

# From the Rarities Committee's files:

## Eastern Grasshopper Warbler – are there any confirmed British records?

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Following the submission of three claims of Grasshopper Warbler *Locustella naevia* of the Asian form *L. n. straminea* since the mid 1990s, BBRC has established identification criteria which, based on current knowledge, should enable claims of this race to be assessed. This short paper summarises these criteria and documents the assessment of the three claims.

### *Geographical variation and distribution*

Currently, most authorities recognise four races of Grasshopper Warbler. The nominate form *L. n. naevia* occupies the species' breeding range in Europe east to central European Russia, apart from the extreme southeast, where the poorly known *L. n. obscurior* is restricted to the Caucasus Mountains. In Asia, east of the Ural Mountains, *L. n. straminea* breeds throughout western Siberia, and east and south to the Tien Shan Mountains in southeastern Kazakhstan, while the poorly differentiated *L. n. mongolica* breeds in northeastern Kazakhstan, westernmost China and northwestern Mongolia. BWP states that nominate *naevia* intergrades with *straminea* in European Russia, the zone of intergradation extending from 46–47°E to 55°E (extending approximately 500 km west of the foothills of the Urals). In addition, birds showing the characters associated with *mongolica* also occur within the breeding range of *straminea* (Peter Kennerley *in litt.*). Examination of museum specimens and photographs has established that the variation within *straminea* overlaps with that of *mongolica* to such an extent that these forms cannot be safely separated (BJS pers. obs). Consequently, it would not be possible to exclude *mongolica* in any British claims of *straminea*, and *mongolica* is perhaps best treated as a synonym of

*straminea*; an approach already adopted by Stepanyan (2003).

For the purposes of this paper, the three or four races can be split into two groups: a 'western group' comprising *naevia* and *obscurior*, and an 'eastern group' comprising *straminea* and *mongolica*. Examination of skins at the Natural History Museum (NHM), Tring, showed that individuals in the eastern group are on average smaller and greyer than those in the western group. Given the general similarities between the two races that comprise each group, we shall hereafter refer to the respective groups in the text as *naevia* (comprising *naevia* and *obscurior*) and *straminea* (comprising *straminea* and *mongolica*). This is probably a rather simplistic approach as recent observations of *obscurior* in Armenia (Peter Kennerley pers. comm.) suggest that this race can approach the appearance of *straminea*, although biometrics overlap with those of *naevia*.

To date, we are not aware of any accepted records of *straminea* from European countries west of Russia. However, since it has a breeding range that overlaps with that of many vagrants to western Europe, including Lanceolated *L. lanceolata* and Pallas's Grasshopper Warblers *L. certhiola*, its occurrence here in the future seems highly likely.

### *Identification*

In order to assess claims of *straminea* in Britain, BBRC required criteria by which nominate *naevia* and *straminea* can be separated. Independent examination of specimens at NHM by PVH and BJS, supplemented by published biometric data, most notably from Williamson (1968) and BWP, provided the starting point for this investigation.

**Table 1.** Comparison of wing length, tail length, tail graduation (or roundedness, i.e. difference between the longest and shortest tail feathers) and tail/wing ratio of Grasshopper Warbler *Locustella naevia*, of races *L. n. straminea* and *L. n. naevia*. Data from Williamson (1968), BWP and measurements taken by Paul Harvey (PVH) at the Natural History Museum, Tring, and include measurements of adults and juveniles of both sexes. All measurements in mm.

Source:	<i>straminea</i>			<i>naevia</i>		
	Williamson	BWP	PVH	Williamson	BWP	PVH
wing length	54–61 (n=48)	58–63 (n=12)	56–63 (n=20)	57–66 (n=58)	60–68 (n=47)	
tail length	44–58 (n=47)	44–58 (n=?)	50–58 (n=20)	46–55 (n=60)	46–59 (n=45)	
tail graduation	15–25 (n=?)	15–25 (n=?)	12–25 (n=34)	13–18 (n=?)	12–19 (n=15)	12–21 (n=20)
tail/wing ratio	0.80–0.97 (n=?)		0.84–0.96 (n=20)	0.77–0.92 (n=52)		0.81–0.89 (n=20)

**Table 2.** Relative position of P2 (primaries numbered ascendantly) of Grasshopper Warbler *Locustella naevia*, of races *L. n. straminea* and *L. n. naevia*. Results based upon a random sample of 33 *straminea* and 25 *naevia* measured by Peter Kennerley at the Natural History Museum, Tring. Note that P3 forms the wing-point of both races.

Position of P2	= P3	= P3/P4	= P4	= P4/P5	= P5
<i>straminea</i>	0	5	13	10	5
<i>naevia</i>	3	7	13	2	0

Obtaining adequate field views of *Locustella* warblers can be difficult at the best of times, but is particularly challenging when birds are on migration. Although both authors noted plumage differences between *naevia* and *straminea*, the apparent variation in the plumages within each of these two groups indicated that, based on current knowledge, any claim of *straminea* should concentrate on biometrics and aspects of wing structure that can be obtained only by examination in the hand. Providing that these are recorded, it *may* be possible to assign a trapped bird to the *straminea* group, although many individuals will fall within the wide range of overlap between the two groups in these critical features, or possibly originate from the intergrade zone.

### Biometrics

Although there is considerable overlap, measurements show that *straminea* is, on average, shorter-winged and longer-tailed than *naevia*. Furthermore, the tail of *straminea* is more graduated than that of *naevia*, i.e. the distance between the outermost (shortest) and central (longest) tail feathers is greater in *straminea* than nominate *naevia*. Relevant biometric data are presented in table 1.

### Wing structure

There are two minor differences in wing structure which, when taken together, may help to

determine the racial identity of a trapped individual. In *naevia*, the length of the outermost long primary (P2, primaries numbered ascendantly) is usually equal to or longer than P4, while in *straminea* P2 is typically equal to or shorter than P4. It appears that *straminea* tends to have a shorter P2, giving it a more rounded wing (table 2). To confirm these distinctions a larger sample should be examined, but these preliminary findings suggest that this character warrants further attention. In addition, PVH found that just over 50% of 20 *straminea* examined showed a slight emargination on P4 whereas none of 12 *naevia* showed emargination on P4. In summary, any Grasshopper Warbler with P2 equal to or shorter than P4, and slight emargination on P4 merits detailed examination.

### Plumage features

Most references suggest that the *naevia* and *straminea* groups are poorly differentiated in terms of plumage. Although we would agree with this, we believe that there are a number of subtle features which, in combination, may point to *straminea*, though we stress that we would use plumage characters only to support in-hand data, and not as a stand-alone diagnosable feature. Specimens suggest that, like *naevia*, *straminea* has more than one colour morph, with variation being independent of age or sex. At the NHM, two or three morphs are identifiable in *straminea*: one (comprising the most easterly birds?) is paler and greyer (olive- or sandy-grey) above than the others and very pale, whitish, below, with little or no markings across the breast; the second is browner-grey or greyish-brown, with more of a wash along the flanks and neat rounded spots across the upper breast (there is a specimen from India that is particularly rufous-brown along the flanks); and the third morph is slightly more olive-brown,

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**Fig. 1.** This illustrates the extent of variation within Grasshopper Warbler *Locustella naevia* across its range, based upon specimens held in the Natural History Museum, Tring. This plate, painted by Brian Small, is taken from the forthcoming *Reed and Bush Warblers of the World*, to be published by Christopher Helm in autumn 2008.

1. *L. n. obscurior*, fresh adult, May. In the upperparts of *obscurior*, the olive-brown tones of the nominate form are largely suppressed and replaced with a greyish wash.
2. *L. n. naevia*, fresh adult, greyish-brown morph. The nominate race of Grasshopper Warbler occurs in two colour morphs; on this individual the underparts are greyish-white with a light brown wash extending across the breast and along the flanks. With very few exceptions, the olive tones to the upperparts of *naevia* are always present in both morphs. The extent of underpart streaking is variable, but is almost absent on this individual.
3. *L. n. naevia*, first-winter, September. This represents a typical first-winter, characterised by the combination of conspicuous sulphur-yellow wash to the underparts and diffuse streaking confined to the lower throat and sides of the upper breast. The upperparts show a distinct olive wash, as adult.
4. *L. n. naevia*, adult, worn, greyish-brown morph. Very similar to the fresh adult, but with worn primaries that lack the pale tips. This individual illustrates the extent of underpart streaking across the breast and along the flanks of a particularly well-marked individual. Most birds show much less streaking.
5. *L. n. naevia*, adult, fresh, yellow morph. In spring, many adults show a dull sulphur-yellow wash to the underparts, which is typically paler, less intense and slightly browner than the underpart colour of first-winters in autumn. In spring, adults often display an indistinct gorget of fine diffuse streaks across the lower throat; this is a fairly well-marked individual, many adults in spring show less streaking than this.
6. *L. n. straminea*, adult, yellow morph. The upperparts lack the olive tones and are distinctly paler and greyer than the upperparts of *naevia*, and have bolder, more contrasting, and occasionally more extensive dark centres to the feathers on the mantle.
7. *L. n. straminea*, adult, fresh, January. Adult *straminea* occurs in three colour morphs, reflecting underpart colour. This is a fairly typical individual of the greyish-brown morph, in which the yellow tones are absent. The underpart streaking is also quite variable, and *straminea* shows a tendency towards neat and contrasting small spots or short streaks across the lower throat and upper breast, and along the rear flanks, which also tend to be darker than on *naevia*.
8. *L. n. straminea*, first-winter. First-winter *straminea* is browner above than the adult and lacks the strong olive tones to the upperparts typical of the nominate form. At this age, the underparts are slightly paler than shown by first-winter nominate birds. The underparts of this first-winter *straminea* are washed yellow, a purer ochreous or primrose yellow than the slightly oily yellow of the nominate form.
9. *L. n. straminea*, adult, pale grey morph. This individual is particularly pale and lacks the streaking and spotting on the underparts. In this respect, it approaches *L. n. mongolica*. Although birds resembling this individual can occur anywhere within the range of *straminea*, they tend to predominate towards the east, in northern and eastern Kazakhstan and western China.
10. *L. n. straminea*, adult, May. This particularly distinctive individual was found on the Indian wintering grounds in May; an unusually late date. The combination of a light, bright buff wash across the underparts and distinctly brown upperparts is unique among the specimens held at the NHM. Such birds appear unknown from within the breeding range.

though still a little paler or greyer than *naevia* above, but notably yellow below – the yellow tending to be a purer ochreous or primrose yellow than the slightly oily yellow found on the underparts of *naevia*. Depending upon morph, *straminea* has a tendency to show neat and contrasting spots or short streaks across the lower throat/upper breast and rear flanks, and these are sometimes blacker and more obvious than on *naevia*. Although some *naevia* do show streaking, particularly on the throat, this often consists of no more than diffuse streaks as opposed to spots. Most, if not all, of the paler and greyer *straminea* lack throat marks, a feature noted both in the field and on specimens.

Examination of skins also suggests that, on average, individual *straminea* show paler, more greyish-olive upperparts than *naevia*, with bolder, more contrasting, and occasionally more extensive dark centres to the feathers on the mantle and back (i.e. the dark centre reaches closer to the feather tip). However, experience of paler and greyer *naevia* in late summer by BJS on the Suffolk coast (and of *L. n. obscurior* by Peter Kennerley in Armenia in early June) suggests that, as stated previously, plumage features should not be used in isolation and any potential *straminea* should be trapped.

What is not yet fully understood is the extent



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**307.** First-winter Grasshopper Warbler *Locustella naevia*, Suffolk, 1st September 2007. The deeper olive tone to the brown upperparts is typical of adult and first-winter *naevia*, and the majority of first-winters also show a conspicuous sulphur-yellow wash to the underparts. When first-winter *straminea* shows a yellow wash to the underparts, this is a purer ochreous or primrose yellow.

to which the appearance of birds in their first autumn differs from that of adults on the breeding grounds. For example, do first-winters share the paler and greyer appearance of some breeding adults? Are the upperparts of first-winter *straminea* browner and more olive than those of adults, thus showing a greater overlap

**304–306.** First-winter Grasshopper Warbler *Locustella naevia straminea*, Xinjiang Uygur Autonomous Region, China, 21st August 2001. This first-winter Grasshopper Warbler, photographed at the eastern limit of the range, shows distinctly greyish-brown upperparts (an artist might call them 'ochreous raw umber'), but lacks the richer olive tones typical of the nominate form. Although the eye-ring is quite conspicuous on this bird, it is a variable feature that can be prominent on birds of the nominate form. Plate 304 shows that P2 lies between P4 and P5, common in *straminea* but less frequent in *naevia*, which usually has a longer P2 reaching or extending beyond P4 (see text). In the head shot (306), note the almost complete absence of spotting across the lower throat, the markings here being restricted to inconspicuous and diffuse mottling. The underparts of this individual show only a hint of yellow-ochre on the neck sides and flanks, which would be unusual on a first-winter *naevia* in Europe. The shape and pattern to the streaking on the undertail-coverts closely resembles that of *naevia*, although perhaps the streaks are longer and extend closer to the tip of the feather, particularly on the longest feathers. This bird shows pale grey-brown undertail-coverts, whereas those of *naevia* usually show a warmer pale straw to pale buff wash, lacking the greyer, colder and paler tones of *straminea*.

with first-winter *naevia*? Added to this is the complication of the largely unknown appearance of birds originating from the intergrade zone between *naevia* and *straminea*.

#### Review of British claims

Three claims of *straminea*, each involving birds trapped in autumn, have been assessed by BBRC. All were likely to have been in first-winter plumage, although only one was aged.

#### Holme, Norfolk, 2nd September 1994

This claim was supported by photographs which appear to portray a fairly typical *naevia*. The only biometric information available was a

wing length of 59 mm, which lies at the short end of the range for *naevia*. Although short, this wing length falls only 1 mm below the range of *naevia* given in *BWP* and it is not clear whether it was checked by another ringer. Given the absence of any further biometric data, this claim was considered not proven.

#### Red Rocks, Merseyside, 12th October 1994

No photographs were available so assessment of this record was based upon the description and limited biometric data. This individual had a wing length of 61 mm, which lies close to the lower end of the range of *naevia*. Unfortunately, no additional biometric data were supplied. The plumage description sounded intriguing, however, particularly the upperpart colour and extent of streaking on the underparts. The upperparts were described as 'strange olive-grey brown', while the dark feather centres were considered to be too well-marked for *naevia*. The underparts were described as showing an obvious gorget of spots and streaked flanks. The committee's view was that 'strange olive-grey brown' does not necessarily rule out *naevia* and, in the absence of any further biometric data and without photographs, this record is best considered not proven.

#### Sheringham, Norfolk, 20th September 1998

This individual has already been published as an 'Eastern Grasshopper Warbler' (Millington 1998). As with the two previous claims, limited biometric data were supplied, making evaluation using these criteria difficult; however, photographs provided additional clues. It was clear

that this was a stronger claim than the previous two although, unfortunately, it still lacked potentially critical features such as measurements of tail length, tail graduation (roundedness) and wing formula. Consequently, BBRC had only a wing length and some photographs on which to base an assessment. Nothing in the plumage description pointed to *straminea* and we consider the photographs to be equivocal in this respect.

Based on plumage features (e.g. evenly spaced growth bars on the tail), the Sheringham bird was aged as a first-winter. Its wing length was 56 mm, which is exceptionally short, fully 4 mm below the range for *naevia* published in *BWP*, and well within the range of *straminea*. Williamson (1968) gave a minimum wing length of 57 mm for *naevia* but he is likely to have taken his measurements from skins, which (owing to shrinkage) often produce a shorter length than for live birds. The photographs also hint at two other key features. The length of P2 appears to be short, probably falling short of P4 (it may even have been as short as P5 but, using only the photographs, we can only estimate this). In addition, the tail appears markedly graduated; extrapolating from the photographs suggests that the outermost tail feather is some 23–25 mm shorter than the central tail feathers, and therefore outside the range of *naevia*. Unfortunately, neither of these critical structural features was confirmed by measurements taken at the time.

BBRC was thus in a difficult position with this record. The only useful measurement taken, wing length, is below the published range for



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**308 & 309.** First-winter Grasshopper Warbler *Locustella naevia*, Sheringham, Norfolk, 20th September 1998 (see text).

*naevia* and within the range for *straminea*. Other key measurements, which might have confirmed the identity, were not taken, leaving the identification in limbo. Although the committee felt that this individual may well have been *straminea*, it would be unwise to accept a first for Britain based entirely on a single measurement, and this was ultimately considered not proven.

#### Future submissions

Should any birders or ringers be faced with a Grasshopper Warbler that shows some characters of *straminea*, the following advice may prove helpful in determining the identification.

The bird must be trapped. Plumage characters may be indicative only, with many *straminea* being poorly differentiated from *naevia*, though careful assessment of plumage colour and tone may help, and be more apparent in the hand of an experienced ringer. When trapped, a *full set* of relevant biometric data (wing length, tail length and tail graduation) must be taken, along with a basic wing formula which should include: the position of the tip of P2 relative to the other primaries, the length of P2, the distance between the tips of P1 and P2 and details of any primary emarginations. These measurements should be taken by an experienced ringer and, ideally, confirmed independently by another ringer.

These data should be supported by a detailed in-the-hand description, if time and the condition of the bird permits. Good-quality photographs showing key plumage and structural features are invaluable and may prove essential. Any feathers that are lost during the trapping/ringing process should be retained and kept for possible DNA analysis. It should be emphasised that, even with all this information, an individual still may not be identifiable to a particular subspecies.

On current knowledge, it is extremely unlikely that BBRC would accept a putative *straminea* based entirely on extensive field notes. Even if supported by frame-filling photographs showing multiple *straminea* traits, such a claim may not rule out an individual from the intergrade zone, about which we know very little; though any claim would of course be most welcome, as our knowledge may improve in the future.

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This short paper is only the first step into the potential minefield of separating eastern and western Grasshopper Warblers. We still have much to learn, in particular about the appearance of first-winter birds, notably those originating from the zone of intergradation in Russia, which will always present the greatest difficulties. But we hope that the guidelines presented here will provide observers of future claims of *straminea* with sufficient guidance to ensure that the essential criteria are recorded and submitted. Submissions that do not contain the relevant level of detail cannot be assessed meaningfully. Nonetheless, BBRC would like to receive documentation of any suspected *straminea* (e.g. trapped birds with incomplete biometrics and/or images of birds felt to fall outside the currently accepted variation of *naevia*). For such difficult subspecies, BBRC is moving away from the 'cut-and-dried' approach to records; a system of informal submission means that records might not be accepted but will not be formally rejected – our aim is to encourage submissions that add to the knowledge base. Certainly as far as Grasshopper Warblers are concerned, observers and ringers with relevant data can help to build the 'bigger picture', clarifying the biometric ranges of live *naevia* and its plumage variations, and this would surely prove extremely informative.

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