

THE AQUATIC WARBLER IN DORSET

Shaun Robson

Ian Lewis's compelling and comprehensive review of the status of this attractive and threatened species in Dorset was published in the Dorset Bird Report 1995 (www.dorsetbirds.co.uk/Aquatic-Warbler-in-Dorset-Ian-Lewis.pdf). That paper covered the identification, moult, population, distribution, migration (including the impact of weather) and timing of the occurrence of Aquatic Warblers in Dorset, with reference to the UK.

In the early to mid-1990s, the Aquatic Warbler was a scarce bird, but occurred annually in Dorset with yearly totals ranging from eight to 28 (1991–1997). Since then, the status in the County and the UK has changed significantly. A paper reviewing the current status therefore seems timely.



Aquatic Warbler – RSPB Lytchett Fields – August 2016 – Ian Ballam

Population

In the mid-1990s, it was known that the population and distribution of the Aquatic Warbler had declined by 95% since the early 20th century, although it is worth noting that available data suggest that this decline largely occurred before 1990.

By the early 1990s, it was estimated that there were 4,000–7,000 remaining pairs in eastern Poland and western Russia (Collar, 1994). An unquantified but substantial population had just been discovered in Belarus. The species was recognised as Europe's rarest breeding migrant passerine and, as a consequence, a Birdlife International Aquatic Warbler Conservation team was established in 1998 (Collective, 2008). Work by this team between 1999 and 2005 contributed significantly to our current knowledge of both the population and its ecology.

Between 1996 and 2007, estimates for the total number of singing males varied between 10,000 and 14,000. Between 2000 and 2011, declines were noted in Belarus. The already small Pomeranian population, based around north-western Poland and eastern Germany, declined from approximately 250 males in 1996 to between 14 and 24 in 2020 (Flade, 2008, Keller *et al*, 2020) and this decline might be significant in a British context.

The latest population estimate is 11,000 singing males, 70-78% of these centred around four key sites in eastern Poland, Belarus and Ukraine. The population is reported to have been stable since 2010 with some small increases in Poland and Lithuania in that period (Keller *et al*, 2020).

Status in the UK and Dorset

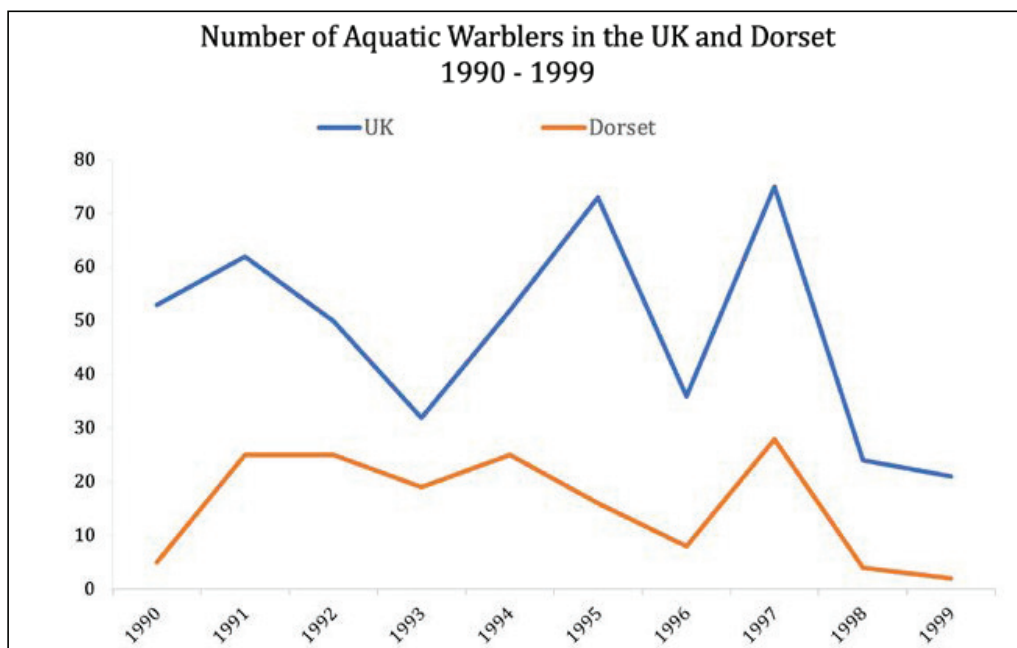
The Aquatic Warbler is a trans-Saharan migrant with the first males leaving the breeding grounds from late June, the majority taking a fascinating westward migration towards the Netherlands, Belgium and France. From there, birds turn south with many refuelling at wetlands along the French coast before continuing through Spain and Portugal to west Africa. Given the proximity of this route to the English Channel, it is not surprising that some, highly variable in number, make this crossing each year. In spring, it seems that a more direct route to the breeding areas is taken, evidenced by the almost complete absence of records in north-western Europe.

In 1976, the best year on record, an astonishing 102 birds were found in the UK. In the 1990s, 40-60 was a typical annual return. The annual total dropped to 24 in 1998 and has never reached this number since. The decline continued and the species returned to the British Birds Rarities Committee list in 2015, having been last considered in 1982. In 2017 and 2021, only single birds were recorded. 2008 became the first year since 1969 without a record in Dorset.

The vast majority of British records fall from the last week of July (usually adults) through to early September, mid-August being the peak period. Historically, the window extended through September into early October but in the last 10 years there have only been five records after 1st September, with the last on 3rd October.

Due to their preferred habitat choices, these are difficult birds to observe in the field in autumn. It is therefore not surprising that the majority of records refer to birds trapped in mist nets for ringing. The percentage of records that relate to trapped birds varies little: 63.5% in the UK between 1963 and 1982 (de By, 1990), 68.5% in Dorset between 1971 and 1994 (Boys, Cade and Green) and 70% in the UK between 2013 and 2022 (British Birds). Interpreting the following data, analysis and commentary therefore needs to bear in mind that the number of Aquatic Warblers recorded will be influenced by the extent of the ringing effort. The method of ringing is also important, particularly the location of nets within habitats and the use of sound lures, as discussed below.

1990 - 1999



Source: British Birds, Dorset Bird Reports

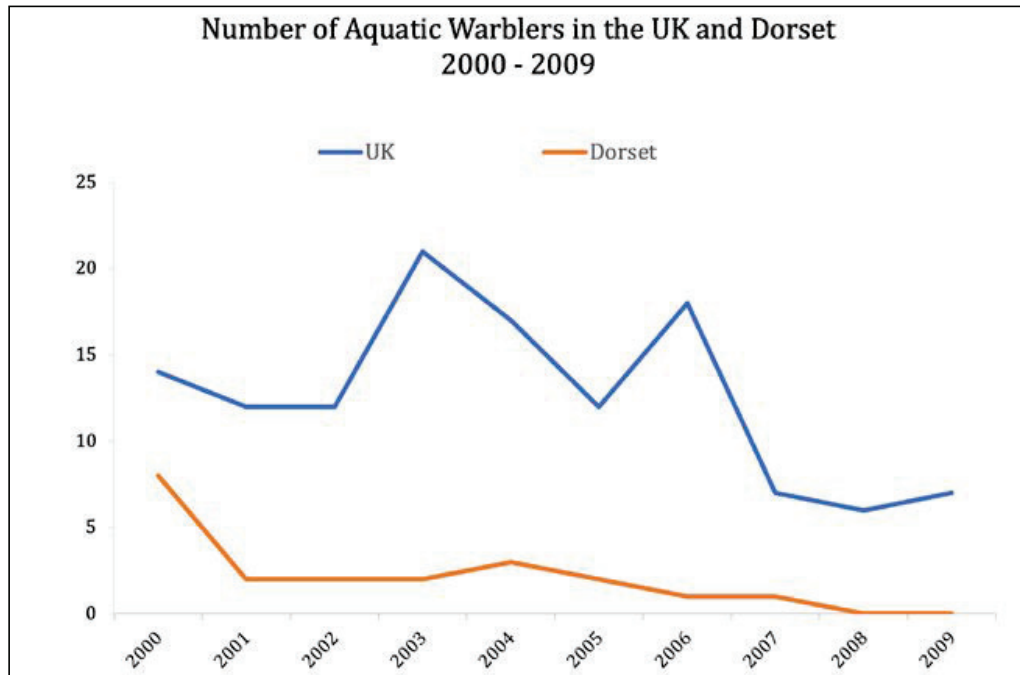
The 1990s annual totals of Aquatic Warblers in the UK, up to and including 1997, exceeded counts in each and every year in the 1980s. 1997, 1995 and 1991 were the second, third and fourth best years in the UK ever. The decade was a period of intensive ringing along the south coast particularly at Pannel Valley Nature Reserve, Icklesham in East Sussex and Keyworth in Poole Harbour, Dorset. During this decade, 87 were trapped at Pannel Valley Nature Reserve.

In Dorset, the total for this period was 157, of which 85 (54%) were trapped, 76 of which were at Keyworth. Multiple birds were ringed on several dates including four on 14th August 1992 and 12th August 1994. Ringing effort at Keyworth was by no means constant and declined substantially after 1995. The remaining ringed birds were at Christchurch Harbour (1), Abbotsbury (1) and Radipole Lake (7).

Away from the nets, this period produced a high percentage of field records (46%). These were spread over nine sites: Abbotsbury Swannery (14), Cogden Beach (4), Christchurch Harbour (31), Durlston CP (3), Keyworth (1), Lodmoor (11), Portland (1), Radipole Lake (1) and West Bexington (9). The nine West Bexington birds occurred in one amazing window between 9th and 12th August 1997. This included a county-record five on 11th. The 1997 Dorset window opened on 8th August and extended to 15th; in total, 25 birds were seen or trapped, the most concentrated arrival in the county ever.

A review of the synoptic weather charts in this decade, together with commentary contained within the reports of Stour Ringing Group and Ian Lewis's paper (Lewis, 1995) regarding weather on the ground are informative. A very strong relationship is established between high pressure over southern Scandinavia, creating light winds with south and easterly components over Dorset, and the occurrence of Aquatic Warblers. The arrival of winds from south-west or further west closes the migration corridor and none or very few birds are seen or caught. Significant August spells of favourable weather occurred in 1991, 1992, 1994, 1995 and 1997.

2000 – 2009



Source: British Birds, Dorset Bird Reports

The first thing to notice in the chart above is the scale on the vertical axis compared to that of the previous decade. The number of Aquatic Warblers both in the UK and Dorset declined massively. The UK annual mean fell from 47.8 to 12.6, and in Dorset from 15.7 to 2.1. Ringing at Keyworth ended on 18th August 2000. No ringing took place in 2001 because of the foot and mouth disease crisis and operations never recommenced. Focus for the Stour Ringing Group shifted to Lytchett Bay but the intensity and coverage was low compared to the Keyworth years. It was only from 2007 onwards that net positions in terms of habitat more closely reflected those at Keyworth, as discussed below. Low intensity ringing continued at Abbotsbury Swannery and Radipole Lake.

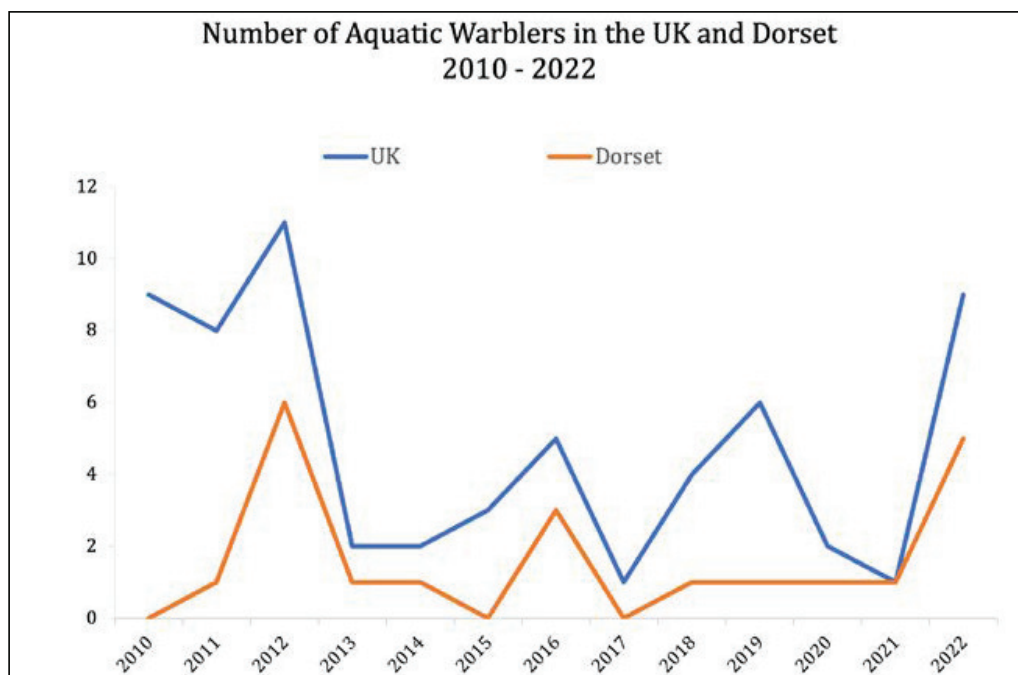
Of 21 birds in Dorset over the period, nine (42%) were trapped: Abbotsbury Swannery (2), Keyworth (4) and Radipole Lake (3). The remaining 12 in the field birds were distributed as follows: Arne Moors (1), Christchurch Harbour (5), Keyworth (1), Lodmoor (2), Lytchett Bay (1) and Portland (2).

The weather in August across the whole decade was largely dominated by low pressure. When south-easterly airflows occurred they were brief and high pressure over the continent did not establish. The conditions for drift migration across the Channel were consequently poor and very different to the early to mid-1990s.

2010 – 2022

Again, the first thing to notice in the chart overleaf is the scale on the vertical axis compared to that of the previous two decades. The second is that it covers a 13 year period. The number of Aquatic Warblers recorded annually in the UK continued to decline. The UK annual mean in the period was 4.8 compared to 12.6 in the period 2000-2009. In Dorset, the annual mean was 1.6 compared to 2.1 in the previous decade - a decrease but proportionately much smaller than that seen across the UK as a whole.

Of the 21 Dorset records over the period 17 (81%) were trapped: East Fleet (1), Longham Lakes (1), Lytchett Bay (9), Portland (1) and an undisclosed site (5). The four field records were at Abbotsbury Swannery (2), Lorton Meadows (1) and Lytchett Bay (1). A 2cy female trapped on 25th July 2014 at Lytchett Bay became the earliest ever Dorset record. Ringing activity at Lytchett Bay became more focussed after 2007 and considerable effort was made to cover periods of promising and not so promising weather.



Source: British Birds, Dorset Bird Reports

The Dorset weather in August throughout the period was again dominated by unfavourable conditions. In eight years, there were no settled spells of south-easterlies in August. In 2011, 2016 and 2020 there were short windows of encouraging winds. 2012 and 2022 produced a 'proper' window lasting a week; the latter resulted in the best total in the UK since 2012.

Aquatic Warblers in France and the Netherlands

As mentioned above, France and the Netherlands lie on the main migration route between Aquatic Warbler breeding and wintering grounds. The French coastal marshes provide critical refuelling stops. In France, the majority of records arise from ringing and there has been considerable effort to monitor the population. Numbers recorded vary annually, partially as a consequence of ringing effort, partially as a consequence of weather and presumably a product of annual breeding success or otherwise. In years with easterly winds in August, more birds are pushed west through Normandy towards Brittany producing year on year variation between individual ringing sites (Julliard, 2008). However, the key message from France is that records of Aquatic Warblers have not declined as they have in the UK.

At Treogat in Brittany, numbers are annually highly variable but the trend was stable between 1988 and 2007 (Bargain, 2008). In 2009 and 2010, a formal ringing study targeted Aquatic Warblers using a standardised protocol with the aim of estimating the number of birds passing through France in autumn. This resulted in 874 birds being ringed at 44 sites (2009) and 643 at 43 sites (2010). Using statistical methods, the team were able to estimate that between 24,000-30,000, mainly juvenile, birds passed through France each autumn (Jiguet, 2011). Data from the important stopover site at Donges in Loire Atlantique, show a very shallow declining trendline since 2007, influenced by a very poor year in 2021. Of the seven years since 2007 with an annual total of more than 100, three have been recent: 2018, 2019 and 2022 (Eugene Archer, pers. comm.).

The Netherlands lies to the north and at the northern edge of the migration route. The country has proportionately more birders than France and, as a consequence, there are proportionately more field records. In this sense, it might be expected that there are greater parallels with the UK. However, as in France, there is no evidence of a decline in records over the period under discussion. As in the UK and France, numbers are highly variable year on year but numbers ringed between 1990 and 2020 show a stable trend line (van der Spek *et al*, 2020).

Discussion

The annual occurrence of Aquatic Warblers in Dorset has reduced by more than 90% since the eight years up to and including 1997. Despite this, Dorset accounted for one third of all UK records during the past 13 years with 21, more than twice the next best county, Cornwall. While the species remains

globally vulnerable (Birdlife International, 2023) the population decline since 1997 has been proportionately small. The number of records from both France and the Netherlands, though exhibiting high annual variation, has remained broadly stable throughout this period with many recent good years, unlike the UK. The inference is that the global population is stable and therefore is not the cause of the decline in the UK

Something, or things, have changed to cause the UK decline. In the final part of this paper I explore and discuss some of the possible reasons. There are many variables which might affect the changed status in the UK and Dorset. A key one is weather patterns during the peak migration period in August. Ian Lewis asked whether the species should be considered a regular autumn migrant or drift migrant but it was not possible at the time to answer that question (Lewis, 1995). Examination of synoptic weather charts and my own weather observations in Dorset confirm that suitable drift conditions are now much rarer than they were before 1997. I have only been able to identify six years with periods of such weather and many of these were only a few days in duration. The week-long spells in 2012 and 2022 were the best that I could find in the last 25 years. Many years have lacked any suitable windows stretching beyond the odd day here and there. The big years in the 1990s all coincided with helpful drift conditions. It therefore seems reasonable and safe to conclude that the changed weather patterns in August are a significant contributor to the British decline.



Aquatic Warbler – Lytchett Heath – August 2022 – Shaun Robson

If they were the only contributor, might it be reasonable to expect that the windows identified above would have produced more Aquatic Warblers? This leads to two further questions. If we accept that birds are drifting across the Channel, then the birds have to be present in the right conditions to be displaced and having crossed the Channel, they then need to be found.

Data from the Netherlands and France confirm that the median date peak for migration remains in mid-August. Birds are known to be passing through this corridor at this time and, therefore, are susceptible to drift in the right conditions. Nonetheless, because of annual variation in numbers, weather conditions and peak movements need to coincide to produce larger numbers crossing to the south coast of the UK - an interesting thought but one that is probably immeasurable.

There is no doubt that ringing effort in Dorset has reduced significantly over the period. Whereas Keyworth might have operated at its peak with 22 nets of 18m, Lytchett Bay operates usually with just three 18m nets. The Lytchett Bay site is on the banks of the small River Sherford and not at the mouth of the River Piddle at the end of the large funnelling Wareham Channel. In other respects, immediate habitat and use of sound lures is the same. The reduction in ringing effort has probably made a difference to the numbers detected. That said, Keyworth totals in years of cyclonic weather working against drift migration were comparatively poor: seven in 1993, when intensive ringing was carried out on 49 dates, and none in 1998 and 1999.

The number of birds detected in the field by birders has also collapsed. The last 13 years has seen the highest ratio of ringed to field records ever in Dorset. Evidencing possible explanations for

this is hypothetical but may be the result of birders' effort and skill, which is impossible to quantify. Is it reasonable to propose that as fewer birds were found at the end of the 1990s and early 2000s, finding effort reduced as a consequence, leading to even fewer being found? My own conclusion on this 'detection variable' is that, whilst increased ringer and birder effort over the last 25 years would have improved the total numbers recorded, this would have been at the margin and additional records would be relatively few. Odd birds have been trapped in westerlies in recent years, for example in 2021 the only UK record was a juvenile caught in a spell of fixed westerlies at Lytchett Bay, but the fact that it was the only one points back to the



Aquatic Warbler – Lytchett Bay – 12th August 2022
– Peter Moore

weather and other causes. This is supported by the experience in Sussex where significant ringing effort at Pannel Valley Nature Reserve continued until at least 2011 yet the number of county records reduced from 96 (1990-99) to 24 (2000-2009) (SOS, 2014). Ringing effort at Slapton Ley and South Milton Ley in Devon has also remained fairly consistent (Steve Waite, pers. comm.) but numbers have reduced hugely since the mid-1990s (Tyler, 2010).

A final suggestion relates to the distribution and size of breeding populations that might be the source of birds visiting Britain. If the answer to Ian Lewis's question is that the species was a regular autumn migrant, then what if the source population of those migrants also collapsed? As stated above, the westernmost population, known as the Pomeranian population, has done just that, dropping from 250 males in 1996 to very few now. Whilst an interesting idea, this suggestion doesn't currently have any evidence to support it. Only three ringed Aquatic Warblers from the breeding grounds have been recaptured in the UK, two from eastern Poland and one from Belarus. There is also a recovery of a Ukrainian ringed bird in the Netherlands. All four confirm that birds from a long way south and east are migrating through the northern most parts of the known migration corridor.

In summary, we can see that those recent longer periods of good weather in 2012 and 2022 have produced relatively more birds, but nowhere near the numbers recorded in the 1990s. Whilst weather patterns are very important, it also seems that the decline in Dorset records has been influenced by other factors as well and more research is needed to identify and evidence what these might be.

Finding one in Dorset

These are difficult birds to find, a mist net and a tape lure certainly helps! The habitat at ringing sites is instructive as to where field birders should spend their time looking in the hope of a field observation. Stour Ringing Group have placed their nets in small reedbeds between a river and significant areas of sedges and rushes, our hypothesis being that birds arriving at dawn following the river move through the reeds as they head to their preferred feeding habitat to feed in the rushes.

Seeing birds in lush autumn reedbeds is obviously difficult, but searches along boundaries between reeds and rush improve one's chances. Aquatic Warblers respond to 'pishing' and very early morning visits are recommended. Once the sun is up, look for areas of rush where birds might be drying or warming themselves. In preparation for such mornings, time might be well spent looking for accessible habitats with this composition in advance. Watch the synoptic weather charts and when high pressure produces winds that might encourage migrants arriving in France to drift across the Channel, be in the field early. In August, bird activity can often cease well before 9am on warm days.

We can only hope for more settled warm Augusts and keep our fingers crossed that these beautiful and ecologically special birds continue to visit Dorset in autumn.

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