8 on 31 Jul and 17 on 21 Aug. 7 King's Park, Stirling 26 Apr. 10 Airthrey L, BoA 26 Aug. 7 Lanrick, Doune 18 Dec.

*BLACK REDSTART *Phoenicurus ochruros*

F One Blackness 20 to 28 Nov (AMF) This is only the 5th record for the recording area, the last one having occurred in Mar 2005. There were previous records in 1875, 1982/83 and 1996.

COMMON REDSTART *Phoenicurus phoenicurus* (B)

Arrival in Apr: 4 Pier Rd, Head of L Tay 10 Apr (JH) was 7 days earlier than during 2005-2010 (range: 17th to 29th). This was followed by 9 M Tyndrum 16th; 3 Rednock, Port of Menteith 23rd; 2 singing Whiteson Wood, Dunblane 24th; G Lochay, Boreland and M Doune Lodge 25th; 1 singing Touch, Stirling; 7 M Glen Lochay and M Auchlyne, G Dochart 29th (JH, DMB, DOE).

F Imm/F Skinflats 18 Jun. M and 2 juvs/Fs Larbert Pond 5 Aug were probably on passage (GO, AB).

S Callander: 2 Pass of Leny 2 May and 2 M Bracklinn 8 May. 2 M Upper Lanrick, Doune and M singing Gargunnock 4 May. 1 L Voil and M Stroneslaney, Strathyre 14 May. Present L Tay Marshes (W) 21 May. 2 Little Drum Wood, L Venachar 30 May. M Ballimore, Balquhidder 3 Jun. Pr feeding Y Touch, Stirling 3 Jun. At least 1 pr with Y Ben Venue area (ACC, DOE, DMB, JH, AT).

WHINCHAT *Saxicola rubetra* (B)

Spring arrival: M Skinflats 24 Apr (GO) was a day earlier than the narrow arrival window of 2005-2010 (range: 25th April to 2nd May). This was followed by

1 singing Auchtertyre, Tyndrum 28 Apr, M Kenknock, G Lochay 29 Apr, M Carse of Lecropt, BoA 3 May and 3 M Braeleny, Callander 4 May (JH, DOE, DMB). Autumn departure in Sep: juv/F Pendreich, BoA 5th, imm Skinflats lagoons 9th and 2 Skinflats village 10th (DMB, GO, AB). This was within the 2005-2010 departure window (range: 8th August to 11th October). The large differences are no doubt a reflection of observer coverage rather than true variation.

F M R Avon, Strathavon Fm, Slamannan 31 May. 2 in reedbed (roost ?) Skinflats village 6 Aug (RDz, AB).

S One G Finglas and M Inverlochlarig, L Voil 13 May. 2 L Katrine 17 May (JCt, DOE, RCW, RTW). One singing Kirkton, Tyndrum 20 May with 4 fledged Y there 4 Jul. M Drumloist, BoD 21 May. M L Rusky 26 May. 5 M G Lochay 30 May. Present G Dochart at Bovain 12 Jun, Ledcharrie 18 Jun and in unspecified locale there 24 Jul. Brood of 4 Braeleny, Callander 4 Sep (JH, DOE).

Addition from 2010: M Earl's Hill Campsies 25 Apr was early.

EURASIAN STONECHAT *Saxicola torquata* (b, w)

Few records again as in 2009 and 2010 are likely the result of the recent cold winters.

C Two Hillfoot Hill, Dollar 8 May. 1 R Devon, Alva 14 Aug.

S F R Forth, Gargunnock-E Frew 13 Mar. M Flanders Moss 18 Mar with pr there 30 Apr. 2 G Lochay 11 May. 2 Pendreich, BoA 19 May. Pr Kippen Muir 6 Nov. Pr G Finglas 4 Dec. 1st winter F Lake of Menteith 15 Dec.

Addition from 2010: F feeding Y Carse of Lecropt 25 Jun.

NORTHERN WHEATEAR *Oenanthe oenanthe* (B)

Spring arrival in Mar: 1 Callander 14th was 7 days earlier than the earliest date of the 2005-2010 arrival window (range: 21st Mar to 6th Apr). Apr: M and F Kinneil 3rd; 4 Todhill, Larbert 4th with 7 there 13th; 2 (incl 1 Greenland-type) Blackdevon Wetlands 9th; 1 Skinflats village 10th; 8 R Avon, Strathavon Fm, Slamannan 14th; 2 Skinflats 16th; 1 G Buckie 16th; 2 M and 2 F Ballochleam, Kippen 16th; 1 Edinample, Lochearnhead 16th;1 Stenhousemuir and 3 Skinflats lagoons 20th with 13 at the latter location 21st, 30 on 22nd and 11 on 24th; 6 Drumloist, BoD 26th. 8 Stob Binnein 28th.

Autumn departure: Sep: 2 Darnrig Moss 8th; 1 imm Skinflats and 4 imms Kinneil 10th. Oct: 2 R Forth, Gargunnock-E Frew 18th. This was 5 days later than the extended departure window of 2005-2010 (range: 5th Sep to 13th Oct).

F F Skinflats lagoons 13 May. 2 Blackness 26 Aug.

C Present Blackdevon Wetlands 6 May.

S Singles Earl's Hill, Cringate Muir and Touchadam Fell Rd S 30 May. 1 Cononish, Tyndrum 10 Jul. Sheriffmuir: 3 Harperstone 6 Aug and 1 Lairhill 12 Aug. 2 ads and 2 juvs Dumyat, BoA 14 Aug.

*RING OUZEL *Turdus torquatus* (b)

S Three Leum an Eireannaich, Balquhidder 9 Apr with one singing there 18 Jun. Three Corriecharmaig, G Lochay and 1 Kenknock, G Lochay 29 Apr. 1 Monachyle, L Voil 14 May. 12 Stuc a' Chroin 1 Sep (JH, DOE, GWI)

COMMON BLACKBIRD *Turdus merula* (B, W)

BBS: recorded at 2.0 b/lkm.

C Ten R Devon, Alva 22 May and 5 Jun. 12 Cambus Pools 8 Oct. 30 Alloa 28 Nov.

S King's Park, Stirling: 11 on 8 Feb, 14 on 22 Feb, 17 (several carrying food) 26 Apr, 15 (several with food) 3 May, 16 on 17 May and 17 on 15 Dec. Dunblane: 10 Holmehill 16 Apr and 14 May, 14 Scouring Burn 29 Oct were thought to be migrants, 20 Hill of Row 4 Dec. 1 Bandeath industrial estate, Throsk 26 Apr was carrying food. Airthrey L, BoA: 11 (including at Hermitage Wood) 3 May, 15 on 10 Oct and 30 Nov. 15 Doune 4 Dec.

FIELDFARE *Turdus pilaris* (W)

Spring departure: 80 R Forth, Gargunnock-E Frew 13 Mar; 60+ Kirkton, Tyndrum 31 Mar dropped to 4 on 8 Apr. This was within the early part of the wide 2005-2010 window (range: 25th Mar to 14th May). The large differences are no doubt a reflection of observer coverage rather than true variation.

Autumn arrival in Oct: 1 Blackness 15th was within the 2005-2010 window (range: 7th to 22nd Oct). This was followed by 250 R Forth, Gargunnock-E Frew and 300+ Kirkton, Tyndrum 18th; 20 Sheriffmuir 24th; 70 Robertson's Lane, Blairdrummond Moss and 90 Drip Moss, Stirling 27th; 201 >E in small flocks Upper Taylorton-Fallin 30th and 320 Glenhead, Dunblane 31st.

F Skinflats lagoons: 528 on 1 Nov with 35 there 11 Nov. 70 Braeface, Denny 15 Nov. 900 Mossneuk, Airth 15 Dec.

S Seventy-nine G Dochart 8 Nov. 700 S Doll, Airth 12 Nov. Lecropt Carse, BoA: 500 on 12 Nov, 300 on 13 Nov, 460 on 6 Dec, 400 on 11 Dec and 600 on 12 Dec. 90 Ashfield 15 Nov. Dunblane: 200 Kippenross and 500 Stockbridge 22 Nov, 80 Hill of Row 4 Dec. Kinbuck Br: 80 on 1 Dec and 110 on 11 Dec. Thornhill: 100 Brae of Boquhapple Fm 3 Dec and 500 in unspecified locale there 12 Dec. 200 Ochtertyre, Blairdrummond 18 Dec.

SONG THRUSH *Turdus philomelos* (B, W)

Under-recorded. Again few winter records. Feb: 4 Langlees, Stenhousemuir 24th. Nov: 5 Doune Lodge 6th and 4 Alloa 28th. No Jan and Dec records.

F Two recently fledged juvs High Wood, Castlecary 16 Jun.

C Four Gartmorn Dam 19 Apr.

S Three singing Whitehill, Sheriffmuir 14 Jun.

REDWING *Turdus iliacus* (W)

Spring departure: 13 Aberdona Ponds 7 Mar; 30 Kirkton, Tyndrum 31 Mar with 6 singing there 7 Apr and at least 1 singing 8 Apr. This was towards the end of the departure window for 2005-2009 (range: 7th Mar to 13th Apr). The large differences are no doubt a reflection of observer coverage rather than true variation.

Autumn arrival in Oct: 4 Airthrey L, BoA 5th was within the arrival window for 2005-2010 (range: 27 Sep to 12 Oct). This was followed by 220 there 13th; 6 Manse Rd, Aberfoyle 14th; 15 >S Newton Crescent, Dunblane, 12 Carronshore, Stenhousemuir and 25 Skinflats lagoons, all on 15th; 20 Lanrick, Doune and 10 L Watston 16th.

F Seventy Skinflats lagoons 1 Nov. 100 Kincardine Br 11 Dec.

C Sixty Gartmorn 21 Nov.

S Fifty R Forth, Gargunnock-E Frew 18 Oct. 54 Upper Taylorton-Fallin 30 Oct. Dunblane: 84 Glenhead and 40 >SW 31 Oct, 60 Hill of Row 4 Dec. 100+ Kirkton, Tyndrum 4 Nov. 50 Doune 5 Nov. Carse of Lecropt, BoA; 150 on 13 Nov, 110 on 11 Dec and 200 on 23 Dec. 50 G Finglas and 50 L Watston 13 Nov. 50 L Mahaick 18 Nov. 100 Thornhill 12 Dec. 200 Ochtertyre, Blairdrummond 18 Dec.

MISTLE THRUSH *Turdus viscivorus* (B, W)

Under-recorded. Few noteworthy records received this year.

S Twelve Gart GP, Callander 4 Sep. 8 Hill of Row, Dunblane 22 Oct.

COMMON GRASSHOPPER WARBLER *Locustella naevia* (b)

Spring arrival in Apr: 2 Skinflats lagoons 20th was again within the remarkably stable arrival window of 2005-2010 (range: 17th to 27th). This was followed by 1 singing Ard Ghoath, Balfron 21st; 4 (3 M) Skinflats 21st; 1 L Tay Marshes (East) 25th; 1 singing Bandeath industrial estate, Throsk 26th; 1 Cockburn L, BoA and 1 Kirkton, Tyndrum 27th; 6 singing Blackdevon Wetlands 28th; M Kenknock, G Lochay 29th; M Flanders Moss 30th.

F Skinflats: singles 1, 11 and 31 May, 6 Jun, 2 in village 7 Jun and 1 at tidal

exchange 27 Jul. 1 Kinneil 23 Jul.

C Three Blackdevon Wetlands and 1 R Devon, Dollar 2 May.

S Callander: M Braeleny and 2 M Gart GP 4 May. M Inverlochlarig, L Voil 14 May. 1 L Tay Marshes (East) 21 May. M L Rusky 26 May. M Glen Ogle and M Stroneslaney, Strathyre 3 Jun. 1 singing Tyndrum Community Woodland 3 Jun. G Dochart: 1 Auchlyne 12 Jun with 1 singing Croftchois 24 Jul and 1 singing Bovain 28 Jul. 1 L Ard 23 Jul. M Gargunnock 25 Jul.

SEDGE WARBLER *Acrocephalus schoenobaenus* (B)

Spring arrival in Apr: 2 Skinflats 21st were a day early than the remarkably stable arrival window of 2005-2010 (range: 22nd to 30th). This was followed by 5 Skinflats area and 1 Cocksburn, BoA on 24th and 15 singing Blackdevon Wetlands and 1 Inverlochlarig, L Voil 28th.

Autumn departure: 10 Skinflats village 6 Aug and 1 Skinflats lagoons 10 Sep, the latter of which was within the 2005-2010 departure window (range: 10th Aug to 22nd Sep). The large differences are no doubt a reflection of observer coverage rather than true variation.

F Skinflats: 2 village 8 May with 8 at lagoons 25 Jun. 1 singing St. Helen's L, Bonnybridge 15 May.

C Present Cambus Pools 6 May. 1 Blackdevon Wetlands 11 and 20 May. 1 R Devon, Alva 22 May. Ad feeding 2 Y Craigrie, Clackmannan 22 Jun.

S Present Gart GP, Callander 15 May and Crianlarich 16 May. 1 singing Drip Moss, Stirling 21 May.

*REED WARBLER *Acrocephalus scirpaceus*

After several rejected records, it is remarkable that there were three confirmed records of what is a very rare but potentially under-recorded species in our recording area. These records represent the first three records for the recording area and the Tullibody Inch records the first proven breeding records for the area.

F One singing Skinflats lagoons 30 May (LA).

C One singing Cambus Pools 7 May. 3 Tullibody Inch 19 Jun included a singing bird and one carrying a faecal sac, proving that breeding took place (JRC).

EURASIAN BLACKCAP *Sylvia atricapilla* (B)

Winter records: BoA: as in 2009 and 2010 in Alexander Drive where M 16 Jan and F 30 Jan. 2 Carron Valley Reservoir 28 Feb. 1 Bows, BoD and M Eas Gobhain Callander 13 Nov. M Alexander Dr, BoA 27 Nov. M feeding on Holly berries Alloa Tower Park 28 Nov. Spring arrival in Apr: 2 Blairlogie 7th was within the 2005-2010 arrival window (range: 5th to 13th). This was followed by 1 singing Coneyhill, BoA, and M Skinflats 9th; singles Menstrie, Carron and Carronshore, Stenhousemuir, and Craigknowe, Alva and 5 (4M, 1F) Skinflats, all on 10th; Airthrey L, BoA and Viewforth, Stirling 13th; Cambus Pools 14th; 3 singing Dunblane to Ashfield 15th; Blackness 18th; Blaircessnock, Flanders Moss 23rd; 7 singing Plean CP 28th.

Autumn departure in Sep: 1 Kinneil 5th; 3 Skinflats lagoons and 1 in village 10th, 1 Cambus area and M Scouring Burn, Dunblane 17th. The latter is similar to available departures dates from 2006 (13th), 2008 (24th) and 2010 (18th).

C Nine singing Gartmorn Dam 4 May.

GARDEN WARBLER *Sylvia borin* (B)

Spring arrival in Apr: 1 The Pineapple, Airth 5th was 14 days earlier than the 2005-2010 arrival window (range: 19th April to 2nd May). This was followed by 1 singing Vale of Coustry, Blairdrummond on 19th; 1 Aberfoyle 24th; 2 Blackdevon Wetlands 18th. In May: 1 Logie Kirk, Menstrie 1st; Doune Ponds and 6 singing Touch, Stirling 2nd; 2 King's Park, Stirling 3rd; 2 singing Gartmorn Dam and M

Colhallan, Callander 4th.

Autumn departure in Sep: singles Skinflats village and Cocksburn, BoA 10th were later than available dates during 2005-2010 (2006: 12th Aug, 2008: 4th Sep and 2009: 2nd Sep).

F Skinflats: 2 copulating in village 7 Jun and 1 there 7 Jul.

C Alva: singles R Devon 22 May and 5 Jun and 2 Alva Glen 27 Jun.

S Dunblane: 2 Allan Water 11 May and 1 Holmehill 14 May. M Balquhidder, Stroneslaney and M Strathyre 14 May. M Doune Lodge 24 May. 1 singing Ledcharrie, G Dochart 11 Jun. 3 AOT Ben Venue area 12 Jun. 1 singing White Hill, Sheriffmuir 14 Jun.

*LESSER WHITETHROAT *Sylvia curruca*

F One singing Camelon 26 Jul (MB).

S One singing Bracklinn Falls, Callander 6 Jun (LA).

After last year's record these are the 8th and 9th records for the recording area since modern recording began in 1974.

COMMON WHITETHROAT *Sylvia communis* (B)

Spring arrival in Apr: 1 Skinflats 20th was 3 days earlier than the 2005-2010 window (range: 23rd Apr to 2nd May). This was followed by 5 there 22nd, 1 R Devon, Alva 24th; 2 King's Park, Stirling 26th; 8 singing Blackdevon Wetlands 28th; M Deanston, Doune 30th and 1 Blackness 6th May.

Autumn departure in Sep: 5 Skinflats lagoons 1st; 1 Gart GP, Callander and 2 Greenyards, Dunblane 4th; 3 Kinneil 5th and 1 Skinflats lagoons 10th. The latter was within the wide window of 2005-2010 (range: 2nd Aug to 24th Sep).

F Three heard R Carron, Carronshore 14 May. 3 Skinflats lagoons 25 Jun.

C Two R Devon, Alva 5 Jun.

S One Allan Water, Dunblane 11 May. 6 King's Park, Stirling 17 May.

WOOD WARBLER *Phylloscopus sibilatrix* (B)

An increase in records this year. Spring arrival in Apr: strong arrival on 24th with 5 M Aberfoyle, 2 M Glen Finglas and 1 M Brig o'Turk, which was within the standard arrival window of 2005-2010 (range: 17th Apr to 5th May). This was followed by 1 Boreland, G Lochay 25th with 10 M in same glen 29th; 1 David Marshall Lodge, Aberfoyle and 1 singing Pier End Rd, Head of L Tay 30th (DOE, JH, SL).

C One E Alva 24 May. Present Gartmorn Dam 5 Jun. 3 R Devon, Alva 14 Aug (RCW, RTW, AE, PMA).

S Three Pass of Leny, Callander and one Ben A'an 2 May (ACC, DSK). M Keir, Dunblane 7 May. 2 M Strathyre and M Inverlochlarig, L Voil 14 May (DOE). 3 L Katrine 17 May (RCW, RTW). One singing Pier Rd end, Head of L Tay 21 and 22 May (JH). Two prs and 2 recently fledged Y fed by adults Ben Venue area 12 Jun. One singing Ledcharrie, G Dochart (AT, JH).

COMMON CHIFFCHAFF *Phylloscopus collybita* (B)

Spring arrival in Mar: 1 Skinflats lagoons 19th was a typical date within the 2005-2010 arrival window (range: 13th to 31st Mar). This was followed by 1 King's Park, Stirling 21st; 2 Holmehill, Dunblane 25th; 4 Pendreich, BoA, 2 Doune Lodge and 1 Skinflats village all on 27th; 1 Viewforth, Stirling 28th.

Autumn departure in Sep: singles Cambus, Scouring Burn and Ochlochy Park, Dunblane all on 17th; 3 Airthrey L, BoA 22nd and 1 heard Broomridge, Stirling 29th. The latter was a typical date within the 2005-2010 departure window (range: 17th Sep to 6th Oct). Winter records: 1 Kinneil 1 Nov. 1 South Alloa 17 Dec.

F One Grangepans, Bo'ness 2 Apr. 1 Airth, The Pineapple 5 Apr. 1 Carronshore, Stenhousemuir and 3 Skinflats 9 Apr. 1 Skinflats lagoons 1 and 11 Sep.

S Dunblane: singing Laighhills and Holmehill, Dunblane 2 Apr, 1 Ochiltree 9 Apr,

with 1 Ochlochy Park and 3 Holmehill 11 Aug. 1 Loch Tay Marshes (East) 2 Apr. 3 Pendreich, BoA 3 Apr. 3 Blairlogie 7 Apr. 6 Airthrey L, BoA 8 Apr. Singing birds Kirkton, Tyndrum 8 and 16 Apr, 30 May and 25 Aug. 1 singing Eas Gobhain 4 Sep. 4 Flanders Moss and 1 heard Viewforth, Stirling 14 Sep.

WILLOW WARBLER *Phylloscopus trochilus* (B)

BBS: recorded at 1.9 b/lkm. Spring arrival in Apr: 2 Gartmorn Dam 5th was within the early part of the 2005-2010 arrival window (range: 3rd to 14th Apr). This was followed by a strong arrival from 9th with 3 Blackdevon Wetlands, 2 Kinneil, 3 Skinflats and 1 L Tay Marshes (West); 3 Carron, Stenhousemuir and 5 Duke's Pass, Aberfoyle, all on 10th; 5 California 11th; 1 Plean CP 12th; 5 Flanders Moss 13th; 1 Cambus Pools, 10 Darnrig Moss and 2 Airthrey L, BoA and 1 Killorn Moss, Arnprior, all on 14th.

Autumn departure in Sep was early: singles R Devon, Alva and Gart GPs, Callander 4th; 10 Skinflats lagoons and 5 Cocksburn Res, BoA 10th; 4 Flanders Moss 14th and 8 Cambus area 17th. The latter was in the early part of the 2005-2010 departure window (range: 14th Sep to 6th Oct).

F Two Grahamsdyke, Bo'ness 16 Apr. 2 Larbert 17 Apr. 10 Skinflats lagoons 22 Apr with 15 there 21 Aug.

C Thirty Gartmorn Dam 19 Apr. 7 R Devon, Alva 24 Apr. 3 Alva Glen 25 Apr.

S One Holmehill, Dunblane, 3 Glenbuckie and 2 Edinample, Lochearnhead, all 16 Apr. 2 Blairlogie 17 Apr. 2 Vale of Coustry, Blairdrummond 19 Apr. 1 Cocksburn L, BoA 24 Apr. 13 King's Park, Stirling 26 Apr. 10 Airthrey L, BoA 26 Aug.

GOLDCREST *Regulus regulus* (B, W)

Under-recorded.

S Six Pendreich, BoA 27 Mar. 8 Lanrick, Doune 13 Nov with 12 there 18 Dec. 8 Hill of Row, Dunblane 4 Dec. 7 L Mahaick 31 Dec.

SPOTTED FLYCATCHER *Muscicapa striata* (B)

Spring arrival in May: 2 M Balquhidder and 2 M Inverlochlarig, L Voil 14th were a typical date compared to 2005-2010 (range: 9th to 20th May). This was followed by pr Auchlyne, G Dochart 17th; 1 singing L Tay Marshes (West) 21st; 1 Doune Lodge 24th and 6 prs G Lochay 30th. Autumn departure in Sep: 1 Skinflats lagoons 7th with a late b/3 Vale of Coustry 10th. The departure of the latter birds would probably have been outwith the 2005-2010 window (range: 24th Aug to 15th Sep).

F One Liddle Dr, Bo'ness 16 Aug.

C Three Woodland Park and Drove Rd, Alva included 2 juvs 31 Jul.

S Two Auchtubh, 4 G Buckie and 1 G Ogle, all 3 Jun. Tyndrum: 1 singing Kirkton 6 Jun with 2 AOT in unspecified locale there 23 Jun and ad and Y Cononish 10 Jul. 3 (at least 1 pr) Ben Venue area 12 Jun. 1 singing Ledcharrie, G Dochart 12 Jun. 2 Flanders Moss 29 Jun. 1 Braeval, Aberfoyle 30 Jul. 5 on passage Airthrey L, BoA 18 Aug with 3 there 23 Aug. 2 Cromlix House, Kinbuck 21 Aug.

EURASIAN PIED FLYCATCHER *Ficedula hypoleuca* (b)

S M Aberfoyle 24 Apr. 1 singing Boreland, G Lochay 25 Apr. 4 prs G Lochay 30 May with 1 singing there 5 Jun. 4 Little Drum Wood, L Venachar 30 May (DOE, JH, ACC).

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

F Twelve Kingseat Place, Falkirk 6 Dec.

C Cambus area: 15 on 16 Jan with 30 there 17 Sep. 11 Forestmill 11 Nov.

S Twelve Kinbuck Community Woodland 14 Feb. Dunblane: 21 Newton Crescent 25 Jul with 10 Keir 13 Nov. 12 Manse Rd, Aberfoyle 13 Oct. 20 Lanrick, Doune 16 Oct with 10 there 13 Nov and 10 on 18 Dec. 20 Airthrey L, BoA 15 Nov with 15 there 30 Nov. 15 Brae of Boquhapple Fm, Thornhill 20 Dec. 12 King's Park,

Stirling 30 Dec.

BLUE TIT *Cyanistes caeruleus* (B, W)

Widespread but under-recorded. BBS: recorded at 1.7 b/lkm.

F Twenty Langlees, Stenhousemuir 24 Feb.

C Twelve R Devon, Alva 3 Jan. 10 Cambus area 17 Sep. 21 Forestmill 11 Nov. 12 Alloa 28 Nov.

S Thirty King's Park, Stirling 25 Jan with 19 there 15 Feb, 26 on 22 Feb, 10 on 26 Apr and 11 on 15 Dec. Dunblane: 20 Holmehill 29 Jan with 15 there 26 Feb, 17 on 19 Mar, 13 on 16 Apr, 12 on 21 Aug and 10 at Hill of Row 4 Dec. 20 Airthrey L, BoA 14 Apr with 10 there 26 Aug. 15 Brae of Boquhapple Fm, Thornhill 5 Dec with 11 there 16 and 19 Dec and 15 on 29 Dec. 10 Doune 30 Dec.

GREAT TIT *Parus major* (B, W)

Widespread but under-recorded. BBS: recorded at 1.1 b/lkm.

C Ten R Devon, Alva 6 Feb. 24 Forestmill 11 Nov.

S Thirteen Holmehill, Dunblane 26 Feb with 9 there 14 May, 14 on 21 Aug and 20 on 17 Dec.

COAL TIT *Periparus ater* (B, W)

Widespread but under-recorded.

C Eight Cambus area 16 Jan. 11 Forestmill 11 Nov.

S Six Duke's Pass, Aberfoyle 27 Jan. Dunblane: 7 Holmehill 26 Feb with 5 Hill of Row 22 Oct and 4 Dec. 9 Pendreich, BoA 3 Apr. 6 Plean CP 12 Apr. 6 Airthrey L, BoA 25 Oct. Doune: 8 Lanrick 13 Nov with 6 there 18 Dec and 15 in unspecified locale there 30 Dec.10 Argaty, BoD and 5 L Mahaick 31 Dec.

EURASIAN NUTHATCH *Sitta europaea*

Following its first appearance in 1999 and the first breeding record in 2009, there were no confirmed breeding records this year but the species was also recorded from many more locations away from the BoA-Dunblane area.

S Dunblane: singles Ledcameroch 2, 5, 9, 29 Jan and 5 Feb (CJS); Kippenross 20 Jan (DOE); Holmehill 26 Feb, 31 Jul and 21 Aug (CS); Pisgah 17 Apr; Mill of Keir 17 Jul; Darn Walk 24 Sep; Keir 13 Nov and Kippenross 7 Dec (CJS, DOW, DMB, CS, AMF). BoA: 2 calling Airthrey L 26 Jan with 2 there 8 Apr and 2 AOT behind the castle 15 Apr (ACC, RCW, RTW, DMB). Doune: pr at Lodge 25 Apr, 1 at Ponds 2 May and 1 Lanrick 13 Nov (DOE, ACR). Aberfoyle: 1 on 31 Jul with 3 there 18 Nov and 1 Cobleland caravan park (DOE, IMcC). Callander: 2 present for a week from 17 Aug and 1 Balgibbon Drive 16 Sep (JA, GH). Elsewhere: 1 calling Pier Rd end, Head of L Tay 17 Apr; 1 Rednock, Port of Menteith 24 Aug; 1 Craggan, Lochearnhead (JH, RAB, MJW).

EURASIAN TREECREEPER *Certhia familiaris* (B, W)

Under-recorded.

F Breeding season: Powfoulis, Skinflats, 19 Jun.

S Breeding season: 1 Holmehill, Dunblane 16 Apr; 1 SW L Earn 2 May; ad with food Old Leckie, Gargunnock 9 May; 2 Airthrey L, BoA 27 May; present Ben Venue area 12 Jun. Non-breeding season: 4 Lanrick, Doune 16 Oct and 18 Dec; 3 Airthrey L, BoA 30 Nov; 3 Vale of Coustry, Blairdrummond 30 Dec and 3 Argaty, BoD 31 Dec.

*GREAT GREY SHRIKE *Lanius excubitor*

S One Duke's Pass, Aberfoyle 27 Jan (RCW). One Carron Valley Res 16 and 17 Feb (VW).

EURASIAN JAY *Garrulus glandarius* (B, W)

F Three very vocal, fledged Y Larbert Pond 3 Aug.

C Forestmill: 1 Meeks Park 29 Jun; 2 Castlebridge Business Park 24 Oct with 1 there 16 Dec.

S One Argaty, BoD 3 Jan. BoA: 1 Knockhill Meadows, Lecropt 4 and 15 Sep; 3 Airthrey L 12 Oct. 4 Eas Gobhain, Callander 16 Oct. 4 Hill of Row, Dunblane 22 Oct. 4 W Cambushinnie, Cromlix 24 Oct. 5 Lanrick, Doune 13 Nov with 3 there 18 Dec.

EURASIAN MAGPIE *Pica pica* (B, W)

Continues to be very scarce NW of Dunblane. Abundant around Stirling but is not usually as frequent in the west; large groups now widespread in Falkirk District. Again only small groups recorded this year.

F Ten Langlees, Stenhousemuir 24 Feb.

C Nine R Devon, Alva 6 Feb.

S Tyndrum: singles Auchtertyre 28 and 31 Jan and 5 Apr with 2 there 16 Apr, single 21 Apr, occupied nest with 3 fledged Y 7 Jun and 2 on 8 Jul; singles Kirkton 31 Jan and 7 Feb with 3 there 1 Sep and 1 on 12 Oct. 10 L Coulter 1 Mar. 7 Holmehill, Dunblane 21 Aug. 1 L Mahaick 6 Nov. 5 Argaty, BoD feeding with Red Kites. 1 Doune 30 Dec.

WESTERN JACKDAW *Corvus monedula* (B, W)

Widespread but under-recorded. BBS: recorded at 2.4 b/lkm.

S BoA: 60 in centre 19 Jan with 50 Carse of Lecropt 13 Nov, 23 Dec and 29 Dec. 52 King's Park, Stirling 8 Mar. 95 Holmehill, Dunblane 24 Jun with 150 Hill of Row 22 Oct. 150 Lanrick, Doune 13 Nov.

ROOK *Corvus frugilegus* (B, W)

BBS: recorded at 1.5 b/lkm. Systematic counts of known rookeries (e.g. BoA, Gartmorn, Forth and Clyde Canal, Lake of Menteith, etc.) needed.

C One hundred Cambus area 16 Jan. 69 nests W Alloa playing fields 8 Apr.

S Dunblane rookeries in Apr had ca. 200 nests compared to 229 in 2010 (-14%): 14 nests Victoria Hall, 10 nests Strathmore Avenue, 63 nests Holmehill, 73 nests Kippendavie Rd, 27 Duthieston House, 10 nests Queen Victoria School, 8 nests Dunblane Hydro and 3 nests Grant Drive. 200 Touch, Stirling 8 Jan. 110 Holmehill, Dunblane 26 Feb with 120 there 19 Mar. 120 Flanders Moss 5 Apr. 100 Carse of Lecropt, BoA 26 Oct.

CARRION CROW *Corvus corone* (B, W)

BBS: recorded at 3.5 b/lkm.

F Breeding season: 2 Blackness 6 May. Non-breeding season: 140 Kingseat Place, Falkirk 17 Dec.

C Breeding season: 20 R Devon, Alva 24 Apr with 14 there 17 Jul.

S Breeding season: 5 nests Little Kerse, Kippen 4 May; 12 Argaty, BoD 24 Jun.

HOODED CROW *Corvus cornix* (b, w)

F Hybrid Grangemouth 1 Jan. Presumed hybrid Dyke, Slamannan 9 Apr. 5 hybrids Kingseat Place, Falkirk 6 Dec.

C Hybrid Gartmorn Dam 28 Mar.

S Few records this year. Hybrids Craigruie and Tulloch, L Voil 2 Jan with 2 at the loch 8 Nov. 1 Stob Binnein 28 Apr. Present G Balquhidder 11 May and Crianlarich 16 May. 1 G Dochart 8 Nov. Outwith core area of NW Stirlingshire: hybrid Sheriffmuir 30 Jan; reported Dunblane 4 Aug.

NORTHERN RAVEN *Corvus corax* (B, W)

There were again several reports from south/southwest of the core Callander-Doune-Dunblane area and NW Stirlingshire. There seems to be a slow colonization of Clackmannanshire.

F Slamannan: 1 Tippetcraig 10 Feb and 2 in unspecified locale there 2 Nov. 1 Roughcastle, Camelon 16 Mar.

C Singles Castlebridge Business Park, Forestmill 12 Jan, 7 Mar and 27 Apr. Pr Blackdevon Wetlands 9 Apr were thought to have attempted to breed unsuccessfully on a pylon. 2 Menstrie 3 May. 2 Castle Campbell, Dollar G 2 Sep.

2 Cambus Pools 15 Sep and 10 Nov.

S Head of L Tay: 2 on 9 Jan and 2 there at Pier Rd end 17 Dec. Killin: present Auchmore 9 Jan and at marshes 6 Dec. Carron Valley Res: starting to display Cairnoch Hill 13 Jan with 2 at west end 28 Jan and 2 on 28 Feb. 2 Cringate Muir 16 Jan. Aberfoyle: 3 Duke's Pass 27 Jan with 2 there 10 Apr. 5 Carron Valley Res 28 Jan. Tyndrum: 1 Community Woodland 29 Jan with 3 Auchtertyre 21 Apr and 2 Gleann a' Chlachain 15 Dec. BoA: singles Pendreich 10 Feb and 3 Jul with 2 Knockhill Meadows, Lecropt 30 Jul; 2 Gathering Stone, Sheriffmuir 5 Sep and 3 there 30 Sep; calling Cocksburn L 21 Nov and 2 Airthrey L 30 Nov. Dunblane: pr calling Holmehill 26 Feb and 1 Hill of Row 22 Oct and 2 there 4 Dec. 2 G Finglas 26 Feb. Balquhidder: present Leum an Eireannaich 9 Apr and 18 Jun with 1 in glen 11 May. 1 Blairlogie 27 Apr. Present Tigh Mor, L Achray 12 May. 2 Lower Boturnie, G Lochay 8 Jul. 1 Vale of Coustry, Blairdrummond 18 Aug. L Mahaick: 1 on 1 Sep with 6 there 6 Nov, 100 roosting 18 Nov and 6 on 31 Dec. Thornhill, Braes of Cessintully: 1 at sheep carcass 26 Sep and 4 there 27 Oct. Lake of Menteith: 2 Malling 26 Sep and 27 Oct and 1 there 15 Dec. Stirling: 3 on 1 Sep and 1 at castle 9 Oct. 2 A81, Letter Forest 16 Oct. Doune: 2 Lanrick 16 Oct with 1 in unspecified locale there 3 Nov and 2 at Lodge 6 Nov. BoD: 2 Bows 13 Nov and 1 Argaty 17 Nov. 1 Gart GP, Callander 4 Dec.

COMMON STARLING *Sturnus vulgaris* (B, W)

Greatly under-recorded. BBS: recorded at 3.8 b/lkm.

C Cambus: 150 on 16 Jan with 150 at Pools 8 Oct. 150 Sauchie 17 Oct. 235 Kennetpans 17 Nov.

S R Forth, Gargunnock-E Frew: 100 on 13 Mar and on 18 Oct. 800 pre-roost Bandeath, Throsk 13 Nov. 203 King's Park, Stirling 15 Dec. 500 Ochtertyre, Blairdrummond 18 Dec. 150 Lecropt Carse, BoA 23 Dec.

*ROSY STARLING *Sturnus roseus*

S One (no age/sex given) Lochearnhead in garden close to A84 on 9 Jun (JH). This is the 4th record of this species for the recording area since 1974, the first one having occurred in August 2002.

HOUSE SPARROW *Passer domesticus* (B, W)

Under-recorded. Few notable records received. BBS: recorded at 2.0 b/lkm.

F Twenty-five Skinflats lagoons 7 Jan.

S Breeding season: 10 Argaty Red Kite centre 24 Jun; 23 Kinbuck 15 Jul. Non-breeding season: 50 Doune 4 Dec.

EURASIAN TREE SPARROW *Passer montanus* (B, W)

Very few large flocks again this year.

F Grangemouth: 7 on 8 Jan and 14 on 10 Jan. Blackness: 2 on 17 Jan and 18 Feb, 4 on 6 May, 1 on 8 Jul, 2 on 2 Sep and 1 on 10 Dec. Skinflats: 9 on 14 Jan, 5 on 27 Mar and 7 May, 4 Powfoulis 18 Jun, 4 at lagoons 25 Jun, 14 on 2 Jul, 6 at lagoons 3 Jul and 15 on 29 Jul, 12 (incl juvs) in village 31 Jul, 6 at lagoons 9 Sep, 15 there 18 Sep and 6 on 15 Oct, 14 Orchardhead 30 Oct, 8 at lagoons 5 Nov. 1 Little Drive, Bo'ness 5 Apr. 5 South Alloa 15 Dec.

C Alloa: 4 Fairfield 10 Apr. Cambus: 5 at Pools and in village 14 Apr and 12 at Pools 17 Dec. 8 R Devon, Alva 30 Oct. 14 Kennetpans 17 Nov.

S Dunblane: 9 Kippenross 9 Jan with 6 there 13 Feb, 2 Pisgah 20 Jan, 15 Hill of Row 22 Oct, 8 Glenhead 22 Nov and 20 Keir 23 Dec. 6 West Poldar, Flanders Moss 29 Jan. 40 Coldoch, Blairdrummond Moss 29 Jan. Thornhill: 10 on carse 29 Jan, 1 W Corshill 26 Sep, 1 Brae of Boquhapple Farm 1, 5 and 29 Dec, 6 Whirrieston 27 Dec. Kinbuck: singles 8 and 9 Feb and ad and juv 15 Jul. 5 Lecropt, BoA 2 Mar. 12 Fallin 27 Mar. Hutchison, Ashfield: 1 on 15 Apr and 6 on 15 Nov. Bandeath industrial estate, Throsk: 4+ on 26 Apr, assumed to have bred.

Stirling: 10 Kildean 28 Apr with 2 King's Park 17 May. 2 L Watston 16 Oct. 3 Upper Taylorton-Fallin 30 Oct. 1 Argaty, BoD 27 Nov.

CHAFFINCH *Fringilla coelebs* (B, W)

BBS: recorded at 3.1 b/lkm.

S One hundred and thirty Easter Cringate, Cringate Muir 27 Jan. 500 Thornhill 29 Jan. Dunblane: 70 Ledcameroch 1 and 5 Jan with 80 there 7 Feb; 150 Stonehill 16 Feb with 300 there 19 Nov. 150 Lecropt, BoA 6 Dec.

BRAMBLING *Fringilla montifringilla* (W)

Another good year for the species.

F Slamannan: 200 Nappyfaulds 9 Feb with 100 Newcraigs on same day. 16 Grangemouth garden 12 Mar. 5 California 12 Oct. 1 Lionthorn, Falkirk 24 Mar and 1 Apr.

C Two old railway track, Tillicoultry East 11 Jan.

S Dunblane: 8 Kippenross 2 Jan; 1 Ledcameroch 2 Jan with 2 there 5 Jan and singles 15 Jan and 5 to 7 Feb; 8 Scouring Burn 9 Jan; 8 Newton Crescent 10 Jan; 3 Pisgah 20 Jan; 2 Stonehill 16 Feb; singles Ochiltree 5, 12 Mar and 28 Nov; 3 Hill of Row 22 Oct; 9 Glenhead 22 Nov. 20 Aberfoyle 2 Jan. 15 Strathyre 4 Jan. 3 Bows, BoD 5 Jan. Killin: singles 8, 9 and 23 Jan, 13 and 19 Feb and 12 Mar. Doune: 1 on 9 Jan, 3 there 22 Jan and 2 on 30 Jan. 3 Argaty, BoD 11 Jan. 1 L Watston 20 Jan. 1 Callander 23 Jan. 3 Thornhill 29 Jan. Kirkton, Tyndrum: singles 3 and 21 Feb, 9 Mar, 1 and 7 Apr. 10 Aberfoyle 9 Feb. 7 Carron Valley Res 17 Feb. BoA: 2 on feeders in village 16 Mar with 1 Lecropt Carse 21 Nov and 2 there 5 Dec.

EUROPEAN GREENFINCH *Carduelis chloris* (B, W)

Widespread but under-recorded.

F Ten Blackness 18 Feb.

S Forty-five Springkerse, Stirling 16 Jan. Dunblane: 55 eating wild oats Glenhead 4 Sep; 32 on Noble Fir cones Dykehead 2 Oct with 35 there 21 Oct and 90 on 3 Nov; 200 Keir 11 and 17 Dec. Lecropt, BoA: 80 on 6 Dec, with 20 there 11 Dec, 70 on 23 Dec and 50 on 29 Dec. 30 Doune 31 Dec.

EUROPEAN GOLDFINCH *Carduelis carduelis* (B, W)

BBS: recorded at 0.6 b/lkm.

F Kinneil: 40 on 25 Aug included many juvs. Skinflats lagoons: 55 on 1 Sep, with 110 on saltmarsh 11 Sep. 45 Grangemouth Docks 15 Oct.

C Cambus: 35 Midtown path to pools 22 Jul; 145 Haugh of Blackgrange 18 Sep, with 250 there 7 Dec and 175 on 23 Dec; 200 at pools 23 Oct.

S Twenty Stonehill, Sheriffmuir 20 Sep. 30 Dalrigh, Strathfillan 9 Nov.

EURASIAN SISKIN *Carduelis spinus* (B, W)

F Ten Carron, Stenhousemuir 16 Jan with 20 there 13 Feb. 30 Kingseat Place, Falkirk 1 Dec.

C Ten R Devon, Alva 3 Jan with 20 there 6 Feb. 25 Cambus Pools 17 Dec.

S Dunblane: 32 Scouring Burn 9 Jan; 45 Newton Crescent 10 Jan with 90 there 11 Feb, 65 on 12 Mar and 40 on 25 Aug; 11 Ledcameroch 16 Jan with 14 there 2 Feb and 26 on 6 Feb. Carron Valley Res: 40 Haugh Hill and 10 at west end 28 Jan. BoA: 30 on 6 Feb and 40 on 14 Mar. 13 King's Park, Stirling 22 Feb. 35 Cromlix House 21 Aug. 20 Argaty, BoD 17 Nov. 14 Brae of Boquhapple Fm, Thornhill 29 Dec.

COMMON LINNET *Carduelis cannabina* (B, W)

F Skinflats lagoons: 60 on 16 Jan. Kinneil: 70 on 27 Sep.

S Dunblane: 1100 Stonehill 2 Jan with 900 on seeded kale crop 8 Jan; 60 Greenyards 4 Sep; 60 Keir 23 Dec. 110 Lecropt, BoA 2 Mar.

TWITE *Carduelis flavirostris* (b, W)

F Sixty old landfill site, Kincardine Br 12 Feb. 1 Kinneil 9 Apr.

S One Aberfoyle 2 Jan. 1 Inverlochlarig, L Voil 28 Apr with 8 there singing 14 May. 2 Kirkton, Tyndrum 29 Apr. 1 Crianlarich 16 May. G Lochay: 2 Kenknock and 3 Corriecharmaig 30 May. 42 G Finglas 3 Sep.

LESSER REDPOLL *Carduelis cabaret* (b, W)

F Twenty-five Carriden, Bo'ness 19 Jan.

S Fifteen Auchlyne, G Dochart 4 Jan. 12 Dunblane 13 Feb. 10 King's Park, Stirling 15 Feb. Breeding season: 2 Duke's Pass, Aberfoyle 10 Apr.

COMMON REDPOLL *Carduelis flammea*

S One Auchlyne, G Dochart 4 Jan (DOE). 2 BoA 25 Feb (DMB).
These are the 6th and 7th records of this species in the recording area since 1974.

RED CROSSBILL (COMMON CROSSBILL) *Loxia curvirostra* (b, W)

F Four Torwood, Stenhousemuir 27 Dec.

S Dismantled railway and Pier Road, L Tay Marshes (West): up to 3 recorded 8 and 12 Jan, 6 and 19 Feb, 27 Mar, 2, 9 and 30 Apr, 21 May, with birds also at the east end 10 Apr. Killin: present Auchmore 9 Jan (heard) and Acharn Forest 8 and 9 Jul. Carron Valley Res: 40 Cairnoch Hill 12 Jan, 20 in various locations 28 Jan, 16 (males singing) 17 Feb. Tyndrum: 5 Auchtertyre 19 Jan, with 4 there 30 Mar and 3 on 16 Apr; 13 Community Woodland 29 Jan with 5 there 24 Feb; up to 5 Kirkton 28 Jan, 16 and 28 Feb, 2, 9, 16, 23 and 28 Mar, 21 and 26 to 28 Apr, 6 Jun, 20 and 21 Jul, 2 Aug, 1 and 2 Nov (when singing); also present Clifton 21 Jan. Callander: 9 Coilhallan Wood 26 Jan, 4 Gart GP 23 Oct. Aberfoyle: 15 Duke's Pass 27 Jan with 8 there 10 Apr. 1 Cononish G and 3 Dalrigh, Strathfillan 29 Jan. Dunblane: singles Holmehill 29 Jan and 17 Dec; 6 Cromlix 6 Mar; 2 Whiteson Wood 24 Apr; 4 Hydro 20 Oct; 15 Hill of Row 22 Oct. Sheriffmuir, BoA; 1 on 16 Feb, 2 there 14 May and 23 Sep. 1 L Lubnaig 15 Apr. 4 Touch, Stirling 26 Apr. 2 Crianlarich 16 May. 1 Ledcharrie, G Dochart 12 Jun. Doune: 6 at Lodge 6 Nov with 2 Lanrick 13 Nov and 8 there 18 Dec. 25 L Mahaick 6 Nov with 2 there 31 Dec. 4 Argaty, BoD 12 Nov and 22 (1 with nesting material) 31 Dec. 6 L Watston 27 Dec.

*COMMON ROSEFINCH *Carpodacus erythrinus*

S One (no age/sex given) Ledcharrie, G Dochart 11 Jun (JH).
This is the 8th record of this species in the recording area since 1974, the first having been recorded in 1997.

COMMON BULLFINCH *Pyrrhula pyrrhula* (B, W)

F Three including ad with food High Wood, Castlecary 16 Jun.

C Eight E Tillicoultry 11 Jan. Breeding season: Clackmannan 22 Jun.

S Twelve Auchlyne, G Dochart 4 Jan. Stirling: 6 Beheading Stone 14 Jan; 6 King's Park 25 Jan, with 8 there 8 Feb and 6 on 15 Dec; 17 Castle Woods 12 Mar. 8 Doune 6 Nov. 10 Hill of Row, Dunblane 4 Dec. 7 L Mahaick 31 Dec. In breeding season Coneyhill, BoA: 4 on 11 Apr, 2 on 21 Apr and pr with juv 31 May.

SNOW BUNTING *Plectrophenax nivalis* (W)

C Five Blairdenon Hill, Ochils 5 Mar. Present S Alloa 30 Oct.

S Singles Gleann a'Chlachain 19 Jan, 28 Feb and 15 Dec.

YELLOWHAMMER *Emberiza citrinella* (B, W)

F Skinflats lagoons: 15 on 29 Jan, 8 there 13 Feb and 20 on 13 Nov. Backness: 5 on 18 Feb and 10 on 10 Dec.

S Dunblane: 23 Kippenross 2 Jan; 20 Hill of Row 22 Oct. 30 Thornhill 29 Jan. Lecropt, BoA: 22 on 2 Mar, 15 on 13 Nov, 35 on 6 Dec and 20 on 23 Dec. 15 Flanders Moss 18 Mar. 15 Fallin 27 Mar. Breeding season: singles Kirkton, Tyndrum 7 and 16 Apr.

REED BUNTING *Emberiza schoeniclus* (B, W)

F Skinflats lagoons: 15 on 29 Jan, 5 on 25 Jun and 22 on 11 Dec. 11 R Carron,

Larbert-Carron 15 Dec.

C R Devon, Alva to Tullibody: 13 on 22 Jan and 16 on 20 Feb. 18 Cambus Pools 17 Dec.

S Lecropt, BoA: 54 on 6 Dec and 65 on 16 Dec. Breeding season: 5 Drumloist, BoD 2 Apr; present head of L Tay, L Tay Marshes (East) 15 Apr; 5 Cocksburn, BoA 4 May; singing Ledcharrie, G Dochart 12 Jun; 1 Lecropt, R Teith 14 Jun; present Croftchois, G Dochart 24 Jul.

## ESCAPED AND INTRODUCED SPECIES

EGYPTIAN GOOSE *Alopochen aegyptiaca*

F One Kinneil 19 Aug with 2 there 21 Aug (Birdguides, AE, RDz).
Although there are multiple records of birds between Jan 2003 and Sep 2006, these are all believed to refer to the same or same two birds. This record is believed to be the 2nd record of this species for the recording area.

WOOD DUCK *Aix sponsa*

F One Kingseat Place, Falkirk 18 Dec (BP).
This is the 7th documented record (omitting multiple sightings of a long-staying bird in 2004-2006) of this species for the recording area. This may have been the same bird as one present on the Union Canal in Mar and between Sep and Nov 2010. It is thought that 4 different individuals have likely been involved altogether.

MANDARIN DUCK *Aix galericulata*

S M Vale of Coustry, Blairdrummond 1 Aug (AR).
There is the 9th documented record of this specis in the recording area, thought to involve 5 separate individuals/pairs.

RED-LEGGED PARTRIDGE *Alectoris rufa*

F One Kinneil 1 Jun (RS).

S Two Auchtertyre, Tyndrum 18 May (JH).

JAVA SPARROW (FINCH) *Padda oryzivora*

F Two Pine Green, Bo'ness 13 Dec.
This is the 1st documented record of this species for the recording area and is highly likely to refer to escaped cagebirds. Note that the species is not included on any of the BOU lists, though the category E list (introductions, human-assisted transportees and escapees from captivity) is not exhaustive.

Report of the *Forth Naturalist & Historian* 'Man and the Landscape'
Symposium Saturday November 5th 2011

## Celebrating Central Scotland's Geodiversity

Geodiversity is to rocks and landscape what biodiversity is to the plant and animal kingdoms, our Chair, **Mike Thomas** (Stirling), informed an audience of more than 100 in his introduction to the day, *Putting the "Geo" back into diversity*. The idea of biodiversity was introduced in the late 1980s. It focused attention on sustainable development and the importance of conservation, and is linked to arguments about choice for human communities in the face of environmental and social change. So too is Geodiversity, first conceptualised in 1996. Both are critical in how ecosystems function. Both are keys to the management of earth processes and landforms. Both encourage the wise use and appreciation of nature.

In Scotland, *Geoconservation Scotland* raises awareness of geodiversity through the selection and promotion of RIGS (Regionally Important Geological and Geomorphological Sites). There are local groups: the Stirling and Clackmannan RIGS group, for example, has produced a guide to Wolf's Hole Quarry and Mine Wood above Bridge of Allan. The *Scottish Geodiversity Forum* in turn seeks to widen the profile of geodiversity and influence national and local policies and to promote the role and value of geodiversity in education, community involvement, health, the development of tourism and the wider economy. At a global scale, the *Global Geoparks Network* seeks to safeguard and sustainably manage landscapes and geological formations through Geoparks, geological heritage sites of particular importance, guided by rarity or aesthetic appeal. Scotland has Geoparks in Lochaber, the North West Highlands and in Shetland.

**Mike Browne** worked for 40 years for the British Geological Survey in Edinburgh and is now Chair of *GeoConservationUK* and Vice Chair of *Scottish Geodiversity Forum*. His deep knowledge was presented in his talk as a tour of our region, a 'walking guide' to the geological past and where to see it. We can reach farther back than 460 million years ago (mya) to the Dalradian rocks in Glenshee and the Highland Boundary Fault Trail at David Marshall Lodge above Aberfoyle. Volcanic rocks in the Keltie Burn at Callander and the southern face of the Ochil Hills, conglomerates from alluvial fans and ancient rivers at Wolf's Hole and at Stirling University, sun cracks and even traces of soil formation at the Bracklinn Falls represent the desert climate of the Devonian Period *c.*410 mya. After *c.*355 mya, in the Carboniferous Period elevated relative sea level created extensive coastal plains forming cementstones and mudstones as seen in the banks of Banton Burn near Kilsyth and Ballagan Glen. Later in the Carboniferous Period at 330-335 mya renewed volcanism created lava flows and ash, seen at Todholes on the Bannock Burn

and at the Fintry Loup, and subterranean volcanic sills exposed now in the Gillies Hill quarries at Cambusbarron. In the Carron Valley lavas reached the sea, creating distinctive pillow shapes. As Scotland drifted north from near the equator, climate became tropical. Rainfall increased and tree ferns colonised wetland soils, ferns seen underground in the Birkhill Fire Clay Mine at Bo'ness. Sediment supply from the land was reduced as mountains were lowered and the sea became clear, encouraging coral reefs at Todholes. Coal-forming swamps developed from *c.* 325 mya. Uplift of the Scottish land-mass after the Carboniferous Period led to erosion and no deposition of later rocks. But there is abundant evidence of major glaciations in the last *c.* 2 million years.

The emphasis in his talk was in galvanising local interest in geoconservation. The activities of voluntary groups are diverse, from site survey, improving access to and explanation of key lopcalities, preparing publications and field guides (e.g. McAdam and Clarkson, 1996), running events like road shows and guided walks, and justifying conservation designations to Local Authority plans.

**Jim Hansom** (Glasgow) began his contribution by listing the global importance of geodiversity in Scotland: the length and richness of the rock record, its fundamental role in the history of the subject, and its peat and soil carbon stocks and how these might influence climate change. In turn these feed into the Scottish Government's *National Performance Framework* in making the nation healthier, wealthier and wiser, stronger, safer and greener. He then focused on the Forth Valley to explain how special our landscapes are, from the Highland Boundary Fault that slices across the Ochils and the Trossachs, the record of former glaciations 12,000 years ago, and sea-level rise 7,000 years ago with its subsequent fall and the dynamism of the rivers. Understanding geodiversity informs near-future climate change adaptation, making us aware of coastal changes (erosion and 'squeezing' of estuaries between a rising sea and a defended coastline), river changes (flooding, drought, channel mobility, erosion/sediment transport), slope and upland changes and soil changes (erosion, nutrient turnover and loss, soil and peat carbon losses).

The Forth valley coastline has particularly diverse landforms and habitats, reflecting long-term climate fluctuations and also past management decisions. Recent relative sea level rise from 'global warming' is the principal driver underlying increasing coastal flood events. Can we accept the current *status quo* or, *''f you want things to stay as they are, things will have to change''* (Giuseppe Lampedusa (1896-1957). The challenge is to appraise our assets and the opportunities available, and consider approaches to manage threats. Some land uses, for example, will pay for themselves. Others will become less sustainable. Flooding and substantial erosion of the seaward edge adds salt water to farmland and agriculture is devalued. Do we 'save' this land? It will be unsustainable to elevate sea walls *ad infinitum*. Here geodiversity becomes something more than adding aesthetic or academic value to our lives, It was argued that this is geodiversity as coastal defence. Only 12% of Scotland is

protected by engineering structures. Natural features like beaches and saltmarshes provide the major contribution. Understanding geodiversity in this context gives us time to adapt and get the response right, making greater financial, societal and ecological savings.

From this *cri de coeur*, **Angus Miller**, the director of *Geowalks* (www.geowalks.co.uk) and current Chair of the *Scottish Geodiversity Forum* explored how to raise awareness among the general public of our rocks and landscapes. A series of beautiful photographs captured the imagination and whetted the appetite. Geologists are learning from nature writing how to capture a new audience (e.g. Fortey 2005, 2010; Vince 2011). New technologies using animated film (www.rockopera.org.uk) are reaching school children. iPhone applications (apps) are increasingly available. But working in the field is by far the best form of communication. *Geowalks* is a company which guides people around Scotland, introducing people to the geology. Geological Societies, Geoparks, GeoConservation groups, adult education courses and countryside rangers can all contribute. Very complicated geology can be successfully explained. The North West Highlands Geopark, for instance, presents the story of the Moine Thrust at Knockan Crag, of how two 19th century geologists, Peach and Horne, came to think the unthinkable, that enormous chunks of rock can be thrust up and over other rocks in mountain building (Oldroyd 1990).

After lunch, **Eileen Tisdall** (Stirling University) gave a 'lesson for geoconservation' in her analysis of the recent events behind trying to protect the Callander Moraine from sand and gravel quarrying. The moraine is a curving wall of glacial boulder clay crossing the A84 immediately east of Callander. The most stunning views of it are in the wood north of the A84 at Auchenlaich, on the way to the Bracklinn Falls where it suddenly rears up in front of the visitor. The moraine is where a valley glacier originating in a large icefield on Rannoch Moor ground to a halt some 12,000 years ago, in a period called the Loch Lomond Stadial, the last glacial period in Scotland. The Callander region is a classic study area for glacial geologists. Many localities on both sides of the River Teith were where many of our ideas about this 'cold snap' were thought out. This is recognised for this in the Geological Conservation Review of Scotland in 1993 (Lowe, 1993).

As the glacier halted, meltwater from its snout constructed thick deposits of sand and gravel eastward. These deposits are of considerable economic importance in an area also of high recreational value, and is recognised as such in the Loch Lomond and Trossachs National Park Local Plans for 2001 and 2005: the boundary of the Park lies just to the east. The wood itself and the ground around it are highlighted for their touristic value, the area east for rural activities. However, in 2011 it was proposed that ''*those parts of the Callander moraine which have not been subject to mineral extraction and fall within the western boundary of the site*'' should be excluded from management controls, although development should avoid ''*intact sections of the moraine*". It emerged also that

the National Park saw the area as significant for its wildlife habitats and archaeology only, not its geology. The moraine still faces an uncertain future. Eileen reflected on what needs to be learned from this study. One issue faces all RIGS and conservation bodies, in how best to communicate between enthusiasts, academics and bodies like Government, the Park Authority, landowners, industry and the local community. What is valuable and to whom? Clearly the lines of communication broke down in this case, resulting in hasty rearguard actions in arguing the case for geoconservation. But there are deeper issues related to protection. How do authorities draw lines on maps to protect rocks, sediments and landforms when it is the landscape that is of intrinsic value?

In his talk, "Geodiversity and the built heritage", **Ewan Hyslop**, Depute Director of Historic Scotland, considered the implications for care and conservation of buildings held for the nation. Buildings of importance and of architectural value are degrading through attack from the weather, acid rain, subsidence and poor quality construction and repair. They need to be repaired, and the repairs need to blend in, to be authentic and in character. This has created a problem. In the 19th century there were some 8,000 sandstone quarries supplying the building industry in Scotland. Now there are six. The stone available for repair is not that used in construction. Stone for Edinburgh used to be the Craigleith Sandstone in the Midland Valley: now sandstone comes from the English Peak District. One sandstone is not like another sandstone, unfortunately. They vary not only in colour but also in their mineralogy, grain size, density and, critically, porosity. Porous stone cracks by freeze-thaw, and absorbs rather than repels water. Colour fades or changes with weathering. Solutions to this issue have come recently by careful detective work in identifying original quarry sources, and in some cases making them productive again, not for general use in building but to keep our best buildings looking their best.

It is rare for the *FNH* symposium to cover something in the news but our final speaker, **Chris Sangster**, the CEO of Scotgold Resources Ltd., had recently been given outline approval for developing a gold mine at Tyndrum. Only 10 days after our symposium the BBC showed in a fly-on-the-wall documentary showing how tortuous has been the path to this point. Chris' talk was titled '*Gold in Scotland with reference to Scotgold's Grampian Gold Project'*. The current (2011) price of gold is at a record high, around $1,750/oz. Economic deposits around the world range from those with tens of thousands to tens of millions of oz of gold with significant occurrences exceeding 1 million oz: that at Cononish presently stands at 160,000 oz. Globally, the mined supply of gold is around 2,400 t per year, worth some US$124 billion, while central banks hold between 30 to 40,000 t, 15 years supply, currently worth US$1,800 billion.

Scotgold Resources Limited primarily focuses on gold in Scotland, traditionally panned in Scottish rivers in Helmsdale, the Ochil Hills, Leadhills, the Angus Glens and Tyndrum. Scotgold Resources Ltd. now has Crown

exploration licenses covering 3,200 km² in the South West Grampians, the Grampian Gold Project, to mine the ore underground. Gold was discovered in 1984 by Ennex Int. with exploration by 101 surface diamond drill holes (a length of 15,166 m) and 54 underground diamond drill holes with 1,280 m of underground development. Planning approval was gained in 1996 but low gold prices led to a regime of care and maintenance only until Scotgold acquired the mine in 2007. Production should commence in 2013: the current life of the mine is predicted at approximately 8 years.

The Cononish Gold and Silver Deposit is thought to have 160,000 oz of gold and 596,000 oz of silver. Gold is in fine particles (90 % below 100 microns) around and intergrown with iron and base metal sulphides (Pb, Zn Cu). It is a high grade resource at 11.7 g of gold per ton of rock with a current value of around £150M. Operating costs are estimated at £300 per oz gold extracted. The current extent of planned workings will make the mine about 700 m long and 250 m deep. There will be no surface mining activity. It will have an adit entrance with a spiral ramp, extracting rock in a 2 m vertical slice through the hillside. Blasted, broken rock will be moved along and out of the adit for processing by diesel trucks. Rock is crushed and ground to a fine sub 150 micron size, 'free' gold released by gravity while froth flotation takes out all lead, copper and zinc and remaining gold and silver. The sulphide concentrate (containing Cu, Pb, Zn and Au) will have to be sent by road/rail to smelters in Europe.

Compared to other underground mines, Cononish at 20,000 oz per annum is small in scale. Medium scale ventures mine 160,000 oz per annum and large scale ones in South Africa up to 1,000,000 oz per annum. Mine depths range from 200 m to nearly 4 km below the ground surface. There are, of course, environmental impacts, principally because of significant waste to ore ratios. At Cononish the residue, the fine ground rock, will be stored in a 'tailings management facility' housed in a single acoustically protected building. An engineered containment dam of rock and compacted earth will be built in incremental slices to allow solids to settle out. Some underground disposal of waste will minimise the environmental footprint. Water will be re-circulated and surplus clear water discharged to the Cononish River under SEPA consent, electronically controlled to meet discharge limits for salmonoid waters. Restoration of slopes around the dam will leave a minimal impact on the landscape, which led to one comment after the talk that our future industrial heritage should be seen as equal to our natural heritage.

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Richard Tipping


Plate 1a. Old style livestock fairs held in Drymen came to an end about 1900.

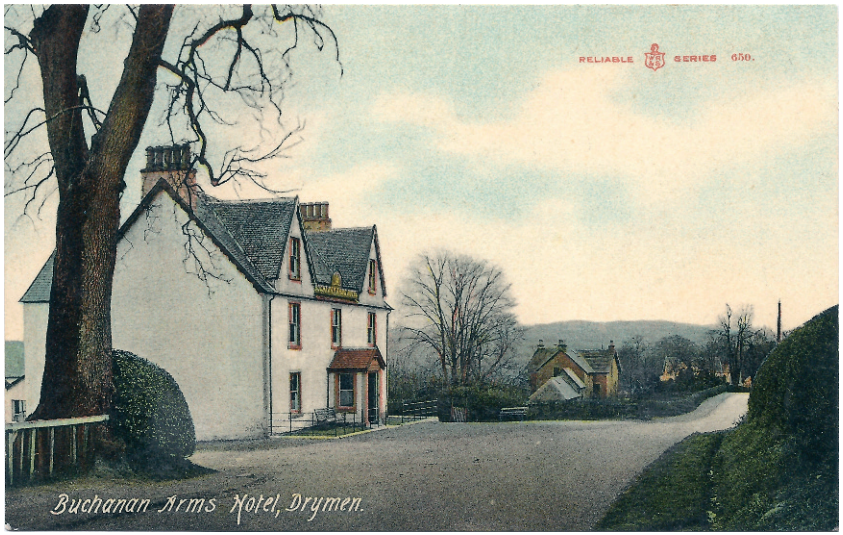


Plate 1b. Picture postcards of where tourists stayed always sold well.


Plate 2a. Drymen Station was an intermediate stop on the former direct rail link between Stirling and Loch Lomond.


Plate 2b. Drymen's main thoroughfare to Stirling before the village expanded eastwards over open fields both sides of the road.

Plate 3. Common butterwort *Pinguicula vulgaris* with rosettes of sticky, gland covered leaves. These trap insects like fly paper and then digest and absorb them.

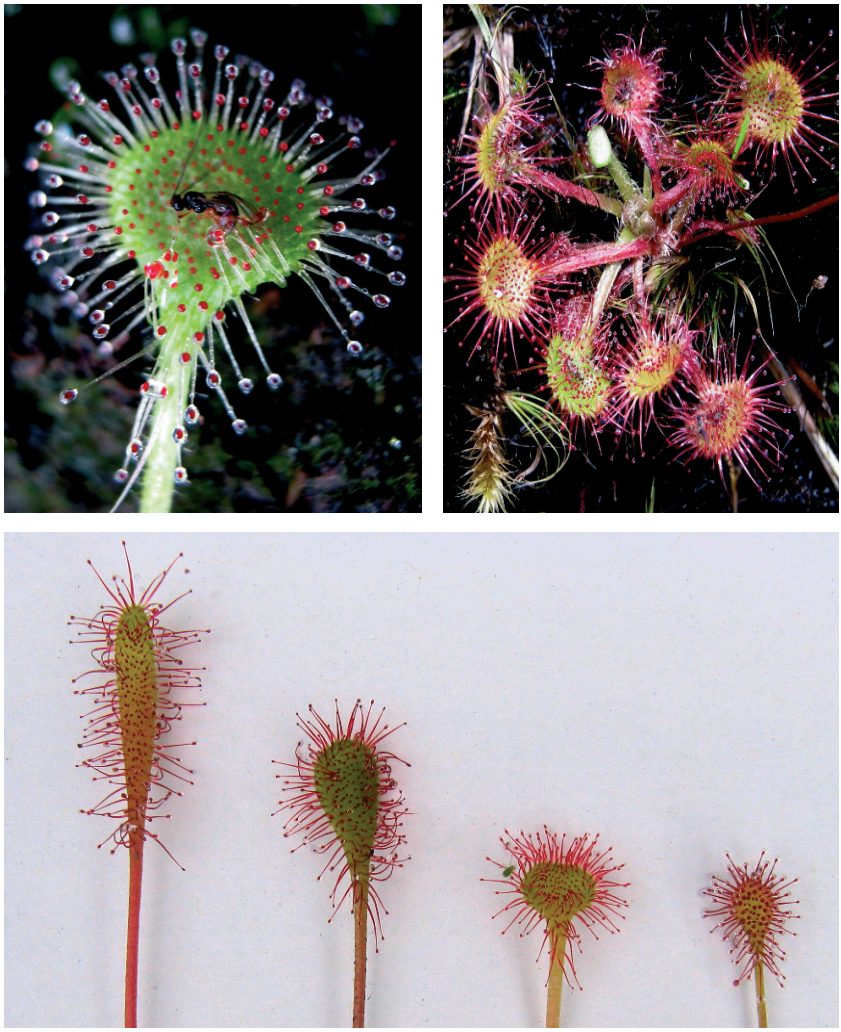

Plate 4. Sundews catch insect prey in the sticky mucilage produced by the tips of the leaf 'tendrils'. Top left: A round leaved sundew *Drosera rotundifolia* leaf twenty minutes after an insect was applied to the ends of its extended tendrils. Those tendrils in contact with the struggling insect have curled inwards bringing it to press against the shorter glands on the centre of the leaf. Later, further tendrils on the opposite side of the leaf folded over the insect finally subduing it. Top right: Plant of round leaved sundew *D. rotundifolia*. Bottom: From left to right leaves of *Drosera anglica; D. x obovata; D. rotundifololia; D. intermedia.*

Plate 5. Top: Lesser bladderwort *Utricularia minor* with its tiny pale yellow flowers protruding above the water. The highly divided leaves with their attached bladders are visible beneath the surface. Bottom: An isolated stem showing the 2 mm diameter bladder traps with the remains of prey which had been sucked into them.

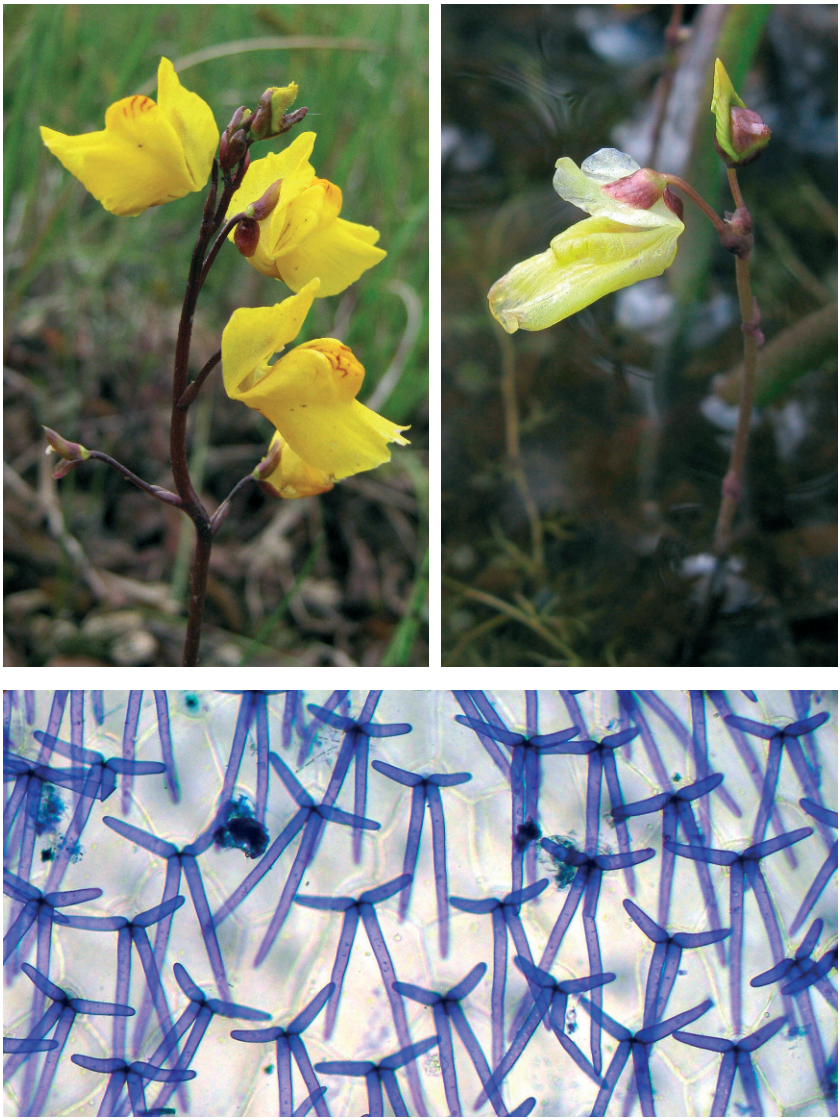

Plate 6. Top left: The showy inflorescence of the greater bladderwort *U. vulgaris* is much bigger and brighter than those of the diminutive lesser bladderwort *U. minor* shown top right. Bottom: These quadrifid hairs which line the bladders are involved in digesting and absorbing the prey. They have been stained to show up under the microscope. The angles between the arms and the relative lengths of the long and short arms are used as taxonomic characters in non-flowering species.

Plate 7.

Buff Footman – *Eilema depressa*

Blair's Shoulder-knot – *Lithophane hesperica*

Crescent Striped – *Apamea oblonga*

Silky Wainscot – *Chilodes maritimus*

Thyme Pug – *Eupithecia distinctaria*

Spindle Ermine – *Yponomeuta cagnagella*

Moth Highlights of 2011
(not to scale)

Plate 8. Greenland white-fronted geese grazing on Loch Lomondside. The characteristic distinctive white patch above a bright orange bill and black stripes or 'tiger barring' across the belly are evident.

Plate 9. Cambuskenneth Abbey – little of the monastic complex remains above foundation level, but the detached thirteenth-century campanile survives to give an impression of the scale and quality of the buildings that were funded on the income from the monastic estate.

Plate 10. Cambuskenneth Abbey from Holy Rude, Stirling – the surviving ruins lie at the centre of the original block of property on the north side of the Forth opposite Stirling that was granted to the canons by King David I.

Plate 11. Cambuskenneth Abbey and the Carse – the monastic estate developed outwards from its original core around the abbey, spreading north-east (centre left) across what became East and West Grange towards Tullibody and south (centre right) over the river into Mobbiscroft and Kersie.

Plate 12. Tullibody Kirk – the parish was appropriated to the abbey in the thirteenth century and its income diverted to the uses of the canons, but this did not mean that they neglected the spiritual needs of the parishioners, Abbot Myln paying to have the church rebuilt in the 1530s to provide a suitable setting for parochial services.


Plate 13. The Dewar Shield. King's Park were the first winners of this trophy in 1898-9. It was last competed for in 1982-83, when it was won by St Johnstone, and it is now on display in the trophy cabinet at McDiarmid Park in Perth.



Plate 14. The Central League winners medal 1904-5 awarded to King's Park half back James Edmond. Photographed with kind permission of Mr John McKail.

# CAMBUSKENNETH ABBEY AND ITS ESTATE: LANDS, RESOURCES AND RIGHTS

Richard Oram

Of the monasteries of the various continental religious orders founded by King David I (1124-53), Cambuskenneth Abbey is one of the least well known and least well understood. Some reasons for this relative obscurity are obvious: beyond the magnificent thirteenth-century bell-tower which survives to its full height (Plate 9), the abbey lacks the impressive architectural remains such as draw visitors to Jedburgh or Melrose and which stimulate interest amongst scholars of architectural history. There is only so much enthusiasm that can be generated by a series of low walls and foundations. One consequence of this absence of popular interest, however, has been an associated lack of modern scholarly interest in the abbey and its history. A further deterrent to research may lie in the rather dismissive treatment given to the abbey's documentary record. Although the form in which the bulk of those records survives – a 1535 copy of the original texts gathered into a single register, each authenticated by the Clerk Register and the whole volume confirmed by the great seal of King James V[1] – is widely recognised as a unique document and of great interest for the light which it sheds on early renaissance legal practice in Scotland, its contents have been labelled as 'a little disappointing'.[2] Admittedly, when compared with the contents of some cartularies – such as those of Arbroath, Dunfermline, Kelso, Melrose or Paisley – there is at first sight little material that illustrates Cambuskenneth's place in national or regional history, or on its place in the society and economy of central Scotland. Superficial appearances, however, are deceptive and, as this article will seek to show, there is much information embedded in the surviving records that illuminates the economic development of Stirling and the Carse of Forth district from the twelfth to sixteenth centuries. Rather than offering a general history of the abbey, this present study will explore the development of its estate from Cambuskenneth's foundation in the 1140s through to its conversion into a secular lordship for the Earl of Mar in 1604.

Modern perceptions of the composition of medieval monastic estates are influenced heavily by the approaches to property management developed by the monks of the Cistercian order. Initially prohibited by the rules of the order from receiving income from sources that had not involved the labour of their own monks and lay-brothers, such as rent from tenanted properties, payments from parish churches that had been granted to monasteries, or derived from tolls or charges for services like milling of grain, the Cistercians had in theory sought self-sufficiency based on the produce of their own estates worked directly and, more importantly, supposedly brought into cultivation by their own labour. The aim was to ensure that the monks were able to maintain a cloistered existence that required minimal contact with the secular world, such

large estates effectively ring-fencing the communities from direct dealings with the polluted world outside. This image of Cistercian agriculture has been shown to be largely mythical and stemmed from the order's propaganda produced during a long intellectual conflict with other orders – principally the Cluniacs – and designed to show their deeper spirituality and separation from corrupting, worldly entanglements.[3] Nevertheless, it has maintained a powerful hold in the popular imagination and 'normal' monastic estates have tended to be seen as comprising of great blocks of land given over largely to intensive arable cultivation or, in northern England and Scotland, forming vast upland sheep-runs and cattle-ranches. For the Augustinians, priests who lived a communal existence rather than monks, there was less constraint on worldly contacts and no restriction on the sources of income which they could accept for their support. Orders of monks like the Cistercians considered that this laxity reflected the spiritual inferiority of canons generally but it also made Augustinians popular with patrons as there was a greater range of income sources that could be granted to canons without necessarily eating into the patrons' landed resources. Thus, for example, from the date of foundation of Augustinian monasteries we find them receiving grants of income from mills, of rents from urban and rural properties, and of control of parish churches, as well as awards of large tracts of real property.[4] Cambuskenneth conforms to this kind of mix, the result being a widespread suite of property interests throughout east-central Scotland, mainly to either side of the Forth estuary below Stirling, but with outlying possessions spread from Perthshire to the eastern Borders.

Cambuskenneth's origins lie in a grant of a grant of half of the hides and a quarter of the tallow from all beasts slaughtered for the king at Stirling which King David I gave in c.1140 to the canons of the abbey of St Nicholas at Arrouaise (dép. Somme).[5] Although David is well known as a patron of the Tironensian and Cistercian orders of monks, he was 'a connoisseur of the religious orders'[6] and directed his patronage towards orders and institutions that he believed stood at the forefront of the great spiritual reform movement of the early twelfth century. St Nicholas at Arrouaise had acquired a high reputation as a spiritual centre based on its especially strict interpretation of the Rule of St Augustine, the form of observance that had been devised for priests who wished to live in a communal, quasi-monastic fashion. The Arrouaisian 'brand' of Augustinian observance was spreading rapidly in the second quarter of the twelfth century – it was adopted by the canons of Carlisle in the early 1140s and St Malachy of Armagh introduced it to the north of Ireland as part of his reform of Irish monastic life[7] – but although the abbey of St Nicholas sent out colonies of canons to new foundations who continued to look back to their 'mother house' for guidance and support this was not a true order in the Cistercian or Premonstratensian sense: Arrouaise did not organise a chapter-general and enforce disciplinary regularity and conformity with the monastic rule upon its daughters. David's grant to Arrouaise was the act of a deeply devout man who wished to have the spiritual support of a community that was believed to stand in an especially close relationship with God and who wished

to demonstrate his practical support for that community; it was not intended to be the basis upon which a new daughter-house would be founded.

How that initial gift to the canons of St Nicholas developed into a full monastic foundation is unknown, but it is likely that David's initial contact with Arrouaise was intended from the outset to open channels of communication through which negotiations for the sending of a colony to Scotland could begin. As patron, David would have needed to demonstrate to Arrouaise that he could make available a suitable site for the new colony to occupy, erect adequate buildings to house them upon their arrival, and provide adequate resources to sustain them as a self-sufficient community. As the surviving evidence for such a process that survives in respect of the Cistercian abbey of Balmerino in north Fife shows, this could be a protracted process that extended over several years.[8] The fruits of those negotiations was abbey of 'St Mary of Stirling', which was fully functioning by 1147. What is regarded as the foundation charter setting out the property endowment which David bestowed upon his new abbey survives amongst the records that were transcribed in the 1535 cartulary, the original being one of the losses to dampness and mildew cited as the reason for the new register's production.[9] Datable to between May and August 1147, it details the basis of the monastic estate in the same terms as a papal bull of Pope Eugenius III (1145-53) dated 30 August 1147.[10]

David's charter provides a clear illustration of the basic suite of resources considered necessary to sustain the monastic community. The first element was the site itself, the lands of Cambuskenneth, which provided the location for the enclosed precinct of the abbey and an expanse of landed property extending north towards the rocky hill that became known as the Abbey Craig that would have constituted a 'home farm' territory (Plate 10). It was on this land that Cambuskenneth developed two demesne farms or 'granges' – properties that supplied their household with basic bulk agricultural produce – represented by the later farms of East and West Grange. In addition to this terrestrial component David granted the canons a fishery in the Forth adjacent to the lands of Cambuskenneth and extending as far down-river as Polmaise, with the right to a single net or trap in the river. This right developed into control of an important salmon fishery on the Forth that provided the canons with a substantial source of income but which also brought them in later years into bitter legal disputes with the burgesses of Stirling (see below) (Plate 11). South of the river, he assigned them the lands of Cowie together with the woods on that property, a gift which gave the canons access to a source of fuel-wood and building timber. Further to the east he gave them a substantial block of land at Tullibody (*Dunbodeuin*) extending from the River Devon towards Logie, part of an established agricultural zone on the edges of a large area of carse that was in the process of being broken into cultivation, providing the canons with an opportunity to expand their interest through further reclamation work.[11] A final large block of real property in this initial portfolio was 'the island between Polmaise and Tullibody' – possibly referring to Tullibody Inch – which may

have been intended to provide the canons with a source of reeds for thatch and basket-making, or possibly of hay from its water-meadow margins. To round of these components of directly-controlled resources David also granted the canons one saltpan with the land from which to support it. For an estate where there was a substantial component of meat and dairy processing – as is likely to have been the case with the types of property awarded to Cambuskenneth in this initial endowment – as well as a significant fishery to service, possession of a means of producing the only bulk preservative available in northern Europe was a major economic advantage. Together, these elements formed the core of a respectable landed estate whose resources – cultivated and natural – provided a diverse economic base for the monastic household. Some income from this estate would have been obtained as rents from tenants, in kind probably rather than in cash at this date. Cash, however, was a necessity for the community to obtain on the market commodities that the estate could not deliver, most notably the wine that was a requirement for the mass and for general consumption. To aid them in this regard David assigned the canons 40 shillings from the rents paid to him at Stirling, twenty *cuthroms* of cheese from the same source,[12] and the *cáin* (tribute due to the king) of one ship which came to the port of Stirling to trade. These two awards provide some indication of the commercial health of the burgh across the river and its already established importance as a regional market centre. The final components of his founding endowment comprised a *teind* (a tenth of the annual income) of the income derived from the feuing out of the king's demesne properties at Stirling and the right to keep all offerings made by the faithful in the church of St Mary of Cambuskenneth. All told, it was a diverse portfolio which gave the canons possession of the means of providing the basic supplies of bulk staple produce necessary to sustain their community, plus forms of income that enabled them to obtain other necessities that could not be delivered from Scottish sources.

Despite the wide-ranging resource base that the founding endowment offered, the canons probably quickly identified commodities that were deficient or lacking in what they had been given. David, moreover, continued to direct additional gifts towards Cambuskenneth. Possibly the first supplementary gift to be granted by him was Kettlestoun (now in the SE suburbs of Linlithgow), whose name indicates that it was an established farming community.[13] The properties here were developed significantly over time and came to include the mill – from which the canons received income in the form of *multures* (the charge levied on milled grain) – as well as the arable land itself. In the last year of his life, to secure the prayers of the canons for the future welfare of his soul, he added two further substantial gifts. The first was Mobbiscroft across the Forth from the abbey itself, described as lying between the river and the road that descended from Stirling to the ships and extending SE as far as the burn that fell from the king's mill to the river (nowadays the block bounded by Shore Road at the north, the railway line on the west, river to the east, and the bend on Forthside Way which marks the location of the former burn outfall into the river).[14] The same charter also granted them the fishings of Kersie and Tullibody, which meant a controlling interest in the salmon fishery most of the way down

the Forth from Cambuskenneth to Alloa, plus easements in the king's wood known as *Keltor* (Tor Wood). This last component significantly expanded the canons' interests into the woods south of Cowie, perhaps offering enhanced access to deadwood for fuel and growing timber for building materials but probably also intended to give access to important wood-pasture opportunities and *pannage* rights for pigs (grazing on acorns in the late autumn for fattening before slaughter). A second charter from this same period brought a diverse mix of gifts, ranging from the church of Clackmannan with forty acres of arable and the associated priest's toft, a *teind* of the income brought in through fines levied in the king's courts in Stirling, Stirlingshire and *Kalenter* (the district of Callendar around Falkirk), to tofts in the burghs of Stirling and Linlithgow.[15] A third important grant apparently made by David but reference to which survives no earlier than the charter confirming all of the abbey's rights which was issued by his grandson King William between 1166 and 1171, was the quittance of the abbey and its men from payment of tolls anywhere in the kingdom.[16] For a community that had already acquired properties at a distance from its main centre and perhaps already involved in the long-distance shipment of bulk produce, this was a valuable concession that perhaps encouraged greater integration of the abbey into the international trade nexus that was based on the burgh and port of Stirling.

A picture begins to emerge from the various gifts made to Cambuskenneth by the 1160s of a local landscape in the middle of a period of rapid and quite dynamic change. The region's resources were being exploited with a new intensity and rigour and the area of most intensive exploitation was expanding as population levels rose and added to demand for agricultural land. The sense is of these developments occurring in an open landscape but with significant blocks of woodland within it – such as Torwood – which were already managed commodities rather than areas of notionally 'wild' land. The wider landscape supported a mixed agricultural economy with a major pastoral component, possibly mainly for dairying, alongside an expanding arable sector. Hints of this can be seen in reference in the charters to the monastery's rights to a share in local common pasture resources for their livestock; to land in terms of acres (one of the measures used where land was under the plough); and to the existence of mills and mill-streams as boundaries of land, as in the case of the king's mill at Stirling. The grant to Cambuskenneth by King Malcolm IV of his mill at Clackmannan, however, does not mean that the abbey was pursuing development of its arable interests or possessed any significant block of arable land there beyond the forty acres that it had received from his grandfather:[17] this was the gift of the mill as a source of revenue from the *multures* (charge for milling paid in kind to the miller) extracted from the local population who were obliged to go there to have their grain ground for meal or flour, not as a place where the canons would mill their own crop.

From the 1160s the character of the estate began to change, as properties were granted to the canons located further and further from Cambuskenneth. In addition to the tofts which the canons already possessed in Stirling and

Linlithgow, they received one in Inverkeithing from Malcolm IV and another in Crail from his mother, Countess Ada, who held that burgh as part of her dower lands.[18] With the Crail property, Countess Ada also bestowed half a ploughgate (approximately 52 acres) of arable land at nearby Pitcorthie, with associated rights of common pasture. This was one of a number of large blocks of arable land that the canons acquired before the end of the twelfth century, all located at a distance from Stirling. These gains included another half *carucate* or four oxgangs (extending to 52 Scots acres) in Fife, received from Walter de Lundin at Balcormo near Lundin Links.[19] More important than the arable here, however, was probably the share in Balcormo's common grazings – located on the ridge of high ground that extends south-westwards from Largo Law – for up to 500 sheep, 20 cows and one yoke of oxen (i.e an ox team for pulling ploughs or carts). From Saher de Quincy, one of the greatest Anglo-Scottish landholders of the day, they received the whole of his lands of Deuglie (later known as Abbot's Deuglie), of unspecified extent, in the upland district at the eastern end of the Ochils between lower Strathearn and the Eden valley.[20] Their interest in this district was also represented by the award of four acres of arable at nearby Forteviot, which King William granted to them along with control of the parish church there, and at the end of the thirteenth century they also received interests at Arngask adjacent to Deuglie which included possession of the mill and the *multures* due from seven townships in Hugh de Freslay's lordship of Arngask.[21] South of the Forth, the canons were given an interest in Kirkintilloch (which until the mid-fourteenth century lay in Stirlingshire), when Bishop Jocelin of Glasgow's award of control of the parish church was supplemented by a grant of a half-ploughgate there from William son of Thorald.[22] A half *carucate* came around the same time from Gilbert de Umfraville, lord of Dunipace, which was built up through a series of subsequent grants by other local landholders into over a *carucate* plus associated grazing rights.[23] The largest single measured acquisition was of one *carucate* of land (between 104 and 120 acres) at Binny near Uphall in West Lothian, granted to it by William de Lindsay before 1195.[24] Various other small parcels of land of between four and thirteen acres were acquired by *c*.1200, often in association with parish churches that were being annexed to the abbey, giving the canons a landed estate scattered from the glens of eastern Perthshire in the north east to the lowlands of the Strathkelvin in the south west.

The dispersed nature of these acquisitions beyond the core estate and the smallness of some of the parcels involved may have rendered much of it of limited value to the canons. Some larger blocks were perhaps exploited as remote portions of *demesne* (land cultivated directly, the produce of which went to support the monastic household), but most was probably leased to tenants from the outset with the canons benefitting from rental income. Some income from remoter properties probably came in kind, chiefly grain but perhaps also dairy produce, skins, hides and processed marine fish. The canons certainly wanted to receive income of mixed types – cash and kind – as illustrated by the renders received from before 1286 from Bothkennar, where King Alexander III had granted them an annual money rent of £8 6d of silver and six chalders of

grain (768 gallons or 3491.4 litres dry volume) in part exchange for the *teind* of the royal *demesne* at Stirling that they had held since the late 1140s.[25] They continued to receive this grain in kind into the later Middle Ages, in 1363 William More of Abercorn, the then holder of the lands of Bothkennar, instructing his tenants to deliver the produce, which had been increased to seven chalders of 'good winnowed grain', to the abbey's servants at the 'mouth of Carroun'.[26] The abbey possessed no real property there; this was produce being brought to a delivery point for shipment up-river to Cambuskenneth or to a market centre where it could be disposed of for cash. The significance of the arrangements at Bothkennar, however, is what it reveals concerning the movement of produce due to the canons from their portfolio of interests; where there was a means of long-distance carriage for bulky but potentially valuable commodities the abbey chose shipment rather than disposal at source. Outlying properties like Pitcorthie in the East Neuk of Fife, therefore, might have been exploited much more rigorously than has been assumed in the past.

Different exploitative approaches were taken to the burgh property amongst Cambuskenneth's possessions, which was dispersed around at least nine Scottish burghs. The grants of tofts in Stirling and Linlithgow by David I were followed before 1200 by tofts in Perth and Ayr, and other land at Inverkeithing from King William, Crail and Haddington from his mother, Countess Ada, and Renfrew from Alan son of Walter (the Steward).[27] Another early grant of burgh property appears to have been made in Berwick, which until the end of the thirteenth century was Scotland's most important burgh and trading port and where most of the major monasteries had a presence either in the form of properties from which rental income was drawn or residences/administrative sites from where their representatives could manage their business interest, chiefly in the wool, hides and grain trade.[28] The early charters recording the Berwick grants have been lost, possibly since there was felt to be no point in retaining them once the burgh had been effectively lost to English control after 1333, but records survive from 1324 of disputes over unpaid rent from the land in Berwick.[29] As such documents reveal, most burgh properties were not intended to be occupied directly by the canons (although there may have been an obligation on the part of the tenants to make provision for the abbot or his officials if they required it) but provided a source of rental income, gave them bases in important market towns and administrative centres where they royal court might gather, and placed specialist tenants whose skills may have been of use in the development of the canons estate under their direct lordship. Significant though the burghs in which it had acquired properties before 1300 were, changes in trade patterns and in the political centres of gravity in the kingdom saw some decline in relevance to the abbey while others gained added importance. By the fifteenth century Cambuskenneth's most valuable individual burgh properties were almost certainly the tenements which it owned in the Canongate of Edinburgh, just outside the Netherbow, and in the Cowgate within the burgh.[30] Collectively, however, it was the portfolio of property interests that it had built up in the burgh of Stirling that yielded the most revenue.

Possession of significant property interests within Stirling and in its immediate hinterland from the time of the abbey's foundation established a close but not always friendly interrelationship between the canons and the burgesses. Rivalry for control of or access to important properties, for example Mobbiscroft, potentially created friction and there is a suggestion in 1230 that the canons were encountering difficulties in extracting payments due to them from the burgh ferme from the provost who collected that rent on behalf of the king.[31] Problems over rents due continued throughout the Middle Ages and two particular cases where the abbey appears to have faced difficulty in securing possession of property where the tenant had died without obvious heirs were brought before the burgh court in June 1481. The first involved a tenement which had been in the hands of John Wilson, described as deceased, located on the west side of St Mary's Vennel. The abbey's legal representatives had visited the tenement to go through the fictional procedure of distraining the tenant for the 5/- annual rent that had been unpaid for several years, but found nothing on the site 'except earth and stones'. The unpaid rent was written off as a bad debt but the property itself was restored to the canons.[32] The second case likewise involved non-payment of the rent due from the tenement of the old school in St Mary's Vennel following the death of the tenant and required the canons to undertake a formal procedure for recovery of the property.[33] Both of these cases involved properties from which the canons drew rental income directly, but it was not always a question of outright ownership: in 1445, for example, it is recorded that annual rents drawn from sixteen burgh properties were assigned to support perpetual chaplains at six altars in the abbey church.[34] In such cases, the rent paid could represent only a share of the total received by the landlord, with several other interested parties also seeking a portion of the income. Arrangements of this kind could and did lead to conflict when rents received from tenants might have been inadequate to cover the various payments assigned from the one property. During the economic recession that Scotland experienced in the late medieval period, where rents fell, such disputes became more frequent.

A further income source developed by the canons from the time of their foundation also led to disputes later in the Middle Ages. Rights concerning parish churches provided monasteries with significant sources of revenue and were gifts that lay lords could make without seriously eroding their landed estates. The trend originated in the Church's efforts in the eleventh and twelfth centuries to free itself from what was regarded as secular interference, one aspect of which was the rights which some lords had of appointing the priest to serve in the parish church(es) within their lordship, referred to as rights of patronage or *advowson*. Lords were encouraged to renounce that right, usually by granting it away to some other religious institution. Control of patronage was well and good but it brought few tangible benefits to the controlling institution. The solution, therefore, was to seek the right to appoint one of their own number to serve in theory as the *parson* or *rector* (parish priest) with a *vicar* (deputy priest) installed to actually serve the cure of souls locally. The revenues which were attached specifically to the office parson were then annexed to the

controlling monastery, a process known as appropriation. In many cases in Scotland, the vicarage revenues were also annexed, with the needs of the parishioners being served by what was referred to as a vicar pensioner (who would receive only an assigned stipend from the vicarage income) or an even lowlier curate. This process of appropriation brought a significant source of revenue into the hands of the controlling institutions in the form of the *teinds* (the annual payment of a tenth of the yield from the lands within a parish) plus all of the pious offerings and charges for spiritual services (like, baptisms, marriages and burials). In Cambuskenneth's case, this right delivered large quantities of income in kind – mainly grain – from the parish churches which it had acquired in the district around Stirling, its eagerness to acquire and preserve its possession reflecting the intensification of agricultural exploitation of the abbey's hinterland, the growing population attendant on that, and the general expansion of the regional economy.

Cambuskenneth possessed one of the largest portfolios of parish churches of the major Scottish monasteries; twenty-three churches in total but not all were held at the same time or held in sole possession.[35] It is unlikely that there had been a parish church at Cambuskenneth before the foundation of the abbey, but one of the first benefits which the canons received was the award to them of the parochial rights of their church of St Mary of Cambuskenneth. What this did was put them in possession of the *teind* income and other ecclesiastical dues from the whole of the district in the immediate vicinity of their monastery. The crown was the most important source of gifts of parish churches, kings David I, William and Robert I assigning to them a series of churches from properties that lay in royal hands. The first 'new' parish church granted to them was Clackmannan, gifted by King David, which probably originated as a chapel serving the royal estate there.[36] This was followed in the reign of King William with separate grants from him of the churches of Kinclaven, Tillycoultry, Kincardine and Glenisla.[37] Enjoyment of Kinclaven's revenues was not easy, for although it had been a royal possession associated with the royal castle and estate of Kinclaven and was confirmed to the canons by a succession of royal charters, the abbey becoming embroiled in a long dispute with the bishop of Dunkeld who had assigned the fruits of the parish instead for the support of the chanter in his cathedral. The dispute was eventually settled by compromise in 1260, with the bishop, Richard of Inverkeithing, assigning them instead the church of Lecropt which, despite its proximity to Stirling, fell under his jurisdiction.[38] Later bishops of Dunkeld may have regretted their generosity and in 1394 the canons were again involved in expensive litigation when Bishop Robert of Dunkeld had undertaken a visitation of the churches of Lecropt and Alva, supposedly contrary to one of the abbey's privileges, and had placed them in the hands of administrators apparently due to what he considered to be the canons' failures to discharge suitably their duties as appropriators.[39] There is no record of how the dispute proceeded but the fact that at some stage between the 1390s and the Reformation a vicarage pensionary had been established to serve the church of Lecropt implies that the bishop had succeeded in making a case for the canons'

inadequate discharge of the responsibility to serve the cure properly.[40] Despite the difficulties over Kinclaven, the crown continued to gift parish churches to Cambuskenneth, the last award being by King Robert I in 1324/5 when he gave the canons Kilmaronock in the Lennox.[41]

Where the crown led others followed, a succession of parishes being granted to the canons by a series of lay and ecclesiastical lords. One of the abbey's more important parish church acquisitions from such sources was the gift c.1170 of the church of Tullibody by the otherwise unknown Simon son of Macbeth, a gain which consolidated the abbey's already significant property-holding in the parish.[42] Before 1200, Robert, bishop of St Andrews, had added the church of *Egglis* (Kirkton or St Ninian's) with its dependent chapels of Dunipace and Larbert, the former of which achieved parochial status by the fifteenth century.[43] In Dunkeld diocese Bishop Richard de Prebenda granted the church of Alva, while in Glasgow diocese William son of Thorald and Bishop Jocelin gave the church of Kirkintilloch.[44] There is a sense that most of these gifts were spontaneous acts by patrons who wished to express their personal faith and to signal their support for and belief in the spiritual worth of Cambuskenneth specifically, but there are occasional hints that the canons may actively have sought control of certain churches as a means of consolidating their position in a locality. Such a case may have been Arngask, where the canons' landed interests received a significant boost in the early 1280s when Bishop William Fraser of St Andrews appropriated the parish church to the abbey.[45] Churches continued to be acquired successfully from non-royal patrons into the fourteenth century, the last apparently being Crathie on Deeside, which was annexed to the abbey in 1347 by Bishop William de Deyn but which had probably been granted to them after c.1275 by an earl of Mar.[46] Other awards were less successful in the long terms. The canons briefly had interests in Blairgowrie, confirmed in their possession in 1207 in a papal bull of Pope Innocent III but subsequently appearing only as a pension of 100 shillings annually from the fruits of the parish;[47] Crail (although this may have been the result of 'clerical error');[48] Forteviot, where King William's grant was for some reason ineffective;[49] and Kinnoull, where the award of the church in 1361 by Robert Erskine, lord of Kinnoull, and confirmations by both King David II and Bishop William Landallis of St Andrews failed to secure permanent possession for the canons.[50]

There is a lingering post-Reformation tendency to view appropriation as one of the 'ills' of the Church that was swept away by the Reformation and that monasteries were shameless exploiters that extracted every ounce of income from parishes but gave next to nothing back. Ample cases exist in the records which support such a view, and Cambuskenneth's own example at Lecropt suggests that the canons were not perfect appropriators. There are, however, signs that the abbey did take its duties as appropriator seriously, at least during the abbacy of the reform-minded Alexander Mylne (1519-48). In the case of Tullibody kirk especially, it can be seen that Mylne ensured the maintenance of the building and its refitting as a suitable liturgical space, apparently

overseeing the complete rebuilding of the church in 1539s (Plate 12).[51] Such concern, however, was rare and Cambuskenneth at the time of the Reformation seems to have been more interested in milking the parishes for revenue than in ensuring that spiritual services were appropriately discharged. Indeed, like most Scottish monasteries by the 1560s the abbey had stepped away from direct involvement in its appropriated parishes to the extent that it had leased the collection of parochial *teind* income to laymen who paid a fixed money rent and who then disposed of the grain and other produce on the open market for whatever profit they could make.[52]

Ease of management and securing of a steady income-flow also saw most fisheries being leased to before the mid fourteenth century, mainly to relatively low-status fisher-tenants who saw the potential for gain in supply of a commodity that was in increasing demand. By the later Middle Ages fish, especially salmon, meant money and the lure of profit encouraged the growth of litigation and sometimes violent conflict over control of the fisheries, despite the long period of legal possession enjoyed by the canons and the parchment evidence which they could produce to prove their rights. It is likely that friction had been mounting steadily before the action that led the abbey to present a complaint before parliament that secured a royal mandate of 27 July 1366 that asserted Cambuskenneth's rights. It gives notification of a judgement in parliament at Scone which found that certain burgesses of Stirling had violently attacked and broken the fixed traps or cruives and damaged the fishing arrangements of Cambuskenneth in the Forth.[53] It named twenty-three burgesses and eight fishermen, who were given forty days to replace the damaged cruives and make recompense for all expenses and losses to the abbey. Although the surviving records of the abbey do not contain further reference to disputes with the burgh over the salmon fishery for over a century, the next extant document, dated 19 February 1495, reveals that serious conflict had continued. The document is a royal confirmation of a decree of the Lords of Council instructing Stirling to cease occupying Cambuskenneth's fishings on the Forth and pay compensation to the abbey for twenty-five years of illegal occupation.[54] Six years later, it was clear that the conflict had still not ended: on 20 July 1501, William Elphinstone, bishop of Aberdeen, one of the Lords' Auditors, issued a decreet (a formal judicial decree) by in the continuing case between Cambuskenneth and the burgh of Stirling over the fishings of the Forth at Stirling, requiring the canons to give proof of their rights; three years later it was the burgh pursuing the abbey for implementation of the decreet.[55]

There is another hiatus after this twist in the conflict until the 1520s, when the abbey records preserve a series of documents relating to the abbey's rights to the teinds of the salmon fisheries of the Forth below Cambuskenneth.[56] There had been difficulties in this regard going back to at least the mid-fifteenth century with, unsurprisingly, the salmon *teind* from the parish of Stirling being one of the major difficulties.[57] The protracted disputes over these rights seem in part to have been a consequence of the abbey's lack of political leverage – no prominent lay patron to plead their case in the appropriate courts

– and the eventually successful assertion of their rights appears to stem from Abbot Mylne's high standing with the king and prominence as a legal figure; in 1532 James V was to appoint him first Lord President of the College of Justice. Mylne's hand no doubt lay behind the king's confirmation on 8 March 1531 of an act of the Lords of Council against the bailies of Stirling for 'wrongous, violent and masterful spoliation' by themselves and accomplices against the abbey and its fishing-tenants which had seen removal of tenants' cobles and nets under cover of night.[58] It again was Mylne who pursued action in 1533 against Robert Wemyss, vicar of Stirling, for non-payment of salmon *teinds*,[59] an issue that had recurred repeatedly over the previous century. This case was one that Mylne was not prepared to yield on, pursuing litigation as far as the papal court in Rome.[60] Despite the abbot's persistence, however, it was only with the progressive feuing away of the abbey's resources under his successors David Paniter and Adam Erskine – the latter of whom diverted most of those resources into the hands of his kinsman John Erskine earl of Mar – that the long conflict began to diminish in significance.

Taken together, the records of the abbey that have been explored here reveal a more complex picture of the assembly of its estate portfolio and the management strategies employed in its development than traditional accounts of either Cambuskenneth specifically or the Augustinian order in general have suggested. The surviving material in the cartulary, which has only been examined superficially in this present study, records the painstaking construction of a diverse assemblage of resources that were designed to deliver the canons a broad range of commodities or sources of cash income necessary to sustain a monastic community and to furnish it with buildings and materials. They provide us with glimpses of a landscape in transition in the twelfth century, where previously unexploited or lightly-exploited land was being broken into intensive cultivation; where specific types of resource – fish, fuel, building timber – were available in relative abundance; and where the efforts of colonising peasant cultivators as well as the canons' direct efforts were expanding the range and scale of economic opportunities from which the abbey benefited. There are gaps which the existing sources cannot fill; for example, we do not know what happened to the saltpan which the canons possessed in the mid twelfth century and how they obtained this precious commodity in bulk in the later Middle Ages, nor do we have a clear understanding of how the abbey was supplied with fuel once local wood and peat resources became depleted in the fourteenth and fifteenth centuries, although it is likely that there was early development of the potential from accessible coal sources on the abbeys estate. Shifts in emphasis over time are clear, from direct exploitation of assets to a process of feuing intended to deliver cash income from which the monastery could purchase its needs on the open market, although it is clear that important portions of the abbey's landed estate close to Cambuskenneth itself always remained under direct management. In all of this, we see the workings of property managers who were responsive to market shifts and, most likely, to changing environmental conditions, who often found themselves in direct competition for control of lucrative resources

and who were prepared to make no compromises in their defence of their rights. Cambuskenneth's cartulary may in some senses be 'a little disappointing' but its content provides a unique record of the experience of an institution that lay at the heart of the socio-economic as well as spiritual life of the region for four centuries.

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[2] A.A.M. Duncan, *Scotland: the Making of the Kingdom* (Edinburgh, 1975), 642.

[3] R. Fossier, L'économie cistercienne dans les plaines du nord-ouest de l'Europe', *Flaran* 3 (1983), 53-74; C.H. Berman, 'Medieval Agriculture, the Southern French Countryside, and the Early Cistercians. A Study of Forty-three Monasteries', *Transactions of the American Philosophical Society*, 76, pt.5 (1986). For the controversy with the Cluniacs, see:

[4] D. Knowles, *The Monastic Order in England, 940-1216*, 2nd edition (Cambridge, 1963), 224-6; C.V. Graves, 'The economic activities of the Cistercians in Medieval England (1128-1307)', *Analecta sacri ordinis cisterciensis* 13 (1957). For general discussion of the Cistercian-Cluniac controversies, see D. Knowles, *Cistercians and Cluniacs* (Oxford, 1955).

[5] See, for example, the 'foundation' charter of Holyrood Abbey in *Liber Cartarum Sancte Crucis* (Bannatyne Club, 1840), no 1.

[6] *The Charters of David I*, ed G.W.S. Barrow (Woodbridge, 1999), no. 139.

[7] The description is C.N.L. Brooke's: C.N.L. Brooke, 'King David I of Scotland as a Connoisseur of the Religious Orders', first published in *Medievalia Christiana, XIe-XIIIe siècles: homage à Raymonde Foreville*, ed C Viola (Paris, 1989), 320-334, republished in C.N. L. Brooke, *Churches and Churchmen in Medieval Europe* (London, 1999), chapter 9.

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[9] M.H. Hammond, 'Queen Ermengarde and the Abbey of St Edward, Balmerino', *Cîteaux, Commentarii cistercienses* (2008), t.59 fasc. 1–2, 11–36 at 15-16.

[10] *Registrum Monasterii de Cambuskenneth* (Grampian Club, 1872), 1.

[11] Ibid, nos 23, 51; *Charters of David I*, no 159.

[12] R.D. Oram, 'Estuarine Environments and Resource Exploitation in Eastern Scotland c.1125-c.1400: A Comparative Study of the Forth and Tay Estuaries', in E. Thoen and L. Vervaert (eds), *Landscapes or Seascapes*?' (in press, Turnhout 2012).

[13] For *cuthroms* and other measures, see A.D.C. Simpson, 'Scots "Trone" Weight: Preliminary Observations on the Origins of Scotland's Early Market Weights', *Northern Studies*, 29 (1992), 62-81 at 70-72.

[14] *Charters of David I*, no 182; *Cambuskenneth Registrum*, no 170.

[15] *Charters of David I*, no 213; *Cambuskenneth Registrum*, no 190.

[16] *Charters of David I*, no 214; *Cambuskenneth Registrum*, no 57.

[17] *Cambuskenneth Registrum*, no 52; *Regesta Regum Scottorum*, ii, *The Acts of William*, ed G.W.S. Barrow (Edinburgh, 1971), no 60 [hereafter *RRS*, ii].

[18] *RRS*, ii, no 60.

[19] *RRS*, ii, nos 60, 99.

[20] *Cambuskenneth Registrum*, no 36.

[21] *RRS*, ii, no 407; *Cambuskenneth Registrum*, no 72.

[22] *RRS*, ii, no 208; *Cambuskennth Registrum*, nos 5-8, 101.

[23] *Cambuskenneth Registrum*, p 44.

[24] *Cambuskenneth Registrum*, nos 79-82.

[25] *Cambuskenneth Registrum*, no 25. Lindsay's charter does not survive; the grant is recorded only in a bull of confirmation and protection from Pope Celestine III date 13 May 1195.

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[27] *Cambuskenneth Registrum*, no 43.

[28] *Cambuskenneth Registrum*, p 44; *RRS*, ii, nos 99, 278, 433.

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[30] *Cambuskenneth Registrum*, no 39.

[31] *Cambuskenneth Registrum*, nos 94-97

[32] *Cambuskenneth Registrum*, no 208. This document is wrongly attributed to King Alexander III: the witnesses indicate that it was issued by his father, Alexander II.

[33] *Cambuskenneth Registrum*, no 212.

[34] *Cambuskenneth Registrum*, no 211.

[35] *Cambuskenneth Registrum*, no 214.

[36] I.B. Cowan, *The Parishes of Medieval Scotland (Scottish Record Society*, 1967), 215 for the full list.

[37] Barrow (ed), *Charters of David I*, no 214; *Cambuskenneth Registrum*, no 57.

[38] *RRS*, ii, nos 323, 324, 372, 527.

[39] *Cambuskenneth Registrum*, no 184; Cowan, *Parishes*, 129.

[40] *Cambuskenneth Registrum*, no 17.

[41] Cowan, *Parishes*, 129.

[42] *RRS*, v, nos 290, 504; *Cambuskenneth Registrum*, nos 145-6, 148-9, 150; Cowan, *Parishes*, 104.

[43] *Cambuskenneth Registrum*, no 216.

[44] *Cambuskenneth Registrum*, no 109; Cowan, *Parishes*, 52, 124, 127.

[45] *Cambuskenneth Registrum*, nos 15, 25, 132; Cowan, *Parishes*, 6, 121.

[46] *Cambuskenneth Registrum*, nos 1-4; Cowan, *Parishes*, 9.

[47] *Cambuskenneth Registrum*, no 67; Cowan, *Parishes*, 38.

[48] *Cambuskenneth Registrum*, nos 27, 46-8; Cowan, *Parishes*, 18-19.

[49] Cowan, *Parishes*, 37.

[50] *RRS*, ii, no 161; Cowan, *Parishes*, 69.

[51] *Cambuskenneth Registrum*, nos 160-9; *Registrum Magni Sigilli Regum Scotorum*, ed J.M. Thomson, vol 1 (Edinburgh, 1882), appendix 1, no 151.

[52] http://arts.st-andrews.ac.uk/corpusofscottishchurches/site.php?id=128534 [accessed 11 September 2012].

[53] For the feuing of teinds in this way, see K. Kirk (ed), *The Books of Assumption of the Thirds of Benefices* (London, 1995), 546-8.

[54] *The Records of the Parliaments of Scotland to 1707*, K.M. Brown et al eds (St Andrews 2007-2012), 1366/7/21. Date accessed: 11 September 2012; *RRS*, vi, no 356.

[55] *Cambuskenneth Registrum*, no 202.

[56] Stirling Council Archive Services, B66/25/259, B66/25/261.

[57] *Cambuskenneth Registrum*, nos 205-7.

[58] *Cambuskenneth registrum*, no 204.

[59] *Cambuskenneth Registrum*, no 203.

[60] Stirling Council Archive Services, B66/25/636.

[61] National Records of Scotland: GD149/264/f 43.

# A PICTURE POSTCARD FROM DRYMEN

John Mitchell

It is thanks to the Edwardians' passion for collecting picture postcards and safeguarding them in albums that so many of these early cards are still available to us, offering a fascinating glimpse of our forebears' world a century or more ago. The present day genre of local history publications would be much the poorer without these bygone postcards as illustrative material.

## Development of the Picture Postcard

In the UK, small decorative vignettes began to appear with increasing frequency on otherwise plain postcards from about 1894, the year that the postage rate on commercially printed cards was reduced from a penny to a halfpenny, encouraging their greater use. However, the picture postcard as we know it today only came about at the turn of the century, following two further amendments to Postal Authority regulations. In 1899, the hitherto small size of British postcards was increased to 140 x 90 mm, the standard already adopted by our continental neighbours. Three years later, the strict rule of the sender's message on one side of the card with the intended recipient's name and address on the other was relaxed. From 1902 onwards, both the message and the addressee's details could be written on the same side. Importantly this freed-up the opposite side of the card entirely for the picture.

The publishers of postcards were quick to take advantage of these changes. Between 1902 and the outbreak of the First World War in 1914 (often described as the golden age of the picture postcard), local view cards were released onto the market for just about every town and village in the country where worthwhile sales could be expected. Compared to other small settlements in West Stirlingshire, Drymen was exceptionally well treated in the number of different view cards of the village issued. The explanation for this is that Drymen lay on a popular tourist route to both Loch Lomond and the Trossachs, ensuring a steady stream of likely purchasers of picture postcards as inexpensive holiday souvenirs.

## Two leading Scottish publishers of Picture Postcards of Drymen

The oldest Drymen postcard in the author's collection – and the only one bearing a Queen Victoria postage stamp – is of the early vignette type (Figure 1). Although the name of the publisher is not given, from the mini-views of the area on the message side of this pre-1902 black & white card it can be attributed to the well known photographic firm of Valentine and Sons of Dundee. The especially interesting vignette of a cattle fair taking place in Drymen's Main Street and Square was subsequently re-issued by Valentines as a full-sized


Figure 1. An early Drymen postcard with decorative vignettes.

colour card in its own right (Plate 1a), the one illustrated having been posted in 1912 with a stamp of George V. It would seem therefore that cards depicting this particular scene from rural life were on sale for an extended period – during the reigns of three monarchs in fact. A cautionary warning to be taken from this is that a dated postmark on the back of a used picture postcard should be treated only as a rough guide as to when the photograph was actually taken.

Another well established Scottish firm amongst the first to see the potential of picture postcards was William Ritchie and Sons, a wholesale stationary supplier in Edinburgh. From a number of Drymen cards represented in their *Reliable Series*, the example illustrated is of the Buchanan Arms (Plate 1b). The view shown is of the original country inn long before it was converted into a modern hotel.

**A local picture postcard publisher**

For every major publisher of picture postcards during the opening years of the 20th century there were scores of smaller players, in some cases amateur photographers taking advantage of the rapidly expanding market. One such self-publisher who produced a range of postcards focussing on Drymen and its surrounding area was W.T. Mollison of Alexandria, West Dunbartonshire. According to the population census and property valuation records of Alexandria, William Tytler Mollison was a grocer and confectioner by trade, with premises at Wilson Street and Church Street in the town. Sadly, it was

probably because Mollison lacked fully professional status in the photographic business that his name was omitted from *Local Photographers Past and Present* published by Dumbarton District Libraries in 1984, yet the picture postcards he produced were of a quality equal to his competitors.

Of the two examples illustrated of W.T. Mollison's work, the first is of Drymen Station at Croftamie during the heyday of the Forth and Clyde Junction Railway (Plate 2a). Closed to passenger services in 1934, as a slowly declining freight line it finally ceased to operate in October 1959. Today only the station building remains, converted to a private residence. The second Mollison postcard is of the start of the Stirling Road as seen from Drymen Square (Plate 2b). On the left is a drapers/boot and shoe shop, to the right the meeting hall of the Ancient Order of Foresters. Both street corner buildings are still there, but adapted to other uses – a police office and a general store respectively.

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# A BRIEF HISTORY OF KING'S PARK FOOTBALL CLUB

Nigel Bishop

Had it not been for the possibly unintentional action in July 1940 of a German plane dropping a land mine on the original Forthbank Stadium, the home of King's Park Football Club, football supporters in Stirling might still be watching a club without the name of the city in its title.

## The early days

If the group of young men who had been kicking a football in the King's Park had held a meeting to discuss forming a football club in 1875 it did not get reported in either the local newspapers. During that year the *Stirling Journal and Advertiser and Gazette of News, Politics and Literature for the Midland Counties of Scotland* was published on a Friday and the *Stirling Observer and Midland Counties Advertiser* on Thursdays and Saturdays. Both of them gave coverage of a range of sports and pastimes; Aquatics (Rowing), Bowling, Coursing, Cricket, Curling, Draughts, Fishing, Golf, Pigeon Shooting, Quoiting, Scottish Games, the Moors and the Turf. By far the greatest space was given to Cricket in the summer and Curling in the winter and the reports on other sports were very brief. Newspapers at that time sometimes reported a meeting at which it had been decided to form a football club but the only indications, discovered so far, that King's Park (Stirling) was formed in 1875 are newspaper reports of annual meetings in later years.

At this time in Scotland Rugby football was more popular than Association Football. On 20th November 1873, under the heading *Stirling Football Club*, an article in the *Stirling Observer* stated *We understand that a football club has been formed in Stirling to be conducted according to Rugby rules. The members of the club intend to have their first game in the King's Park at 2 o'clock on Saturday first if the necessary appliances can be got by that time.* The *Journal* also reported the meeting and ended their report with a somewhat pompous phrase *and as there is now a club we hope the youth of Stirling will avail themselves of this opportunity to participate in this healthy and manly sport.* The appliances must have been got because a 25 a-side match took place.

In March 1876 the *Journal* decided to add more information by printing the names of the players due to play for Stirlingshire Football Club (Rugby) against Clackmannanshire and they probably wished they had not. The aggrieved club secretary, Mr Adrian M.M.G. Kidston who had been a prime mover in the formation of the club in 1873, wrote to the paper the following week to say he had been surprised to see the list of those due to play as it was not correct, it had put some of the club members to great inconvenience and he had been getting the blame!

The first mention of King's Park, as an Association Football Club, was in November 1876 when the *Journal* and the *Observer* reported that the first elevens of Stirling King's Park and Bonnybridge Grasshoppers had met in the King's Park, the game ending in a draw one all. On the same day the second elevens of the two clubs had played at Bonnybridge and the home side, who claimed to be the oldest senior Association Football Club in Stirlingshire, had won 3-0.

The first mention of players was in May 1877 when Stirling, King's Park played a newly formed club, Thornhill, on a field provided by Mr Moir, farmer, Netherton and Thornhill won 2-1 in front of a crowd said to be between three and four hundred. Young and M'Innes played well for King's Park.

The first time the names of the whole team was given was for the game at Balfron in October 1877 which Balfron won 2-0. In the early 1870s the standard formation was to have eight forwards but towards the end of the decade the number had dropped to six and for this game King's Park lined up as follows;

J McKenzie, goal;
A Nicol and J Young, backs
W Marshall (captain) and J McKinnon, half backs
H Morrison, P Lennie, J McDermid, W Murdoch, J Watson and J Oliphant forwards.

It was not long before disputes and crowd problems began and in November 1878 the only comment in the report of a 2-2 draw against Bonnybridge Grasshoppers was the interference in the play by some of the spectators who rushed onto the pitch whenever there was a dispute. The *Journal* report said it was hoped that this would not be repeated but this was a forlorn hope. Disputes and protests, both by the crowd during a game and especially at committee meetings after the formation of the County Association, soon became a feature of many reports of matches and meetings.

The Scottish Football Association had been formed in 1873, with 16 member clubs, and by the end of 1879 there were 123 member clubs with 7000 members. The first competitive King's Park match was a first round Scottish Cup Tie away to Milton of Campsie in 1879, a landmark ignored by both the *Journal* and the *Observer*, which the home team won 3-1.

One clear disadvantage of playing on a public park was the inability to charge spectators to watch matches and although most home games were played in the King's Park the Stirling County Cricket Club ground at Easter Williamfield was used from time to time. Clearly this was not ideal and in 1881 the club leased a private park in front of Raploch Farm House on Drip Road from the farmer, Mr McKerracher, which they named Gowanbank Park. The first match there was on 1st October 1881 against Rangers (Swifts) who proved much too strong winning 8-2. At the end of December a soiree, concert and assembly were held in the Guild Hall during which a report was presented

which said the club was in a prosperous state, had 50 members and that it had been decided to add a third team, the Gowanbank eleven, to the playing sides.

**Formation of the Stirlingshire Football Association**

The next significant development for the club and for organised football in Stirlingshire was on 11th March 1882 when the representatives of various Stirlingshire clubs met at the Athole Arms Hotel in Glasgow and agreed to form a Stirlingshire Football Association. It was decided that a cup, valued at 25 guineas (£26.25), would be competed for. King's Park won the Stirlingshire Cup in 1899, 1911, 1912 and 1915 and the Stirling and District Charity Cup in 1886, 1889, 1890, 1891, 1893 and 1894.

The first club colours were dark blue jerseys and knickers with a red stripe and red hose and in July 1882 'Pilgrim', in the *Stirling Observ*er, reported that the club had decided to change the team colours from navy blue to marone (sic) and he suggested that the hose should be maroon and white striped because *it would be ever so much prettier.* In 1886–87 a change was made to cardinal striped jerseys with white knickers and, using more modern wording, red and white striped shirts and white shorts were the club colours, nearly all of the time, until the end.

As soon as football matches were reported in newspapers it was likely that some spectators would have a different view of events. On 1st December 1883 King's Park travelled to Doune to play the local Doune and Deanston side, Vale of Teith, and the report in the *Stirling Journal* 6 days later said there had been the usual turnout of enthusiastic spectators and that the matches were usually productive of a hard fought and exciting game but this one was not. King's Park had arrived with only nine players and Fraser, there as a spectator, was pressed to fill one gap but this was nullified as during the first half Owen was injured. However, according to the *Journal*, Vale of Teith won a pleasant game 3-0 and after the match the teams had tea together at the Woodside Hotel.

'Playfair' wrote a letter to the Editor of the *Journal* from Doune on 4th December with his view of the proceedings.

> *SIR,- On sauntering through the streets of Doune on Saturday after a week's hard work, I observed a large bill stuck in the window of one of our principal shops intimating that a grand Football Match would be played in the afternoon at the "Tullochan Knowe" Park, between the Vale of Teith (Doune) and King's Park (Stirling) clubs. I naturally thought if I went down that I would see a good game, and besides the round globe, with its historical associations, has a charm for me. Consequently I made my way to the spot, paid my threepence on entering what was once called a free park. The advertised hour to start was 3 P.M. but it was long past that hour before the respective teams took their places on the ground. At last, however, a start was made. The contesting clubs played one hour only, and at the finish I was sorry to admit that a more miserably*

> *played game never took place on the same ground, and by that time all my sanguine anticipations of seeing a good game had melted away into the thin cold air of disappointment. It was said the Doune men had won by three goals to nothing, but it was a poor victory, if true, as throughout the entire match the usual concomitants of the scientific game of to-day were abolished during "this got up farce." In fact the style of play on both sides was something akin to "mere slabbering" to what I have seen on the same ground on previous occasions. Now, Mr Editor, I say it is not fair for the public that two Football Clubs should arrange a match to take place at a certain hour, invite the public, and not turn up at the appointed time, then too late put in a certain appearance, only to lift their "black mail", play a sham game in the dark, then bolt to Woodside Hotel, there to have a grand jollification at the expense of "their victims." I do not think that Mr Burn Murdoch of Gartincaber meant such a beautiful little park as that of the "Tullochan Knowe ground" for such a purpose, and after this, as the exhibition and payment of the price, take place at simul et semel, the public should keep their money in their pockets until the Football Committee fulfil their obligations, as after Saturday's proceedings they are not entitled to any credit. These contretemps of the said Football Clubs unquestionably call for an explanation! – I am, &.,*

After 4 years it was decided that Gowanbank Park was too far away from the town and the club moved to a ground at Laurelhill Park, Southfield and they played their first match there on 5th December 1885 against Dunblane. Admission was 3 pence and ladies were admitted free.

After 4 years at Laurelhill the next move was to Forthbank, a ground just to the east of the railway line south from Stirling and close to the bridge which still carries Kerse Road over the railway.

In 1889-90 one of the most famous teams in Britain, the Corinthians, for the first time included King's Park in their Christmas tour which extended into early January. On the 31st December the *Observer* reported that the King's Park were due to play the flower of English Amateur Football, the London Corinthians and the visitors were due to be entertained after the match at Hendry's Station Hotel. *This tit bit has been arranged by H E D Hammond of Blair Lodge School in Polmont.* Mr Hammond was a member of the Corinthians and played thirteen times for the club between 1888 and 1890 and eight of those games were during the 18 match tour but he did not play against King's Park. The Corinthians included King's Park in their Christmas and New Year tour for the next 5 years. They won the last of the series 8-0, and may have felt by then that King's Park no longer provided worthwhile opposition. Three Corinthian club histories have been written in 1906, 1933 and 2007. In the first, the *Annals of the Corinthian Football Club* edited by B O. Corbett, a member of the club, the only mention of King's Park is in the lists of matches played in some of which they were said to have played Stirling in Stirling. In the second book by another Corinthian, Norman Creek, as well as the list of matches played there is a brief, unflattering, mention in the report of the Christmas Tour to Ireland

and Scotland in 1891-92 when the pitch at Forthbank was described as "a stretch of mud three inches deep, relieved by alternate zones of cinders and pebbles" and the third book repeats this comment. King's Park won the game 3-2 and it is possible they were more used to playing on mud, cinders and pebbles and throughout the time that King's Park played at Forthbank there were frequent uncomplimentary remarks about the state of the pitch. During this same period other clubs who visited Stirling were Newton Heath (who became Manchester United), Everton, Sunderland and the Canadian International Touring XI.

When there was a change of ownership of Forthbank in 1899 the club moved further away from the town to a field on Springkerse. The Patrons of Cowane's Hospital met a deputation from the football club in June 1899 and set a list of twelve conditions which included *Park to be used for football but also grazed with cattle or sheep and also for holding, not more than four times a year, athletic sports.* The Patrons agreed to fence the east side of the entrance road and the football club was required to fence the road to Clayslaps. An open ground, clearly a field, that was a bit further away from Stirling probably was not ideal and in 1906 King's Park went back to Forthbank where they stayed until 1940.

**Champions of the Northern Counties**

As founder members of the Stirlingshire Football Association King's Park had competed for the Stirlingshire Cup from the start and reached the final for the first time in 1885-86, when they lost 3-1 to East Stirlingshire in a replay, and they won it for the first time in 1898-99. This meant they had qualified to compete for the Dewar Shield (Plate 13), a new competition with only four entries, the champions of Aberdeenshire, Forfarshire, Perthshire and Stirlingshire. They defeated Orion, the Aberdeenshire champions in the semi final and met Arbroath in the final at Recreation Park, Perth on 13th May 1899. The headlines in the *Arbroath Herald* on the Thursday after the match were clear.

THE DEWAR SHIELD CONTEST AT PERTH
REFEREE WINS GAME FOR KING'S PARK
ARBROATH PLAYERS THREATEN TO LEAVE THE FIELD.

In the first half Arbroath had the ball in the net four times but the referee, Mr Baillie of St Bernard, Edinburgh, only allowed one of them to stand and disallowed the other three for offside. King's Park equalised before half-time and in the second half, according to the paper, a ball rebounded off the head of the referee into the Arbroath net and was allowed to stand. The players appealed and the crowd protested but it made no difference. An Arbroath player kept hold of the ball and the team said they would leave the pitch but the captain, Robert McGlashan persuaded them to stay and with the wind behind them thought they might still equalise. King's Park effectively packed their goal and the game ended 2-1.

Figure 1. The Kings Park Team 1898 winners of the Stirlingshire Cup, the Dewar Shield and the Stirling Charity Cup. Kind permission of Dave Moor.

At a supper in the evening after the game the medals were presented by Mr P.M. Dewar, the nephew of the donor, who said he had not seen many football matches in his day but he felt that two of the disallowed Arbroath 'goals' should have been given. The shield (Plate 13) was not ready to be presented after the match as it was still being chased by a first class London firm so the presentation took place on Friday 15 September 1899 in the Golden Lion Hotel in Stirling (Figure 1). When league competitions began the interest in county cups and associated trophies gradually faded over the years and the last winners of the Dewar Shield were St Johnstone in 1982-83 and the Shield now adorns the trophy cabinet at McDiarmid Park.

**League competitions**

King's Park joined the Scottish Alliance when it was formed in 1891-92, switched to the Midland League in 1892-93, were champions in that season, and moved to the Central Combination in 1897-98. In the early years of the twentieth century the club was very close to going out of existence. A public meeting was held in July 1904 to consider the position of senior football in Stirling and to try and increase interest in the affairs of the club. The membership had fallen from 81 in season 1900-01 and was now only 20 but the club staggered on playing mainly friendly and cup matches. They did win the Central League in 1904-05 although there were only four other teams, Camelon, Dunblane, Alloa Athletic and Stenhousemuir. The Central league medal awarded to half back James Edmond still exists (Plate 14). The next move

was to the Scottish Union for three seasons and then to the Central League where they stayed, although no matches were played during the First World War. They became members of the Scottish League Division Two in 1921.

Before they joined the Scottish League the decision was taken to become a limited company. The Prospectus stated:-

*This company has been formed for the purpose of promoting senior Football in Stirling and District. The Directors are confident that the central situation, and steady growth of the district, on a moderate estimate, is over 30,000 inhabitants and is increasing, and is likely to increase in the near future.*

The capital was £3,000 divided into 3,000 shares of £1 each and the King's Park Football and Athletic Club Limited was registered on 9th July 1919. When the company was formed there were 16 directors and among the five who left after a year was the Chairman Thomas Adam M.A., M.D., D.P.H., the County Medical Officer. Of the 16 only two, John Henderson, a painter of Alexandra Place and William Stevenson, a potato merchant of Beechcroft, were still directors 21 years later. The memorandum of association included a long single sentence giving the objects for which the company had been formed:-

*To carry on a Football Club, and in connection therewith, to promote the practice and play of Football, Baseball, Cricket, Lacrosse, Lawn Tennis, Hockey, Bowls, Cycle Riding, Running, Jumping, the physical training and development of the human frame, and other athletic sports, games and exercises of every description, and any other games, pastimes, sports, assault-at-arms, recreation, amusements, or entertainments, and to buy, sell, exchange, or hire all articles, implements, fixtures, furniture, apparatus and things used in the playing or practice of such games or pursuits, and any other implements or things used or required therefor, or for the promotion of the objects of the Company, including prizes to be given in any competition or competitions promoted by the Company.*

The balance sheet on the 14th June 1920 stated that 1668 of the 3000 shares had been issued. Subsequent annual reports show that in ten of the 21 seasons the balance sheet showed a profit but the total of profits for those seasons was greatly exceeded by the losses and finding the money to keep the club going was a continual struggle.

There was an attempt in November 1920 to make a change to the team strip when a local clothier, James Harris, supplied new shirts which were red with white sleeves but these proved unpopular with the fans who thought it was too much of a 'Bolshie' appearance and they were soon abandoned in favour of the traditional striped shirts.

**The home game which was not played at home**

As a result of crowd trouble a Scottish Division Two league match was played in Dunblane in 1921 the first, and last, time a game was played there.

In the first half of the match at Forthbank against St Johnstone on 6th February 1921 the referee Mr J. Aitken of Glasgow disallowed what the King's Park players thought was a perfectly legitimate goal early on in the first half after which St Johnstone scored to lead 1-0 at the break. The visitors scored a second and Tommy Mannion scored one for King's Park within a couple of minutes. King's Park were then awarded a penalty which was taken by goalkeeper Archie Buchanan. He hit it straight at the St Johnstone keeper and in the ensuing melee the ball ended up in the net but the referee disallowed the goal. Shortly afterwards King's Park had the ball in the net again but this was also disallowed. The players surrounded the referee and some of the crowd came over the barrier and joined in. Play was held up for 5 minutes while the pitch was cleared and after order was restored Tommy Mannion scored an equaliser 10 minutes before the end. As the players left the field after the match a youth was said to have pushed Wiltshire, the St Johnstone goalie, and he pushed back. The man was arrested by the police and then some of the crowd started to throw cinders at the police. The directors and some of the players tried to calm things down but about 200 people gathered in front of the grandstand at which point the police drew their batons and order was restored.

The outcome of the disturbance was the closure of Forthbank for 2 weeks during which the only home game scheduled was against Vale of Leven. This was played on 5th November at Duckburn Park in Dunblane, the home of Junior Club Dunblane Rovers. Around 2000 supporters went by train from Stirling and a good many unemployed fans walked from Stirling only to see a dull goalless draw. In earlier years 'The Heather' had been a senior club and the match was described as the first big game played at Duckburn Park since Dunblane had played Leith Athletic in a cup tie 16 years before. There are still Duckburn Park signs on the site, one an impressive metal one on a stone wall, which identifies the small commercial estate which has replaced the football ground.

**The record attendance and the closest they came to promotion**

In January 1925 the record attendance for Forthbank was set in the first round Scottish Cup tie when 8,911 spectators packed into the ground and saw Cup holders Airdrieonians win comfortably 4-0.

King's Park were never promoted from the second division, the closest they came was in 1927-28 when they finished third and but for an exciting cup run might have finished higher. In the first eight matches left winger Frank Toner scored one goal and in the next game against Armadale centre forward Alex Scoular was injured and Frank took his place, with Alex limping on the left wing, and he scored twice in the 5-2 victory. He kept his place at centre forward and scored a hat trick in the next match which began a run of 17 games only five of which were lost. By the end of December King's Park were second in the league table.

In the Scottish Cup, having disposed of Civil Service Strollers 3-0 away in a game played in torrential rain in the first round and Armadale 4-2 away in the second round, for the third round they were drawn at home to Rangers. For financial reasons the directors switched the tie to Ibrox which caused a public outcry, many irate letters were sent to the local press and there was talk of a boycott. However the prospect of a day out in Glasgow proved too much of an attraction and three special trains took 1,500 supporters to the city. The Rangers side which included Dougie Gray, Dave Meiklejohn, Alex Archibald, Andy Cunningham, Bob McPhail and Alan Morton did not have it all their own way as King's Park's right winger Martin Lennon was in sparkling form and scored after 30 minutes. King's Park held the lead for 43 minutes when Alan Morton scored. He added another after 15 minutes before the end and a late goal made it 3-1. However the club's share of the entrance money paid by the crowd of 20,451 was a great help to the finances.

Rangers went on to achieve the cup and league double beating Celtic 4-0 in the final at Hampden, their first Scottish Cup success for 25 years.

As so often is the case it was an anti-climax after the defeat at Ibrox and King's Park had a six match run without a win which shattered all dreams of promotion.

**Eight goals on a debut**

Another memorable game, in which a scoring record was equalled and nearly broken, was on 2nd January 1930 when King's Park beat Forfar Athletic, a team above them in the league table, 12-2. The pitch was heavy in places, not unusual at Forthbank, Forfar were missing four of their regular defenders, the game was the day after a full league programme which had followed New Year's Eve celebrations and King's Park had a centre forward making his debut for the club. James (Jimmy) Dyet, a centre forward with Cowie Juveniles, was the younger brother of Gilbert Dyet the King's Park left half, and he was only in the side as a triallist because the regular centre forward Hugh Martin had been injured in the match against East Stirling the day before. Jimmy scored six goals in the first half; King's Park led 7-0 at half time, and added two more in the second half to equal the record of eight goals for a player in a senior league match by Jimmy McGrory for Celtic against Dunfermline and Owen McNally for Arthurlie against Armadale. Not surprisingly he was signed on immediately after the match and played in the next game 2 days later away to Stenhousemuir and although he did not score, King's Park won 1-0, the *Observer* report said *In the Forfar match he demonstrated his deadly opportunism and at Stenhousemuir he pleased the crowd with his fine distribution of the play*. In the next ten games, seven in the league and three in the Scottish Cup, he scored a total of twelve goals. By the end of the season he had scored 25 goals in 16 league matches. Interviewed, when aged 96, in 2004 Jimmy Dyet said he did not think his eight goals in the match against Forfar had been such a great feat.

**The marathon cup tie against Ayr United**

Over 60 years after King's Park played their last competitive match more than one of those supporters of King's Park interviewed referred to the cup ties against Ayr United in February 1935 as a high spot in the history of the club. In January 1935 they beat Edinburgh City 3-1 in the first round of the Scottish Cup and in the second round were drawn away to Ayr United. The marathon began on Saturday February 9th at Somerset Park with a 1-1 draw. On the following Wednesday the score at Forthbank was 2-2 after extra time and before the teams could meet for the third time there was a league game to play at home to Brechin City on Saturday 16th February. Six team changes were made for this game which King's Park won comfortably 8-1 and one of the changes was bringing in right half Hugh Brown. He was the father of Craig Brown who is currently the Aberdeen manager and who was the Scotland team manager from 1993 until 2001. Two days later the second replay was at Firhill with the same side as had played in the first two cup matches and although King's Park were twice ahead in normal time when the full time whistle went it was 3-3. There were two goals in extra time but they were shared so the following day the teams met again at Hampden Park in front of a crowd of 14,300, of which 6490 were admitted at the unemployed turnstiles. Hugh Brown replaced Tom Fowler but otherwise the team was the same as that for the previous three games and this time Ayr took the lead. Bryce and Baird both missed penalties for King's Park and so for the first time the teams were not level at half-time. Eleven minutes after the restart Andrew scored and 5 minutes later he scored again after a mistake by the Ayr goalkeeper to take King's Park into the third round the following Saturday. Bryce, Lang, Temple and Young played in all five games over the 18 days and Andrew, Baird, Hillan, Laird, Milton and Soutar played in all four cup ties. The cup run came to an abrupt end the following Saturday when Aidrieonians won comfortably 6-2.

**Memories**

In 1999 Daniel Morgan, who remembered as a small boy scrambling with other boys under the fence to get into Forthbank, recalled a man called Jimmie Wordie who worked as an odd job man for an antiques dealer called Yates. Jimmie used to go to matches wearing a top hat bedecked with red and white ribbons and proved he had the high degree of optimism found in many true supporters. In February 1937, after beating Elgin City in the Scottish Cup first round, King's Park were drawn away to Hearts in the second round. Jimmie Wordie did not go to the match, he may well have not been able to afford to attend, but he rang up a paper in Edinburgh to ask the score. When he was told it was 15-0, he asked "Who to?"

In 2000 Alexander McIntosh recalled that the longest sloping embankment at Forthbank was behind the town end goal and that was where Jimmie Wordie held sway every home game with his vocal encouragement "Ability is bound to

tell". There was a long but not so high embankment on the north side of the field opposite the grandstand. The ground there fell away to a fence which separated the ground from the railway property and during games there would be a long line of railway engines with railwaymen cleaning out the fireboxes etc but usually paying more attention to the progress of the game. In bad weather the pitch was very muddy and a hefty clearance would travel no more than thirty yards and when players headed a heavy leather ball it seemed to him as though it must have felt like heading a boulder.

In 2002 Willie Jenkins thought he first went to Forthbank as an 8 year old in 1931 and he remembered the first of the three replays of the Cup tie against Ayr United. He also recalled either being lifted over the turnstiles or slipping through the railway sleepers which formed a fence in the north east corner of the ground. The lads would collect beer bottles left on the ash terrace and get 1d each for them when handed in at the 'jug' at the pubs.

Coal merchant Tom Fergusson, best remembered now as the man who was instrumental in the formation of Stirling Albion after the Second World War, was a director of King's Park over a 12 year period but for the majority of those years they were a club in name only. He became a director in 1936 and in 1938 he found himself in trouble with the Scottish Football Association. The referee, Mr R.E. Carruthers of Airdrie, had reported an incident which had taken place, on 19th February 1938, during half-time in the King's Park versus St Bernard league match at Forthbank. When he had entered the King's Park dressing room after the interval to tell the players to resume the game he heard a voice say "Now boys get stuck into them. If any of you are ordered off I'll pay the fines." The referee also said the only way of identifying the person alleged to have made the remark was that they were the donor of gifts to King's Park players after the Scottish cup-tie against Penicuik Athletic and the draw with St Bernard at Gymnasium Park in Edinburgh. The SFA Referee Committee met on 12th April 1938 and rejected the King's Park claim that the club knew nothing about the incident and banned Tom Fergusson from football until 16th May 1939 and suspended the King's Park players W. Clark (right-half and captain) and W. Deans (centre-half) until 1st January 1939. Tom Fergusson was also vice-president of the Scottish Juvenile Football Association and secretary of the Stirlingshire Juvenile Football Association and had to relinquish these posts as well.

**The beginning of the end**

The 1939-40 season started well for King's Park and after their four league matches they were unbeaten and third in the table and then on 3rd September 1939 Britain declared war on Germany and, although they could not possibly know, it was effectively the end of the club. On the declaration of war the government had announced that all football grounds were to close. This was an understandable response because, unlike 1914, there was a serious risk of aerial attack.

Figure 2. The grandstand at Forthbank after the bomb, dropped by a German plane, landed on it in the early hours of 20th July 1940 (with kind permission of The Smith Art Gallery and Museum).

On September 6th 1939 the Scottish Football Association suspended all football and players' contracts were consequently declared void. The total closing of grounds had been a panic reaction and the government aware that boredom could lead to anger changed its mind and regional leagues in Scotland began. Kings Park were in the Eastern Regional League for the rest of the season and the *Stirling Journal* on the 9th November included a photograph of the new regional team, the same photograph appeared in the Christmas number, in red shirts with white sleeves with the caption. *Here are the lads who now sport the red and white, many of them stars from English and Scottish clubs who have 'evacuated' themselves for the purpose of securing jobs in civil employment.* The five players in the team group from other clubs were Laird (East Fife), Muir (Rochdale), Binnie (Chesterfield), McMillan (Chelsea) and Black (Heart of Midlothian). Of these the best known was Stirling born Andy Black who had made three appearances for Scotland the previous season. Ironically the profit for the season was over £450, the biggest since 1926, but then in the early hours of Saturday 20th July 1940 two bombs were dropped on Stirling (Figure 1). One landed in an open field but the other landed on Forthbank. It missed the pitch by between twenty and thirty yards but it completely shattered one wing of the grandstand and produced a crater 18 feet deep and 30 feet in diameter. Part of the terracing was demolished as well as the press room, dressing rooms and

offices and part of the entrance and turnstiles were damaged. Remarkably no one in the houses in Springfield Place, which was on the south side and close to the ground, was seriously injured. Censorship meant that the *Journal* on the 25th July had a report "sent by a *Journal* reporter from a town in south-east Scotland (where he had been spending a few days)". As the paper also included pictures of the shattered grandstand quite how the inhabitants of Stirling responded to such a report we can only imagine. The caption over two pictures of the shattered grandstand read *Why do German Bombers pick on our Football Grounds?* After the Chief Constable visited the scene of devastation later in the day and had spoken to some of those affected he said "I don't know if we are all made of the stuff as these people, but if we are, then I am not afraid of any lack of morale on the part of the people of this country" On the same page was a report of a meeting two days before in Dunfermline chaired by Tom Fergusson, which attempted to form a new Midland League but nothing came of the initiative.

By now there were only three directors. Councillor Mcfarlane Gray, the interim secretary in the absence of his brother Peter who was on military duty, resigned and Tom Fergusson became both the Chairman and Secretary. In August a King's Park team lost 8-3 to an Army eleven and four days later lost 5-4 to Queens Park Strollers. In September 1940 only 200 spectators turned up at Forthbank Park, when a King's Park side defeated an Army XI 9-2, the majority of whom were soldiers. Despite the lack of support Tom Fergusson, now the secretary-manager, was determined to try to carry on and was trying to arrange a game with Rangers A for the following Saturday but to no avail.

The steel girders from the old Forthbank Stand were used by the Kelvin Construction Company of Glasgow to build the bus station in Stirling which was opened on 6th October 1941 and demolished in 1991 in preparation for the next phase of the Thistle Shopping Centre development.

At the annual meeting of the club at the offices of Fergussons, coal merchants in Wallace Street, Stirling in January 1943 it was announced that Forthbank Park had been handed back to the superiors of the ground. As a result the club still existed but had no team and no ground.

As late as August 1944 a 'King's Park select' played an RAF eleven on the Back o' Hill ground in Stirling. An application was made to join the North Eastern League but it was turned down. If that bomb had not fallen where it did in 1940 as Stirling was a garrison town King's Park might even have flourished during the Second World War.

A number of Scottish Second division clubs had struggled for years but the two which did not survive the war probably would not have been the clubs anyone just before the outbreak of war would have said would fail. St Bernard, formed in 1878, competed in the Eastern Regional League in 1939-40 and even though they closed down after one season, 1941-42, in the North Eastern

League it was thought they would restart after the war. In 1943 their ground, Royal Gymnasium Park, was sold and the club, who had won the Scottish Cup in 1894-95, disappeared.

Emotionally, if not technically, the ashes of King's Park gave birth to Stirling Albion but 5 years after the land mine there appeared to be still hope that there would be no need for a phoenix to rise. A meeting of the shareholders was held in late April in 1945 when the chairman Mr Robert McGilvray, Tom Fergusson was the Secretary, said he believed there was a fair demand for the club to be resuscitated and that "They fairly wept when Chamberlain started the war, because the club was right on top at the time!"

The landmine which fell on Forthbank in July 1940 effectively ended the club but in strict legal terms King's Park lingered on for another 12 years, it remained in existence as there was a claim outstanding for compensation for War Damage and the final chapter of the story of King's Park Football and Athletic Club Limited ended in the Golden Lion Hotel in Stirling on 13th May 1952 when it was decided to wind up the company. Mr W.S. Gibbon C.A. of 20, Barnton Street, was appointed liquidator.

When a new senior professional club, Stirling Albion, was formed they played on a new ground built on the Annfield estate but when they moved to a new purpose built stadium it was gratifying to see it given the name Forthbank. As it is much closer to the bank of the river than the old Forthbank was it is even more appropriate. It is now very unlikely that anyone in the crowd at a Stirling Albion game is tempted to shout, or even whisper under their breath, "Come on the Park" but perhaps they did in 1945.

**Sources**

If the minute books or treasurer's account books still exist they have not yet come to light so the main sources of information for this article have been *The Stirling Observer*, *The Stirling Journal* and *The Stirling Sentinel*. In addition to information gathered by Paul Doherty and the late Roger Harris considerable assistance has been provided by past and present staff at the Stirling Reference Library and The Stirling Council Archives.

Books consulted include:

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# RECORDS OF HER MAJESTY'S CUSTOMS AND THE PORT OF ALLOA REGARDING THE EARLY DEVELOPMENT OF THE PORT

Extracts from articles published in the ALLOA ADVERTISER 1868-1870.

Murray Dickie

**Introduction:**

In 1868 the editor of the **Alloa Advertiser** made a formal request to the Port Commissioner of Alloa for permission to search the Custom's records for publishable material on the history of the port which may be of interest to local readers.

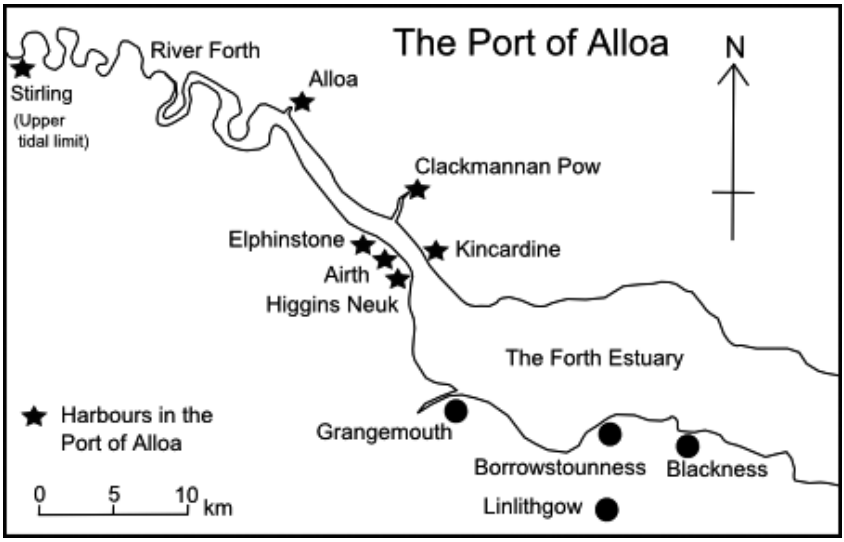
*"The Editor of the Alloa Advertiser recently made application for liberty to peruse the old records preserved in the Custom-House at this port, with the view of ascertaining some particulars relating to the trade and business of the port carried on in former times, and of taking extracts and gleaning any information of interest relating to matters of a local nature that may be fallen in with, purely in the light of antiquarian notices for publication in his paper."*

Permission was received from the Commissioners:

*"THE HONOURABLE COMMISSIONERS of HER MAJESTY'S CUSTOMS having been pleased to grant application, and authorize the COLLECTOR to furnish the editor with the information required, the former will endeavour to cull from the materials preserved, chiefly letter books, whatever may appear most interesting, in respect of the commerce of Alloa, Airth, Kincardine, Stirling, &c., and any other incidents worth noticing that may occur in the course of perusal, adding by the editor's request, any remarks that may be necessary, by way of explanation, or tending to increase the interest of the topics introduced."*

Subsequently the editor commissioned the then collector of taxes at the port, Mr. G.C. Coats, to write ten articles for publication, however, despite numerous searches, only nine have been identified. This might have been because in 1870 Mr. Coats had been promoted to Collector at the Port of Stornoway and presumably no longer had access to the Alloa records. The nine papers were published in the Alloa Advertiser. The records in articles one and two contain a number of significant and interesting references to the development and operation of the Port of Alloa in the early 18th Century. A paper based on records five and six covering the period of the 1745 rebellion has already been published (Dix and Dickie, 2011).

**The Formation of a Separate Port:**




Prior to 1713, the duties for goods imported or exported into the upper Forth Estuary were originally collected at Blackness, it being the old port and shipping place for Linlithgow. The port of Alloa was then only a creek within the limits of the port of Blackness with just a coast-officer to take surveillance of the vessels and their cargos and detect or prevent any infringement of the Revenue Laws. He would be under charge of the Customs Officers stationed at Blackness. There had long been a rivalry between Borrowstounness (modern name Bo'ness) and Blackness. About the middle of the 17th century Borrowstounness had become more important for shipping and commerce than Blackness and the Custom House was therefore transferred to Borrowstounness. The Burghers of Linlithgow were strongly opposed to this change and, with the support of the Convention of Royal Burghs, succeeded about 1679 in getting the Custom House removed back to Blackness. The merchants and shipowners of Borrowstounness became more wealthy and important and, with the assistance of the Duke of Hamilton and after much opposition, succeeded in having the Custom House restored to Borrowstounness. It was finally settled there in 1707, the year the Act of Union came into operation.

The Collector at Alloa to the Board of Customs, in reply to an order directing certain returns to be made for the period from the 1st May 1707, (when the Act of Parliament settling the Union came into operation), to the 29th September 1710, stated "*which (*returns*) you must have from Bo'ness, there being no Custom-house here (*at Alloa*) then*". This indicated that that up to 1710, Alloa had not been a separate port.

By commission of Her Majesty's Court of Exchequer bearing the date "*30th day of November (1713), in the 12th year of the reign of Her Majesty Queen Anne*", Alloa was constituted a *Member Port of the Port of Borrowstounness.* The port of Alloa then extended from the Bridge of Stirling down south side of river to Higgin's Neuk and on the opposite shore down to the New Pans of Kincardine, including all islands and inlets. Following the formation of Alloa into a separate port, British vessels of all kinds entered inwards and cleared outwards, duties were received and all other customs and revenue business transacted at the Custom House there.

**Early Imports:**

In the early part of 18th century the (foreign) commerce of the port of Alloa was carried on principally with Holland, Norway, Sweden, France, Spain and Portugal. The imports consisted chiefly of timber, deals and iron from Norway and Sweden; flax, tow, soap, pearl ashes, linseed, wainscot and Geneva (gin) from Holland; wine and dried fruits from France, Spain, and Portugal and tobacco from Virginia, North America. Quantities of other articles; such as paper, hides, drugs, linen, starch and hops; are also listed as liable to duty. A number of customs entries illustrate this brisk trade:

- April, 1718, the *Greyhound* of Bo'ness, John Izett, master, arrives at Alloa from Bordeaux with wine;
- June 1709, the *Elizabeth* of Elphinstone, James Scoby, master, arriving at Alloa from Campvere, in Holland, with a cargo of Linseed;
- February 18th, 1720-1, the *Elizabeth and Jean* of Airth, John Macalpyn, master, from Rotterdam, with Geneva (gin) and brandy;
- 1723, a cargo of timber from Norway, is landed from the *Primrose* of Elphinstone, at Elphinstone.
- June 1725, the *Betty* of Airth, John Adam, master, landed at Stirling, a cargo of flax, tea, wainscot and other goods from Rotterdam.
- January 1733-4, the *McKenzie* arrives from Virginia, North America, with tobacco for Alloa;
- May 1734, the *Black Bitch* of Elphinstone from Spain, with wine for Elphinstone;
- January 14th, 1737-8, the *Mary* of Airth from Bilbao with wine, &c., for Elphinstone and
- October, 1741, the *Clementina* of Airth, James Duncanson, master, from Oporto, with wine.

A coastal trade in corn and meal developed from the beginning of the port. It is recorded that on the 21st July 1718, the *Betsy* of Alloa, John Blackater, master, brought a cargo of meal from Aberdeen for the New Pans, Kincardine; in 1723, several cargoes of corn were brought to the port from Thurso and we find an instance of a cargo of wheat from Prestonpans. Corn was also being imported from abroad, the *William* of Airth, John Adam, master bringing a cargo from Dantzic on the 27th July, 1741.

Vessels sometime arrived and, after discharging part of a cargo,proceeded with the remainder to other ports. For example, in August 1719, the *Success* of Bo'ness, Robert Glasfoord, master, arrived from Rotterdam, landed at Airth 40 half ankers liquor of some kind, five casks pepper and other goodsand afterwards proceeded to Bo'ness to discharge the remainder, consisting of onions in bulk (these appear to have been then imported extensively).

Although not necessary appearing in the Custom House Books, other articles were sent coastwise, such as common bricks, stone, tiles for roofing (then gradually coming into use and, taking the place of the ancient straw-thatched mode) and turf, better known as peats, which long ago were largely used as fuel by the common people of Scotland in localities where beds of mosses existed. The limestone quarries in the neighbourhood of Limekilns and Charleston have been wrought from an early period and, from the superior quality of the lime, small coasting vessels had been employed carrying it to Alloa, Airth, Stirling, and other landing stations for perhaps a period of nearly two hundred years.

Vessels at that early period also seem to have benefited from indirect trade. It was frequently the case that vessels belonging to the port arrived with cargos from Holland and other countries and, after discharging part at Alloa, Airth or Elphinstone, (modern name, Dunmore) would proceed with the remainder of the cargo to a foreign port, very frequently to Norway. For example, the *Mary* of Airth, James Mackie, master, from Bilbao in Spain, arrived with 38 hogsheads wine, 210 bags chesnuts and walnuts for Alloa, and 14 hogsheads wine, 28 tons salt, and five small boxes (contents unknown) for Norway. Wine, then imported direct into this port from France, Spain, and portugal, was occasionally shipped again, sent coastwise to London and other ports. In 1743, we find that the *Clementina* of Elphinstone, James Duncanson, master, took 10 butts of Spanish wine for Boston in Lincolnshire, one of the eldest of the English out-ports. Wine was also sent coastwise to Leith, London, Hull, and other ports.

**Early Exports:**

The main exports were coal and tobacco. It would appear that there had been a considerable coasting trade about the beginning of 17th century, although the vessels then employed in the foreign as well as in the coasting trade were generally of a small size. Coal was the principal article shipped coastwise. It is recorded in 1738, that as many as 30 vessels would sometimes be loading coal at one time at the port bound coastwise and foreign. On the 7th May 1723, the *Expedition* of Leith arrives in ballast from Hamburg to load a cargo of coals for London, showing that Alloa coal had then found its way into the English capital, although we may suppose for other purposes than domestic use. It would appear that the shipments of coal for England at that time, were chiefly, if not entirely, confined to London.

Malting seems to have been carried out widely in the area as cargos of grain

and malt appear to have been sent pretty frequently to ports along the coast and on even to the Ultima Thule (Shetland). Salt, an important article of manufacture in Scotland in former days was frequently transported by sea and vessels, especially those of a small size, would frequently be employed in carrying it from place to place along the coast and occasionally to foreign parts.

The manufacture of salt gave employment to large numbers of people along both sides of the Firth of Forth. They were designated salters. At almost every port, creek, or village of the Firth there were salt pans. At Bo'ness, Grangepans (where it is still made by Henry Cadell, Esq.), Carriden, St. Davids, Inverkeithing, Limekilns, Culross, Kincardine and Kennet. It was also made in Elphinstone (salt pans are mentioned as being there in 1739) and on one occasion in 1747, 1,300 bushels are recorded as having been exported thence. On the 9th April 1744, we find that a Bond was given at the port for the exportation of 4,000 bushels salt for Virginia.

It was the practice to take Bonds from the shippers for the due landing of certain goods, such as coal, corn,, soap, etc., at places of destination, and certificates of landing were given for the discharge of the bond. It is on record that on 12th March 1718-9 the Collector sent to the Board 179 bonds for coasting cargoes being undischarged, and on 16th January 1720, he sent again 154 more of the same, all for the purpose of being put in suit, from which it may be inferred that the coasting trade of the port had then been pretty considerable.

**The Tobacco Trade:**

The strict regulations of the English Customs Laws at the time of the union proving a great restraint upon the trade of Scotland, Scottish merchants turned their attention to the English colonies then opened to them. A great trade in tobacco and other colonial produce arose, by which the merchants of Glasgow and other towns acquired much wealth. In this, the merchants belonging to the ports of Bo'ness and Alloa participated. Under the old duty system the merchant was permitted to give Bond for payment of the duty within a certain period, or, if he paid the duties on importation, he had the benefit of a large percentage discount. This was introduced by Act. 12, Charles 11., cap. 13, A.D. 1660; but the evident inequality and impolicy of exacting revenue alike upon articles consumed in the country, and those exported abroad, soon became evident; for in the same year, it was enacted that the exporting merchant might claim or drawback the whole amount of duty which he had paid to the Exchequer.

During the period the tobacco trade existed at Alloa, the privilege of importing and exporting it was unrestricted and no warehouses under Crown's Locks were required. Besides being directly imported from Virginia, tobacco was brought overland from Port Glasgow, Greenock, Dundee, etc., to be exported for drawback of the duty, to ports in Holland, Norway, etc. and shipments were made for London and other ports along the coast. Many

merchants appear to have been engaged in this branch of business. There were cellars for storing the tobacco at Alloa, Airth, and Elphinstone. On production of a certificate of payment of the King's duty, the merchant was allowed credit to the extent specified in the certificate, and drew back the duty on exportation.

The tobacco, both leaf and manufactured, was usually exported in British vessels. The following are a few instances:- The earliest recorded case is in April 1720, when the *Griffen* of Alloa, John Bachop master, took 236 rolls, weighing 3,373 pounds for Bergen in Norway. In 1734, the *William* of Bo'ness, G. Wishart, master, 73 hogsheads leaf, and the *Marjory* of Bo'ness, William Boyle, master, 16 hogsheads., both for Rotterdam. In 1736, the *Mary* of Airth, James Mackie, master, 70 hogsheads for Campvere in Holland. In 1739, the *Success* of Stirling, 15 hogsheads for Bremen; and the *Primrose* of Elphinstone, 12 hogsheads for Arendale. Occasionally it was shipped in foreign vessels: for example, in November 1746, the *Patientia* of Mandal in Norway, Boh Pitterson master, takes four hogsheads and the *Anna Catherine* of the same place, Biorn Salveson, master, two hogsheads, both vessels bound for Mandal. Alloa being a coal-loading port with many vessels frequenting it to load coal bound coastwise and for ports on the continent, merchants had opportunities of shipping tobacco either in larger or smaller quantities, as vessels shipping tobacco could easily complete their cargoes by taking coal.

**Fraud and Smuggling:**

At this earliest period of the port there was a considerable amount of lawlessness and fraud. Customs Officers did not record the weight of coal taken on board coasting vessels (it being the practice to levy the duty on the quantity ascertained at the port of discharge). The duty on coal for export was more strictly dealt with, being levied on the quantity ascertained at the port of shipment, under the surveillance of the Customs Officers. It appears to have been a common practice, in order to evade a portion of the duty, to clear out for a port somewhere along the coast and then sail to a foreign country. The master, alleging on his return that he had been blown over (the North Sea) by strong gales, paid the duty on the quantity expressed in the coasting clearances, generally a third or fourth less than the export duty. It appears too, that sometimes vessels would clear with coal coastwise, proceed to a foreign port and give no notice of this deviation from the coasting voyage.

There was then a higher rate of duty on wine imported from France than from Spain and, to evade the higher rate, the master would report his vessel as from Spain although the vessel sailed from Bordeaux in France. The oldest date of any writing to be met with in the Custom House is that of a letter from the Board of Customs to the Collector, sent by express, of which the following is an extract:-

*Custom House, Edinburgh, 3d April, 1718.*
*We are informed that the Greyhound of Bo'ness, John Izit master, is sailed up to your*

*precinct having on board several prohibited goods which are designed to be run. We direct you immediately to look out for this ship, and if you find her, to take care of Officering her with trusty Tyd Waiters, and to apply to the Commanding Officer at Alloa for a party of soldiers, whom you are also to place on board her to prevent any deforcement, and to send us notice by this express of your proceedings in the matter."*

The express reached the Collector same day, and the *Greyhound* soon making her appearance, we find the Collector on the following day apprising the Board of his proceedings in the case and the precautions taken to protect the Revenue. The vessel had on board 81 hogsheads and 39 tierces wine. In passing Bo'ness, the vessel was boarded by the Tide Surveyor there who seized some goods which had been concealed under the cabin. The result of this case was that the wine was seized for having been entered under a wrong denomination. The merchants claimed it in the King's Court of Exchequer, and the court decided to inflict "*a fyne on the merchants by way of compensation for the Frence duty after the rate of £4 per tun*." It is worth noticing that, in reply to the Board directing the Collector to test the wines, the latter replies "*I can finde no body here yt (*yt – Old Scots abbreviation for "that") *pretends to know the difference of French and Spanish wines"* and consequently samples had to be sent to Edinburgh for this purpose.

Vessels then belonging to Alloa frequently loaded goods of various kinds at Rotterdam, Dunkirk or elsewhere on the continent, direct for foreign countries, usually to Norway. Sometimes they brought part cargo to Alloa and then proceeded with the remainder to the foreign port. Occasionally they were driven up to the port by stress of weather, loaded with goods for foreign ports and these occasions were sometimes used as pretexts for smuggling. On one of these we find the *Magdalene* of Kincardine, "a square sterned sloop" arriving from Dunkirk with a cargo of spirits, wine, prunes, tobacco, &c., the master alleging that he was forced into Alloa by bad weather. The master and crew made the necessary declaration, of the voyage being a bona fide one to the continent, and the vessel was directed to proceed to sea with the first fair wind. Every precaution was taken to prevent the cargo being run illegally to a Scottish port. The chief officers of Customs at Bo'ness, Leith, Prestonpans, Dunbar, Kirkcaldy, Anstruther, Dundee, Perth, Montrose, Aberdeen, Inverness, and Thurso, were all warned to be on the outlook for the vessel, the commanding officer of the *Sea Horse*, man-of-war, and the master of the King's boat stationed at Burntisland, were also apprised, and two tidesmen proceeded with the vessel to guard her, so far as Aberdeen Bay, where they were put on shore. In spite of all these precautions, the vessel succeeded, as appears from the correspondence between the officers at Alloa and Aberdeen, in running the cargo on the North Coast and, it being found impossible to get proof of the circumstances, the parties concerned escaped punishment.

Cases occur of the Tidesmen put on vessels with dutiable goods, to guard them out of the Firth, being carried over in the vessels to Norway, where they were landed, and had to find a passage home as well as they could. One of the

causes of these occurrences was, no doubt, the state of the weather preventing the officers landing on the Scottish coast. We find the *Christian and Magdalene* of Kincardine, sometimes arriving in the roads there, destined, as was usually alleged by the master, for a port in Norway, with general goods from Rotterdam, and her movements being narrowly watched by the Customs officers, who seem to have been very suspicious of her; especially as Kincardine, like its neighbouring ports was, it appears, infected with the plague of smuggling.

The officers along the coast seem to have been quite alive to the practices of the times; for we find the Collector and Comptroller at Aberdeen, advising the Collector and Comptroller at Alloa, that the *Jean and Margaret* of Kincardine, lies ready to sail from Banff, *pretending bound for Berghen*, with 400 ankers, 131 half ankers, eight hogsheads spirits and wine, besides a -variety of dry goods, and recommending the officers to be on their guard, as *there is reason to believe these goods are designed to be landed upon the coast*. In April 1751, the *Mary and Jean* of Airth, arrived at Alloa from Christiansand and Campvere, reporting a cargo consisting of timber for Alloa, and 62 casks snuff for Hamburg. The timber was landed at Alloa, and the vessel afterwards proceeded with the snuff to Hamburg, her alleged port of destination, but it turned out that the snuff was landed in the district of Dunbar.

On occasions bribery, corruption and threats of violence accompanied attempts at smuggling. The Collector in reporting one case to the Board of Customs writes as follows:- *"The Surveyor and I being together, consulted and agreed that, he should go through the gardens and come in the back way to the harbour, and I disguised myself and went down the street toward the shore in case there should be any mob, to discover if we could, who they were and what they were doing, for we were sure to get ourselves well beat, if we were seen by them."* This secret observation or reconnaissance of the Collector and Surveyor made under night, appears to have elicited nothing particular. Judging from the remainder of the Collector's narrative, we are inclined to think that there had been some laxity on the part of the tidesmen in charge. Probably they were overawed by the threats of the mob. Be this as it may, a run was effected, the goods consisting of tobacco and deals. No steps appear to have been taken to punish the offenders. A few days afterwards, the Collector writes the Board on the same subject. The following is a literal copy of his report, from which will be seen the difficulties Revenue officers had then to contend with, and how their trustworthiness was sometimes put to the test:-

*"Custom House, Alloa. 11th Jan. 1719-20.*

*HON. SIRS, - I beg your Honors may apply to the Generall for a Company of Soldiers to quarter here, for without a military force we dare not offer to stirr here, for I am now very well informed that there were above 30 able fellows concerned in that mobb that deforced the officers aboard of the "Charles" of Elpningstone, and that there were some lying lurking about the Shoar, to have knocked us down if any of us had attempted to come to the relief of the officers aboard, whereas, if there had been any soldiers here,*

*we should have gott a very good seizure of tobacco, or if the silly fellows the Tydsmen had told us on munday what they did on wensday, that the Master had offered them some Guineas that morning, we should have had a party from Stirling, which is very expensive to us, and we have sometimes occasion for soldiers, that will not admitt of so much time as to send to Stirling, and we do not know but very soon that may be our caise, therefore, I hope your Honors will be pleased to loose no time in applying to the Generall.*

*J.MUIRHEAD, Collector."*

Clearly, the life of a customs officer in the early 18th Century was not without its challenges.

Editorial Note: Our thanks are due to Mr Jim Sharp of Kincardine on Forth who found these articles in the course of his researches and passed them on to us with permission to use extracts for publication in the Forth Naturalist and Historian. These extracts have been assembled in chronological order to make more sense to the reader.

## References

Dix, N.J. and Dickie, M., 2011, *Records of Her Majesty's Customs of the Port of Alloa Regarding the 1745 Rebellion*, Forth Naturalist and Historian, Volume 34.

## Approximate value of units referred to in the records:

**Measures of volume:**

| | | | |
|---|---|---|---|
| 1 anker (Denmark ) | | = | 37.43 litres |
| 1 hogshead wine (London) | | = | 238.71 litres |
| 1 Butt of wine (London) | = 2 Hogsheads | = | 477.42 litres |
| 1 Tun of wine (London) | = 2 Butts | = | 954.84 litres |

(The term "cask" is used a reference to the shape of the container for various goods and does not equate to a specific volume.)

**Measures of weight:**

| | | | |
|---|---|---|---|
| 1 Pound avoirdupois | | = | 0.45 kilograms |
| 1 Ton (long) | = 2,240 pounds | = | 1,016.05 kilograms |