

Avian Models for 3D Applications Characters and Procedural Maps by Ken Gilliland

## Songbird ReMix Seabirds v1

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## Songbird ReMix Seabirds v1

## Introduction

"Songbird ReMix Seabirds" explores many of the more common and unusual birds that are found at sea. This collection includes Gulls, Terns, Jaegers, Petrels, Shearwaters, Boobies and many more species found throughout the globe. From the most angelic White "Fairy" Tern found in the South Pacific to the hunter of Penguin, the Southern Giant Petrel to the Blue-footed Booby of the American coast, the birds from this package are a worthy centerpieces in any form of imagery.

### **Overview and Use**

The set is located within the **Animals : Songbird ReMix** folder. Here is where you will find a number of folders, such as **Bird Library**, **Manuals** and **Resources**. Let's look at what is contained in these folders:

- Bird Library: This folder holds the actual species and poses for the "premade" birds. Birds are placed into a "type" folder (such as "Birds of Prey (Order Falconiformes)" which for example would hold falcons, hawks and eagles). The birds for this set can be found in the following folder(s):
  - Albatrosses and Petrels (Order Procellariiformes)
  - Boobies and Gannets (Order Suliformes)
  - Gulls and Waders (Order Charadriiformes)
- **Manuals:** Contains a link to the online manual for the set.
- **Props:** Contains any props that might be included in the set
- **Resources:** Items in this folder are for creating and customizing your birds
  - Bird Base Models: This folder has the blank, untextured model(s) used in this set. These models are primarily for users who wish to experiment with poses or customize their own species of bird. When using physical renderers such as Iray and Superfly, SubD should be turned to at least "3".

### **Poser Use**

Select **Figures** in the **Runtime** Folder and go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer *Firefly or Superfly*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**.

### DAZ Studio Use

Go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer (*3Delight or Iray*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library :** (**Type**) : **Poses**. <u>Note:</u> Using the "Apply this Character to the currently selected Figure(s)" option **will not** properly apply the correct scaling to the bird selected. It is better to delete the existing character first and load the one you want to use.

## **Physical-based Rendering**

**Iray** and **Superfly** requires more CPU and memory horsepower than the legacy renderers because of ray-trace bounces and higher resolution meshes needed for displacement. Poser's **Superfly** renderer will require that the "Min Transparent Bounces" be set to **at least 16** and that the "Max Transparent Bounces" be set to **at least 16** and that the "Max Transparent Bounces" be set to **at least 32** in render settings. Superfly renders may show artifacts in the head area. This is a known Poser issue and may be addressed in the future. Increasing the SubD may minimize this issue.

## **Posing & Shaping Considerations**

This volume has various species, so when using generic poses not every pose will work perfectly with every bird. You may find that some minor alteration on the stock poses may be warranted.

Here are some of the most common alterations you may need to make:

- Birds will not be flat on the zero plane due to leg size and overall scale.
- Because of the numerous beak shapes, closing the beak may range from 0.5 to 1+. Usually 0.8-0.9 is about right.
- **Tongue poke-through** (especially when the beak is open). This can be easily solved by using the **Throat-Fuller1 & 2** morphs (*found in Creation Control/Head Shapes*).
- Tail Spread2 and other morphs... Because these are generic models, in some case, some morphs are provided that aren't normally used with a specific species of bird or have a limited use. They may find use in future expansions, so I've included them. Tail Spread2 is one of those morphs. Very few seabird species would ever spread their tails this way, but there may come an occasion when it does get used. This morph tends to create distortions when used with a combination of the 3 round tail morphs (Tail Round, Tail Round2 and Tail Rounder). Experimentation with those morphs will get you around the distortions.

### **IK Concerns**

Some poses may go askew when IK is turned on. By default, Poser's IK feature is turned off when loading a bird. To turn it on, select the "Figure" category from the main tool bar and "Use Inverse Kinematics" from the submenu.

By default, DAZ Studio's IK feature is turned on when loading a bird. This will cause the thigh and shin rotations change when the character is moved. The **CTRL K** keypress will turn IK on and off in DAZ Studio. IK doesn't work that well in Studio, so I suggest selecting the character in the **Scene tab** and simply deleting the two IK body parts to remove IK.

Type Folder	Bird Species
Albatrosses and Petrels (Order Procellariiformes)	Black-footed Albatross Cape Petrel Southern Giant Petrel Sooty Shearwater
Boobies and Gannets (Order Suliformes)	Double-crested Cormorant Blue-footed Booby
Gulls and Waders (Order Charadriiformes) (Seabirds subfolder)	Arctic Skua Black Skimmer Common Guillemot Common Gull Glaucous Gull Herring Gull Common Tern Fairy Tern Least Tern

### Where to find your Birds and Poses

# Songbird ReMix Seabirds v1 Field Guide

Black-footed Albatross Cape Petrel Southern Giant Petrel Sooty Shearwater Double-crested Cormorant Blue-footed Booby Arctic Skua Common or Mew Gull Glaucous Gull Herring Gull Common Tern Fairy Tern Least Tern Black Skimmer Common Guillemot

## **Common Name:** Black-footed Albatross **Scientific Name:** *Phoebastria nigripes*

**Size**: 25-29 inches (64–74 cm)

**Habitat**: Northern Pacific Hemisphere. They nest in colonies on isolated islands of the Northwestern Hawaiian Islands (Laysan and Midway), and the Japanese islands of Tori Shima, Bonin, and Senkaku. Found from Alaska to California and Japan

**Status:** Near Threatened. **Global Population:** 278,000 mature individuals with a stable to increasing population trend. It is taken incidentally by long-line fishing. An estimated 4,000 to 8,000 are taken every year. It is also vulnerable to oil and ingestion of floating plastics, which reduces the space in the stomach available for food to be brought to the chick. All of its nesting sites in the U.S. are protected.

Diet: Fish, flying fish eggs, squid and to a lesser extent crustaceans.



**Nesting:** An entirely dusky brown except for narrow whitish ring around base of bill and another under the eye. Sexes and age classes similar, although younger adults tend to have less white on rump and under tail coverts and around the base of the bill. Males also are slightly larger than females, with larger bill.

Albatrosses form long term pair-bonds that last for life. After fledging the birds return to the colony after three years, and spend two years building nests, dancing and being with

prospective mates, a behavior that probably evolved to ensure maximum trust between the birds (raising an albatross chick is a massive energetic investment, and a long courting period establishes for both birds that the other is committed).

Nests are simple depressions scraped in the sand, into which one egg is laid. The egg is incubated for just over two months (65 days). Both birds incubate the egg, the male incubating more as the female leaves soon after hatching to recoup reserves used for egg-laying. The average time spent on incubating shifts is 18 days. However, mates can wait up to 38 days to be relieved, and if something happens to the mate the other has been recorded incubating for 49 days without food or water.

The chick is brooded for 20 days by its parents, after which both parents leave the nest and return to feed the chick. The chick is fed regurgitated food by sticking its bill inside that of its parent. Fledging occurs after 140 days.

**Cool Facts:** The Black-footed Albatross is one of three Albatrosses found in the northern Hemisphere and is the only dark colored one. It has a keen sense of smell, which it uses to locate food across vast expanses of ocean. It will scare other predators away from its food by spreading its wings and screaming at it. It drinks seawater and excretes excess salt through glands above the eyes.

The Black-footed Albatross has a number of apparent adaptations to stay cool at hot, exposed nest sites. These include an extensive network of blood vessels in the head, as well as a habit of raising the feet off the ground.

### Common Name: Cape Petrel Scientific Name: Daption capense

**Size**: 15-16 inches (38-40 cm)

**Habitat**: Southern Hemisphere; Cape Petrels breed on numerous islands surrounding Antarctica. A few pairs nest as far north as New Zealand's Auckland Islands, the Chatham Islands and Campbell Island; the majority of the species nest further south. The species' stronghold is on the Antarctic Peninsula and the islands of the Scotia Sea. They also breed on other sites on the Antarctic mainland, as well as South Georgia, the Balleny Islands, and Kerguelen Island.

It is primarily Marine and pelagic, especially in winter. It occurs in places mainly over cold waters beyond the continental shelf. During breeding, it is most commonly found on inshore waters not far from its colonies. It usually avoids pack ice, but frequently seen near icebergs and melting ice.



**Status:** Least Concern. **Global Population:** 2,000,000 mature individuals with an increasing population trend. The highest mortality probably from natural causes, especially severe Antarctic climate. There is some predation by skuas. On land, predation by rats and feral cats (Crozets, Kerguelens, Auckland and Cochons) occurs, but most colonies too remote to be affected.

**Diet:** Euphausiid shrimp and other crustaceans make up 80% of their diet.

They will also eat fish and squid usually by following fishing boats. They get their prey by seizing from the ocean surface and by plunging under the water and filtering the seawater.

**Nesting:** Sexes alike, but female apparently averages smaller in bill, tarsus and wing lengths, and mass. Its upper parts have contrasting and unique pattern among seabirds. It has sooty-black hood extending to the mantle, where it becomes a variable checkered pattern of blackish and white, this pattern is usually predominating over most of back to upper tail-coverts and scapulars. The upper wing is blackish, with the inner primaries and greater coverts white except their tips. This forms a large and contrasting white panel. There is more checkered panel on the inner wing formed by partially white greater, median and lesser coverts, being largely white on inner wing. The under wing is white, including most of the remiges. There are often some blackish spots on the coverts and axillaries, which have blackish leading and trailing edges. The tail is white at its base, turning blackish on the broad distal bar. The under parts white, except for some blackish spots on under tail-coverts and sometimes on the sides and flanks. The center of throat is often paler sooty-brown and can even be white. The iris very dark and its bill and legs black. Occasionally, some albinistic or leucistic individuals have been reported.

The juvenile is similar to adult, but has blackish feathers washed gray in fresh plumage and is slightly and narrowly fringed paler, especially on the upper mantle and inner upper wing-coverts.

They are colonial, nesting on rocky cliffs or on level rocky ground no further than a km from the sea. The nests are simple and are usually placed under an overhanging rock for protection. A single egg is laid in mid to late November and incubated for around 45 days. Both parents take shifts of several days incubating the egg, with the male shifts on average lasting a day longer. Like fulmars Cape Petrels will aggressively defend their nesting site by ejecting stomach oil at intruders; skuas in particular will prey on Cape Petrel eggs and chicks. Once hatched the chick is brooded for 10 days until it is able to thermoregulate, after which both parents hunt at sea to feed it. Cape Petrel chicks fledge after around 45 days.

**Cool Facts:** The plumage pattern of the Cape Petrel is unique amongst its species family. Their habit of pecking at the water to seize prey is the origin of one of their common names, the "Cape Pigeon".

There are two subspecies:

- *D. c. capense.* The nominate subspecies, often referred to as the "Antarctic" Cape Petrel, is found in Antarctica and islands of subantarctic from South Georgia east to Heard Island.
- *D. c. australe.* "Snares" Cape Petrel is found in temperate to Antarctic seas between Australasia and Antarctica, breeding on islands of New Zealand area. It is slightly smaller and tends to have reduced white on its upper parts, especially on the wings and dorsum, but differences not always clear due to individual variation and plumage wear (worn birds show more white). At rest and in flight from below, it can look like the Antarctic petrel (*Thalassoica antarctica*), but it has some blackish spots on the under tail-coverts and underwing, dark trailing edges to the wings that are slightly broader and unbroken, the tail has broader black terminal band, and the white on the upper parts more or less checkered.

## **Common Name:** Southern Giant Petrel **Scientific Name:** Macronectes giganteus

**Size:** 37-39 inches (85-100 cm)

**Habitat:** Southern Hemisphere; breeds on the Falkland Islands (Islas Malvinas), Staten Island and islands off Chubut Province (Argentina), South Georgia (Georgias del Sur), the South Orkney and South Shetland Islands, islands near the Antarctic Continent and Peninsula, Prince Edward Islands (South Africa), Crozet Islands (French Southern Territories), Heard Island and Macquarie Island (Australia), with smaller populations on Gough Island, Tristan da Cunha (St Helena to UK), Diego Ramirez and Isla Noir (Chile), Kerguelen Islands (French Southern Territories), and four localities on the Antarctic Continent including Terre Adélie.

Its habitat is marine, ranging from coastal to pelagic waters. It occurs southward into regions of pack ice and northward into subtropical zone. It breeds on open coastal plateaux and also headlands, usually occupying grassy or bare ground, often in exposed situations (provided they are ice-free).



**Status:** Vulnerable. **Global Population:** 97,000 mature individuals. The population of southern giant petrels underwent a decline of at least 20 percent over the last 60 years. Between 1997 and 1998, an estimated 2,000 to 4,000 southern giant petrels were killed in illegal and unregulated longline fisheries for Patagonian toothfish in the Southern Ocean. Other threats include a decline in the population of the southern elephant seal Mirounga leonine (an important source of carrion for the petrel), increasing disturbance

by humans and persecution. The Southern Giant Petrel is listed as endangered in Australia.

**Diet:** Seal and penguin carcasses, offal, refuse from ships and discarded fish; they often feed close to trawlers and vessels fishing with longlines. They also prey upon penguins and other birds, krill and amphipod crustaceans, fish and squid. During chick rearing, they depend heavily on penguins and seal colonies, as a food resource.

They feed along coast during most of year.

**Nesting:** A huge, albatross-sized petrel with large and strong bill. The sexes are similar but the female averages smaller (tarsus, tail and overall mass), especially in bill length. The adult plumage is generally grayish brown, paler and even largely whitish. It is more or less spotted on the head to upper breast, the under parts are dark towards rear. The base of the outer remiges are silvery on the under wing. Its iris is dark brown to pale gray. The bill is pale brownish to pale pinkish, with scarcely darker but more grayish or greenish-gray tip. The legs are dark gray to dusky straw-gray. There is a "White morph" forms up to 15% of individuals in certain localities. The plumage entirely white except for a variable number of dark brown to black feathers scattered over body, wing-coverts and sometimes flight feathers. Juveniles are uniform blackish sooty-brown, with a dark iris. It progressively acquires more pale brown and white in plumage, with full adult plumage perhaps only achieved when 7–13 years old.

It typically nests in loose colonies on grassy or bare ground, often close to penguin colonies. However, in the Falkland Islands it can nest in large, relatively dense colonies. Average age of first breeding is c.10 years, and mean adult annual survival at South Georgia is 90%.

**Cool Facts:** Petrels are able to regurgitate foul-smelling oil which they spit at intruders; this habit earned the southern giant petrel the alternative name of 'stinker'.

Males and females have distinct foraging ranges during the breeding season. This is so the couple does not over-hunt any specific area.

## **Common Name:** Sooty Shearwater **Scientific Name:** *Ardenna griseus*

**Size**: 15.7-19.6 inches (40-51 cm)

**Habitat**: Southern Hemisphere; they are long-distance migrants, following a circular route, travelling north up the western side of the Pacific and Atlantic Oceans at the end of the nesting season in March-May, reaching sub Arctic waters in June-July where they cross from west to east, then returning south down the eastern side of the oceans in September-October, reaching to the breeding colonies in November. They do not migrate as a flock, but rather as single individuals, associating only opportunistically.

**Status:** Near Threatened. **Global Population:** 20,000,000 mature individuals. Along with the Short-tailed Shearwater, the Sooty Shearwater is one of the most numerous shearwaters. The total population is probably in the tens of millions. In recent years however, numbers off parts of the West Coast have declined significantly. It is speculated that this decline may be as a result of the rise in sea surface temperatures. It is presently classified as Near Threatened by the IUCN.



**Diet:** Fish and squid. They can dive up to 220 feet (68 m) underwater for food, but more commonly take surface food, in particular often following whales to catch fish disturbed by them or fishing boats to take fish scraps thrown overboard.

**Nesting:** It is a large dark shearwater with relatively narrow, pointed wings, and pale areas on the central under wing. Sexes are alike. Most of plumage rather uniform sootybrown to dark grayish (usually darkest on the head and on the upper surface of the primaries and tail). The dorsal area may have a scaly pattern (especially on scapulars). The chin and upper throat are slightly paler. The rest of under parts from upper chest similar to the upper parts but are usually slightly paler. The axillaries are dark, the under wing-coverts are a paler brownish or gray, with variable amount of white on the innermost greater coverts, median and lesser coverts. It is often whitest on the lesser, and especially median primary-coverts, many usually with a narrow dark shaft-streaks. The remiges are dark grayish, slightly and diffusely paler at their primary bases. The iris is blackish brown and the bill brownish to dark gray, sometimes blacker at tip. The legs and feet are a pale flesh, dull pink-flesh or grayish. The outer side of the tarsus and outer toe often tinged dusky.

The juvenile is very similar to the adult, but is in fresh plumage May–July, when most older birds are in wing molt.

They breed in huge colonies and the female lays one white egg. These shearwaters nest in burrows lined with plant material which are visited only at night to avoid predation by large gulls. This shearwater is often loud, cooing and croaking while on the breeding grounds.

**Cool Facts:** This bird from a distance may look all black, but in good light it shows as dark chocolate-brown a silvery strip along the center of the underwing and gets its name by its dark plumage. Shearwaters get their name from the "shearing" look flight, dipping from side to side on stiff wings with few wing beats, the wingtips almost touching the water. Its flight is powerful and direct, with wings held stiff and straight, giving the impression of a very small albatross.

In New Zealand, tītī are traditionally harvested each year by the native Māori. Young birds just about to fledge are collected from the burrows, plucked and often preserved in salt.

## Common Name: Double-crested Cormorant Scientific Name: Nannopterum auritum

Size: 28-35 inches (70-90 cm)

**Habitat**: North America; **Summer Range:** Widely distributed across North America. Breeds locally along all coasts and extensively in Florida, the center of continent, and along the Great Lakes and the St. Lawrence Seaway. Also in Mexico, Belize, the Bahamas, and Cuba. **Winter Range:** Winters along Pacific Coast from Alaska to Mexico; along the Atlantic and Gulf coasts from North Carolina to Belize, with smaller numbers northward to New Hampshire; and at inland sites along large rivers and lakes northward to Indiana. Found in diverse aguatic habitats,

such as ponds, lakes, rivers, lagoons, estuaries and open coastline; more widespread in winter.

#### Status: Least Concern. Global Population:

1,100,000 - 2,200,000 mature individuals. Common and widespread throughout its range. Cormorant populations greatly decreased in the 19th and early 20th centuries from human persecution. They recovered after the 1920s, with an interruption in the recovery during the pesticide era of the 1950s and 1960s. The National Audubon Society considered it a species of special concern in 1972. Increases after the 1970s were explosive in some areas. Increasing cormorant populations have caused conflicts with people. Cormorants have been suggested as playing an important role in the collapse of some fisheries, although data to support these claims are sparse. Cormorants eat fish at fish farms, and recent legislation has been proposed to control cormorant numbers.

**Diet:** Predominantly fish; some other aquatic animals, insects, and amphibians.

Foraging is opportunistic and flexible. It dives from surface and pursues prey underwater. The grasping of fish is aided by hooklike nail at tip of maxilla (upper half of bill). Small prey may be swallowed underwater. Those noticed at the surface are likely to be large or otherwise difficult to handle (such as eels, flounders, or spiny fish). Handling of larger prey includes shaking and hammering on the water. Legs may be shaken from crustaceans. Prey may be thrown in the air, to be caught and swallowed headfirst.



When feeding on schooling prey, may form loosely coordinated foraging flocks, sometimes in lines or shallow crescents. The line rolls forward as individuals at rear fly short distances to "leapfrog" the diving birds.

**Nesting:** Sexes are alike apart from males being slightly larger than females. It is a large, dark cormorant. Adult birds have black or dark-brown plumage, with a dull greenish or bronze gloss (that may be absent in worn feathers). The orange-yellow skin of the face and throat is distinctive throughout the year. Its "double crest" is a poor field mark since these feathers are variable and are fully developed for only a short time early in year. This is the only seasonal change. Immature birds are duller and more variable, usually paler on upper breast and darker on belly and occasionally uniformly pale below.

Nests are a large, often flat nest of sticks and other bulky items, including seaweed and flotsam. It is lined with grass or similar material and is placed in trees, on the ground, or on cliffs. Cormorants nest in colonies. Nests often are exposed to direct sun. Adults shade the chicks and also bring them water, pouring it from their mouths into those of the chicks. There are usually 3-4 unmarked pale blue eggs.

**Cool Facts:** While the cormorant uses sticks and other materials to make its nest, it frequently picks up junk, such as rope, deflated balloons, fishnet, and plastic debris to incorporate into the nest. Parts of dead birds are commonly used too. Large pebbles are occasionally found in cormorant nests, and the cormorants treat them as eggs.

Accumulated fecal matter below nests can kill the nest trees. When this happens, the cormorants may move to a new area or they may simply shift to nesting on the ground.

The five subspecies of Double-crested Cormorant are differentiated by body size, overall color saturation, and color and shape of the crest during the breeding season.

- *N. a. cincinatus.* First reported by Brandt in 1837. This subspecies breeds in Alaska, winters south to British Columbia. Its crest is white and straight. The body size is considered large for the species.
- *N. a. albociliatum.* First reported by Ridgway in 1884. It breeds along the Pacific Coast from British Columbia to Baja California and Sinaloa, and inland, possibly as far east as New Mexico, Utah, and Montana. It is like Race *cincinatus*, but its crest is variably mixed white and black. It averages smaller.
- *N. a. auritum.* First reported by Lesson in 1831. The nominate subspecies breeds over most of range in east and central North America. It is largely migratory, wintering from mid-Atlantic Coast to Gulf of Mexico. It is similar to Race *albociliatum*, but its crest black and curled. Its size can be variable but in general between that of Races *cincinatus* and *albociliatum*.
- *N. a. floridanum.* First reported by Audubon in 1835. This subspecies is a resident in Florida and Caribbean. Like is like the nominate, but smaller.
- N. a. heuretum. First reported by Watson, Olson, and Miller in 1991. This subspecies in endemic to San Salvador in the Bahamas (although it may occur on other islands of the Bahamas and on Cuba). It is like Race *floridanum*, but even smaller, being much the smallest subspecies, to the point that it overlaps broadly in size with the Neotropic Cormorant (*N. brasilianum*).

### Common Name: Blue-footed Booby Scientific Name: Sula nebouxii

**Size:** 30-33 inches (76-84 cm)

**Habitat:** North and South America; distributed among the continental coasts of the eastern Pacific Ocean to the Galapagos Islands and parts of California.

Status: Least Concern. Global Population: 100,000-499,999 mature individuals

Diet: Sardines, anchovies, mackerel, and flying fish. They also feed on squid and offal.

Foraging activity is restricted to daylight hours and consists of fishing trips. To catch their prey, boobies can dive deeper than 20 m and for longer than 30 seconds, but their dives usually are rather shallow (around 4 m) and short (around 6 seconds). Females can dive deeper and longer than males. This could be interpreted as a foraging microhabitat segregation to avoid competition between sexes.



**Nesting:** A large seabird with totipalmate webbed feet (4 toes in front), having a characteristic long and pointed bill that is thick at the base, and having a long, wedge-shaped tails. The Blue-footed Booby is named for the the bright blue color of its tarsi and toes. It has a brown back and wings. The head and neck are white, with numerous short, narrow, dusky streaks. The breast and belly are a dirty white. Sexes are similar.

The courtship of the Blue-footed Booby consists of the male flaunting his blue feet and dancing to impress the female. During the dance, the male will spread his wings and stamp his feet on the ground. The Blue-footed Booby is a monogamous animal although they do have the potential to be bigamous. They reunite at their breeding grounds. The breeding cycle of the booby is every 8 to 9 months. When mating, the female parades and the male points his head and tail high to the sky and his wings are back to show off to the female. The male blue-footed booby also makes a high-piping whistle noise. Males do a dance to attract the females. The dance includes the males lifting their blue feet high and throwing their heads up. The blue-footed booby is not a seasonally reproducing species. They are opportunistic in their breeding.

The female Blue-footed Booby lays two or three eggs. Both male and female take turns incubating the eggs, while the non-sitting bird keeps a watch. Since the Blue-footed Booby does not have a brooding patch (a patch of bare skin on the underbelly) it uses its feet to keep the eggs warm. The chicks cannot control their body temperature up until about one month old. Eggs are laid about 5 days apart. Blue-foots are one of only two species of booby that raise more than one chick. This may be because of the males specialized diving in shallow waters. They must be fed frequently, so the adults constantly hunt for fish. The chicks feed off the regurgitated fish in the adult's mouth. If the parent Blue-footed Booby does not have enough food for all of the chicks, it will only feed the biggest chick, ensuring that at least one will survive. Boobles may use and defend two or three nesting sites until they develop a preference a few weeks before the eggs are laid. Usually 2 to 3 eggs are laid and 1 to 2 chicks are hatched. The incubation period is 41-45 days. They nest on bare black lava in a small dip in the ground. The female will turn to face the sun throughout the day so the nest is surrounded by excretion. These nests are done in large colonies. The male and female share quite a bit of their responsibilities. The male will provide food for the young in the first part of their life because of his specialized diving and the female will take over when the demand is higher.

**Cool Facts:** The name "booby" comes from the Spanish term bobo, which means "Stupid". This is because the Blue-footed Booby is clumsy on the land. Like other seabirds, they can be very tame. Blue-foots will make raucous or polysyllabic grunts or shouts and thin whistle noise. The males of the species have been known to throw up their head and whistle at a female flying by. Their ritual displays are also a form of communication.

Blue-footed Boobies are specialized fish eaters feeding on school fish. They dive into the ocean, sometimes from a great height, and swim underwater in pursuit of its prey. It hunts singly, in pairs or in larger flocks. They travel in parties of 12 or so to areas of water with large schools of small fish. When the lead bird sees a fish shoal in the water, it will signal the rest of the group and they will all dive together to catch the fish. Surprisingly, individuals do not eat with the hunting group, preferring to eat on their own, usually in the early morning or late afternoon. When they spot a school they will all dive in unison. They will point their bodies down like a torpedo and dive into the water. Plunge diving can be done from heights of 33-100 ft (10-30 m) and even up to 330 ft (100 m). These birds hit the water around 60 mph (97 km/h) and can go to depths of 82 ft (25 m) below the water surface. The prey is usually eaten while the bird is still under water. Males and females fish differently which could contribute to the reasons that blue foots, unlike other boobies raise more than one young. The male is smaller and the tail is larger for its body which enables the male to fish in shallow areas instead of just deep

waters. The tail can flatten out easier enabling him to change direction in the shallow water. The female is larger and can carry more food. The food is then regurgitated to the young. The males feed the young for the first part of the incubation period. This is done because the males can bring back food quicker than the female. When the demand for more food takes over the female provides the food to the young.

There are two subspecies:

- *S. n. nebouxii.* First reported by Milne-Edwards in 1882. The nominate subspecies is found along the Pacific coast of America and occupies most of the range of the species.
- S. n. excisa. First reported by Todd in 1948. This subspecies is confined to the Galapagos Archipelago. Similar to the nominate, but "larger, and general color paler".

## **Common Name:** Arctic Skua or Parasitic Jaeger **Scientific Name:** *Stercorarius parasiticus*

Size: 16.5 - 20 inches (41-50 cm)

**Habitat:** North America, the Arctic and Northern Eurasia. It winters at sea in the tropics and southern oceans.

Its habitat is marine, and predominantly coastal. In the winter often aggregating at coastal sites such as estuaries frequented by large numbers of terns or small gulls. It may sometimes migrate over land. Breeding occurs on the tundra, moorland and ocassionally grasslands, either in association with coastal seabird colonies where it can rob other species of food, or at low nesting densities on tundra where it can obtain food from the terrestrial ecosystem.

**Status:** Least Concern. **Global Population:** 400,000 - 560,000 mature individuals with a declining population trend. Europe includes approximately 20% of the global range is the populations is estimated at 79,800–112,000 mature individuals.

During the 1800s, it was almost eliminated from Scotland as a result of shooting by gamekeepers convinced that predation by jaegers affected the numbers of gamebirds. By the early 1900s, only small populations remained. Breeders recolonized it on Fair Island in the early 1920s and had increased to 70 pairs by 1960. Since then, shooting by residents of Fair Island has claimed at least 10% of the adult population in years when outside observers have not been present for the entire breeding season. Shooting is prompted by annoyance with attacking jaegers and by attempts to reduce harassment of



grazing sheep. Harrying jaegers can sometimes confine sheep to the interstices of jaeger territories. Native Greenlanders shoot this species but not in large numbers; recoveries of banded birds suggest that about 7% are shot.

**Diet:** Nestlings, small birds, eggs, and rodents. They also depend on kleptoparasitism of colonial seabirds. Unlike other jaegers, this species has a minor role as a predator on lemmings. In some areas of the Arctic, on the other hand, it is the most important predator of passerines and small shorebirds and, along with Glaucous Gull (*Larus hyperboreus*) and arctic fox (*Alopex lagopus*)

Like the larger skua species, it continues this piratical behavior throughout the year, showing great agility as it harasses its victims.

**Nesting:** Sexes look alike however females are about 15–20% larger than males. Adults occur in two color morphs with some intermediates. The genetic basis of the polymorphism is more complex than once believed and has been found to involve at least three linked mutations. The "Light" morphed birds have brown upper parts with a blackish cap and white collar. Its under parts are white with often a partial or complete brown band across the breast. The Light morph is very variable and can be quite dusky; such birds are often called "intermediates". The "Dark" morphed birds are similar except white areas on head and underparts replaced with brown. Intermediates resemble dark morphs but show some white on belly and have paler collars with some yellowish brown on the sides of the neck. All morphs have whitish shafts of the outermost 4–6 primaries, a whitish patch on the underside of the wing at the base of the primaries, plain brownish under wing coverts, and pointed central rectrices extending 6–10 cm beyond the rest of the tail.

It nests on dry tundra, higher fells and islands, laying up to four olive-brown eggs.

**Cool Facts:** It is usually silent except for mewing and wailing notes while on the breeding grounds. It is very aggressive and will fly at the head of a human or fox approaching its nest. Although skuas cannot inflict serious damage, it is a painful experience.

## **Common Name:** Common Gull **Scientific Name:** *Larus canus*

Size: 11 inches (28 cm)

**Habitat**: Northern Hemisphere; breeds in northern Asia, northern Europe. It migrates further south in winter.

**Status:** Least Concern. **Global Population:** 75,300,000 mature individuals with a stable population trend. In the past, this species has been thought to be threatened by habitat loss and disturbance through human activities (including tourism, research, fishing and development) and predation by invasive American Mink.

Diet: Small fish and animals by hunting or scavenging.

**Nesting:** Sexes are similar throughout year. The adult breeding plumage is characterized by its entirely white head, tail, and body, medium-gray mantle (back, scapulars, and wing coverts), large white tertial-crescent (tips of tertials), small white scapular-crescent (tips of lower scapulars), and black-tipped primaries with large white spots in outermost primaries, forming relatively large white patch at tip of wing. The adult winter (non-breeding) plumage differs in having heavy grayish-brown mottling and clouding on head and neck, especially hind-neck. The eyes are dark amber to dark olive-



brown (often darker in breeding condition), but typically entirely pale yellow in the northeast. These asian breeders rarely are found in other populations. The bill is entirely yellow to greenish yellow (brightest on breeding birds), typically becoming marked with vague dusky band near tip of bill in winter; legs and feet variable but usually dull grayish green to yellow-green, sometimes tinged pinkish (often brighter and yellower in breeding condition). Size, bill shape, eye color, and wing-tip pattern can vary geographically.

They breed in colonies near water or in marshes, making a lined nest on the ground or in a small tree; colony size varies from 2 to 320 or even more pairs. Usually three eggs are laid; they hatch after 24-26 days, with the chicks fledging after a further 30-35 days

**Cool Facts:** When this gull was lumped with the Short-billed Gull (*L. brachyrhynchus*), as has long been the case until very recently, the combined species has also been called Mew Gull in some global sources. This naming has never gained wide usage in Europe and Asia and the species currently retains the name of "Common Gull". The northeast Asian race, known as "Kamchatka Gull", was also sometimes been considered a separate species for some time.

There are three subspecies of Common Gull:

- *L. c. canus*. First reported by Linnaeus in 1758. The nominate is found in Europe and western Asia. It is small and the mantle is medium gray (palest subspecies). Its wingtips have extensive black and its iris is dark.
- *L. c. heinei*. First reported by Homeyer in 1853. The "Russian" Gull is found in Central northern Asia. It is medium sized with its mantle being a dark gray (darkest subspecies). The wingtips have extensive black and the iris is dark.)
- *L. c. kamtschatschensis*. First reported by Bonaparte in1857. The "Kamchatka" Gull is found in Northeastern Asia. It is a large gull and its mantle is medium-dark gray. Its wingtips have extensive black and its iris is pale.

### Common Name: Glaucous Gull Scientific Name: Larus hyperboreus

**Size:** 25-30.3 inches (64-77 cm)

**Habitat:** North America and Eurasia; Arctic regions of the northern hemisphere and the Atlantic coasts of Europe. It is migratory, wintering from in the North Atlantic and North Pacific oceans as far south as the British Isles and northernmost states of the USA, also on the Great Lakes. A few birds sometimes reach the southern USA and northern Mexico.

**Status:** Least Concern. **Global Population:** 25,600,000 mature individuals with a stable population trend. The species is threatened by organohalogen pollution in its Arctic breeding range, with evidence that organohalogen contaminants alter the species's basal metabolic rate and that organochlorines reduce the efficiency of its immune system. However, this is not considered to pose a significant threat to the species.

Diet: Small fish and animals by hunting or scavenging.



eyes are yellow or golden with yellow (occasionally orange or reddish) fleshy orbital ring. The legs are a pinkish-orange. The head is white in alternate (breeding) plumage and acquires variable amount of brown mottling in Basic (non-breeding or winter) plumage. The immature is roughly similar in first and second years of life, having a bi-colored bill (pale pinkish on basal two-thirds, with sharply demarcated black tip), pale whitish to brownish-buff plumage variably marked with fine, light-brown bars and checks, and pale buff-white primaries that appear translucent from below. First-year gulls are characterized by a dark iris and rather extensive light-brown barring on the mantle, wing coverts, tail, and tail-coverts; overall uniform pale buff with paler wingtips. The bill is pink with a clear-cut black tip. Second-year gull differs in having irises paler (whitish to light yellow with variable dark flecking) and barring on the plumage sparser and less intricate, giving an overall paler appearance. The bill has less extensive black tip, and base may show some pale yellowish. By third year, the gull more similar to the winter adult with its head mottled brownish (becomes whiter in summer. Its mantle and scapulars are mainly pale gray and the wings gray with faint brownish freckling (especially on inner coverts and tertials). The rump is white or faintly mottled and the tail has faint brownish markings but otherwise white. The bill is a dull yellow with blackish near tip.

This species breeds colonially or singly on coasts and cliffs, making a lined nest on the ground or cliff. Normally, 2-4 light brown eggs with dark chocolate splotches are laid.

**Cool Facts:** They will scavenge as well as seeking suitable small prey. These birds forage while swimming or walking, also may pick up items off water or catch small birds while flying. They often follow fishing boats and are one of the most predatory gulls.

The four subspecies differ in mantle darkness on the adult and in body size

- *L. h. hyperboreus.* First reported by Gunnerus in 1767. The nominate breeds from Spitzbergen, Jan Mayen, and northern Scandinavia eastward to northwestern Siberia. It winters to northern Europe, with some reaching the Mediterranean. It has a gray mantle that is moderately dark and its body size and bill are large.
- *L. h. pallidissimus.* First reported by Portenko in 1939. This subspecies breeds across northern Siberia (east of the Taimyr Peninsula) and on St. Matthew and Walrus Islands in Alaska. It winters from northwestern China eastward to Japan. It is similar to the nominate but the gray of the mantle is considerably paler and its body size and bill are larger still. This is the largest and palest subspecies.
- *L. h. barrovianus.* First reported by Ridgway in 1886. It breeds largely coastally from west-central Alaska north and east across the northern Yukon to northwestern Mackenzie. It winters from southern Alaska south to the Pacific Northwest, with some reaching south to northern Baja California and northern Sonora. It is like the nominate but its body size and bill are especially small. It is also the darkest-backed subspecies.
- *L. h. leuceretes.* First reported by Schleep in 1819. This subspecies breeds across northern Canada from northeastern Mackenzie eastward to northern Labrador, Newfoundland, southern Greenland, and Iceland. It winters south to the northeastern United States, with some reaching south to Florida, east to Bermuda, and west to the Great Plains, eastern New Mexico, and southern Texas. It is similar to the nominate but its mantle is a paler gray and it is larger.

## **Common Name:** Herring Gull **Scientific Name:** *Larus argentatus*

**Size:** 25 inches (63.5 cm)

**Habitat:** North America and Eurasia; Arctic regions of the northern hemisphere and the Atlantic coasts of Europe. It breeds across North America, Europe and Asia. Some Herring Gulls, especially those resident in colder areas, migrate further south in winter, but many are permanent residents, e.g. those on the lower Great Lakes, on the east coast of North America or at the North Sea shores.

Herring Gulls are also abundant around inland garbage dumps, and some have even adapted to life in inland cities.



**Status:** Least Concern. **Global Population:** 2,700,000 - 5,700,000 mature individuals with a declining population trend. This remains one of the most abundant coastal birds in northern and northwestern Europe but significant recent declines, particularly of Race *argenteus*, have been reported. However, these are considered most probably to represent part of a longer-term fluctuation following previous increases and may partly be due to better waste management. Similarly, Herring Gulls are one of the most abundant coastal birds in North America, but is also declining there.

**Diet:** Scavenge on rubbish tips and elsewhere, as well as seeking suitable small prey in fields, on the coast or in urban areas, or robbing plovers or lapwings of their catches. Despite their name, they have no special preference for herrings.

**Nesting:** Sexes are similar in all plumages. The adult plumages are attained at age 3–4 years, but this can vary.

These plumages are present primarily from September–February and March–August, respectively. The head, rump, and underparts are white, the head with variable, diffuse dusky streaks in fall that become pure white by mid-winter. The mantle and upper wing coverts are uniformly pale gray, the longest scapulars tipped white (forming a narrow subscapular crescent). The upper wing coverts and tertials are uniformly pale gray with broad white tips to the tertials; the remaining secondaries and inner 3-4 primaries are grav with white tips. The outer primaries from p4 to p10 have pale grav bases and black subterminal markings, more extensive on the outer web; p4 has little or no black; p5–p8 have black bars or extensive tips bracketed by narrow white tongue crescents and tips; p9–p10 are extensively tipped black, with a large and distinct white tip ('mirror') on the outer portion of p10 and often a smaller 'mirror' on p9. The extent of black varies individually and geographically, with birds from northern and eastern breeding populations showing less black, on average, than migrants on the Pacific Coast. The under wing coverts are white. The Definitive Alternate Plumage is similar to Definitive Basic Plumage, except that the head and underparts are completely white, without darker marks or streaks.

Two to four eggs, usually three, are laid on the ground or cliff ledges in colonies, and are defended vigorously by this large gull. The eggs are a dark blotched, olive color. They are incubated for 28-30 days.

Juveniles use their beaks to "knock" on the red spot on the beaks of adults to indicate hunger. Parents typically disgorge food for their offspring when they are "knocked. The young birds are able to fly 35-40 days after hatching.

Like most gulls, Herring Gulls are long lived, with a maximum age of 49 years recorded.

**Cool Facts:** It is the most abundant and best known of all gulls along the shores of Asia, western Europe, and North America. Herring Gull flocks have a loose pecking order, based on size, aggressiveness and physical strength.

Communication between these birds is complex and highly-developed - employing both calls and body language. Two identical vocalizations can have very different (sometimes opposite) meanings, for example - depending on the positioning of the head, body, wings and tail relative to each other and the ground in the calling gull.

Unlike many flocking birds, Herring Gulls do not engage in social grooming and keep physical contact between individuals to a minimum. Outside of the male/female and parent/chick relationship, each Herring Gull attempts to maintain a respectful 'safe distance' from others of its kind. Any breach of this results in fighting, though severe injuries are seldom inflicted.

Herring Gulls are known to be capable of seeing ultraviolet light.

There are four subspecies:

- *L. a. smithsonianus.* First reported by Coues in 1862. This subspecies is referred to as the "American" Herring gull. It is found in North America from Aleutians and the southern coast of Alaska inland across Canada to Newfoundland, and south in the eastern United States to North Carolina. It winters southward to Central America. The adult is like the nominate, but the mirrors on the primaries are smaller, the dark markings on p5 are extensive, and the legs and feet are nearly always pink, although some are tinged or fully yellow early in the breeding season. First-cycle birds are similar to the nominate, but the rump is heavily barred or splotched with blackish brown, the tail is mostly blackish brown or with the base heavily barred with blackish brown, and the tertial centers are more extensively dark. The Atlantic Coast juveniles are more uniformly chocolate brown, but western birds are lighter. Compared to Race *vegae*, this subspecies is smaller, has slightly longer primary projection, and solidly dark outer greater coverts bar in younger birds.
- *L. a. vegae.* First reported by Palmén in 1887. The "Vega" or "Siberian" Herring gull is found in northeastern Siberia. It winters southward to Japan, Korea and southeastern China. The adult is similar to Race *smithsonianus*, but its mantle is a medium gray, the orbital ring is orange-red and the legs and feet are often yellow in the western part of its range. There is less black on wingtips than Race *mongolicus*, with black on outer 5-7 primaries. First-cycle birds are similar to Race *smithsonianus*, but the base of the outer rectrices have extensive pale marks and the ventrum tends toward the pattern of first cycle Race *argentatus*.
- *L. a. mongolicus.* First reported by Sushkin in 1925. The "Mongolian" Herring gull is found in southeastern Altai and Lake Baikal to Mongolia, northeastern China and Korea, It winters mostly in southern Asia.
- *L. a. argentatus.* First reported by Pontoppidan in 1763. The nominate subspecies id referred to as the "European" Herring Gull and is found in Denmark and Fennoscandia to the eastern Kola Peninsula. It winters mostly in Northern and Western Europe.
- *L. a. argenteus.* First reported by Brehm in 1822. This subspecies is also referred to as the "European" Herring Gull and is found in Iceland, Faeroes, the British Isles and western France to western Germany. It winters southward to northern Iberia. It resembles the nominate, but the adult mantle is paler gray, the white mirrors on the wingtips are smaller, and the orbital ring is orange-yellow to dull orange. It averages smaller than the nominate. Also it tends to have more rounded head than the nominate, less deep breast, and shorter legs, although all structural features are at best indicative, but adults also have on average generally less distinct white tertial crescents and the bill is generally brighter than in the nominate throughout the winter.

### Common Name: Common Tern Scientific Name: Sterna hirundo

**Size:** 13-14.5 inches (34-37 cm)

**Habitat:** North America and Eurasia; a circumpolar distribution breeding in temperate and sub-Arctic regions of Europe, Asia and east and central North America. It is strongly migratory, wintering in the subtropical and tropical oceans.

**Status:** Least Concern. **Global Population:** 112,000,000 mature individuals with a stable population trend. During the breeding season, the species is vulnerable to human disturbance at nesting colonies, with sources of disturbance including off-road vehicles, recreation, motor-boats, personal watercraft and dogs. The flooding of nest sites as a result of naturally fluctuating water levels can also result in complete breeding failure of the effected colony. Previously, this species has experienced significant declines due to egging, hunting and the millinery trade. Although in most places populations have recovered, hunting remains a significant problem in some areas, including parts of West Africa, where human predation results in a fledging success rate of only 12%.



Diet: Fish and small marine invertebrates; in fresh or saltwater.

**Nesting:** A medium-sized sea-tern. Sexes are alike. The breeding adult is characterized by light gray upper parts, pale gray under parts, a black cap, orange-red legs, and an orange-red bill with a black tip. Extensive black on the outer primaries is conspicuous on the closed wing, although it is covered by white 'frosting' when the feathers are freshly molted. The black inner webs of the primaries show as a dark wedge in the spread wing. The outer edges of the tail feathers are dark gray. The rump

and upper tail-coverts are white, contrasting with the gray back. In May–June, the bill is usually orange-red with a black tip, but some birds have extensive black on the culmen with a few have bills largely black in May. The black is gradually lost during the breeding season, so the bill is largely orange-red by late July, reverting to black in September– October.

The adult winter plumage (Definitive Basic Plumage) is acquired by molt extending from July to April. The forehead and lores become white; the underparts are white; the bill is black with a dark red base, or all black; the legs are reddish black; there is a dark carpal (cubital) bar on the lesser coverts. Unmolted (dull black) outer primaries are retained until arrival in the winter quarters.

This species breeds in colonies on coasts and islands and often inland on suitable freshwater lakes. This latter practice is assisted by the provision of floating "tern rafts" to give a safe breeding area. It lays two to four eggs. Like many white terns, it is very defensive of its nest and young and will attack humans and other large predators, but unlike the more aggressive Arctic Tern rarely hits the intruder, usually swerving off at the last moment.

**Cool Facts:** The Common Tern is sometimes known as the sea swallow. The old Scottish word for the Common Tern is "pictar". The Common Tern is most readily confused within its range with the similar Arctic Tern (*Sterna paradisaea*) and Roseate Tern (*Sterna dougalli*); its long tail extends only to the wingtips on the standing bird, unlike Arctic and Roseate Terns, which extend past the wingtips. It is not as pale as Roseate Tern, and has longer wings.

There are four subspecies:

- S. h. hirundo. First reported by Linnaeus in 1758. The nominate subspecies is found in Europe, North Africa, Asia east to western Siberia and Kazakhstan, and North America. The differences between the American and Eurasian populations are minimal. American birds have a slightly shorter wing length on average, and the extent of the black tip on the upper mandible tends to be less than in birds from Scandinavia and further east in Eurasia. The proportion of black on the bill is at its minimum in the west of Europe, so British breeders are very similar to American birds in this respect.
- *S. h. minussensis.* First reported by Sushkin in 1925. It is found at Lake Baikal east to northern Mongolia and southern Tibet. It is paler upper body and wings than Race *longipennis*, with a black-tipped crimson bill.
- *S. h. longipennis.* First reported by Nordmann in 1835. It is a darker gray than the nominate subspecies, with shorter black bill, darker red-brown legs, and longer wings
- *S. h. tibetana.* First reported by Saunders in 1876. It is found in the Himalayas to southern Mongolia and China. It is like the nominate subspecies, but bill is shorter with broader black tip.

## **Common Name:** White Fairy Tern **Scientific Name:** *Gygis alba*

Size: 9-12.5 inches (23-33 cm)

**Habitat**: Pacific & Indian Oceans. It ranges widely and is found in the Caribbean, South Atlantic, Indian Ocean, South Pacific Islands, Hawaii and Eastern Australia. It nests on coral islands, usually on trees with thin branches but also on rocky ledges and on manmade structures

**Status:** Least Concern. **Global Population:** 137,000,000 mature individuals with a stable population trend. It is at risk from the impacts of invasive species, with rats threatening to extirpate the breeding population on Clipperton Island. Domestic cats have been observed to predate White Terns, and they likely predate both chicks and nesting adults. They are known to exist as an invasive species in many areas within the species' range, including Raoul Island where it is thought their eradication would benefit the few White Terns left on the island . The Pied Currawong (*Strepera graculina*) and



Masked Owls (Tyto novaehollandiae) are known predators on Lord Howe Island, and Barn Owls (Tyto alba) impose a significant predation pressure on Aride Island in the Seychelles. Human exploitation also poses a problem in some areas. with the extreme example of a corrupt game warden in Rodrigues causing the population on the island to collapse by killing adults and collecting eggs.

**Diet:** Small fish and squid it plucks from the surface or by diving.

It can hold up to 5 fish held crossways in bill.

**Nesting:** Sexes are alike. A medium-sized, darkeyed tern with narrow, black eye-rings that create

the appearance of large eyes. Its tail is shallowly notched. The wings and tail often appear translucent when bird is directly overhead. The shafts of primaries, and sometimes, rectrices are dark brown to black. The skin is black under the white plumage. The thick black bill is sharply pointed at tip and appears shaped like an elongated triangle with the distal portion of lower mandible is slightly upturned. The legs and feet slate blue to black. The immature is similar to the adult, except the body and wing feathers are fringed with varying amounts of brown, the base of bill black, and there may have a dark spot behind eye.

This small tern is famous for laying its egg on bare thin branches in a small fork or depression without a nest. This behavior is unusual for terns, which generally nest on the ground. It is thought that the reason for the absence of nests is the reduction in nest parasites, which in some colonial seabirds can cause the abandonment of an entire colony. In spite of these benefits there are costs associated with tree nesting, as the eggs and chicks are vulnerable to becoming dislodged by heavy winds. For this reason the White Tern is also quick to relay should they lose the egg. The newly hatched chicks have well developed feet to hang on to their precarious nesting site with. It is a long-lived bird, having been recorded living for 17 years.

**Cool Facts:** The Hawaiian name for the White Tern is "manu-o-Kū". The White Tern is sometimes known as the "Fairy Tern" which is potentially confusing as because there's another bird that goes by the same common name of "Fairy Tern" (*Sternula nereis*).

There are four subspecies recognized.candida group: Pacific and Indian Oceans.

- *G. a. candida.* First reported by Gmelin in 1789. This subspecies is found in the Indian and Pacific Oceans, except some of the Pitcairn Islands group and Marquesas Islands. It is accidental in Bermuda. The bill is stout and has a pronounced blue area near its base. The feathering at the base of the bill projects forward at the base of the culmen and forms a straight diagonal backwards and downwards along the sides. Its tail is deeply notched, the rectrices are pointed (except the middle pair)and its relatively longer than the nominate.
- *G. a. leucopes.* First reported by Holyoak and Thibault in 1976. It is found on Henderson and Ducie Islands in Pitcairn group. It intergrades with Race *candida* on Oeno of this island group. The black eye-ring is reduced, present only in front and behind eye. The legs and feet are off-white or pale blue, not gray blue.
- *G. a. alba.* First reported by Sparrman in 1786. The nominate is found in the South Atlantic.
- *G. a. microrhyncha.* First reported by Saunders, 1876. This subspecies is found on the Marquesas Islands, also recently Kiribati (Phoenix and Line Islands). The black around the eye is widest of all the subspecies. It is small overall. It intergrades with Race *candida* on Hatutu and Motane in Marquesas Islands.

### Common Name: Least Tern Scientific Name: Sternula antillarum

**Size:** 8.2-9 inches (21-23 cm)

**Habitat:** North and South America; breeds in North America and locally in northern South America.



**Status:** Least Concern/Endangered. **Global Population:** 65,000 - 70,000 mature individuals with a decreasing population trend. Although widespread and common in most places, its favored nesting habitat is prized for human recreation, residential development, and alteration by water diversion, which interferes with successful nesting in many areas.

In California, and the interior population in the United States, it is classified as "Endangered".

Diet: Anchovy, smelt, silversides, shiner surf perch and small crustaceans.

**Nesting:** Sexes are similar. The adult breeding plumage consists of a black cap and loral stripe contrasting with white forehead. The remainder of the upper parts are gray and the under parts are white. The two outer primaries are black. It has a dark-tipped

yellow or orange bill. The dark loral stripe is considered "wider" in males, but sexes more reliably distinguished by behavior.

The basic plumage is similar for all ages: white under parts, a gray mantle, dark lesser coverts, marginal or lesser wing coverts (forming a cubital bar), a dark nape and crown with variable white flecking in crown, and dark eye-stripe with white flecking at its lores. Juveniles are recognized by extensive dark U- or V-shaped markings on its gray to yellowish-brown mantle.

The Least Tern arrives at its breeding grounds in late April. The breeding colonies are not dense and may appear along either marine or estuarine shores, or on sand bar islands in large rivers, in areas free from humans or predators. Courtship typically takes place removed from the nesting colony site, usually on an exposed tidal flat or beach. Only after courtship has confirmed mate selection does nesting begin by mid-May and is usually complete by mid-June. Nests are situated on barren to sparsely vegetated places near water, normally on sandy or gravelly substrates. In the southeastern United States, many breeding sites are on white gravel rooftops. In the San Francisco Bay region, breeding typically takes place on abandoned salt flats. Where the surface is hard, this species may use an artificial indentation (such as a deep dried footprint) to form the nest basin.

The nest density may be as low as several per acre, but in San Diego County, densities of 200 nests per acre have been observed. Most commonly the clutch size is two or three, but it is not rare to consist of either one or four eggs. Both female and male incubate the eggs for a period of about three weeks, and both parents tend the semiprecocial young. Young birds can fly at age four weeks. After formation of the new families, groupings of birds may appear at lacustrine settings in proximity to the coast. Late season nesting may be re-nests or late season arrival activity. In any case, the bulk of the population has left the breeding grounds by the end of August.

**Cool Facts:** The Least Tern is the smallest of the American Terns. It hunts primarily in shallow estuaries and lagoons, where smaller fishes are abundant. They hover until spotting prey, and then plunge into the water without full submersion to extract dinner.

- *S. a. browni.* This subspecies is found in central California (San Francisco Bay) to Baja California and western and southern Mexico. It winters mostly along the western and southern Mexican coast.
- *S. a. athalassos.* This subspecies is found at inland rivers in central North America, from the northern Great Plains to Texas and northern Louisiana. It winters to northern Brazil.
- *S. a. antillarum.* The nominate subspecies is found on the eastern coast of the United States from Maine southward to Texas (including lower Rio Grande Valley), and on to Honduras and through Caribbean to northern Venezuela. It winters to northern Brazil.

### Common Name: Black Skimmer Scientific Name: Rynchops niger

**Size**: 16-19 inches (40-50 cm)

**Habitat**: North and South America; United Sates East Coast, the Caribbean and the Amazon Basin. Northern populations winter in the warmer waters of the Caribbean and the tropical and subtropical Pacific coasts, but the South American races make only shorter movements in response to annual floods which extend their feeding areas in the river shallows.

**Status:** Least Concern. **Global Population:** 120,000 - 210,000 mature individuals. Populations were declining in 1970s, but appear to have stabilized in most places.



Diet: Small fish or crustaceans.

They feed usually in large flocks, flying low over the water surface with the lower mandible skimming the water, caught by touch by day or especially at night.

**Nesting:** It is a medium-sized, narrow-bodied bird that is blackish-brown above and white below with a white tail. It is strikingly dimorphic in size with the females bill being about 15% shorter and its size up to 20% smaller. Overall, the body has a long silhouette with elongated wings, yet coupled with stubby legs. The basal half of the bill is bright red while the distal half is black. The wing lining is white (in the nominate race) with the secondaries and inner primaries broadly edged white. The uniquely shaped bill is long and laterally compressed (knife-like), with the lower mandible extending 2–3 cm beyond the upper, which is hinged and can be freely elevated and clamped shut. Many males have a narrow visible slit between the mandibles. The wings are long and narrow, averaging about 350 mm (female) to 390 mm (male). The feet are webbed and bright red-orange, fading distally to black. The tail is short and squared (sometimes slightly

forked). The short tail is covered by the primary feathers when the bird is standing. This squat awkwardness transforms into graceful elegance once the bird takes flight. Nonbreeding adults has white nuchal collar and somewhat browner upper parts. Juveniles are buffy brown, streaked with black above, whitish below. At hatching, the 2 mandibles are equal in length, but by fledging at 4 weeks, the lower mandible is already nearly 1 cm longer than the upper.

It has a relatively large pupil which constricts to a narrow vertical slit, a unique feature among birds. This is possibly an adaptation to protect the retina from bright light or to enhance vision for nocturnal feeding. The eye, surrounded by black feathering, is often invisible.

The Black Skimmer breeds in loose groups on sandbanks and sandy beaches in the Americas, the three to seven heavily dark-blotched buff or bluish eggs being incubated by both the male and female. The chicks leave the nest as soon as they hatch and lie inconspicuously in the nest depression or "scrape" where they are shaded from high temperatures by the parents. They may dig their own depressions in the sand at times. Parents feed the young almost exclusively during the day with almost no feeding occurring at night, due to the entire population of adults sometimes departing the colony to forage. Although the mandibles are of equal length at hatching, they rapidly become unequal during fledging.

**Cool Facts:** The Black Skimmer is one of North America's most distinctive coastal waterbirds and is noted for its unusual voice, bill, and feeding behavior. Its bill—brightly colored, laterally compressed, and knife-like, with the lower mandible extending beyond the maxilla—is uniquely adapted to catch small fish in shallow water.

Skimmers have a light graceful flight, with steady beats of their long wings. They spend much time loafing gregariously on sandbars in the rivers, coasts and lagoons they frequent.

Three subspecies are recognized:

- *R. n. niger.* The nominate subspecies, "Niger" breeds on the coasts of the United States (southern California; Massachusetts to Texas) and Mexico (Sonora to Nayarit; Tamaulipas to Yucatán Peninsula). It winters from California and North Carolina S to both coasts of Panama. The nominate is white-tailed (with dark central feathers). It has white under wing coverts and secondaries broadly tipped with white. It averages smaller than the other subspecies.
- *R. n. cinerascens.* Described in 1825. It is found on the coasts of Colombia eastward to mouth of the Amazon River and south to western Ecuador (Gulf of Guayaquil), and large river systems (especially Orinoco and Amazon) southward to Bolivia and northwestern Argentina. It winters on the coasts, from Ecuador to southern Chile and from Panama to Trinidad and north-central Brazil. It has a dark brown, white-edged tail, narrow white secondary tips and gray-brown under wing coverts. It averages larger.
- *R. n. intercedens.* It is found by large rivers of eastern Brazil (west to Maranhão and eastern Mato Grosso), eastern Paraguay, Uruguay and northeastern Argentina (south to Bahía Blanca). It winters mainly on the coast. It has a medium brown tail and has white under wing coverts and secondaries broadly tipped with white. It averages larger (male 395 mm).

## **Common Name:** Common Guillemot **Scientific Name:** *Uria aalge*

**Size**: 15-18 inches (38–46 cm)

**Habitat**: Northern Hemisphere; It has a circumpolar distribution, occurring in low-Arctic and boreal waters in the North-Atlantic and North Pacific. It spends most of its time at sea, only coming to land to breed on rocky cliff shores or islands.

**Status:** Least Concern. **Global Population:** 18,000,000 mature individuals. Numerous, but vulnerable to oil spills and gill-netting. Pacific populations have declined and partially recovered, while Atlantic populations appear to be increasing.



**Diet:** Small Fish; primarily polar cod, capelin, sand lances, sprats, sandeels, Atlantic cod and Atlantic herring.

**Nesting:** A medium-large dark brown-and-white seabird. In Definitive Alternate (breeding) plumage, the upper parts (including the head, neck, back, and upper wings) are brown to blackish brown. Its under parts are mostly white and its flanks and thighs are a streaked brown and white. Its secondaries are tipped in white, imparting a white trailing edge to closed wing. Its dark color fades noticeably by late summer, especially on the primaries. The bill is entirely black and stiletto shaped. In the Atlantic region, most populations include "bridled" individuals, distinguished by a white eye-ring and a white line extending backward along an ocular groove, which is most obvious in breeding

plumage. The Juvenile, Formative, First-Alternate, and Definitive Basic plumages are similar to breeding except for head area; the chin, throat, and cheeks are white with the latter extending upward behind eye and crossed by diagnostic black postocular stripe. The hind-neck is dark, extending as partial collar at the base of white the foreneck. Plumage can be variable, with some birds (often those in Second Basic Plumage) with the dark mottling or occasionally entirely dark heads, resembling Definitive Alternate Plumage.

Common Guillemots breed in colonies at high densities, nesting pairs may be in bodily contact with their neighbors. They make no nest, their single egg is incubated on bare rock. Eggs hatch after ~30 days incubation. The chick is born downy, and can regulate its body temperature after 10 days. They leave the nest site in around 20 days accompanied by the male parent. Chicks cannot fly when they leave the nest but are capable of diving as soon as they hit the water. The female stays at the nest site about 14 days after the chick has left.

**Cool Facts:** The Common Guillemot is a large auk. It is also known as the Thin-billed Murre in North America. Common Guillemots have fast direct flight but are not very agile. They are more maneuverable underwater, typically diving to depths of 30–60 m.

The egg of a Guillemot is so pointed at one end that when placed on a flat surface and pushed, it rolls around in a circle. Such a shape may help keep the egg from rolling off of its nesting shelf.

## **Special Thanks to my beta testers...**

- 2008 Original Release: Bea, Jan, Kelvin, Nancy, and Sandra
- 2022 Re-release: Alisa and Flinthawk

## **Species Accuracy and Reference Materials**

Many birds of the same species do vary considerably in color. This package tries to emulate the colors and markings in the most commonly found variants. The author-artist has tried to make these species as accurate to their real life counterparts as possible. With the use of one generic model to create dozens of unique bird species, some give and take is bound to occur. The texture maps were created in Painter with as much accuracy as possible. Photographic references from photographs from various Internet searches and several field guides were used.

## **Sources for this Volume and Field Guide**

#### **Books, Magazines and Papers**

- **"Seabirds: The New Identification Guide"** by Peter Harrison. Martin Perrow and Hans Larsson. Lynx Publishing 2021.
- "The Sibley Guide to Birds" by David Allen Sibley. Allred A. Knopf, New York 2001.

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