

# The uppertail-covert pattern of ‘Stejneger’s Stonechat’

Magnus Hellström and Gabriel Norevik

**Abstract** Migrant Siberian Stonechats *Saxicola maurus* trapped for ringing at Beidaihe, China, in spring 2011 and autumn 2013, revealed the presence of dark spotting on the uppertail-coverts of c. 60% of first-winter and adult birds. The markings were found more often in males than females. Siberian Stonechats are generally considered to show an unmarked rump and uppertail-coverts, whereas dark spotting is characteristic of European Stonechat *S. rubicola*. The frequency and size of uppertail-covert spotting is examined, and implications for identification are reviewed, in particular the separation of *stejnegeri* from the nominate race *maurus*.

Siberian Stonechat *Saxicola maurus* is a polytypic species comprising six races (*maurus*, *variegatus*, *armenicus*, *indicus*, *stejnegeri* and *przewalskii*) and is distributed over much of the Eastern Palearctic. The species is a vagrant to western Europe and the two races breeding in the north, *maurus* and *stejnegeri*, have long been thought to occur, while male *variegatus* has also reached Britain and other north European countries on several occasions.

Separation of *maurus* and *stejnegeri*,

particularly in female, immature and adult non-breeding plumages, is still in its infancy (see Hudson *et al.* 2014). It has, not unreasonably, been assumed that the more westerly distributed *maurus* is the predominant taxon involved in European records, although a few *stejnegeri* have been suspected over the years. The first acceptable records of *stejnegeri* (‘Stejneger’s Stonechat’) for western Europe are, as far as we are aware, a bird on Texel, the Netherlands, later relocated at Portland,



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**350.** Adult (2CY+) male ‘Stejneger’s Stonechat’ *Saxicola maurus* *stejnegeri*, Beidaihe, China, September 2012. A rich and saturated plumage and a (variably) broad-based appearance to the bill gives the average autumn *stejnegeri* a subtly different impression from that of the generally paler nominate *maurus*.

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Dorset, in October 2012 (*Brit. Birds* 107: 636–637); and another at Orivesi, Pappilanniemi, Finland, in November 2013. In both cases the identification was supported by genetic analysis (Stervander *et al.* in prep.). A third bird, ringed and later found dead at Landsort, Sweden, in October 2008, has also been identified as *stejnegeri* following preliminary DNA analysis (Martin Irestedt *in litt.*). As our understanding of the complexities of Siberian Stonechat identification improves, it is likely that other records of *stejnegeri* will come to light.

### General characteristics

The plumage of Siberian Stonechat differs from that of European Stonechat *S. rubicola* in several respects (see for example Svensson 1992, Urquhart 2002, Hellström & Wærn 2011). Key identification characters for Siberian Stonechat – the black axillaries and underwing-coverts in adult males, and unstreaked rump and uppertail-coverts in all individuals – have historically been thought to apply to all races, and these separate them from European Stonechats, with their paler, grey underwing-coverts and dark-streaked rump and uppertail-coverts. Differences between nominate *maurus* and *stejnegeri* are slight; most importantly, spring male *stejnegeri* generally shows a slightly smaller white rump area, more restricted white neck patches and, on average, a broader bill than

*maurus* (Svensson 1992 gave bill width of 4.7–5.7 mm at proximal edge of nostril for *stejnegeri*, 4.0–4.9 mm for *maurus*).

### Observations of 'Stejneger's Stonechats' at Beidaihe

As part of a newly established co-operation between the bird ringing centres in Stockholm and Beijing (the Swedish–Chinese Bird Banding Exchange Project), a small team from Sweden, including MH, were involved with the organisation of bird ringing courses for Chinese ringers in Beidaihe, Hebei province, in northeast China, during the first half of May 2011. Migrating Siberian Stonechats were abundant in the area. The overall impression of these birds was quite different from nominate *maurus* previously studied in central and western Siberia; many males appeared somewhat uniform, typically with a small white rump and neck patches as well as being extensively washed rufous on the belly and flanks. In the field, at a distance, they actually appeared rather more similar to European Stonechats than to *maurus*. The females also appeared dark, and only one individual (of many examples) showed whitish feathers in the rump – an ochre-rufous colour was the norm.

During May 2011, 16 Siberian Stonechats were trapped and examined in the hand. Of these, four birds (both males and females) showed dark markings in the uppertail-



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**351.** Two 'Stejneger's Stonechats' *Saxicola maurus stejnegeri* at Beidaihe, May 2011. Both show dark markings in the uppertail-coverts. The two longest uppertail-coverts in the left-hand bird show extremely bold and large markings, covering a large proportion of the feather.

coverts (see plate 351), which contradicts published descriptions of *stejnegeri*. The markings varied considerably between the individuals, partly as a result of moult and wear, but primarily because of extensive individual variation. In two of the four birds, these dark markings were extremely bold and covered much of the feather in question. Similar patterning of the uppertail-coverts was again observed in a handful of birds at Beidaihe during September and October 2012 by MH and GN, both in the field and in the hand, but unfortunately it was not possible to arrange targeted trapping there during that period. In autumn 2013, however, the trapping programme began on 24th August and continued to 15th November. The permissible trapping area then included a rice field, which attracted numerous Siberian Stonechats, and a total of 225 individuals were examined and documented by GN. These were considered to be a representative sample of the Siberian Stonechats passing through Beidaihe during autumn migration.

**Evaluating the uppertail-covert pattern**

In order to describe the variation in the pattern of the uppertail-coverts objectively, we attempted to classify all the trapped birds. The longest pair of uppertail-coverts was the key to this classification; many individuals showed the dark markings in these feathers only. However, of 27 first-year birds caught in autumn 2013 carrying only unmoulted juvenile uppertail-coverts, none showed dark markings to these feathers, while two birds with two generations of uppertail-coverts showed extensively marked post-juvenile and unmarked juvenile feathers (see plate 353). These observations suggest that juvenile uppertail-coverts are generally, perhaps always, unmarked. Consequently, we omitted 29 birds from our sample that had retained juvenile longest uppertail-coverts, plus any that (for whatever reason) lacked these feathers. The remaining birds were classified into one of three pre-defined categories to describe the intensity of the markings:

- class 0 – clean uppertail-coverts with no darker pattern
- class 1 – at least one uppertail-covert with dark feather shaft, often with a narrow,

**Table 1.** Intensity of uppertail-covert markings in ‘Stejneger’s Stonechats’ *Saxicola maurus stejnegeri*, trapped at Beidaihe, China, autumn 2013.

|               | n   | class 0 | class 1 | class 2 |
|---------------|-----|---------|---------|---------|
| all birds     | 196 | 40%     | 35%     | 25%     |
| all males     | 109 | 44%     | 21%     | 35%     |
| all females   | 87  | 40%     | 34%     | 26%     |
| all adults    | 76  | 40%     | 34%     | 26%     |
| adult males   | 43  | 46%     | 26%     | 28%     |
| adult females | 33  | 30%     | 46%     | 24%     |
| all ICYs      | 120 | 41%     | 36%     | 23%     |
| ICY males     | 66  | 43%     | 18%     | 39%     |
| ICY females   | 54  | 39%     | 57%     | 4%      |

**Table 2.** Combined class and subclass of the uppertail-covert pattern of ‘Stejneger’s Stonechats’ *Saxicola maurus stejnegeri*, trapped at Beidaihe, China, autumn 2013.

| males    | females |    |          |    |    |
|----------|---------|----|----------|----|----|
| subclass | A       | B  | subclass | A  | B  |
| class 1  | 3       | 20 | class 1  | 14 | 32 |
| class 2  | 9       | 29 | class 2  | 10 | 0  |

diffuse area of darker (greyish) colour on the vanes adjacent to the feather shaft

- class 2 – at least one uppertail-covert with dark feather shaft and black or blackish marking in the vanes, varying in size from rather small to large

In addition, we logged the *position* of the markings on the feather according to the following subclasses:

- subclass A – dark marking mainly on the proximal half of the feather
- subclass B – dark marking mainly on (or reaching) the distal half of the feather

The results are presented in tables 1 and 2. Overall, class 1 or 2 markings were present in c. 60% of the birds we handled (excluding those with retained juvenile longest uppertail-coverts). Dark markings in the uppertail-coverts seemed to be found more commonly in males, and males also tended to have the markings concentrated on the distal parts of the feather more frequently than females, making them more readily seen, both in the field and in the hand.

The patterning of the uppertail-coverts described here may superficially resemble that found in European Stonechats, but generally differs in several key respects. The

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single dark markings are highly variable and irregular in terms of size, shape and position on the feather. In fresh plumage it may be necessary to remove overlying feathers in order to see this marking. A few birds show truly bold markings – much larger than ever found in European Stonechat. Furthermore, the number of dark-marked uppertail-coverts is generally lower than in European birds, and the markings may also be unevenly

distributed across the feather tract. However, a few individuals showed markings that probably would be difficult to separate from the typical pattern of European Stonechat, especially when worn.

In spring, abrasion and wear of the uppertail-coverts shortens these feathers from the tip, and as the dark pigmentation is less susceptible to wear, this often results in the dark markings ending up at the feather tip. Since



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**352.** 'Stejneger's Stonechats' *Saxicola maurus stejnegeri*, Beidaihe, China, September 2013. These four individuals illustrate the two classes (1 and 2) used to describe the intensity of the dark uppertail-covert markings, and the two subclasses (A and B) used for describing the positioning of the markings (see text for further explanation).

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**353.** ‘Stejneger’s Stonechat’ *Saxicola maurus stejnegeri*, Beidaihe, China, September 2013. Note the fully visible class 1 and 2 pattern on several of the post-juvenile uppertail-coverts, while the only remaining juvenile uppertail-covert (marked) lacks any darker pattern.

the longest uppertail-coverts rest on the underlying dark rectrices, these dark tips then seemingly ‘vanish’ into the background (see plate 351), so that they may be hard to see under field conditions.

**Are these birds really *stejnegeri*?**

Working at a migration site has some obvious disadvantages. Most noticeably, we do not know the true origin of the birds that

are being handled. As the Siberian Stonechat complex is currently defined, it seems highly unlikely that any race other than *stejnegeri* would appear in Beidaihe, other than in a vagrant context. Furthermore, birds with dark markings in the uppertail-coverts are not known to exist within any of the other races, giving even less reason to suspect that populations other than *stejnegeri* were involved.

In an effort to clarify origins further, feathers were collected from two individuals with dark markings in the uppertail-coverts that were found dead. Mitochondrial DNA analysis by Martin Stervander at Lund University grouped these birds firmly within *stejnegeri*, with no or little differentiation from the numerous reference sequences available at GenBank (Stervander *et al.* in prep.). In other words, there is very strong support for birds at Beidaihe that show dark markings in the uppertail-coverts being genuine *stejnegeri*.

**Implications**

The separation of nominate *maurus* and *stejnegeri* is problematic in all plumages. The above-mentioned characters of spring males are subject to rather extensive variation (perhaps especially in *maurus*, in which the size of both the white neck patches and the rump regularly approach that of *stejnegeri*). The recognition of spring females and all birds in autumn is similarly difficult. Differences in ground colour (on average, darker and warmer in *stejnegeri*) are

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**354.** ‘Stejneger’s Stonechat’ *Saxicola maurus stejnegeri*, Beidaihe, China, October 2013, showing the most extreme pattern of dark spots on the uppertail-coverts found among more than 200 birds examined between August and November 2013.

discernible primarily when series are compared, and this character is less useful at an individual level. There is overlap in the measurements of bill width of *maurus* and *stejnegeri* and, when faced with a single vagrant individual under field conditions, this character is of rather low value and is at best indicative.

As far as we know, class 2 markings have never been observed in birds within the breeding range of nominate *maurus*, while darker feather shafts (weak class 1 pattern) are seen in a low proportion of *maurus* and the other Siberian Stonechat taxa. Consequently, any bird showing class 2 markings on the uppertail-coverts, especially if it also shows a rich, heavily saturated plumage and a sturdy bill, is a strong candidate for *stejnegeri*. Indeed, the first-year male in Finland in November 2013 fulfilled these prerequisites (plate 357). The plumage was rich and dark, and the bill appeared rather heavy (though, subsequently, measurements placed the bill in the overlap zone). Some of the photographs seem to show black class 2 markings in the uppertail-coverts, but unfortunately this is hard to establish beyond doubt (the ringer did not note such markings when handling the bird). However, all the available evidence



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**355.** Adult (2CY+) male 'Stejneger's Stonechat' *Saxicola maurus stejnegeri*, Beidaihe, China, October 2012. Note the partly visible class 2 marking on the left uppertail-covert, placing this bird outside the currently known variation of nominate *maurus*.

seemed to suggest that this individual was a potential *stejnegeri* – and that was subsequently confirmed by DNA analysis (Stervander *et al.* in prep.).

In all plumages, *stejnegeri* showing class 2 markings in the uppertail-coverts may (in theory) be mistaken for a European Stonechat. However, few *stejnegeri* appear to show the widespread, medium-sized and regularly dis-



Fredrik Friberg

**356.** Adult (2CY+) Siberian Stonechat *Saxicola m. maurus* (identification based on range), Zhabagly, Kazakhstan, October 2012. There is considerable variation in the colour of the underparts of fresh birds, and warmer birds like this are sometimes seen within the range of *maurus*.



Jani Vastamäki

**357.** First-winter male 'Stejneger's Stonechat' *Saxicola maurus stejnegeri*, Orivesi, Pappilanniemi, Finland, November 2013. The dark and saturated plumage combined with a seemingly strong bill created an overall impression that raised suspicions of 'Stejneger's Stonechat'. When examined closely, the longer uppertail-coverts appear to show class 2 markings, but it is difficult (other photos of the bird fail to clarify this) to exclude the possibility that this is a false pattern created by the spread tips of the coverts and the dark underlying rectrices. During the handling, no markings were noted by the ringer. The bird was subsequently proved to be 'Stejneger's Stonechat' from genetic analysis of a collected feather.

tributed dark spotting found in the uppertail-coverts of fresh European Stonechats (see plate 359). In difficult cases, observers should focus on other characteristics, such as the

axillaries and underwing-coverts (in *stejnegeri* black in adult males, and often partially black in young males; in European Stonechats medium to dark grey), and the state/pattern of the flanks (cleaner and fresher looking in *stejnegeri*; often with an untidy, greyish worn



Martin Stervander

**358.** Siberian Stonechat *Saxicola m. maurus*, Chokpak, Kazakhstan, September 2002. This young female shows typically clean uppertail-coverts with no dark pattern present. In *stejnegeri* examined at Beidaihe, this pattern (class 0) is present in c. 40 % of post-juvenile birds.



Yosef Kiat

**359.** European Stonechat *Saxicola r. rubicola*, Israel, November 2008. A young male showing typical fresh *rubicola* pattern with medium-sized dark and regularly shaped markings, spread symmetrically across the uppertail-coverts.

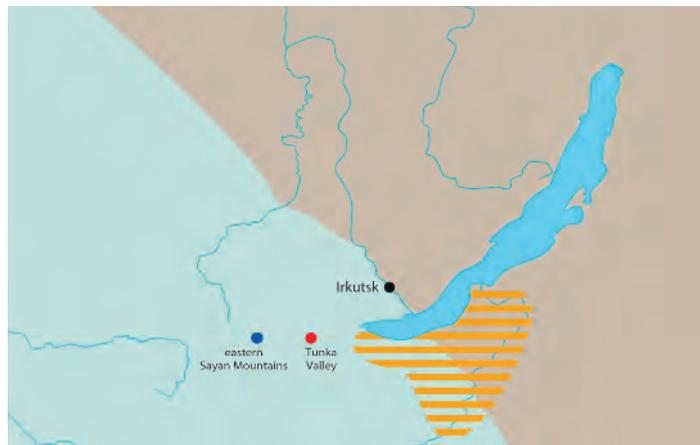
appearance and with some fine streaking in European Stonechat, at least in spring). These and other characters are described in detail in Hellström & Wærn (2011), although that reference focuses primarily on nominate *maurus*. Note also that the variation within *stejnegeri* is at present not fully understood and, for example, a few *stejnegeri* seem to show some irregular flank streaking. More research is required in order to establish the extent of this variation.

### The southern part of the intergradation zone

Vaurie (1959) and Stepanyan (1990) recognise a zone of intergradation between *stejnegeri* and nominate *maurus* extending from the lower Yenisey River southeast to the Irkutsk area, situated west of the southern part of Lake Baikal. In this region, both Stepanyan and Vaurie reported birds with intermediate characters, but unfortunately neither author described the frequency or the morphology of these birds in detail. Field observations during the breeding season by MH in Irkutsk, and in an area to the west, the Tunka Valley and the eastern Sayan Mountains, have revealed no birds with dark markings in the uppertail-coverts; indeed, the birds present in this area are generally very similar to nominate *maurus* occurring farther west in Siberia. Interestingly, Siberian Stonechats are more or less absent from the area just south and east of southern Lake Baikal, including the Selenga Delta, which contains vast areas of seemingly optimal habitat (Igor Fefelov *in litt.*, pers. obs.). The transition from *maurus* to *stejnegeri* in southern Siberia may perhaps be more abrupt (and with a lower frequency of hybridisation) than implied in the literature.

### Conclusions

Our findings suggest that the uppertail-covert pattern may be an important addi-



**Fig. 1.** The approximate distribution of Siberian Stonechat *Saxicola maurus* showing the breeding ranges of *S. m. maurus* (pale blue) and *S. m. stejnegeri* (brown) in southern Siberia according to Vaurie (1959) and Stepanyan (1990). However, in the yellow-hatched area, the species is largely absent, despite large areas of apparently suitable breeding habitat.

tional character for the separation of nominate *maurus* and *stejnegeri* in the case of many, although not all, birds. In the field, when faced with a fresh-plumaged potential *stejnegeri* in autumn, this character will be more useful in males (in which the uppertail-coverts often show bolder dark marks towards the feather tip) than in females. In the hand, the uppertail-coverts should be examined thoroughly by carefully lifting/separating the feathers to evaluate the pattern. The presence of class 2 markings is likely to mean that a bird is *stejnegeri* rather than *maurus*, but class 0- and class 1-type patterns can be found in both races.

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# Correction

In the recent paper on the Important Bird Areas of the Falkland Islands (*Brit. Birds* 107: 314–338), some errors were inadvertently introduced to table 3, on p. 322. Rather than print a list of corrections, we felt it would be simpler to reproduce the corrected table in full – below.

Sarah Crofts (*Falklands Conservation*) and Lincoln Fishpool (*BirdLife International*)

**Table 3.** Species for which Falkland Island IBAs are selected, the criteria they trigger and population estimates. If no recent census data are available, estimates are taken from Woods & Woods (1997).

| Species   | IUCN status | IBA criteria | Estimated Falkland population (breeding pairs) | Most recent census                                      |
|---|-------------|--------------|--|---|
| Falkland Steamer Duck <i>Tachyeres brachypterus</i>       | LC          | A2, A4i      | 9,000–16,000                                   |   |
| Ruddy-headed Goose <i>Chloephaga rubidiceps</i>           | LC          | A2, A4i      | Unknown  |   |
| Gentoo Penguin <i>Pygoscelis papua</i>                    | NT          | A1, A4ii     | 130,000  | Baylis <i>et al.</i> in press                           |
| Southern Rockhopper Penguin<br><i>Eudyptes chrysocome</i> | VU          | A1, A4ii     | 320,000  | Baylis <i>et al.</i> 2013                               |
| Macaroni Penguin <i>Eudyptes chrysolophus</i>             | VU          | A1           | <150   | Huin 2007   |
| Magellanic Penguin <i>Spheniscus magellanicus</i>         | NT          | A1           | 100,000?                                       |   |
| Black-browed Albatross <i>Thalassarche melanophris</i>    | NT          | A1, A4ii     | 500,000  | <a href="http://www.birdlife.org">www.birdlife.org</a>  |
| Southern Giant-petrel <i>Macronectes giganteus</i>        | LC          | A4ii         | 20,000   | Reid & Huin 2008  |
| Slender-billed Prion <i>Pachyptila belcheri</i>           | LC          | A4ii         | 2,000,000 New Island                           | Catry <i>et al.</i> 2003                                |
| White-chinned Petrel <i>Procellaria aequinoctialis</i>    | VU          | A1           | 55–100   | Reid <i>et al.</i> 2007                                 |
| Sooty Shearwater <i>Puffinus griseus</i>                  | NT          | A1, A4ii     | >10,000  |   |
| Imperial Shag <i>Leucocarbo atriceps</i>                  | LC          | A4i          | 45,000–84,000                                  |   |
| Dolphin Gull <i>Leucophaeus scoresbii</i>                 | LC          | A4i          | 3,000–6,000                                    |   |
| Striated Caracara <i>Phalcoeboenus australis</i>          | NT          | A1, A2       | 600–700  | Falklands Conservation, unpubl. from surveys in 2012/13 |
| Blackish Cinclodes <i>Cinclodes a. antarcticus</i>        | LC          | A2           | 15,000–28,000                                  |   |
| Cobb's Wren <i>Troglodytes cobbi</i>                      | VU          | A1, A2       | 6,000  | Poncet 2011   |
| White-bridled Finch <i>Melanodera melanodera</i>          | LC          | A2           | 7,000–14,000                                   |   |