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A Review on the Kleptoparasitic Skuas of the Islands

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ABSTRACT

The Skuas are one of the World's rare birds. They are very important part of the Iceland biodiversity and most of the scientists and researchers talk about Penguin but only few people know about Skuas who are the kleptoparasite and they eat eggs of fulmarine petrel and penguin. The topic is taken for the review because these Skuas are very important bird but their identities have remained unclear due to limited studies. The review article reflects the Systematic Position of Skuas as well as the types. The convergence with raptors is also reflected. More research is required, particularly long-term studies, to better understand one of Antarctica's most enigmatic species of Skuas. From ecological perspective, the links between migration and breeding grounds are of great importance for the better understanding of factors affecting the life cycle of birds.

1) INTRODUCTION

Colonial Seabird [1], Skuas are top predators with a wide food niche. They scavenge; prey on birds, fish and sometimes mammals. They also pirate other birds of the sea for their food. Hence they are also denoted as "Pirates of the ocean" [2, 3]. The topic is taken for the review because these Skuas are very important bird. They are very important part of the Iceland biodiversity and most of the scientists and researchers talk about Penguin but only few people know about Skuas who are the kleptoparasite and they eat eggs of fulmarine petrel and penguin. And also a very little knowledge about the breeding and migratory pattern is available. So with the help of this paper people will gain knowledge about Skuas.

2) SYSTEMATICS

Due to lack of established taxonomy there is still confusion about how the Skuas are related and how they should be named due to their unique distribution pattern throughout the globe [4]. In the past it was recognized that there were two groups of Skuas, the great skuas they are big, heavy, brown birds, with several species in the southern Hemisphere and on North Atlantic islands, and the small Skuas or Jaegers, smaller, lighter and often with a patterned and barred plumage and when breeding, long tail feathers. Some authors placed the great Skuas in the genus *Catharacta*, the smaller ones in *Stercorarius* but others tended to put them all into one genus *Stercorarius* [4, 5].

Skuas belong to a small family stercorariidae under order Charadriiformes, closely related to the gulls. The consensus is to recognize seven species in two genera, this is controversial. Three small species in genus *Stercorarius* (namely, the Pomarine, Arctic and Long-tailed Skuas) based on Arctic tundra **(Table. 1)**. After breeding they migrate to winter in Southern hemisphere. Other four large species are in the genus *Catharacta* (South Polar, Sub-Antarctica, Great and Chilean Skuas). Three species breed around the coast of Antarctica, Southern South America and at sub-Antarctic Islands and one species of Great Skuas breeds in the Northern Hemisphere, where it is restricted to the North-East Atlantic. All four species tend to disperse towards warmer areas during the winter non-breeding season, but only the most southerly breeding species, the South polar skua, migrates across the equators [6].

3) DESCRIPTION

SKUAS

The characters of six commonly recognized forms of Skuas, *Catharacta skua* in the North Atlantic, *Cathatacta lonerbergi* on Sub-Atlantic Islands, *Catharacta hamiltoni* at Gough and Tris-tan-da Cunha in the South Atlantic, *Catharacta antarctica* in the Faikland Islands and on the coast of Argentina, *Catharacta chilensis* in Southern South America and *Catharacta maccormicki* on the Antarctic continent are outlined briefly-

South Polar Skua, *Catharacta maccormicki*: It is a small form having size of 140 cm (wing spread), 980-1900 gm in weight with a slender and delicate bill tapering to a long, non bulbous nail. The plumage of this skua is highly variable, light, intermediate and dark phases have been described individuals ranging from almost white bodied to entirely blackish [7, 8].

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Skuas do not nest they just lay their eggs on some flat ground and defend it fiercely against intruders. The chicks wander around as soon as it can walk. For the breeding it comes in the month of the September to the breeding territory and lay eggs during November-January, while hatching of the egg occurs from December to January. Skuas do not usually attack adult Penguins or even chicks protected by their parents but they keep an eye for abandoned chicks. Departure of the chicks takes place between the months of the February- March [9].

The diet of south polar skua largely consist of fulmarine petrel species which breed on Ardery Island, Southern fulmar remains are the predominate prey item found [10]. They also rely on eggs and chicks of Adelie Penguins and also feed at sea (Fish) and out of human's wastes. They found near Antarctic waters, comes to Antarctica in winter, but most stay near the sea-ice [11].

Brown Skua, *Catharactaskua lonnbergi*: A large form having a size of 63 cm, Male 1675 gm, female 1950 gm, chocolate brown with conspicuous white wing flashes, feet and legs black and large black, heavy, powerful and blunt looking bill. Adults are fairly uniformly colored, head and underparts medium brown, back and wings a little darker than the under parts, but not contrasting sharply. The uniformity of the upper parts is relieved by a varying amount of light streaks and light or Rufous blotches extending onto the scapulars, which often have fairly large whitish blotches. The under wing coverts are dark brown. Some individuals are lighter brown below in contrast to above parts. The light birds have very large blotches on the larger scapulars. Sometimes they show some narrow yellow or golden streaks on the nape and on the sides of the head [8]. In Newzealand regions it breeds on Chatham, Fiorland Coast and Islands around Stewart Island, Solanders, Snares, Antipodes, Auckland and Campbell Islands [12].

Falkland Skua, *Catharactaskuaantarctica*: A Small form with 120-160 cm wingspan and weight of 980 gm-1.9 kg having short bill but very high and powerful, stubby, bulbous at the nail. It has a brown head almost always dark cap and yellow streaks on the nape, lacking the "collar" effect of the south polar Skua. The upper part is dark brown and flecked buff/ pale yellow/ Rufous. Under parts are similar but greyer. The upper wing is blackish-brown with a marked white patch at the base of the primaries. The under wing is dark brown with an even more marked white patch. The tail is dark brown, the bill, legs and feet blackish-grey [13]. It is Least Concern species.

Some birds have lighter under parts and the upper breast is occasionally mottled with yellowish or whitish (Bleached straw). The upper parts have varying amount of light streaks but generally with finer yellow streaking at the nape and on average, a little more Rufous spotting [8].

They do not nest; they just lay their eggs on some flat ground and defend it fiercely against intruders. Return to the breeding territory in late October and November, where they lay two eggs from late November to early January and after incubation period of 30 days, the chicks are brooded by both parents and fledge from late March even into April. It displays piratical behavior, pursuing shags and terns in flight, grabbing wings or tails and forcing them to disgorge their catch. Feed on marine life, Penguin eggs, chicks and even carrion. They show circumpolar breeding mainly in the sub-Antarctic region [14].

Chilean Skua, *Catharacta chilensis*: It is a small form with a small bill, slendered than that of *lonnbergi.* Most adults are strongly characterized by very reddish under parts contrasting with blackish upperparts. The contrast is particularly striking about the head, where a uniform blackish cap meets fairly uniform Cinnamon chin and lower cheeks. There are fine yellow or white streaks on the nape and the side of the next neck and rufous spots on the mantle. The throat is usually lightly streaked and the breast often variegated with brown and straw yellow, barely visible against the red background. The underwing coverts are bright Cinnamon, a condition found in no other form [8, 14].

Tristan Skua, *Catharactaskua hamiltoni*: It is a form similar to *Catharactaskua lonnbergi* in adult plumage characteristics but a little smaller [15, 16, 8]. While juvenile looks very similar to young Antarctica, having the upper parts sprinkled with U-Shaped cinnamon marks and the under parts strongly reddish brown. The food consists mainly of penguins, burrowing seabirds and small mammals. It usually includes a small proportion of land birds.

Great Skua, *Catharactaskua skua*: It is somewhat smaller form than *Catharactaskua lonnbergi*, measuring 50-58 cm long with a 125-140 cm wings span with a smaller, slenderer, more elongated bill. More rufous in general coloration, it also differs strikingly in the adult plumage by the very heavy pale and rufous striping (shaft streaks) on head, cheeks, throat, neck, nape and upper mantle. The belly varies from a slightly warmer brown than *Catharactaskua lonnbergi* to a reddish color in some individuals. The adult is streaked Greyish brown with a black cap, while juvenile is a warmer brown and un-streaked below. The tail is short and blunt the flight is direct and powerful. On the back, scapulars and wing coverts are varying amounts of rufous flames, spots and stripes [8, 17].

They only call on the breeding grounds where it gives a single or short series of nasal calls. This bird eats mainly fish, sea birds, eggs, Carrion, rodents, rabbits etc. It will often obtain fish by robbing gulls, terns and even Northern Gannets of their catches. It is found in Iceland, Norway, the Faroe Iceland and the Scottish Iceland, with a few on main land's Scotland and in the north west of Iceland. It is a migrant, wintering at sea in the Atlantic Ocean and regularly searching North American Waters [14].

JAEGERS:

They are smaller, lighter and often with a patterned and barred plumage and when breeding, long tail feathers.

Pomarine Skua, *Stercorariuspomarinus*: Found in Americas, it is a migrant, wintering at sea in the tropical ocean. Its relationships are not fully resolved. Its mitochondrial DNA is most similar to the Great Skua [18], but from morphology and behavior, it is closer to the Lesser Skuas i.e. Arctic Skuas. The most likely explanation is extensive hybridization between the great and one species of lesser Skuas which resulted in a hybrid population that eventually evolved into a distinct species, the Pomarine Skua or alternatively between the Pomarine and species of Southern Hemisphere skuas [18, 19].

Description: This is a large size skua of about 45 cm length, excluding the central tail feathers, but in summers size further increases by 10 cm. Hence this species ranges from 46-67 cm in length 110- 138 cm in wings span and 540-920 gm in weight [20, 21]. Pomarine Skuas are larger that common gulls. They are much bulkier, broader winged and less falcon like

than Arctic Skua, but show the same wide range of plumage variation. Light-morph adult Pomarine Skuas have a brown back, mainly wide under parts and dark primary wings feathers with a white "flash". The head and neck are yellowish- white with a black cap. Dark morphs adults are dark brown, and intermediate with somewhat paler under parts, head and neck.

All morphs have the wide wings flash, which appears as a diagnostics double flash on the under wings. In breeding adult of all morphs, the two central tail feathers are much larger than the other, spoon shaped, and twisted from the horizontal. Breeds in the far from North of Eurasia and North America. It nests on Arctic tundra and Islands, laying 2-3 olive brown eggs in grass lined depressions. It feeds on fish, carrion, scraps and smaller birds upto the size of common gull and rodents especially lemmings.

Arctic Skua, ***Stercorarius parasiticus*:** Britain holds 1-3% of the world's population of breeding Arctic Skuas [22]. Compared with Great Skuas, Arctic Skuas prefer lower slopes and drier ground, breeding on healthy land and mossy vegetation. The clutch usually of two eggs is laid from late May and young hatch from late June. Incubation lasts 25-28 days and young fledge to maturity in 25-30 days. The young can leave the nest within a few day of hatching and the brood usually separates, though chicks do not normally wander more than 100-200 m from the nest. It comes for three visits i.e. from late May to mid July preferably.

Long Tailed Skua, *Stercorarius longicaud*us*: This is the smallest of the skua family at 38-58 cm, depending on season and age. The wingspan of this species range from 102 to 117 cm (40-46 inch) and the body mass is 230-444 gm, [23, 24]. This species breed in the high Arctic of Eurasia and North America, with major population in Russia, Alaska and Canada and small population around the rest of arctic. It is a migrant, wintering in the South Atlantic and Pacific. The adult's have dark grey primary wing feathers without a white "flash" black cap and a very long tail. They nest on dry tundra or higher feet laying two spotted olive- brown eggs [25].

The bird feeds on fish (mainly caught from other sea birds), smaller birds, food scraps, small mammals, fruits and carrion. Pale and dark forms are found in the small *Stercorarius* Skuas, although dark morphs are rare among Pomarine and especially long-tailed Skuas. Pale and dark forms also occur in south polar Skuas and there are at least vestiges of polymorphism among some of the other large Skuas. The generally dark plumage of Skuas is suggested to be a form of aggressive camouflage, allowing Skuas to sneak up on potential victims [25].

Convergence with Raptors

In most birds the male is the larger sex, presumably because sexual selection favors large male in the competition for mates. Skuas are unusual in that females average 10-15 percent heavier and some three percent larger than males. They share this "reverse size dimorphism" with inter-alia frigate birds, owls and raptors, which suggests that it is a characteristic of a predatory life style. It has been argued that smaller males are favoured because of extensive use of aerial chases and displays in Skua territoriality; smaller birds are more grilles and can compete larger males in the air. Male Skuas have proportionately longer tails than females, enhancing their aerial abilities [26].

Behavioral references during breeding season provide a more plausible explanation for the larger size of the females. Among Skuas and other predators the female undertakes most of the care and guarding of the eggs and chicks while the male does most of the hunting. Large size of female has been favoured to afford maximum protection at the nest, especially in species where nest-robbing by adjacent territory holders is not known [26].

The other unusual characters found in Skua and many raptors are plumage polymorphism i.e. the presence of numbers of plumage types irrespective of age and sex. One possible explanation for this feature is that prey species learn to recognize predators. Colour morphs make life harder for prey species and favour the persistence of rare varieties in the predator population by enhancing their feeding success [26].

4) CONCLUSION

They are very important part of the Iceland biodiversity and most of the scientists and researchers talk about Penguin but only few people know about Skuas. Skuas are top predators with a wide food niche. They scavenge; prey on birds, fish and sometimes mammals. They also pirate other birds of the sea for their food. Skuas are the kleptoparasite parasite of the Islands because they eat eggs of different species of the Petrel and Penguin and act as a bio-control species. Skua is a fascinating seabird with an interesting reputation. While research has improved our understanding of this species in terms of its distribution, foraging and breeding biology, but still many questions remain unanswered. More research is required, particularly long-term studies, to better understand one of Antarctica's most enigmatic species of Skuas. It is therefore recommended to conduct studies on migration, wintering grounds and winter ecology. The studies in these aspects will be of great value. From ecological perspective, the links between migration and breeding grounds are of great importance for the better understanding of factors affecting the life cycle of birds.

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Table1. Classifications of Skuas and Jaegers

SKUAS			
Traditional Classification	**New Classifications**		**Common names**
Southern Hemisphere			
Catharactamaccormicki	*C.maccormicki*	*S. maccormicki*	South Polar Skua
C. antarctica	*C. antarctica*	*S. antarctica*	Falklands Skua
C. chilensis	*C. chilensis*	*S. chilensis*	Chilean Skua
C. hamiltoni	*C. hamiltoni*	*S. hamiltoni*	Tristan Skua
C. lonnbergi	*C. lonnbergi*	*S. lonnbergi*	Brown Skua
Northern Hemisphere			
C. skua	*C. skua*	*S. skua*	Great Skua
Jaegers			
Traditional classification	**New Classifications**		**Common names**
Southern Hemisphere			
Northern Hemisphere			
Stercorariuspomarinus	*C. pomarinus*	*S. pomarinus*	Pomarine Skua
S. parasiticus	*S. parasiticus*	*S. parasiticus*	Arctic Skua
S. longicaudus	*S. longicaudus*	*S. longicaudus*	Long-tailed Skua

Source: R W Furness, 1987, The Skuas. Poyser

TYPES OF SKUAS AND JAEGERS



(***Catharactamaccormicki***)
Source:http://en.wikipedia.org/wiki/South_Polar_Skua



(***Catharacta Antarctica)***
Source:http://ibc.lynxeds.com/photo/brown-skua-catharacta-antarctica



(***Catharactachilensis***)
Source:http://leandroh.blogspot.in/2010/10/escua-comun-catharacta-chilensis.html



(***Catharactahamiltoni***)
Source:http://www.surfbirds.com/community-blogs/amigo/2012/11/09



(***Catharactalonnbergi***)
Source:http://deanar.org.uk/seabirds/skuas/bskualonnsg.htm



(***Catharactaskua***)
Source:http://ibc.lynxeds.com/photo/great-skua-catharacta-skua/adult-0



(***Stercorariuspomarinus***)
Source:http://www.vogelwarte.ch/pomarine-skua.html



(***Stercorariusparasiticus***)
Source:http://commons.wikimedia.org/wiki/File:Arctic_Skua_(Stercorarius_parasiticus).jpg



(***Stercorariuslongicaudus***)
Source:http://ibc.lynxeds.com/photo/long-tailed-skua-stercorarius-longicaudus