Unlike its western Palearctic congeners, the Moustached Warbler *Acrocephalus melanopogon* is not a trans-Saharan migrant. This, however, ought not to be an adequate reason to give it a genus to itself, which it once had as *Luscinia melanocephala* (Parker & Harrison 1963). The Moustached Warbler has a place in British ornithological history as the most contentious and improbable species ever to have been recorded as a ‘one-off’ breeder here.

The nominate race breeds rather disjointedly around the northern Mediterranean and inland, especially along the Danube (Vaurie 1959; Voous 1960). A larger, duller and paler race, *A. m. mimica*, occurs farther to the east, from the Black Sea to the Caspian and Aral Seas and southwards into Iraq, Iran and Afghanistan. The breeding range extends from temperate through Mediterranean, steppe and desert climatic zones where summers are characteristically hot (22°-32°July isotherms). It is not yet possible to make an ecological characterisation of this rather wide range (Leisler 1973), but wetlands are very variable in quality, which may confuse simple climatic views. The superficially similar Sedge Warbler *A. schoenobaenus* breeds farther north, with little overlap. Where they do overlap in range, such as at Lake Neusiedl in Austria, they are separated by habitat, Moustached Warblers being in wetter places.

The European populations retreat towards the Mediterranean coasts in winter and many of the inland breeding areas are deserted, probably because they are too cold and frequently frozen to support sufficient invertebrate food sources. Some reach North Africa and there are sub-Saharan records from Lake Chad. Recoveries of individuals ringed at Lake Neusiedl
Studies of Moustached Warbler

indicate a wintering area in Italy and the Dalmatian coast. The Asiatic population is probably more migratory, moving to north India and Arabia, presumably to escape the lower winter temperatures of a more continental breeding area. Winter movements may vary from year to year depending on the temperature (Bannerman & Bannerman 1958). Leisler (1973) provided the most thorough and recent review of the summer and winter ranges of the species, with maps of recorded localities. The same author is the only person ever to have made any substantial study of the biology and ecology of the species.

Moustached Warblers breed in wetlands, favouring places where Reed Warblers A. scirpaceus are more likely than Sedge Warblers to be their neighbours. Comparative morphological studies (Leisler 1975) show that Moustached Warblers have relatively large feet, with a thick hind toe and long claws. The spread angle of the front toes is comparatively small. These are adaptations of the foot for vertical climbing, and the Moustached Warbler occurs in vegetation with a strong vertical structure, such as reeds Phragmites rich in fen-sedge Cladium, or beds of club-rush Scirpus or bulrush Typha (Leisler 1973). It is absent in the thicker pure Cladium beds, where a walking species such as the Savi’s Warbler Locustella luscinioides is more at home. It is also absent in the drier areas with a tangle of soft-stemmed vegetation, where Sedge Warblers might occur. The Moustached Warbler’s climbing skills are best seen in Typha: it is the only European Acrocephalus warbler which easily can, and does, walk up the sides of the flattened leaf blades. Wet beds of these rather widely spaced stout-stemmed plants are difficult for small warblers to exploit by any other means; their other characteristic bird is the much larger Great Reed Warbler A. arundinaceus.

No detailed studies have been made of the foods of the Moustached Warbler, but Leisler describes feeding places as being at or very near the water surface. This is a rich zone for insects, with concentrations of emerging or swarming Chironomid midges, mayflies and others. Feeding on such prey by climbing down stems of emergent plants and picking is reminiscent of the Bearded Tit Panurus biarmicus, though the Moustached Warbler is probably unlikely to supplement its winter diet with seeds as does that species (Bibby 1981).

Table 1. Foods of Moustached Warblers Acrocephalus melanopogon based on analysis of 22 faecal samples from southern France, August 1979

<table>
<thead>
<tr>
<th>Food items</th>
<th>Total items</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Araneae (spiders)</td>
<td>30 (10.7)</td>
<td>12 (13.3)</td>
</tr>
<tr>
<td>Coleoptera (beetles)</td>
<td>119 (42.5)</td>
<td>20 (22.2)</td>
</tr>
<tr>
<td>Lepidoptera larvae</td>
<td>49 (17.5)</td>
<td>18 (20.0)</td>
</tr>
<tr>
<td>Homoptera (bugs)</td>
<td>5 (1.8)</td>
<td>3 (3.3)</td>
</tr>
<tr>
<td>Heteroptera (bugs)</td>
<td>11 (3.9)</td>
<td>5 (5.6)</td>
</tr>
<tr>
<td>Diptera (flies)</td>
<td>19 (6.8)</td>
<td>10 (11.1)</td>
</tr>
<tr>
<td>Lepidoptera (moths)</td>
<td>5 (1.8)</td>
<td>5 (5.6)</td>
</tr>
<tr>
<td>Hymenoptera (wasps)</td>
<td>35 (12.5)</td>
<td>13 (14.4)</td>
</tr>
<tr>
<td>Others</td>
<td>7 (2.5)</td>
<td>4 (4.4)</td>
</tr>
</tbody>
</table>

Total 280
An analysis of 22 faecal samples collected at Capestang (Hérault, France) in August 1979 is shown in table 1. The most numerous and frequent items in the diet were beetles, predominantly very small (about 2mm) Chrysomelids. The Hymenoptera and caterpillars were also very small (mainly less than 5mm). Probably related to the size of prey was the relatively high number of items found per sample. Also notable was the fact
that Diptera accounted for only 7% of foods taken, in spite of their great abundance in marshes in late summer. These findings accord with the previous paragraph. The Moustached Warbler, perhaps even more than the Sedge Warbler, is a gleaning specialist, lacking the fly-catching skills of the Reed Warbler. The very fine bill is also for picking; Reed Warbler bills are more broad and flattened at the base (Green & Davies 1972). Many other insectivorous birds which do not avoid northern winters by migration are also gleaners of small items, for instance the Wren *Troglydtes troglodytes* and the Dartford Warbler *Sylvia undata*.

The Moustached Warbler is an early breeder. It is likely that this is linked with the peak emergence of Chironomids in spring. Song may start in mid March and is recognisable by opening with notes recalling Nightingale *Luscinia megarhynchos* or Woodlark *Lullula arborea* and ending with a scratchy warble, resembling a Sedge Warbler’s. Like the latter’s, it frequently includes phrases of mimicry of other species. Unlike the Sedge Warbler, it may sing from deep cover rather than in the air or from exposed perches (Dementiev & Gladkov 1968), though, in Austria, the Camargue and Mallorca, reed-top singing is frequent (P. J. Grant, M. A. Ogilvie and Dr. J. T. R. Sharrocks in litt.).

The nest appears to be somewhere between those of the Reed and Sedge Warblers. It is often suspended over water, but lacks the elegant neatness of a Reed Warbler’s. There are good photographs in Ferguson-Lees (1954). What little is known of the breeding biology is not surprising and does not point to any peculiarities, but there are plenty of gaps in the knowledge. For instance, Lyaister & Sosnin, quoted by Dementiev & Gladkov, say that the male sings fervently around the nest, but does not participate in feeding the young, though *The Handbook* and the Cambridge breeding record (Hinde & Thom 1947) suggest otherwise. Could this be another marshland species with emancipated males and frequent polygyny, as found in the American icterids which also feed in *Typha* beds on emerging insects (Orians 1980)? My guess is no. The Moustached Warbler does not apparently show the size difference between the sexes (Witherby et al. 1943; G. R. M. Pepler in litt.) which goes with this lifestyle and is such a marked feature of a polygynous species such as the Cetti’s Warbler *Cettia cetti* (Bibby 1982). On the other hand, Dementiev & Gladkov (1968) give wing measurements with no overlaps between the sexes, but sadly with no sample sizes.

Clutch sizes are usually three or four (Bannerman 1954), but five and six are also said to occur (Witherby et al. 1943). The breeding season may be long enough to permit the rearing of two broods. If this is correct, breeding is rather more like that of the Reed Warbler than the Sedge Warbler. The latter, in Britain, has a larger clutch, but a shorter breeding season (Bibby 1978). The small clutch size could just be a manifestation of the normally smaller clutches found farther south in Europe (Lack 1954). In the fullness of time, it will be interesting to know the survival rate of adult Moustached Warblers. How will they compare with the surprisingly long-lived Reed Warbler (Long 1975)?

In the post-breeding season, the Moustached Warbler has one further surprise: the autumn moult of the juveniles is complete (Leisler 1972),
which was one of the supporting grounds for giving the species a genus to itself. In European passerines, this is a feature of a very curious group including Bearded Tit, Long-Tailed Tit *Aegithalos caudatus*, Penduline Tit *Remiz pendulinus*, Starling *Sturnus vulgaris*, Skylark *Alauda arvensis*, Woodlark (and perhaps other larks), Fan-tailed Warbler *Cisticola juncidis*, House *Passer domesticus* and Tree Sparrows *P. montanus*, and Corn Bunting *Miliaria calandra*. The Moustached Warbler looks a bit ‘out on a limb’, being the only species to be a regular complete post-juvenile moulter in a genus which
does not otherwise do so. It is apparent, however, that complete post-juvenile moult may be more common as one moves south. For instance, it occurs in Greenfinch *Carduelis chloris* and Goldfinch *C. carduelis* in southern Europe, but rarely in these species in Britain (Newton 1972). Perhaps, then, we should not be surprised to see this warbler differing from the rest of the *Acrocephalus* warblers, since it is less migratory and more southern in distribution.

British records of the Moustached Warbler have attracted plenty of
contention. A male shot at St Leonards, East Sussex, on 12th April 1915 (Ford-Lindsay 1916) got the species a text in The Handbook, but the record later went the way of others from the same time and place in the notorious Hastings Rarities affair (Nicholson & Ferguson-Lees 1962). The occurrence now accepted as the first for Britain is of breeding at Cambridge Sewage-farm in 1946 (Hinde & Thom 1947). This extraordinary record was criticised at the time (Meinertzhagen 1950) and is mentioned in major faunal works with a hint of lingering doubt (e.g. Vaurie 1959; Voous 1960).
The original details are periodically exhumed for rescrutiny, but continue to pass the rigorous present-day standards for acceptance of rarity records (Anon 1971). The main thrust of objection is that the Moustached Warbler is only a short-range migrant in southern Europe, so that vagrancy to Britain is unlikely. That two individuals of opposite sex should find each other at a sewage-farm in Cambridgeshire and succeed in breeding is even more improbable. Present-day observers of rarities are accustomed to unlikely vagrants, so sheer improbability no longer counts against a record for which the positive identification process is good. The extensive original notes on the case can be faulted by inconsistencies, but these are no more than trivial: slight disagreement will always occur when a group of people independently describe a particular bird. Supporting evidence for this record is, by contrast, impressive: the observers were fully aware of the unlikelihood of such an occurrence. Having decided not to shoot a specimen, at a time when many people might have done otherwise, they missed no other chance to assess the birds fairly and fully. Sceptical and respected ornithologists independently came out expecting to be shown unusually marked Sedge Warblers and, to a man, left believing that they had seen some other species of which Moustached Warbler was the only possibility. Comparisons with skins, with Dresser’s illustrations, and with nearby Sedge Warblers were made in the field. The salient identification features of Moustached Warbler were seen on two adults and the young. Short of mist-netting the birds, present-day observers could not have bettered the descriptions, except perhaps in checking on the relative wing-length and proportions which distinguish Sedge and Moustached Warblers. Amongst those who have not studied the case, doubters will probably remain. Anyone who looks at the full documentation, as I was
fortunate to do, will be convinced that Moustached Warblers did indeed breed at Cambridge in 1946. Subsequent British records are by contrast an anticlimax: two in Hampshire in August 1951 (Wooldridge & Ballantyne 1952), one in Kent in April 1952 (Gillham & Homes 1952), one, caught and examined in the hand, in Buckinghamshire in July 1965 (Harber et al. 1966), and one in West Sussex in August 1979 (Rogers et al. 1980). So, two out of five acceptable records include the most unusual feature for very rare vagrant passerines of two individuals having been in the same place at the same time. I can offer no explanation as to why they should travel in twos (or pairs?), though this would be a great aid for a species with erratic potential to colonise remote locations. One is reminded of the Bearded Tit’s tendency to travel in pairs.

The middle 1960s saw an upsurge of enthusiasm for mist-netting warblers in marshes, which has continued to this day. These studies revised the position of the Aquatic Warbler _A. paludicola_ from that of a rare vagrant to that of a regular, if not very numerous, autumn passage migrant through southern Britain. The Moustached Warbler has continued here as such a scarce vagrant that, in spite of improved opportunity, only one has been seen and none caught in the past 15 years. Other northern extralimital records are similarly few.

Provided that it is seen properly, identifying a Moustached Warbler should not be too difficult. The secret, as ever, is thorough familiarity with the common confusion species, in this case the Sedge Warbler. In comparison, the Moustached Warbler has rusty shades on the upperparts and flanks, lacking, except on the rump, in the olive-browns of the Sedge Warbler. The streaking on the upperparts is larger and darker and the head pattern is distinctive. Moustached Warbler crowns are very dark, the supercilium is whitish and bold, becoming broader behind the eye, and is often rather squarely ended: Dr J. T. R. Sharrock ({in litt.}) has commented
on the resemblance to the head pattern of a Firecrest *Regulus ignicapillus*. The lores and ear-coverts are fairly dark, contrasting sharply with the white throat. These features should all be checked. Sedge Warblers are rather variable, so it would be rash to be over-excited by a bird just showing a large supercilium. Juveniles are easier to tell apart than adults. The young Moustached Warbler’s crown may be almost black, in striking contrast with the white supercilium. Juvenile Sedge Warblers, on the other hand, often have an ill-defined buffish crown-stripe (hence the ease with which spurious Aquatic Warblers can be found). They also have a speckled breast band lacking in Moustached Warblers. In their new feathers, the differences in upperparts and flank colours are even more obvious. Juvenile Sedge Warblers show olive, or even yellowish, while Moustached Warblers have buff to chestnut shades. The dark moustachial streak from which the species gets its English vernacular name is only faint, but shows in most photographs and, with a good, close view, can be seen in the field.

Care should be used with the tail-cocking behaviour, copied from *The Handbook* into modern texts, as a bald identification point. Moustached Warblers do cock their tails, though this appears to be uncommon, probably associated with alarm (Wallace 1981), perhaps especially when they have young (Hollyer 1978; Oreel 1981). Obviously, Moustached Warblers do not spend all their time in this activity (Kumerloeve 1978; 129. *Moustached Warbler* *Acrocephalus melanopogon*, Israel, November 1981 (W. E. Oddie)
Sharrock 1977). A very alarmed Sedge Warbler within centimetres of a Little Owl *Athene noctua* cocked its tail, but this was also associated with wing-flicking and alarm calls (Mellor 1981). Tail-cocking is thus much more likely from a Moustached than a Sedge Warbler, and its observation would add some weight to a suspected identification, but no more. The Moustached Warbler’s tail is somewhat more rounded than that of the Sedge Warbler.

Calls of the Moustached Warbler may also be characteristic. One has been likened to a Stonechat’s *Saxicola torquata*, and rendered as ‘tac-tac’ or sometimes ‘tac-tac-tac’ (Wooldridge & Ballantyne 1952). G. R. M. Pepler (*in litt.*) reports a tick, easily distinguished from other reedbed warblers and like a soft alarm from a chat or a *Sylvia* warbler. Also heard was a brief churring flight call, ‘trrrrp’, not as low as a Savi’s Warbler’s call and more rapid, but highly distinctive and unlike any Sedge Warbler call.

In western Europe, the two species can be separated unequivocally by measurement, so should cause no trouble whatever in the hand. Some of these features would be obvious from a good field view, and were clear enough to reveal the widely published (e.g. Hammond & Everett 1980) photographs illustrating Moustached Warblers for the Sedge Warblers that they really are (Bibby 1980; Carlson 1980). Previously published
wing-formulae (Williamson 1968) referred to skins, where feather shrinkage may produce different results from live birds (Mead 1977). Furthermore, they do not satisfactorily indicate the variation to be expected. For this reason, I show in table 2 a series of measurements of live Moustached Warblers (of the nominate race) from Capestang and of Reed and Sedge Warblers from Cambridgeshire for comparison. The Moustached Warbler is a similar sized bird in weight, but much smaller in wing-length. Compared with the migratory species, the wing is much more rounded, with the point being at the fourth primary rather than the third, and the projection of the point beyond the secondaries being only 10mm, compared with nearly 20mm for the other two species. A long first primary and the three emarginations complete the major differences. These adaptations are probably associated with the differences of migratory range, but might also reflect subtle variations of feeding behaviour. By analogy with the *Phylloscopus* warblers (Gaston 1974), it might be predicted that the Moustached Warbler should take more frequent brief flights while feeding. This does not seem likely, and it is perhaps more surprising that Reed and Sedge Warblers have only one emarginated primary.
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Table 2. Measurements and wing-formulae of live Moustached *Acrocephalus melanopogon*, Sedge *A. schoenobaenus* and Reed Warblers *A. scirpaceus*

Measurements (in mm) are means ± standard deviations taken in the conventional way. Sample sizes = 25 for each species.

In seven Moustached Warblers, wing point, pps4 = 5 and in one p4 = p3

<table>
<thead>
<tr>
<th>Features measured</th>
<th>Moustached</th>
<th>Sedge</th>
<th>Reed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wing-length</td>
<td>55.2 ± 1.63</td>
<td>65.0 ± 1.88</td>
<td>65.4 ± 2.02</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>10.2 ± 0.51</td>
<td>10.7 ± 0.67</td>
<td>11.2 ± 0.70</td>
</tr>
<tr>
<td>Emarginated pps</td>
<td>3, 4, 5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Notch on p2</td>
<td>12.3 ± 1.68</td>
<td>10.7 ± 1.03</td>
<td>11.7 ± 0.79</td>
</tr>
<tr>
<td>P1 longer than coverts</td>
<td>6.7 ± 0.88</td>
<td>−4.0 ± 1.38</td>
<td>−1.2 ± 0.88</td>
</tr>
<tr>
<td>P2</td>
<td>6.5 ± 1.14</td>
<td>1.1 ± 0.79</td>
<td>2.0 ± 0.80</td>
</tr>
<tr>
<td>P3</td>
<td>1.0 ± 0.44</td>
<td>Point (all)</td>
<td>Point (all)</td>
</tr>
<tr>
<td>P4</td>
<td>Point (all)</td>
<td>1.7 ± 0.73</td>
<td>1.2 ± 0.66</td>
</tr>
<tr>
<td>P5</td>
<td>0.6 ± 0.42</td>
<td>5.1 ± 0.91</td>
<td>4.0 ± 0.54</td>
</tr>
<tr>
<td>P6</td>
<td>2.2 ± 0.80</td>
<td>7.4 ± 1.08</td>
<td>6.8 ± 0.66</td>
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<tr>
<td>P7</td>
<td>4.2 ± 1.12</td>
<td>10.2 ± 0.85</td>
<td>9.2 ± 0.85</td>
</tr>
<tr>
<td>P8</td>
<td>5.9 ± 1.20</td>
<td>12.2 ± 1.08</td>
<td>11.1 ± 0.93</td>
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<td>P9</td>
<td>7.2 ± 1.18</td>
<td>14.3 ± 1.10</td>
<td>13.0 ± 0.79</td>
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<td>P10</td>
<td>9.1 ± 1.55</td>
<td>16.0 ± 1.43</td>
<td>14.8 ± 0.82</td>
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<tr>
<td>Secondaries</td>
<td>10.1 ± 1.19</td>
<td>19.2 ± 1.85</td>
<td>17.1 ± 0.93</td>
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</tbody>
</table>

Acknowledgments

I am very grateful to Giles Pepler, Dr Derek Thomas and Dr Barry Watson for collection and donation of faecal samples and wing-measurements from Capestang. I also thank Bob Hudson who, on behalf of the BOU Records Committee, permitted me to see the original notes concerning the Cambridge breeding record.

References


Studies of Moustached Warbler


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