

Notes on the Long-tailed Skua *Stercorarius longicaudus* in West Greenland

KAJ KAMPP

(Med et dansk resumé: Den Lille Kjove *Stercorarius longicaudus* i Vestgrønland)



INTRODUCTION

The behaviour of the Long-tailed Skua *Stercorarius longicaudus* on its breeding grounds was poorly known until Andersson (1971) published the results of his study from the Scandinavian alpine heaths. The food ecology, on the other hand, has attracted a number of investigators. Løppenthin (1943) established that the species is an inland nester, totally dependent on rodents (primarily *Dicrostonyx*-lemmings); this picture has since then been only slightly modified by Maher (1974), showing that, as prey of the skua, birds occasionally may equal rodents in importance. Nevertheless, breeding occurs regularly in Svalbard (Løvenskiold 1963) and in West Greenland, especially the Disko Bay area (Salomonsen 1950-51, 1967), areas in which no rodents occur.

In 1980 I had the opportunity to watch three Long-tailed Skua pairs in the Disko Bay. My observations on nesting, territorial and antipredator behaviour supplement the descrip-

tions given by Andersson (1971), the more so as the surroundings and circumstances differed substantially from those prevailing during Andersson's investigation. My observations on feeding behaviour, though not exhaustive, elucidate how the skua manages in the absence of its normal staple food.

MATERIAL

STUDY AREA

The observations were made at Grønne Ejland 30 June – 13 July and at Flakkerhuk, East Disko, 14-22 July.

Grønne Ejland is a group of low heath-covered islands in the SE corner of Disko Bay. The Long-tailed Skuas bred on the largest island, Angissat, the size of which is approximately 1 by 4 km. Grønne Ejland houses a large number of Arctic Terns *Sterna paradisaea*, with about 10 000 pairs breeding on Angissat; other common bird species are the Red-necked Phalarope *Phalaropus lobatus* and the Lapland Bunting *Calcarius lapponicus*.



Fig. 1. Long-tailed Skua chick, Flakkerhuk 17 July 1980.

Unge af Lille Kjove, Flakkerhuk 17. juli 1980.

Flakkerhuk 75 km N of Grønne Ejland is the SE corner of Disko Island. Here the terrain slopes gently toward a 28 km long sand beach; the soil is sandy with a rather sparse heath vegetation. There are terns here too, but at present these are few and scattered.

On Grønne Ejland I spent 62 hours watching the skuas from a distance of 100-200 m; a hide turned out to offer too limited a view, and was used only for a few hours to record details of the breeding behaviour. At Flakkerhuk one pair was observed for 8 hours from a distance.

POPULATION

On Grønne Ejland two pairs bred. One (pair A) nested on a sparsely vegetated gravel plain outside the ternery. The other (pair B) nested in the periphery of the ternery on the heath, using an old tern nest. The nests were 650 m apart. Nest A held 2 eggs and nest B one, none of which hatched before 13 July.

At Flakkerhuk at least 6 pairs held territories along the coast. One pair (C) had two chicks, aged about 2 weeks when found 17 July (Fig. 1).

The situation at Grønne Ejland was most unusual as 7-33 immature skuas (the number increasing during the period) stayed here and involved themselves in numerous conflicts with the breeders. Most were Long-tailed Skuas, but intermingling freely with these were about 5 Arctic Skuas *Stercorarius parasiticus*. The plumage of the immatures varied much. A few had the elongated rectrices fully developed; among these were one partial and one full »dark-phase« bird. To my knowledge, however,

it still has to be proved that the adult Long-tailed Skua is dimorphic.

At Flakkerhuk no immatures *longicaudus* were seen. Scattered pairs of Arctic Skuas bred here, generally farther inland than the Long-tailed, and a few nonbreeders of this species were likewise present (in some years these are very numerous here).

The Pomarine Skua *Stercorarius pomarinus* is a regular visitor to West Greenland, including Disko Bay, but rather few were present 1980.

RESULTS

NESTING BEHAVIOUR

The observation data allows no definite conclusion about a diurnal rhythm in the activity pattern of the skuas. If present at all, such a rhythm could not be very pronounced.

The birds could be sexed from their behaviour and, at close range with both mates present, the size difference (in skuas males are slightly smaller than females). In pair A the male had conspicuously darker underparts than the female (contrary to the rule, cf. Manning (1964)).

In concordance with the findings of Anderson (1971), the female did most of the incubation whereas the male was more active in territory defence and also provided some of the food for the female. The female incubated 75 percent of the time. One reason for this was the frequent encounters with the mob of immature birds, because the male was much more likely to leave the nest in case of trespassing than the female. The off-duty female was mostly absent, whereas the male would often stand guard and take care of intruders when the female brooded. But even if the female was present the male would leave the nest and join the female pursuing strangers; the female normally left such matters for the male to cope with alone, and if the pursuit passed right above her, she would lay low on the nest.

The frequent and sometimes sustained conflicts (and also the proximity of the fox-den, see below) caused the eggs of pair A to be left unbrooded for 10 percent of the time. Pair B was also afflicted by the presence of the immatures, but was more tolerant as well as more reluctant to leave the nest, hence left the egg unattended for only 4 percent of the time.



Fig. 2. The male of pair A and an immature skua contest the possession of a mound (*pingo*).
Hannen fra et af parrene på Grønne Ejland strides med en ungdjove om besiddelsen af en tue («pingo»).

At Flakkerhuk the female was constantly present in the territory while the male undertook lengthy (foraging) excursions.

The incubating birds turned the eggs every 45 minutes as an average.

Within the territory of pair A was a freshwater pond where the birds (most often the male) bathed daily.

TERRITORIAL BEHAVIOUR

At Grønne Ejland it was possible to watch agonistic behaviour almost constantly due to the peculiar circumstances.

The mob of immature skuas often stood in a loose flock just outside the territories of the breeders. But quite frequently one or a few would pass over a territory and provoke a chase, which might subsequently be joined by several others, leading toward a general confusion which lasted for several minutes. Also when the mob was brought on the wing by the presence of some predator, it would afterwards swarm over the territory borders. Conflicts were also deliberately provoked by immatures, which repeatedly landed quite near the off-duty mate or swooped at it. The number of intruders made them a constant nuisance, and the task of keeping the territory clean was in fact too much for the male of pair A: during the two weeks of observation the territory dwindled somewhat, and a couple of mounds, initially much used as look-outs, were eventually abandoned (Fig. 2).

A few of the immature birds showed a strange curiosity toward the incubating birds (normally females), alighting 1-2 m from the nest and standing motionless for minutes. If present the male would immediately swoop at them and chase them away; a few times he had to alight and threaten them before they flew. When alone the female would stay put at first, but after a minute or two she would normally lunge at them and chase them on the wing for a little while.

The displays and voices used by the skuas at encounters in most respects agree closely with the description given by Andersson (1971). The calls heard were the »kliu« and »kreck« alarm notes, the long call and the »kuep«; the rendering is that of Andersson (op. cit.), but the latter call appears better reproduced by »weep« as used by Drury (1960) (there may be a subspecific difference here, though it seems unlikely).

Aerial displays include the Gliding cum Long Call (the most frequently observed display, used by both defenders and intruders) and the Slow Wing-beat Display (accompanied by the »weep« note). The latter appears to be a territory announcement; it seemed seldom provoked by other birds but, on the other hand, appeared itself provoking and released attacks from other birds (this was the result in 28 of 41 observed cases).

Displays on the ground include the Upright, the Oblique com Long Call and a »Tail-up«

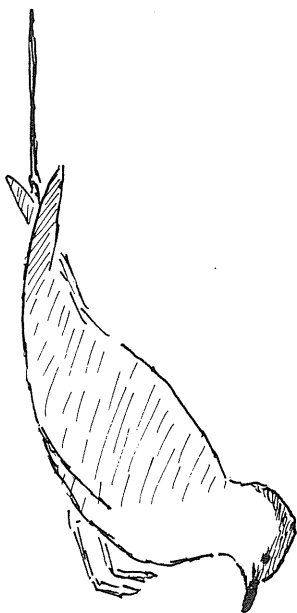


Fig. 3. The »Tail-up« posture described in the text (after simultaneous field sketches).
Den omtalte positur, anvendt af territorie-forsvarer, der angribes af flyvende artsfæller.

display. The Upright was very often used by birds standing close to each other, defender as well as intruder. In about half of the cases the intruder gave way after a minute or so, but often the threat did not succeed and the defender then either left the intruder in peace or lunged at it. A few times it approached at first with neck and beak in a horizontal position.

The Oblique cum Long Call was frequently used toward intruders flying over the standing territory owner. Occasionally the long call was used without any special posture; twice the male of pair B used it from the nest when intruders passed over him.

In the »Tail-up« (Fig. 3) the bird tilts forward and raises its tail like a »Choking« Black-headed Gull *Larus ridibundus*. The posture also resembles that of the begging bird of Fig. 6 in Andersson (1971). It is accompanied by the rhythmically repeated »weep« call known in the Slow Wing-beat Display. The display was used exclusively by standing defenders (territory owners) toward flying and swooping opponents. It was observed altogether 35 times, but in three cases the head was not low-

red toward the ground and twice the tail was not raised. The display has apparently not previously been described in this combination and context, though all skuas may raise their tails in territory conflicts and in courtship. The forward tilt is seen in the nest building Squeaking ceremony in Arctic and Great Skuas *Stercorarius skua* (Perdeck 1960, 1963), which in skuas may represent the gulls' Choking (Perdeck 1963). This proposal may be strengthened by my observations, if the agonistic »Tail-up« is in fact related to Squeaking. Normally Choking is considered absent in skuas (Tinbergen 1959, Burton 1970).

At Flakkerhuk the circumstances were more »normal« and the birds displayed much less frequently. But the Long-tailed Skuas of pair C and Arctic Skua pairs occasionally performed mutual Gliding cum Long Calls.

REACTION TOWARD PREDATORS

At Grønne Ejland encounters with potential predators were frequent. The island housed one pair of Arctic Foxes *Alopex lagopus* which had their den only 75 m from nest A. One Gyrfalcon *Falco rusticolus* and one immature Peregrine Falcon *Falco peregrinus* were seen repeatedly, and occasionally a Raven *Corvus corax*, a Glaucous Gull *Larus hyperboreus* or a Pomarine Skua would stray close to the skua territories.

The reaction of the skuas toward their various enemies followed the descriptions given by Andersson (1971), except that the difference in vocalization in encounters with mammalian and avian predators, respectively, was not so clear-cut.

Conflicts between the foxes and their skua neighbours were expectedly frequent. At the moment a fox was discovered by the sitting bird of pair A it would take off and harass the fox, joined by its mate if present. Normally, the pair was joined by several of the immature birds, though these lost interest sooner and did not swoop as close to the enemy as the breeders. The fox almost always left the place within minutes, clearly annoyed but not in panic.

A sitting skua immediately left its nest when spotting a falcon. Occasionally, a falcon perched on the coastal rock wall near nest A, out of view from land. It could stay undetected here for some time, but sooner or later a passing skua or tern would spot it; soon a swarm of skuas and terns would gather, swooping and

calling. A flying falcon easily outdistanced any pursuers.

Glaucous Gulls and Ravens were harassed only when within about 100 m of the nest; if so, they left the place at once. Pomarine Skuas were harassed also and clearly regarded as potential predators; they were also mobbed by immature Long-tailed Skuas, but whether in the air or on the ground Pomarine Skuas seemed hardly to take notice of their smaller relatives.

The attitude of the Long-tailed Skuas toward Pomarines differed conspicuously from their attitude toward Arctic Skuas, which almost were treated as conspecifics (see above). This may be an effect of the size differences between the species, or it may indicate a closer relationship with the Arctic Skua (Andersson 1973). In this connection it may be relevant that flocks of Arctic and Pomarine Skuas frequenting the same area tend not to mingle.

Toward human intruders the studied pairs behaved very differently. Pair A would utter alarm calls already at a distance of 100-200 m, and closer to the nest (about 50 m) both mates would swoop incessantly one after the other, hitting with their feet. Pair B reacted calmly or anxiously, flying around almost silent when a human got within 50 m of the nest. Pair C, finally, would react only when humans came within 25 m of their chicks, but then got highly agitated: the male hovered screaming at an arm's length from one's head while the female used a Bonxie-like tactic, flying straight toward the enemy and swerving only in the latest moment.

FOOD

The Long-tailed Skuas at Grønne Ejland were often seen robbing terns, and there can be little

doubt that this was the most important way of getting food. The presence of the numerous nonbreeding skuas made it hard at times to follow the breeders, and as these furthermore obtained much of their food out of sight of the observation posts the material is not as extensive as might be wished. None the less a clear picture can be drawn.

Nonbreeding skuas frequently engaged in group chases of terns over the island, but breeders seldom participated. They occasionally chased terns over the island when let alone by other skuas, but more often made excursions out over the sea to find their victims. The skuas appeared to be expert pirates and their success was high, see Table 1. The widely held belief some years ago, that the Long-tailed Skua do not indulge in piracy so characteristic of other skuas (Løppenthin 1943; a review is given by Løvenskiold (1963)), seems rather strange on this background, but normally this behaviour is much more characteristic of wintering skuas at sea, where Long-tailed Skuas are seldom seen and hard to identify.

Small birds make up part of the Long-tailed Skua's diet elsewhere (Maher 1974), and several attempts to catch birds (mostly phalaropes) by groups of immature skuas were seen (Table 1). The single attempt made by a breeder (male B) was a determined attack on a Lapland Bunting directly from his mound near the nest.

Crowberries *Empetrum nigrum* were eaten at several occasions. Insects undoubtedly were taken also; mosquitoes *Aedes nigripes*, small but plentiful, might have been of some importance, as the incubating birds snatched and ate countless numbers of them.

The few skua pellets found contained remains of berries, a Lapland Bunting mandible

Table 1. Kleptoparasitic chases and bird hunting by Long-tailed Skuas at Grønne Ejland 1980.

Table 1. Kleptoparasitisme og jagt på småfugle, Grønne Ejland 1980.

	Skuas involved/indblandede kjoever	
	Breeders Ynglefugle	Nonbreeders Andre
Number of piracy attempts <i>Antal tyveriforsøg fra terner</i>	20	43
Success rate (%) <i>Heraf vellykkede (%)</i>	45	28
Number of bird hunts (all unsuccessfull) <i>Antal jagter på småfugle (alle forgæves)</i>	1	9

and a few bones of the Arctic Tern, the latter probably taken as carrion.

At Flakkerhuk kleptoparasitism probably played a minor role and was not observed. Besides eating berries and making a half-hearted attempt to catch a snow Bunting *Plectrophenax nivalis*, the male of pair C systematically patrolled at least 5 km of the beach several times daily, indicating that scavenging was an important way of getting food.

One might suspect that tern chicks would become an important food source of the skuas later in the season, especially at Grønne Ejland (at most 10 percent of the tern eggs had hatched 13 July). But skuas rarely flew over the denser parts of the ternery, and when they did, they were largely ignored – in contrast to the agitated harassing that befell other nest predators (foxes, Ravens, gulls).

DISCUSSION

That Long-tailed Skuas breed regularly in some areas devoid of lemmings and other rodents is now a well-established fact. Løvenskiold (1963) reviewed its occurrence in Svalbard where nesting was first proved 1931 (a clutch in the Zoological Museum in Copenhagen actually antedates this considerably, being labeled Spitsbergen 2 July 1903). Since then it has been found several times and is considered regular here.

Salomonsen (1950-51) has reviewed the occurrence of the species in West Greenland. From Disko Bay there are scattered records through the last 100 years, mostly from Flakkerhuk. Actual proofs of breeding consist of two clutches in Copenhagen, from Grønne Ejland and from the mainland 30 km SE hereof, dated 1890 and 1882 respectively. In 1960 Salomonsen (1967) found 5 pairs breeding at Flakkerhuk, and there is no reason to doubt that it has been permanently established here for many years, and also breeds regularly elsewhere in Disko Bay. No breedings have been recorded between 1960 and 1980, but the species was seen at Grønne Ejland 1975 (F. Wille pers. comm.), 1976 and 1979 (pers. obs.); in the latter year two pairs held territories exactly where pairs A and B bred 1980, but were not (yet?) nesting 27 June. A nonbreeding pair was likewise seen at Flakkerhuk 18 June 1979 (pers. obs.).

The exact distribution in the area is unknown, and so is the population size. The latter probably is rather small, one or a few scores of pairs, though this is almost pure guess-work and assumes that the immatures at Grønne Ejland were not all of local origin.

Little is known of the ecology of the Long-tailed Skua in Svalbard, but in Disko Bay it is obviously a coastal nester, apparently connected to terneries, though the population at Flakkerhuk persists despite the considerable reduction the tern population has undergone here. In many respects, including the presence of a club of nonbreeders, these Long-tailed Skuas behave like the coastal Arctic and Great Skuas elsewhere. Why this species, instead of the more likely Arctic Skua, has occupied this niche here is puzzling. Something may provide it with a competitive advantage in the given circumstances, but of which nature this may be is at present unknown; it can hardly be the identity of the victims of the skuas, since the Arctic Skua generally is highly successful in piracy on terns (see e.g. Furness 1978).

SUMMARY

Some observations on feeding and on territorial and antipredator behaviour of the Long-tailed Skua at two localities in Disko Bay, West Greenland, are described. An agonistic display somewhat reminiscent of the »Choking« known in gulls seems to be undescribed until now, at least in the given combination and context. The skuas at Grønne Ejland, a large ternery, fed mainly by kleptoparasitism on terns, while at Flakkerhuk (where few terns occur) scavenging was important. In both places berries and probably insects were commonly eaten. The existence of this coastal and ecologically aberrant Long-tailed Skua population is discussed.

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DANSK RESUMÉ

Den Lille Kjove *Stercorarius longicaudus* i Vestgrønland.

Den Lille Kjove er normalt afhængig af smågnavere, især lemminger, i yngletiden. Den forekommer dog også i lemmingfri områder. På Svalbard har den været kendt som fåtallig men regelmæssig i en årrække;

i Vestgrønland anses den normalt for sporadisk, men meget tyder på, at den i hvert fald i Disko Bugt området yngler regelmæssigt. Sommeren 1980 fandtes 2 par på øgruppen Grønne Ejland og 6 par spredt langs 25 km kystlinje på selve Disko (Flakkerhuk), og der kunne gøres en række iagttagelser vedrørende artens levevis i dette atypiske yngleområde.

På Grønne Ejland var der rig lejlighed til at iagttage territorial adfærd, idet op til 33 unge kjover opholdt sig på stedet og ustandselig kom i konflikt med ynglefuglene. Herved kunne i det store og hele bekræftes, hvad der er beskrevet om positioner og stemmeytringer fra andre steder. Desuden iagttoges ved adskillige lejligheder en ikke tidligere beskrevet position (Fig. 3), udført af en territorie-forsvarer på jorden mod flyvende og styrtdykkende angribere, hvorunder kroppen bøjedes frem og halen rejstes. Positionen ledsagedes af et rytmisk gentaget »weep«-kald, der ellers bruges under et flugtspil (»Slow Wing-beat Display«). Positionen er muligvis homolog med mågernes »Choking«, der oftest anses for manglende hos kjoverne.

Der gives desuden en beskrivelse af kjovernes adfærd over for prædatorer: Polarræv, Jagt- og Vandrefalk, Gråmåge og Ravn. Også Mellemkjoven blev øjensynligt betragtet som en fare, mens Almindelige Kjover behandledes som artsfæller: 5 unge Almindelige Kjover indgik i flokken af ungmjover på Grønne Ejland, og på Flakkerhuk udførte par af Lille og Almindelig Kjove gensidige spil (»Gliding cum Long Call«).

De Små Kjover på Grønne Ejland ernærede sig hovedsageligt ved at røve fisk fra de talrige Havterner, men forsøgte også at fange småfugle (Tab. 1). Desuden åd de en del bær (Revling) og insekter. På Flakkerhuk, hvor der er få terner, afpatuljerede de systematisk opskylslinien langs kysten. Den beskrevne kystboende levevis, med kleptoparasitisme som en vigtig fødekilde, er ellers ukendt hos den Lille Kjove, men velkendt hos Storkjoven og den Almindelige Kjove.

REFERENCES

- Andersson, M. 1971: Breeding behaviour of the Long-tailed Skua *Stercorarius longicaudus* (Vieillot). *Ornis Scand.* 2: 35-54.
- Andersson, M. 1973: Behaviour of the Pomarine Skua *Stercorarius pomarinus* Temm. with comparative remarks on Stercorariinae. *Ornis Scand.* 4: 1-16.
- Burton, R. W. 1970: Biology of the great skua. Pp. 561-567 in: Holdgate, M. W. (ed.): *Antarctic Ecology*, vol 1. Acad. Pr.
- Drury, W. H. 1960: Breeding activities of Long-tailed Jaeger, Herring Gull and Arctic Tern on Bylot Island, Northwest Territories, Canada. *Bird-Banding* 31: 63-79.
- Furness, R. W. 1978: Kleptoparasitism by Great Skuas (*Catharacta skua* Brünn.) and Arctic Skuas

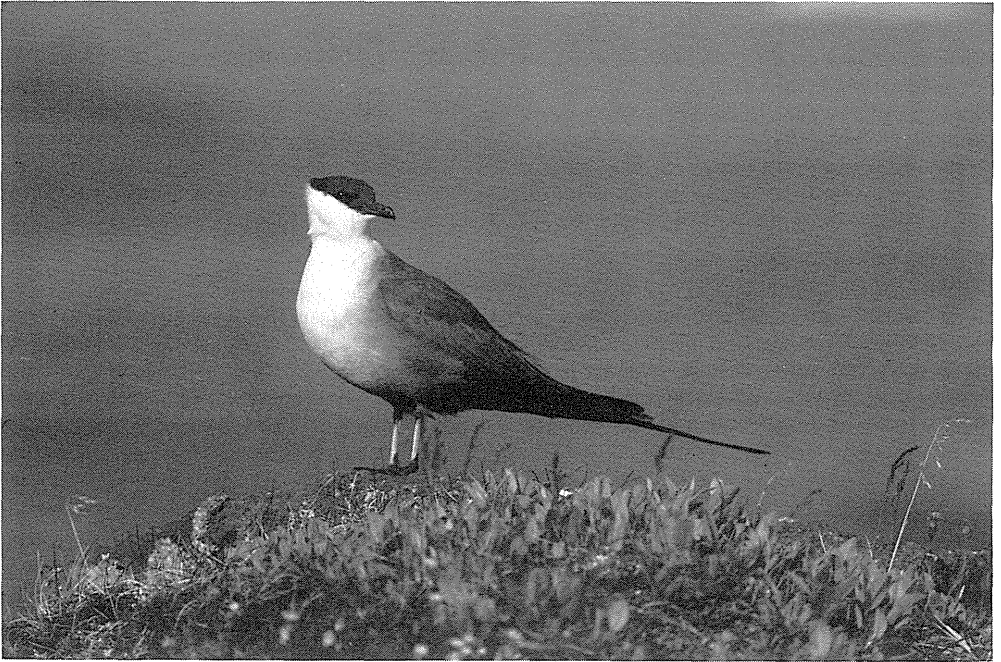
(*Stercorarius parasiticus* L.) at a Shetland seabird colony. *Anim. Behav.* 26: 1167-1177.

- Løppenthin, B. 1943: Systematic and biologic notes on the Long-tailed Skua *Stercorarius longicaudus* Vieill. *Meddr Grønland* 131(12). 26 pp.
- Løvenskiold, H. I. 1963: Avifauna Svalbardensis. *Norsk Polarinst. Skr.* 129. 460 pp.
- Maher, W. J. 1974: Ecology of pomarine, parasitic and long-tailed jaegers in Northern Alaska. *Pacific Coast Avifauna* 37. 148 pp.
- Manning, T. H. 1964: Geographical and sexual variation in the Long-tailed Jaeger *Stercorarius longicaudus* Vieillot. *Biol. Pap. Univ. Alaska* 7. 16 pp.
- Perdeck, A. C. 1960: Observations on the reproductive behaviour of the Great Skua or Bonxie, *Stercorarius skua skua* (Brünn.), in Shetland. *Ardea* 48: 111-136.
- Perdeck, A. C. 1963: The early reproductive behaviour of the Arctic Skua *Stercorarius parasiticus* (L.). *Ardea* 51: 1-15.
- Salomonsen, F. 1950-51: Grønlands Fugle/The Birds of Greenland. Munksgaard.
- Salomonsen, F. 1967: Fuglene på Grønland. Rhodos.
- Tinbergen, N. 1959: Comparative studies of the behaviour of gulls (Laridae): A progress report. *Behaviour* 15: 1-70.



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Forfatterens adresse:
Brønshøjvej 42,
DK-2700 Brønshøj



Lille Kjøve *Stercorarius longicaudus*.

Foto: Kaj Kamp.

**XIX CONGRESSUS
INTERNATIONALIS ORNITHOLOGICUS
FIRST ANNOUNCEMENT**

At the XVIII International Ornithological Congress in Moscow the International Ornithological Committee accepted the invitation of the National Museum of Natural Sciences of Canada and of the Canadian ornithological community to hold the XIX Congress in Canada. The Congress will be held in Ottawa, Canada, from 22-29 June 1986. It elected Dr. Prof. Klaus Immelmann (West Germany) as President of the Congress. Dr. Henri Ouellet (Canada) was designated as Secretary-General.

Details about the general and scientific programs, field excursions, and other activities during the Congress will be available later.

Those interested in participating in the Congress are urged to inform the Secretariat in order to obtain announcements and application forms. Correspondance should be addressed to The Secretary-General, Dr. Henri Ouellet, XIX Congressus Internationalis Ornithologicus, National Museum of Natural Sciences, National Museums of Canada, Ottawa, Ontario, Canada, K1A 0M8.