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Immature Long-tailed Skuas *Stercorarius longicaudus* in Swedish Lapland in 2009

Förekomst av unga fjällabbar Stercorarius longicaudus *i Lappland under 2009*

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Abstract

Between 12 and 27 June 2009, 10 immature Long-tailed Skuas *Stercorarius longicaudus* were recorded in breeding areas in Swedish Lapland. Based on plumage characters, these were aged as 3rd calendar year birds. The fraction of immatures in the total number of aged birds was 4–10%, which seems to be in accordance with maximum abundances of immatures reported in earlier studies. The first immature birds were sighted about two weeks after the arrival of adults. There was no breeding this year, and adults and immatures both departed at the end of June. Prospecting before being recruited into the breeding population may enhance early arrival in later years, which in turn may increase the probability to recruit.

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Introduction

In long-lived, long-distance migrants, immatures may visit future breeding grounds in one or more years before breeding for the first time. Generally, these prospecting visits and breeding commence at a higher age in larger species and species with a higher expected life-span (Becker & Bradley 2007, Weimerskirch 2002). For example, Common Terns *Sterna hirundo*, with an average adult survival of around 85–90%, usually start prospecting in their 3rd calendar year (hereafter abbreviated to "cy") and do their first breeding attempt a year later (Becker et al. 2001), whereas Wandering Albatross *Diomedea exulans*, with an adult survival rate of around 95%, start prospecting in their 7th cy and breed for the first time mostly in their 11th cy (Weimerskirch 1992).

For the Long-tailed Skua *Stercorarius longicaudus*, a transequatorial migrant seabird breeding on (inland) Arctic tundras, it has been suggested that breeding commences in the 4th cy (de Korte 1985). Immatures in their 2nd and 3rd cy have been recorded prospecting the breeding grounds. This has been relatively well-documented at breeding grounds in Greenland (de Korte 1984, de Korte 1985, Meltofte 2007, Meltofte & Hoye 2007), and has been mentioned shortly for Swedish Lapland (Andersson 1976) and Alaska (Howell 1999). Here, I report observations of 3rd cy Long-tailed Skuas in Swedish Lapland in 2009.

Methods

Sightings of Long-tailed Skuas were recorded during breeding bird surveys in tundra areas north-west (Raurejaure) and south-west (Äjveså jvvie) of the village of Ammarnäs (N 65°57', E 16°12'). Rodent densities were low and all Long-tailed Skuas refrained from breeding and roamed over the tundra alone or in flocks. Flocks were counted and scanned for immatures. Immatures were documented by field sketches and, if possible, photos. These dedicated observations were carried out on 14–27 June 2009. Additional observations from 27 May to 19 July, including areas north (Gelmetje) and north-east (Björkfjället) of Ammarnäs, were received from other observers.

Results

After the first immature was observed on 12 June in the Raurejaure area (Johannes Hungar in litt), there were 10 sightings of immature Long-tailed Skuas. Differences in plumage, most notably the length of the central tail-feathers, the absence or

presence of a breast-band and the amount of grey and dark brown feathers among the scapulars and wing-coverts, showed that these sightings concerned 10 individuals. The last immatures were seen on 27 June – which was the last day any skuas were seen in the area (Johannes Hungar in litt). Immatures were only seen in the Raurejaure area and at mount Äjvesåjvvie. Adult Long-tailed Skuas were also seen in two nearby areas (Gelmetje and Björkfjället). The immatures were encountered in five of the six flocks of five or more Long-tailed Skuas. The highest day-counts were 19 adults and two immatures on 16 June in the Raurejaure area and 98 adults with four immatures on 27 June at Äjvesåjvvie. Based on these figures, immatures comprised 4–10% of the total number of Long-tailed Skuas. For comparison of this value with other studies, I corrected absolute numbers of immature birds reported in two previous studies by an estimation of the number of aged individuals. The latter was derived from the size of the breeding population. Meltofte & Hoye (2007) report immatures and the number of breeding pairs for 1996–2006 from NE Greenland. The two years with the highest numbers of immatures were 2003 and 2004, when respectively 6 and 5 individuals were seen. With 29 and 21 breeding pairs, corresponding to 58 and 42 aged adults, the percentage of immatures in these years was 9 and 11%, respectively. In Northern Sweden, the number of immatures reported by Andersson (1976) in 1968, a very poor breeding year, was at least 5 and at most 10 birds. In that year, 70 km2 were surveyed. The maximum breeding density found by Andersson (1976) was 0.6 pairs per km2. This translates into a potential of 42 pairs or 84 individuals for the area. Thus, immatures would make up about 6–11% of maximum population size. For the other years, in which only one or two immatures were seen, the percentage of immatures was 2–6%.

Plumage characters of the observed immatures are summarized in Table 1. Variation between individuals was extensive, but some parallels are apparent. All immatures had an adult-like head pattern and with a single exception (see below), all had a white central belly. If present, central tail-feathers were elongated in four out of six individuals to about half the length of those of adults. All individuals that could be studied while perched showed a mix of grey adult-type and dark brown immature-type scapulars and wing-coverts (the latter sometimes with a pale fringe) – but the proportions of each feather type varied widely. Underwing-patterns showed similar variation. Bars on the underwing and axillaries could be broad or thin. One of two individuals that could be photographed is depicted in Figure 1. One individual (seen on 27 June) differed markedly from the others, being much darker and showing elongated central tail-feathers as long as in adults (Figure 2). The slightly barred axillaries and the blotched upper breast indicate its immaturity.

Discussion

These sightings confirm the occurrence of 3rd cy Long-tailed Skua at the Swedish breeding grounds. Plumage characteristics of immatures recorded in 2009 in Ammarnäs are consistent with what has been described for 3rd cy Long-tailed Skua (Howell 2007). Separation of 3rd cy from 2nd cy birds is based on the adult-type head pattern (which in 2nd cy is similar to that of juveniles), the presence of grey adult-type scapulars and coverts (dark immature-type in 2nd cy) and the projection of the central tail feathers (shorter in 2nd cy) (Olsen & Larsson 1997, Howell 2007, van Duivendijk 2009). The large variation between individuals in the proportions of adult and immature type feathers, which belong apparently to the same moult cycle, and the length of the central tail feathers, may be the result of individual variation in hormone levels and the timing of moult (Howell 2007). It is unlikely that the immatures seen in Ammarnäs in 2009 were in their 4th cy as no Long-tailed Skuas bred in the area in 2006 and hence no young were produced. Moreover, there were no birds observed that fitted the ageing criteria proposed by Olsen & Larsson (1997). All currently used ageing criteria have not been backed up by specimens of known age (de Korte 1984, Howell 2007) and should therefore be treated with some caution. This especially holds for 4th cy, as these birds can probably not be separated from adults whith retained winter feathers.

One individual superficially resembled a dark morph, but showed barred axillaries (Figure 2). According to Roselaar & Prins (2000), who documented the sole record of an immature (probably 3cy) dark morph Long-tailed Skua, genuine dark morph Long-tailed Skuas show plain dark feathers with pale tips, as opposed to dark examples of the barred morph showing barred feathers. Therefore, this individual is probably better treated as a dark example of the barred morph. Whether it also had a dark barred morph juvenile plumage, remains unknown – as individual immature skuas are virtually impossible to follow over several years, it is unknown how plumage morphs may change across years and seasons.

Table 1. Plumage characters of immature Long-tailed Skuas seen in Ammarnäs in 2009.
Dräktkaraktärer hos unga fjällabbar observerade i Ammarnäs under 2009.

June date	Area	Tail feathers	Underwing	Upperparts	Rump	Breastband	Underparts	Undertail coverts	Other characters
12	R		2			2			*
16	R	1		3	1	1	1	1	Neck white; cap with brown mottling; bill base dark brownish; pale fringes on mantle
16	R	2	1	2	2	2	2	1	Neck yellowish; cap with brown mottling; bill base dark brownish with greyish moult scales; legs blue-grey, no spots.
17	R	5	2	4	2	1	1	2	Neck white, cap with brown mottling; some tiny dark spots just below cap; upper mandible brownish above nose; inner left-side terti als renewed, outer old, legs blue-grey, no spots. (Figure 1)
20	R	5	3	4	2	3	1	1	Neck slightly yellowish; crown with brown mottling; some dark spots just beneath cap and on upper throat; bill dark; about half of the scapulars grey, most wing-coverts dark brown, but some grey; legs blue-grey, no spots.
21	A	5	2			1	1	1	
21	A	2	4	1	2	2	1		Underwing plain dark grey from a distance, but some white markings at least on axilleries
27	A	5	3	1		3	1	1	Mantle with pale fringes; scapulars plain grey, but one dark brown; upperwing-coverts plain grey.
27	A	5	2	3		3	1		Mantle with pale fringes; scapulars plain grey, but a few dark brown; upperwingcoverts plain grey; underwingcoverts apparently plain grey; rather extensive breast-band.
27	A	6	4	1	3	3	3	3	Necksides pale, underparts very dark due to extensive, broad grey bands, virtually 'filling' whole of belly and flanks. On upper breast, grey bands slightly separated by white bands. (Figure 2)
27	A	4	1	1	3	2	1		

Area R=Raurejaure; A=Äjveså jvvie; *Central tailfeathers* 1=missing; 2='not elongated' (could be missing or broken); 3=broken; 4=appr ¼ adult length; 5=appr ½ adult length; 6=appr adult length; *Underwing* 1=thin bars; 2=heavily barred with thick bars; 3='barred' (no details seen/noted); 4=grey and barred feathers mixed; 5=grey; *Upperparts* 1=grey; 2=mixed; 3=more grey; 4=more dark; *Rump* 1=barred; 2=mixed; 3=grey; *Breastband* 1=absent; 2=incomplete; 3=complete; *Underparts* 1=white belly and flanks barred; 2=flanks barred and belly with grey bands; 3=very dark; *Undertailcoverts* 1=barred; 2=mixed; 3=grey
* reported by Johannes Hungar

In Ammarnäs, immatures made up about 4–10% of the number of aged birds. Despite being very rough estimates, they are similar to maxima of 9–11% and 6–11% reported from by Meltofte & Hoye (2007) and Andersson (1976), respectively. In Greenland, most immatures were 3rd cy birds (de Korte 1984, Meltofte & Hoye 2007), with 2nd cy being rare (cf. Meltofte 2007). The presence of 3rd cy and absence of 2nd cy in the study area is in accordance with this. It is however likely that also 2nd cy birds occur in Northern Sweden, but although having been reported (Andersson 1976), they have not yet been fully documented. Also in other skua species, 2nd cy birds are rare at the breeding grounds and immatures start prospecting in their 3rd cy (Furness 1987, Ainley et al. 1990, Kjellén 1997, Klomp & Furness 1992). In absence of a population of individually marked birds and due to the difficulties in ageing 4th cy and older Long-tailed Skuas, it is yet impossible to determine age composition of the remaining prospectors population. It may be similar to the closely related Arctic Skua *Stercorarius parasiticus*, in which most individuals at club sites are 2–4 years old and most individuals start breeding at an age of 4 or 5 years (RW Furness pers comm).

Figure 1. Long-tailed Skua *Stercorarius longicaudus*, 2nd summer (3rd calendar year), Raurejaure, Ammarnäs, Swedish Lapland, 17 June 2009 (Rob van Bemmelen). Note the well defined head pattern and the pale cheeks and upper breast. Furthermore, there is a mix of juvenile-type and adult-type scapulars, tertials and coverts. The projection of the elongated central tailfeathers is about as long as the tail.
Fjällabb Stercorarius longicaudus*, andra sommardräkt (3k), Raurejaure, Ammarnäs, Lappland, 17 juni 2009 (Rob van Bemmelen). Lägg märke till väl definierad täckning på huvud samt blek kind och övre bröst. Man kan också se en blandning av juvenila och adulta skulderfjädrar, tertialer och täckare. De förlängda mellersta stjärtfjädrarna sticker ut ungefär lika långt som stjärten.*

The occurrence and abundance of immatures at the breeding grounds may be dependent on many variables, including number of successfully fledged young and their survival, and natal philopatry (Becker & Bradley 2007). These are unknown for the Long-tailed Skua population of Ammarnäs. If immature Long-tailed Skuas show natal philopatry (see Meltofte (2007) for a possible observation of natal philopatry), then the number of immatures should reflect reproductive output from the preceding years, assuming survival rate is constant across years. In 2005, 2007 and 2008, breeding numbers were good, and it is very likely that at least some young fledged in these years. However, no immatures were seen in June–July 2007 and 2008, despite extensive fieldwork (pers obs).

In line with earlier studies in Swedish Lapland and Greenland, the first immatures were seen about two weeks after the arrival of adults (Andersson 1976, de Korte 1984, Meltofte & Hoye 2007). Also the apparent departure of both adults and immatures at 27 June corroborates earlier work, which showed that birds leave by late June or early July in non-breeding years (Andersson 1976, de Korte 1984). In breeding years, immatures may stay longer at the breeding grounds (de Korte 1984).

In Long-tailed Skuas, recruitment into the breeding population probably takes place in the 4th cy, i.e. at the age of 3 years (de Korte 1985). Then why do younger immatures prospect the breeding areas? In another long-distant migrant, the Common Tern *Sterna hirundo*, individuals with more years spent prospecting arrive earlier at the colony and have a higher probability to recruit (Ludwigs & Becker 2002). This may work similarly in Long-tailed Skuas, which may face declining rodent abundances when arriving too late.

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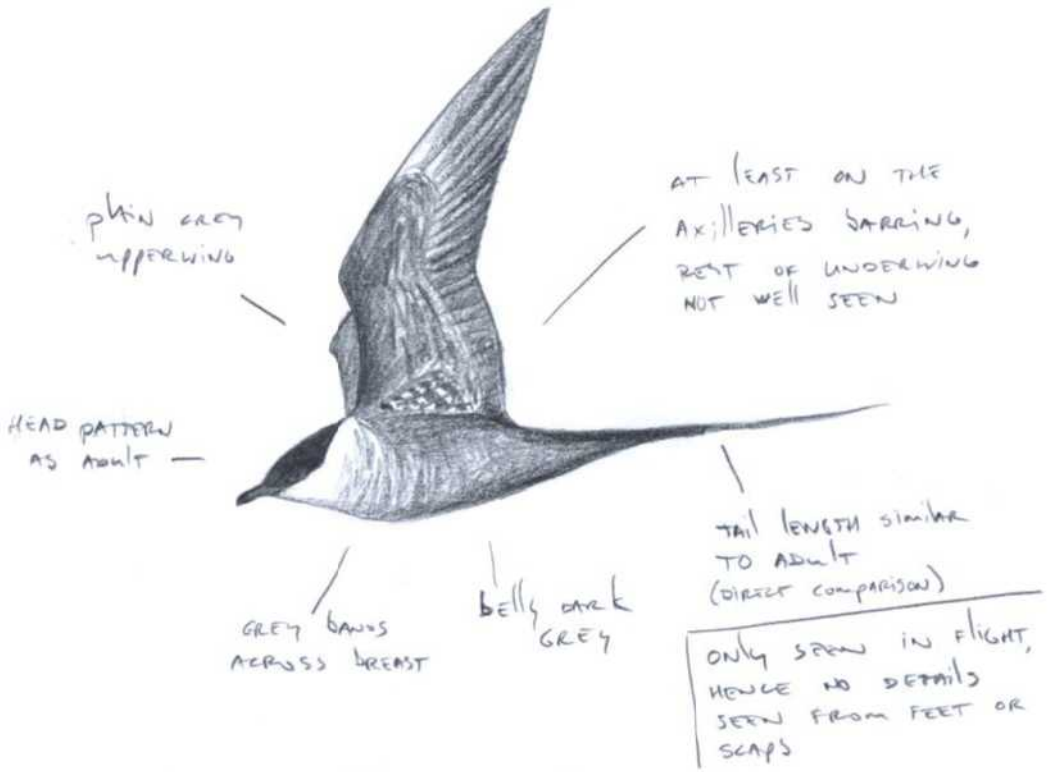

Figure 2. Long-tailed Skua *Stercorarius longicaudus*, 2nd summer (3rd calendar year), Äjvesåjvvie, Ammarnäs, Swedish Lapland, 27 June 2009 (Rob van Bemmelen). Sketch of a dark and long-tailed immature Long-tailed Skua.
Fjällabb Stercorarius longicaudus*, andra sommardräkt (3k), Äjvesåjvvie, Ammarnäs, Lappland, 27 juni 2009 (Rob van Bemmelen). Teckning av en ovanligt mörk och långstjärtad ung fjällabb.*

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Sammanfattning

Unga fåglar kan besöka häckningsområden ett eller flera år innan häckning hos långlivade tropikflyttare. Ju längre genomsnittlig livslängd en art har desto senare besöker arten häckningsområdet och startar häckning för första gången. Fjällabben *Stercorarius longicaudus*, en flyttande havsfågel med övervintringsområden på södra halvklotet och häckningsområden på arktisk fjälltundra, börjar enligt litteraturuppgifter att häcka under det fjärde kalenderåret. Unga fåglar i andra (2k) och tredje (3k) kalenderåret, dvs. året när de blir två respektive tre år gamla, har också rapporterats prospektera i häckningsområdet. Detta fenomen är relativt väldokumenterat från grönländska häckningsplatser, men har bara omnämnts kortfattat för Alaska och svenska Lappland. Här rapporterar jag observationer av unga (3k) fjällabbar från tundraområden nordväst (Raurejaure) och sydväst (Äjvesåjvvie) om Ammarnäs (N 65°57', E 16°12') under sommaren 2009.

Denna sommar var gnagartillgången dålig, samtliga fjällabbar avstod därför från häckning och strövade därför omkring i tundraområdet ensamma eller i flock. Unga individer sågs mellan 12 och 27 juni. Efter denna period sågs inga fjällabbar alls i området. Dessa observationer bekräftar tidigare studier från Lappland och Grönland där de första ungfåglarna sågs ungefär två veckor efter de vuxna fåglarnas ankomst, och både vuxna och unga fåglar flyttade söderut i slutet av juni och början av juli under år utan häckning.

Minst 10 olika unga fjällabbar sågs under sommaren 2009. De högsta dagsiffrorna var 19 vuxna och två unga den 16 juni i Raurejaureområdet och 98 vuxna och fyra unga den 27 juni i Äjvesåjvvie. Baserat på dessa siffror utgjorde ungfåglarna mellan 4 och 10% av den totala fjällabbspopulationen. Liknande andelar ungfåglar (9–11% och 6–11%) har tidigare rapporterats från både Grönland och de svenska fjällen. Tabell 1 sammanfattar dräktkaraktärer för dessa tio ungfåglar. Dessa stämmer väl överens med tidigare beskrivningar av 3k fjällabb. Det fanns stor dräktvariation mellan olika individer, men vissa konsekventa mönster kunde noteras, bland annat adultliknande huvudteckning, mellersta stjärtpennornas längd ungefär hälften av de vuxna fåglarnas och vita bukar (Figur 2). En individ (sedd den 27 juni) skiljde sig distinkt från övriga genom att ha mörkare undersida och centrala förlängda stjärtfjädrar av adult längd (Figur 2). Något bandade axillarer (armhålsfjädrar) och fläckigt övre bröstparti indikerar att detta rör sig om en ungfågel och att den bör betraktas som ett ovanligt mörkt exemplar av den bandade formen snarare än en fågel av rent mörk morf.

Att det fanns 3k fåglar men inte 2k individer i studieområdet stämmer väl överens med uppgifter från Grönland där majoriteten av ungfåglar som besökte häckningsområden var 3k, medan 2k fåglar var ovanliga. Det är sannolikt att också enstaka 2k fåglar besöker häckningsområden i norra Sverige, något som har rapporterats tidigare men inte dokumenterats noggrant. Även hos andra labbarter är det ovanligt att 2k fåglar besöker häckplatserna. De unga fjällabbar som observerades under 2009 kläcktes under 2007, ett år med stort antal häckningar där sannolikt ett antal ungar blev flygga.

Hos fisktärnan *Sterna hirundo* som också är en långflyttande art, har individer som tillbringar fler år åt prospektering större sannolikhet att rekryteras till den häckande populationen. Sådana individer anländer också tidigare till häckplatserna. Om det fungerar på ett liknande sätt hos fjällabben finns risk att individer som anländer sent till häckningsområdena uppleva en vikande gnagartillgång.