

## *Sula leucogaster* (Brown Booby)

Family: Sulidae (Boobies and Gannets)

Order: Pelecaniformes (Pelicans and Allied Waterbirds)

Class: Aves (Birds)



**Fig. 1.** Brown booby, *Sula leucogaster*.

[<http://www.arkive.org/brown-booby/sula-leucogaster/image-G130985.html>, downloaded 9 November 2016]

**TRAITS.** The brown booby is also referred to as the white-bellied booby and fou brun; each name represents its physical features (Cornell University, 2016). Generally, the brown booby is a large sea bird which possess a white belly and lower breast. The remainder of the body is a dark brown colour. It possesses pointed, narrow and elongate wings. It also has a long, powerful bill that has sharp edges and is either yellow, light pink or greyish. The feet of the brown booby are webbed. Sexual dimorphism is seen among adults. The male's face carries blue-grey skin (Fig. 1) and the female has bright yellow skin (Wildscreen Arkive, 2016). The female booby grows to 80cm in length, 150cm wingspan, weight of 1300g, long bill of 9.9cm and tail length of 19.0cm. The male is generally smaller and grows up to 75cm in length, 140cm wingspan, weighs 1000g, 9.2cm bill and tail length of 17.9cm (Ospina-Alvarez, 2014).

**ECOLOGY.** The geographical range of the brown booby is mainly tropical oceanic areas. They are natives to the Caribbean inclusive of Trinidad, the tropical Atlantic, tropical Pacific and Indian Oceans (Wildscreen Arkive, 2011). The brown booby chooses coral atolls for resting in tropical areas or sub-tropical waters, they also select volcanic stack islands. They have a preference for large, open areas at sea level, but some have been found on cliffs and hillsides (Langteau, 2011). Their diet consists mainly of flying fish, mullet, squid, shrimp, halfbeaks and anchovy (Birdlife International, 2015). It is a seasonal breeder in some areas but also breeds throughout the year in others (Wildscreen Arkive, 2016).

**SOCIAL ORGANIZATION.** Brown boobies are a gregarious species and usually nest in colonies. Their immediate family consists of a pair of parents and usually one young. They also co-exist with sea birds such as gulls and frigate birds (Schreiber and Norton, 2002). When food is abundant, thousands of pairs exist. When foraging, brown boobies tend to fly alone (Langteau, 2011).

**ACTIVITY.** Brown boobies are active during the day. They land on trees, buoys and vessels to perch. The brown booby does preening which allows it to reapply oil to the body which makes it water-resistant. They produce the oils themselves through the uropygial gland. They can sleep by either standing or sitting with their bill tucked away, or their necks are retracted with their beaks facing forward (Schreiber and Norton, 2002).

**NESTING.** Every breeding season, two eggs are laid asynchronously. Brown boobies tend to defend an area of up to 1.5m surrounding their nests, depending on the density of the colony (Langteau, 2011). Nests are built by both sexes dependent on resources available. The nests are either sparse or a mound of debris (Audubon, 2016). The brown booby usually prefers to nest in windy areas for easier flight (Schreiber and Norton, 2002). The nest is built on flat ground or on cliffs and after the eggs are hatched, both parents feed the young ones who remain at the nest (Audubon, 2016). Brown boobies take approximately 7 months to fledge chicks (Dorward, 1962). The eggs are incubated by both parents alternating for approximately 43 days. The web of the feet is used to transfer heat to the developing eggs (Wildscreen Arkives, 2016).

**FORAGING.** They are usually solitary foragers. When foraging, they can be seen gliding or soaring until they spot their prey (Schreiber and Norton, 2002). They also perch themselves on a height and then uses plunging tactics upon sight of prey (Fig. 2) (Audubon, 2016). Plunge diving is described as the rising 10-12m in the air and then the booby orients its body at an angle to plunge into the water smoothly. The brown booby folds its wings firmly next to its bullet-like body (Langteau, 2011). The brown booby swoops low to scavenge on the surface of the water or obtain food when swimming on the water. They also tend to pursue flying fish in the air (Audubon, 2016). Brown boobies are known for their ability to pursue prey underwater by using complex webbed feet and wing motions. Adults also forage by practicing kleptoparasitism. The brown boobies listen to the fledgling frigate bird calls as the frigate birds provide food for their young. The brown boobies then invade and steal their food. They steal food when soaring and foraging (Langteau, 2011). Brown boobies also tend to trail boats (Cornell University, 2015). Brown boobies remain perched until gulls locate fish and then they join the gulls for feeding (Wildscreen Archive, 2016).

**COMMUNICATION.** Various calls of the brown boobies are used for several different functions ranging from subtle greetings to begging for food. The male booby uses whistles and the female uses quacking and honking. This helps communication between partners to symbolize predator or intruder. Hatchlings communicate with their parents by using “peeping” sounds initially and then a sequence of random calls indicating that it is begging for food. The male booby, in addition to aggressive behaviours, has some appeasing behaviours such as whistling, bowing, preening, and bill-touching which enhance the bond between mates and act as greetings. Bowing is seen when a mate returns to the nest, it would bow its head after the arrival call and if its partner is on the nest, the partner will also bow. This is a form of greeting (Langteau, 2011).

**SEXUAL BEHAVIOUR.** Brown boobies are monogamous. Two behaviours are known as sky pointing and parading. Another is an extravagant sunbathing posture for which is assumed to be associated with sexual behaviour (Dorward, 1962). Sky pointing (Fig. 3) is done to woo the female where the male stands and elevates his head with the neck elongated and stretched followed by a unique whistle. Parading is an exaggerated strutting walk where the booby’s posture is upright and swaying. The female would then choose her mate and then build nests. Mutual preening is where a pair cleans each other’s plumage. Lastly, bill touching is a very intimate behaviour where once the mate returns to the nest and bows, the partners touch bills (Langteau, 2016).

**JUVENILE BEHAVIOUR.** After asynchronous hatching, the second hatchling usually does not survive as the first one (stronger) outcompetes it for resources and the younger is pushed out of the nest (Schreiber and Norton, 2002; Dorward, 1962). Hatchlings begin “peeping” from within the egg. As they hatch, they beg for food using calls and are fed by their parents. Once the young is able to fly, it leaves the nest to forage for approximately 20 weeks. When food is scarce, the juvenile returns to the nest and begs for food again and is fed by the parent (Audubon, 2016). Juveniles have also been found to exhibit kleptoparasitism by stealing food from others (Langteau, 2011).

**DEFENCE BEHAVIOUR.** Brown boobies nest in remote locations to avoid predators (Schreiber and Norton, 2002). Aggressive behaviour is displayed by males when overlooking breeding grounds. The booby hops closer to the intruder with the head and neck stretched outwards. It bows and a unique honk follows. If the intruder refuses, the booby repeats a more defined bow. If the intruder refuses again, the booby will rattle its bill. Final option, he resorts to bill jabbing by which the booby will grasp intruder’s bill or neck with its wings slapping downwards. (Langteau, 2011).

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Author: Karishma Ramrattan

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**Fig. 2.** *Sula leucogaster* plunging when foraging.

[<http://www.arkive.org/brown-booby/sula-leucogaster/image-G58092.html>, downloaded 9 November 2016]



**Fig. 3.** Male brown booby sky-pointing display.

[<http://www.arkive.org/brown-booby/sula-leucogaster/image-G130984.html>, downloaded 9 November 2016]

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