

Snow Bunting: sexing, ageing and subspecies

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During a winter's day birding in the Netherlands, Snow Bunting *Plectrophenax nivalis* always presents a highlight. Although not a rarity, the species is very uncommon away from the coast, and groups exceeding a few 10s of birds are only regular around the Wadden Sea. In a group flying by, the variation in white patches invariably leaves observers with a sense of beauty but also with a feeling that there was something in there that they did not grasp completely. Studying perched birds, it soon becomes clear there is much variation in whiteness of the head, wing, rump and underparts, but also that most field guides do little in putting a meaning to the variation observed. Digging deeper into the literature reveals that telling what is what is not always simple. Confronted with this situation, various ringers searched for and found solutions to most problems concerning

determination of age, sex and subspecies (eg, Banks et al 1989, Jukema & Rijpma 1989, Rae & Marquiss 1989, Smith 1992). Their identification criteria were developed on birds during winter. Taking their findings into the field, I found that, although the methods developed were based on birds in the hand and museum specimens, many of these criteria can be used very well in the field as well, at least when given reasonable views.

When observing a Snow Bunting, it is generally easy to determine whether the bird is a male or a female. Determining the age is rather more difficult. Assigning the subspecies, however, again is not too difficult, although in some cases details need to be observed that are not easy to see under field conditions.

Snow Buntings wintering in the Netherlands belong to two subspecies: nominate *P n nivalis*

14 Snow Bunting / Sneeuwgorz *Plectrophenax nivalis*, adult female *P n nivalis*, Lauwersoog, Groningen, Netherlands, 16 February 2008 (Rik Winters). Very pale and large bird, suggesting *vlasowae*.





15 Snow Bunting / Sneeuwvogel *Plectrophenax nivalis*, first-winter male *P n insulae*, Lauwersoog, Groningen, Netherlands, 16 February 2008 (Rik Winters) 16 Snow Bunting / Sneeuwvogel *Plectrophenax nivalis*, male, most likely *P n nivalis*, Eemshaven, Groningen, Netherlands, 6 January 2008 (Rik Winters). Note extensively white rump and contrast between pale mantle fringes and rufous scapular fringes. Very pale plumage and large size suggestive of *vasowae*.

(hereafter *nivalis*) from Greenland east to western Russia, including Scandinavia, and *P n insulae* (hereafter *insulae*) from Iceland. The two subspecies form mixed flocks on the wintering grounds where their ranges overlap. Little is known about the ratios in which the subspecies occur in the Netherlands. *Insulae* is presumed to be the most numerous subspecies, being about twice as numerous as *nivalis* (Jukema & Fokkema 1992), but this ratio may vary between winters. However, using the identification criteria described hereafter, birds I checked in the Wadden Sea area in autumn (September-October) all proved to be *nivalis*.

In addition, *P n vlasowae* (hereafter *vlasowae*) from Siberia, Russia, may occur in western Europe but its occurrence is obscured by poorly known identification criteria and the presumed occurrence of *vlasowae*-type birds in northern Atlantic populations (Cramp & Perrins 1994).

Sexing

The scapular pattern is diagnostic for sexing but, in case of doubt, there are several other features that can be used.

Males show a broad blunt tip to the black centre of the scapulars, while in females these feathers show a pointed dark brown centre. The difference is least pronounced between first-winter males and adult females but, even then, the difference is usually easily made. In males, these centres may appear to form a black 'belt' between the largely white wing-coverts and the brown- to pale-edged mantle-feathers while, in

females, there is no such 'belt' apparent, as the scapulars are similarly patterned as the mantle-feathers (although the colour of the feather edges may differ).

The median and lesser wing-coverts are white in males, while in females these feathers have a dark centre and a white fringe. First-winter males may show a dark feather centre to some lesser wing-coverts. On perched birds, this feature is often best seen as a white band between the dark scapulars and dark alula. Also, the greater wing-coverts are usually whiter in males than in females but there is extensive overlap and this is not a reliable feature.

The wing-tip of males is black or blackish, creating a 'dipped-in-ink pattern' in flight. In females, the dark parts are less black and less well demarcated from the white parts (Svensson 1992). On perched birds, however, this feature is usually of little use.

Other sexing features include biometrics (Banks et al 1989), the pattern of the feathers of the nape, and a formula regarding the whiteness of various wing- and tail-feathers (Jukema & Rijpma 1989) but these characters are of little use in the field. Furthermore, extensively white primary coverts are shown primarily by males but not all males show this. There is variation related to subspecies (see below): some females *nivalis* may also show white on these feathers, and first-winter males *insulae* may show all-dark primary coverts.

The characters can usually be observed quite easily and, given reasonable views, allow for a

failsafe sexing. The result may sometimes be experienced as somewhat 'counter intuitive' as illustrated by plate 14-15, with the pale bird being the female and the brown one the male.

Ageing

Determining the age of a Snow Bunting is most often not straightforward and relies on close views of a number of feathers. The 'classic' key is the shape of the tip of the tail-feathers – pointed in first-winter birds and rounded in adults – but this is generally regarded of little use as the tail-feathers in adults may wear to a more pointed shape. Furthermore, this feature can hardly ever be assessed reliably in the field (although photographs may be of great help).

Smith (1992) used a combination of tertial pattern and wear, inner greater covert pattern and a tail feature. He showed that this combination was almost free of errors. Only in spring, some birds were aged incorrectly, probably as a result of wear of the relevant feather parts.

Of these three features, the tail feature is of little use for field observations but, given reasonable views, the tertials and greater coverts can be stud-

ied in sufficient detail. Luckily, the tail feature is the least accurate of the three and leaving it out introduces little additional error (cf Smith 1992).

Tertials of both adult and first-winter birds typically show a broad ginger-coloured or rusty edge and tip but, in adults, the tertials start showing wear only much later in the season. Beware of late winter and early spring birds as, by then, also adults may have lost the fringes. The longest (outer) tertial is the most relevant of the three, as it is much more prone to wear than the inner two.

The inner greater coverts can be used in two ways. They are largely dark with a pale fringe. In juveniles, this fringe is narrow and easily wears off while, in adults, the fringe is wide and less prone to wear. Especially late in the season, interpretation of this feature may become difficult. The tell-tale sign of age is a moult contrast shown by some first-winter birds. Some have moulted their innermost (rarely two) inner greater covert(s) and replaced the narrowly edged juvenile one(s) by a broadly edged adult-type feather. Any bird showing a broadly edged inner greater covert next to a narrowly edged one certainly is a first-winter (plate 22).

17 Snow Bunting / Sneeuwgor *Plectrophenax nivalis*, adult female *P n insulae*, Katwijk aan Zee, Zuid-Holland, Netherlands, 2 November 2012 (René van Rossum). Pointed centre of scapulars typical for female. Extensive coloration on head and underparts and slight contrast between mantle and scapulars indicate *insulae*.





18 Snow Bunting / Sneeuwgors *Plectrophenax nivalis*, adult male *P n insulae*, Eemshaven, Groningen, Netherlands, 6 January 2008 (*Rik Winters*). Note fringes to mantle-feathers being only slightly paler than fringes of scapulars. **19** Snow Bunting / Sneeuwgors *Plectrophenax nivalis*, male, Lauwersoog, Groningen, Netherlands, 23 February 2008 (*Rik Winters*). Tertial and inner greater covert edges much abraded, rump invisible, so age and subspecies cannot be told with certainty, but rusty fringes to mantle-feathers and compact appearance suggest *insulae*. **20** Snow Bunting / Sneeuwgors *Plectrophenax nivalis*, first-winter female, Lauwersoog, Groningen, Netherlands, 18 February 2008 (*Rik Winters*). Tertial and inner greater covert edges abraded and narrow, tail-feathers sharply pointed. Grey mantle and extensive white underparts indicate *P n nivalis*. **21** Snow Bunting / Sneeuwgors *Plectrophenax nivalis*, adult male *P n insulae*, Lauwersoog, Groningen, Netherlands, 23 December 2008 (*Rik Winters*). Note typical rump pattern with extensive black markings.

In general, adults show more white than first-winter birds of the same sex and subspecies. When both sex and subspecies can (in most cases) be determined, some additional features may be of use when determining the age of the bird.

In *insulae* many first-winter birds show a greyish head, reminiscent of the juvenile plumage. This enables to age these birds at first sight. These birds also show very little white on the secondaries and none on the primaries.

At the other extreme, completely white primary coverts are typical of adult male *nivalis*; first-win-

ter males of this subspecies show a variable amount of black at the tip of these feathers, overlapping with adult male *insulae* in this feature, while on first-winter male *insulae* these feathers may be all dark.

Subspecies

In general, *nivalis* is whiter and slightly larger than *insulae*, with *vlasowae* being even more whiter and larger.

Males of *nivalis* and *insulae* can usually easily be identified to subspecies level by the pattern of



22 Snow Bunting / Sneeuwgorz *Plectrophenax nivalis*, first-winter female *P n insulae*, Lauwersoog, Groningen, Netherlands, 23 December 2008 (Rik Winters). Note broad edge to moulted inner greater covert. 23 Snow Bunting / Sneeuwgorz *Plectrophenax nivalis*, first-winter female *P n insulae*, De Blocq van Kuffeler, Flevoland, 24 December 1996 (Arnoud B van den Berg). Note general rusty appearance and lack of obvious white. 24 Snow Buntings / Sneeuwgorzen *Plectrophenax nivalis*, Katwijk aan Zee, Zuid-Holland, Netherlands, 2 November 2012 (Luuk Punt). Male *nivalis* (right): note rump without black; rusty fringes wear with time, leaving rump white. 25 Snow Bunting / Sneeuwgorz *Plectrophenax nivalis*, male *P n insulae*, IJmuiden, Noord-Holland, Netherlands, 10 November 2003 (Arnoud B van den Berg). Note extensive rusty markings and black centres of rump-feathers visible through rusty edges.

the rump. Subspecific identification of females is less straightforward; c 75% can be assigned to subspecies using features not easily observed in the field while, on the other hand, the reliability of visible features is not well known.

Males with a dark centre to the rump-feathers are *insulae*, while males *nivalis* show a completely white rump once the yellowish to rusty edges have worn off. This is a diagnostic feature but it may be difficult to assess in early winter when the centres of the rump-feathers are covered by buffish to rusty fringes.

Females can be identified by the pattern of the second innermost primary, which shows less than 40% white in *insulae* and more than 60% white in *nivalis* (with the basal part of the feather white and the distal part black; Svensson 1992). Only a few birds fall in between these limits and are best left unidentified. The feature is, however, rarely visible in the field and thus of little practical use. Many females can, therefore, be identified only tentatively by the colours of the upperparts and the whiteness of the head and underparts.

In both sexes, *nivalis* in winter often shows a



26 Snow Bunting / Sneeuwgorst *Plectrophenax nivalis*, male *P. n. insulae*, Texel, Noord-Holland, Netherlands, 11 October 2010 (René Pop). Extensive rusty markings on head and underparts and little contrast between fringes of scapulars and mantle-feathers indicative of *insulae*. **27** Snow Bunting / Sneeuwgorst *Plectrophenax nivalis*, female *P. n. nivalis*, Katwijk aan Zee, Zuid-Holland, Netherlands, 2 November 2012 (René van Rossum). Note extensive white on primaries, second innermost showing more than 60% white, diagnostic of *nivalis*. Also note overall pale appearance and contrast between pale mantle and rusty scapular edges.





28 Snow Bunting / Sneeuwgor *Plectrophenax nivalis*, male *P n nivalis*, Julianadorp, Noord-Holland, Netherlands, 23 September 2002 (*René Pop*). Male *nivalis* as indicated by pale fringes to mantle-feathers, extensive white in primary coverts, white in primaries and overall pale appearance. **29** Snow Bunting / Sneeuwgor *Plectrophenax nivalis*, adult male *P n nivalis*, Texel, Noord-Holland, Netherlands, 25 May 2004 (*René Pop*). Note totally white rump and whitish fringes to mantle-feathers. Lack of white at primary bases indicates second calendar-year.



conspicuous colour difference between the ginger-coloured to brownish feather edges of the scapulars and paler edges of the mantle-feathers. This difference is very weak or absent in *insulae* which shows mantle feathers largely concolorous with the scapulars. On average, *nivalis* shows more white than *insulae* of similar age and sex. These features should, however, be applied with caution: the brownest birds are *insulae* and the palest *nivalis* but intermediate birds may be unsafe to assign to subspecies.

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Samenvatting

SNEEUWGORZS: GESLACHTS-, LEEFTIJD- EN ONDERSOORTBEPALING. Sneeuwgorzen *Plectrophenax nivalis* zijn aan de hand van kleedkenmerken goed op leeftijd, geslacht en ondersoort te brengen. Kenmerken ontwikkeld door ringers zijn vaak ook in het veld goed bruikbaar. De overwinteraars in Nederland behoren tot de continentale nominaat *P n nivalis* (hierna *nivalis*) en de IJslandse *P n insulae* (hierna *insulae*). Of de Siberische ondersoort *P n vlasowae* (hierna *vlasowae*) ook in Nederland voorkomt is onduidelijk. De geslachten zijn het best te onderscheiden door de vorm van het donkere centrum van de schouderveren: breed en stomp bij mannetjes, puntig bij vrouwtjes. Bij mannetjes zijn deze veren vaak goed te zien als een zwarte band tussen mantel en vleugeldekveren. Wit in de buitenste handpennen en handpendekveren is ook karakteristiek voor mannetjes, maar de hoeveelheid hangt af van leeftijd en ondersoort. Leeftijdsbepaling is vaak lastig. Vogels met een breed gezoomde binnenste grote dekveer naast smal gezoomde juveniele dekveren is zeker een eerste-winter. Ook houden veel

eerste-winters een wat grijzige kop. Puntige staartpenen zijn doorgaans een slechte indicator, omdat de topen van de staartveren snel slijten. De continentale *nivalis* heeft in alle kleden meer wit en heeft lichtere tinten dan de corresponderende kleden van *insulae*. *Vlasowae* is doorgaans nog witter dan *nivalis*. Bij mannetjes is een ongetekende witte stuit diagnostisch voor *nivalis*; *insulae* heeft donkere veren op de stuit. Dit kenmerk kan in vers kleed echter slecht te bepalen zijn wanneer de centra van de stuitveren nog zeemkleurige tot roestbruine randen hebben. Als de leeftijd goed bepaald kan worden, kan de grotere hoeveelheid wit in de vleugel bij *nivalis* behulpzaam zijn bij de ondersoortbepaling. Het diagnostische kenmerk bij vrouwtjes is de hoeveelheid wit en donker op de op een na binnenste handpen. Als deze veer meer dan 60% wit is (basale deel van veer wit, distale deel zwart), dan is het *nivalis*, minder dan 40% wit is diagnostisch voor *insulae*.

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