

Field manual for ageing Sanderlings and estimating the proportion of juveniles in flocks.

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This manual will help you to discriminate juvenile from adult Sanderlings and to count their proportions in the field - an effective method for estimating reproductive success. The most important field characteristics of both age classes are shown in photographs and described in the text. At the end of this document you will find a list of tips for doing the counts in the field. Many thanks for your support and enjoy!

To understand the viability of the population of sanderlings, data on survival and reproduction are essential. Reproductive success of the High Arctic breeding sanderlings can vary considerably from year to year due to the varying circumstances in the breeding grounds (lemming cycles and predation pressure). Reproductive success can best be estimated in the wintering grounds as the proportion of juveniles within flocks. However, due to the enormous and widespread wintering range of Sanderlings, reliable estimates can only be obtained when many observers at many locations score the number of juveniles within flocks in a standardised and reliable manner. We would like to ask for your help with this. At the end of the season we will report the results to you.

Important feather groups and terminology:

To distinguish adult and juvenile sanderlings is not difficult, but for the inexperienced observer it may need a little training. It is important to realise that both adults and juveniles are moulting during the time of the year when we are interested in the proportion of both in flocks. It is thus important to recognise both ages even at different stages of moult. It helps to pay attention to feather groups and their patterns, whilst colouration and degree of wear is very helpful for aging any shorebird in the field.

Familiarise yourself with the feather groups and their terminology indicated in this photo! We will use them for explaining the general differences between juvenile and adult Sanderlings on the next pages.



1) identify body feathers like the **crown**, **mantle and side neck feathers** and the **scapulars**.

2) consider the **wing coverts** and flight feathers like the **tertiaries** and the **primaries**. Compare this picture with the first picture

on the following page! Also, if necessary, you can practice bird topography in any decent bird guide!

Moult and plumage characteristics of juvenile and adult Sanderlings (1)

General difference between juveniles and adults:

Juveniles have a very fresh and neat plumage, whereas the feathers of adults are (very) worn and faded in August and September. Juveniles typically show black and white chequered upperparts and often have a creamy-buff tinge on the upper breast and head when very fresh. Both adults and juveniles start moulting into the winter plumage from mid-September onwards (this can vary depending on geographic region) and therefore become increasingly difficult to distinguish in the field. This means that you will encounter adults that have partly moulted their typical nuptial (breeding) plumage as well as juveniles that have partly



1 Mid-Sep., Brittany: One species but two different age classes: the bird to the left is an adult showing the typical winter plumage, whereas the bird to right is a juvenile with only very few (grey) mantle feathers already moulted.

replaced their typical juvenile feathers. Both juveniles and adults then show more and more of the typical plain grey feathers of the winter plumage on head, mantle and

wing coverts. Therefore, it is important to bear the main plumages (juvenile, adult breeding and winter plumage) in mind to realise how moult affects the transient stages.

Ageing via telescope is best done between mid September and late October due to migration and moult (see p. 8 for further reading).

Moult and plumage characteristics of juvenile and adult Sanderlings (2)

Juveniles

usually moult their head and body feathers. Tertiaries and wing coverts are only moulted in birds wintering in the tropics.



1 Mid-Sep., Brittany: Typical plumage before start of moult. The mantle feathers and scapulars with black centers and white fringes are distinctive. The buffish tinge at neck and face indicates a very fresh plumage.



2 Mid-Sep., Brittany: Crown and side neck are smudgy black. Some of the mantle feathers are already moulted into winter plumage.



3 January, North Frisia: A juvenile in its first winter plumage with moulted mantle, crown and scapulars. Can only be aged by the retained tertiaries and wing coverts with dark centers.

Adults undergo a complete moult replacing their breeding plumage with a plain grey and white winter plumage.



4 Mid-Sep., Brittany: Moulting from breeding to winter plumage. The fresh looking grey feathers in crown and scapulars are the winter plumage feathers. The dark ones are left-overs from the breeding plumage.



5 Mid-Sep., Brittany: Almost completely moulted into winter plumage. Only very few black feathers are left on the upperparts.



6 January, North Frisia: Full winter plumage showing the typical plain greyish upperparts and shining white underparts.

Moult and plumage characteristics of juvenile and adult Sanderlings (3)

1 Mid-Sep., Brittany: How many juveniles do you see?

The second Sanderling from the right (foreground) is a juvenile, all others are adults. The juvenile bird is aged by its dark chequered upperparts, the blackish crown and its smudgy face and neck pattern. Note the contrast between new mantle/scapulars and old wing covers/tertiaries of the adults.



2 Mid-Sep., Brittany: Try to age this flock!

There are only juveniles in this flock. All show the typical black-white chequered upperparts and the smudgy side neck with a buffish hinge. Note the overall fresh and "clean" appearance of the plumage!



Working in the field (1)

- Use a telescope to scan your flock of Sanderlings.
- Age and count each bird one by one! A note that “of the ca. 450 sanderlings ca. 10% was juvenile” is not precise enough.
- Use a tally or 1-2 hand counters to record your number(s)!
- It’s practical if a second person helps: While you are scanning the flock and announce each bird, your friend makes notes.
- Juveniles often bunch within a flock. Therefore, always try to count the entire flock! Note however that counting a sub-sample of a large flock (>300 Sanderlings) is also fine. In all cases it is important to know how many birds were present in the area and how many individuals could be aged. For example: 1238 sanderlings counted of which 79 juvenile and 638 adult.
- Counting & ageing a roosting flock is much easier than doing so on a foraging flock with individuals that rapidly run back and forward. This will cause double-counts and unreliable data. Wait for the right moment when the flock is spread out or roosting.



Working in the field (2)



September, Brittany: One small final challenge:
How many juveniles and adults can you detect in this roosting flock?

The second Sanderling from the left is the only juvenile, aged by its dark brownish upperparts, side-neck and crown. All the other 51 Sanderlings are adults, aged by the progressed moult into the grey and white winter plumage. Many of the adults still show some old wing coverts and tertials, which are predominantly dark lacking the broad and white fringes as would be seen in juveniles.

- What you need to report:
 - 1) **date**, exact **location** (with coordinates), your **name(s)**
 - 2) exact number of **all aged birds**
 - 3) number of **adults**
 - 4) number of **juveniles**
 - 5) **total number** of all present birds
- Please send your data to Jeroen Reneerkens (J.W.H.Reneerkens@rug.nl)! Your help is highly appreciated!
- Visit www.waderstudygroup.org to find out more about the Sanderling project of the International Wader Study Group.

Further reading

Other useful (ageing) literature:

The Shorebird Guide; O`Brian, Crossley & Karlson; New York, 2006.
Shorebirds of the Northern Hemisphere; R. Chandler; London, 2009.
Collin`s Bird Guide (available in different languages); Svensson,
Mullarney & Zetterström, any edition.
Establishing the right period for estimating juvenile proportions of
wintering Sanderlings via telescope scans in Northern Scotland;
Lemke, Bowler & Reneerkens; Wader Study Group Bulletin 119 (2),
2012.

Photography credits:

Jeroen Reneerkens,
pp. 1-3, p. 4 (picture 1, 2, 4 & 5), pp. 5 & 7
Hilger Lemke,
p. 4 (pictures 3 & 6), page 6

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