THE SUB-ANTARCTIC ISLAND OF

SOUTH GEORGIA

PREFACE

This eBook is a collection of the work of photographers who participated in the Joseph Van Os Photo Safaris *Ultimate Antarctica* Photo Cruise November 4–28, 2013. On the voyage, we visited the Falkland Islands, the island of South Georgia, and the Antarctic Peninsula. All of the photographs in this eBook were created during our seven days (November 10–16) on South Georgia.

As we sailed on towards Antarctica, South Georgia was not left behind. During a rousing onboard auction, participants pitched in to assist the South Georgia Heritage Trust's vital Habitat Restoration Project in its primary mission to eradicate rats on the island. A total of $5,500 in donations was raised on the ship and in direct contributions following the voyage.

Many participants, in addition to their financial generosity, submitted photos. Joseph Van Os Photo Safaris has compiled some of the best of the trip participants' photos taken on South Georgia in this eBook with the aim of further increasing awareness about the rat eradication program.

Please feel free to spread the word. Send this free eBook to others. Donate to the cause. Information on how to do both can be found on page 81.

South Georgia

As Tierra del Fuego disappears on the horizon and the Scotia Sea lies ahead, an eastern bearing leads into the Antarctic Convergence. In that invisible boundary between the cold Antarctic water and the warmer currents flowing from the South Atlantic, a great number of albatrosses, prions and petrels wheel in the air—only a hint of the variety and abundance ahead. Whales cruise. The first icebergs appear. Finally, far off on the horizon, towering snowy peaks and stark white glaciers gleam tantalizingly in the distance. The destination, some 1,300 remote miles from South America, is South Georgia.

It is the place on Earth where superlatives spawn. The pinnacle, the apex, and the zenith of nature's creation—there are no adequate words to describe the awesome beauty that is South Georgia. This phenomenal sub-Antarctic island—like the arc-shaped wing of a wandering albatross—measures just over 100 miles long and is often less than 20 miles wide.

A mere speck in the Southern Ocean, the narrow crescent of land with a mountainous spine is open on its exposed southern shores to the wild weather of the South Atlantic, and carved with numerous sheltering bays and fjords on the north. Icy flowing glaciers and snowfields cover rugged mountains rising

abruptly to nearly 10,000 feet. The craggy scenery of South Georgia is no less spectacular than if the Alps had been plunged recklessly into the tempestuous South Atlantic.

Despite its extreme isolation, South Georgia ranks among the most vital breeding oases for one of the world's greatest wildlife concentrations. Along the coastal fringe and on a scattering of small islands, stunning colonies of tens of thousands of king penguins, macaroni penguins and isolated assemblages of wandering albatrosses cover beach and tussock. Nesting southern skuas, northern and southern giant petrels, Antarctic terns, chinstrap penguins, light-mantled sooty albatrosses and Cape (pintado) petrels, are spread from the beaches to tussock grasslands, slopes and rocky cliff ledges. The sheer number of birds is staggering.

More than two million Antarctic fur seals—95 percent of the world's population—pile onto the island each summer, and half the world's population of southern elephant seals comes to breed on South Georgia's beaches.

Millions of penguins make South Georgia their home and, in some places, complete hillsides are covered with breeding birds. South Georgia has several spectacular and internationally renowned king penguin colonies, including Saint Andrew's Bay and Salisbury Plain. Four southern hemisphere albatross species return here to breed, including the enormous wandering albatross. With its 11-foot wingspan, the wandering albatross is a truly immense bird, and South Georgia is home for a significant portion of the world's declining population. Under the cover of darkness to avoid predators, tens of millions of other seabirds—diving petrels, storm petrels, white-chinned and blue petrels, and prions—return each night to the nest. Most of the small offshore islands are honeycombed with their underground burrows.

South Georgia has, without doubt, one of the most extraordinary wildlife concentrations found anywhere in the world.

Wildlife in peril—you can help

The annals of discovery, exploration, exploitation and scientific research transect like a cross section of polar history on South Georgia. Captain James Cook put the island on the map in the late 1700s and fur sealers followed soon after. Waves of explorers charted the coastline and polar research expeditions studied the island's geology and natural history in the late 19th and early 20th centuries—leading to the identification of suitable harbors for whaling stations and, ultimately, the overhunting of the vast numbers of humpback, blue and fin whales. The epic odyssey of Ernest Shackleton, "his name now inseparable from the island," still reverberates in the present—and a visit to the Boss' grave is a mandatory homage at Grytviken. In the 1920s and 1930s, the *Discovery* investigations were a noted milestone in scientific studies, and surveys in the 1950s mapped the interior and the coastline. Beginning in the 1960s, the British Antarctic Survey expanded scientific research on South Georgia, including long-term observations, detailed mapping of flora and fauna, and work on sustainable management of resources.

Though South Georgia lies isolated in the vast southern seas, it remains a touchstone for the 21st century—as the world records the retreat of the island's glaciers, recognizes the unforeseen ramifications of long-gone sealers and whalers on wildlife and vegetation, and monitors the island's legendary wildlife populations. Among the many man-created problems the island's wildlife faces—climate change, albatross deaths caused by longline and trawl fishing, the introduction of invasive plants and animals, including the arrival of rats and other rodents as stowaways on sealing and whaling ships—some major mistakes can be fixed. And now is the time to correct some of these earlier errors!

Rats have destroyed (eaten) tens of millions of ground-nesting birds' eggs and chicks on South Georgia since the whaling and sealing days. As a result, the main island has been all but abandoned by the storm petrels, prions, diving petrels and blue petrels that once nested there. Incredibly, a bold program to eradicate the island's rats—on a scale never before attempted—was started in 2011. Since the island is sectioned by glaciers, the rat populations between

Previous page: Barque Bayard wreck, Ocean Harbour. © Andrew Lerman

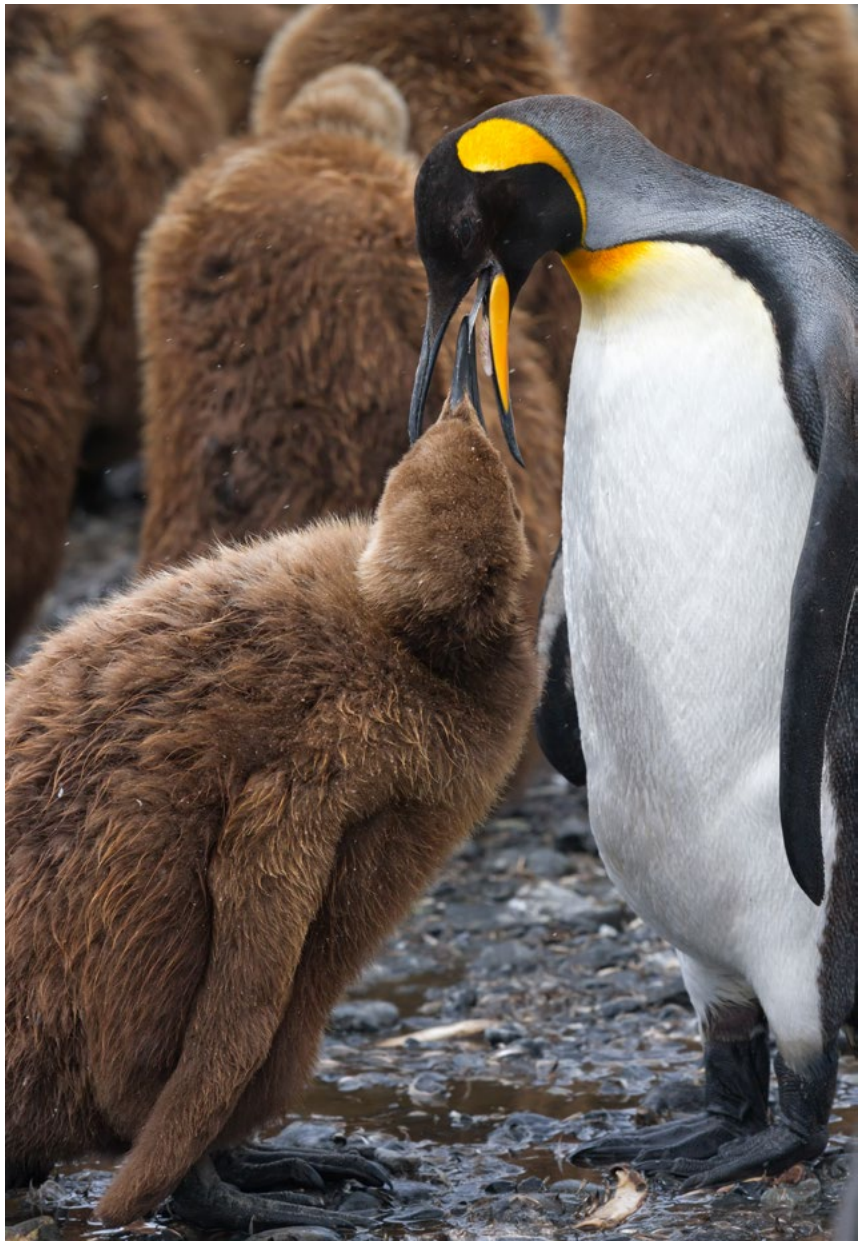
them are isolated, surrounded by ice that extends to the sea. Using a "divide and conquer" method, rats in each of these distinct areas around the island can be exterminated in smaller increments and in phases over time rather than attempting to the treat entire island at once. The first attempts have met with great success—but time is of the essence! Two of these glacial barriers have been breached due to ice melt in recent years. As the glaciers retreat due to climate change, these natural barriers will no longer prevent the rats from spreading to new areas. So the elimination of rats needs to proceed quickly in hopes that 100% eradication can be achieved while there is still time.

You can help.

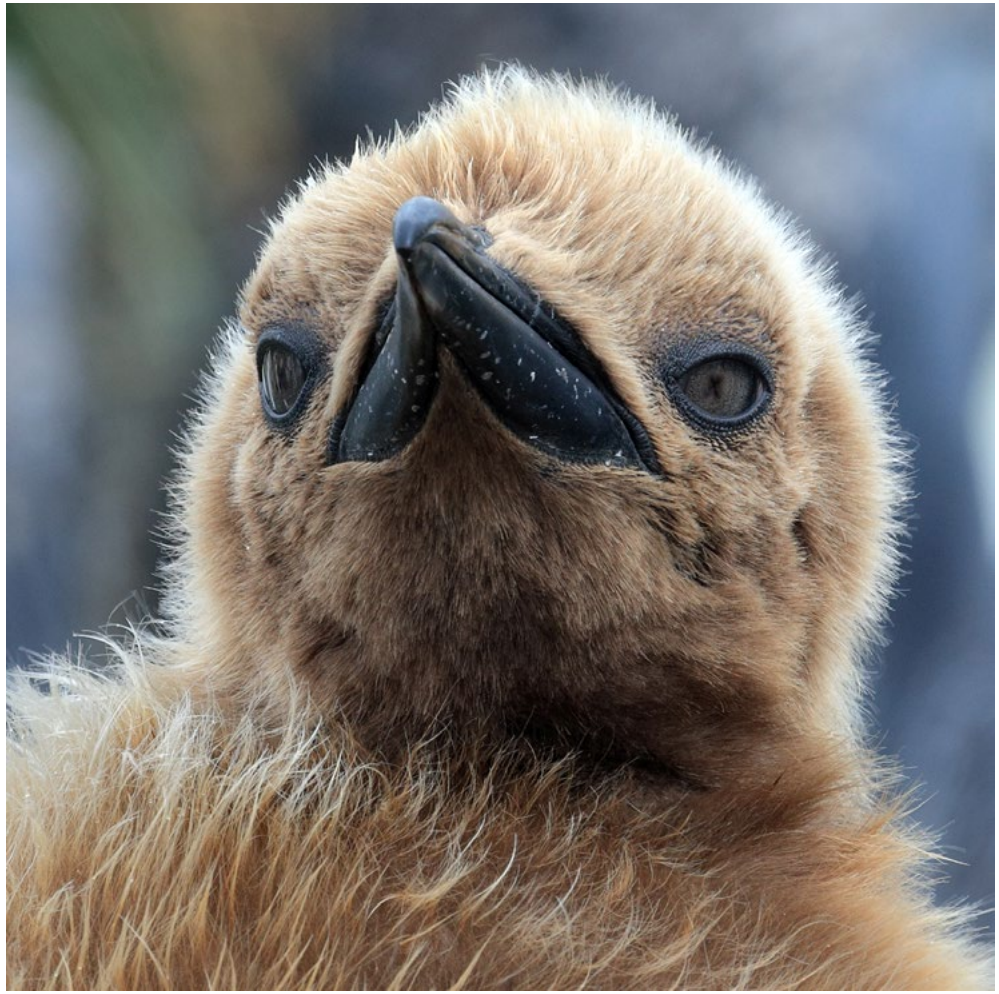
On page 81 of this free eBook, you can learn how your donation—no matter how large or small—to this wildlife restoration project can help ensure that South Georgia will remain one of the world's most beautiful and wildlife-rich locations.

King Penguin

The king penguin *(Aptenodytes patagonicus)* is the second largest of the living penguins, one of the two so-called "great penguin" species (the other is the emperor penguin). Over two million pairs are believed to comprise the global population of king penguins. They breed on islands that are generally near the Antarctic Convergence (where the great oceans—the Atlantic, the Pacific and the Indian—meet the cold waters of the Southern Ocean that surrounds Antarctica), although none are found south of 60° south latitude. There are an estimated 400,000 breeding pairs on South Georgia. King penguins, like emperor penguins, build no nests and therefore lay a single egg that is incubated and then guarded on the feet of the parents. At first, the eggs are white but later take on a light green hue while they are incubated for 55 days. After a guarding period while the chick sits on the parent's feet and is fiercely protected,chicks gather into a crèche—a single large, very dense aggregation of all chicks in the colony—which protects them against aerial predators (most often skuas) and adverse weather conditions. In the summer, South Georgia king penguins feed primarily on fish in the mesopelagic zone (650–3,280 feet below sea level) of the Southern Ocean. They specialize in lanternfish that have extensive bioluminescent features on their bodies. At night, adult king penguins have regularly been found diving between 1,000–2,000 feet below seal level, while immatures were more likely to be found foraging between 130–600 feet below sea level. In the winter, squid and krill species increase to 64% of the penguins' diet.

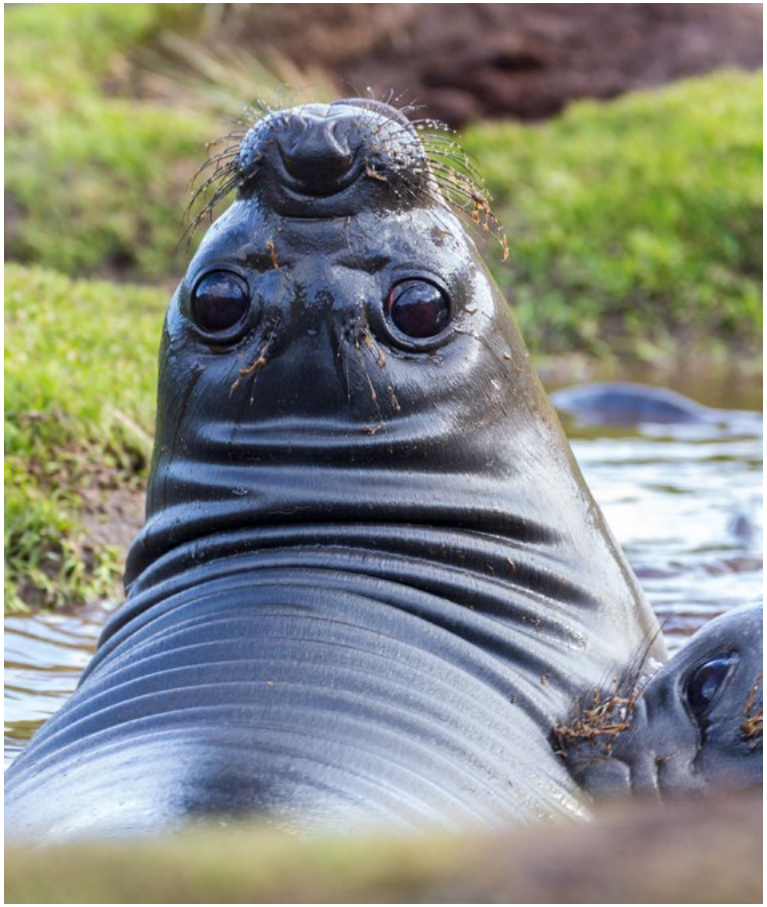


Clockwise from top left: © Fabienne Peter, © Ellen Goff, © Robert McRae, © Ralph Arwood,



Southern Elephant Seal

The southern elephant seal *(Mirounga leonina)* is the world's largest seal and the largest member of the order Carnivora, which includes all seals, cats, dogs, foxes, wolves, bears, raccoons, hyenas and weasels, among others. Southern elephant seals are "true" or "earless" seals, and are named for the male's trunk-like proboscis (nose) and for their massive size. Adult males range about 15–19 feet in length, and weigh from about 3,300 pounds up to as much as 8,000 pounds. The species was hunted almost to extinction in the 19th and 20th centuries and, on South Georgia, their blubber was rendered into oil as late as 1964. Since that time, the southern elephant seal world population has recovered to about 700,000 individuals. The breeding season starts in September with the breeding bulls coming ashore. Males have prolonged, bloody beach battles. The breeding females then come ashore and are rounded up by dominant males into harems of about 20–40 females. The pups are born mostly in October.



Antarctic Fur Seal

Researchers estimate that 4 million Antarctic fur seals *(Arctocephalus gazella)* live within the Antarctic Convergence—with 95 percent of the world's population breeding at South Georgia. The South Georgia population is considered the densest concentration of marine mammals on earth! Other islands with Antarctic fur seal populations include the South Shetlands, South Orkneys and South Sandwiches, and Heard Island. The seals are also occasionally seen on the Antarctic Peninsula and on other small islands. They disperse widely when at sea. Antarctic fur seals were hunted to near extinction for their luxurious pelts by American and British sealers in the 18th and 19th centuries. In the early 1900s only a small population still survived and bred on Bird Island off of South Georgia. All Antarctic fur seals today are believed to be descendants of this one tiny colony—which some scientists fear compromises the genetic diversity of the species. Ironically, it was an imbalance in the food chain that facilitated the remarkable recovery of the Antarctic fur seal. Starting in the 1900s, Antarctic whaling (particularly around South Georgia) removed the biggest krill-eating animals—the baleen whales—which caused a sudden over-abundance of krill, a major part of the diet of Antarctic fur seals.

Wandering Albatross

In recent years, wandering albatrosses *(Diomedea exulans)* have been classified as part of the "great albatross" taxonomic group. What used to be considered to be one species has now been tentatively divided into several, based on the islands where they breed. "Wanderers" are the largest seabird in the world. They breed biennially with about 4,000 pairs nesting on South Georgia. This amounts to about 15% of the world's population of the "great albatross" group. At one time these spectacular birds were killed by sailors for their long hollow wing bones used to make tobacco pipe stems. Today the biggest threat to their survival comes from hooking and drowning by the longline fishing industry and from ingestion of indigestible plastics polluting the oceans.

Gentoo Penguin

With their bright orange bill and orange-pink feet, gentoo penguins *(Pygoscelis papua)* are considered the most colorful of the Pygoscelis or brush-tailed species, which include Adélies and chinstraps. They have the same characteristic black back and white underparts as the other species, but sport a white band that is widest at the eyes and forms a triangle that connects with a thin band across the top of the head. The gentoo is the only orange-billed penguin with a distinctive white patch above the eye. Gentoos are the third largest species of penguins, after the great penguins (kings and emperors). They have been recorded to be 30–36 inches in height and can weigh over 18 pounds at the peak of the summer season. However, these statistics have been documented to vary with latitude—the length and weight increases as the latitude decreases (as they get farther from the Antarctic Peninsula). Unlike the other brush-tailed species, gentoos only breed in snow- and ice-free areas. But, because they have such widespread distribution in the southern latitudes, their attributes and habits vary with the region. For example, on the Antarctic Peninsula, they inhabit snow-free pebble beaches whereas, on sub-Antarctic islands, like South Georgia, their preferences can include slopes and uplands cluttered with stones, grass and seaweed. As with the features of their breeding sites, their diet varies considerably among colonies as well as years. On the peninsula, they eat mainly krill and supplement with fishes. On sub-Antarctic islands, their diet varies from primarily fish to primarily krill, depending on the colony site and the time of year. During the breeding season, they tend to stay close to the colony, foraging along the shorelines and staying within 18 miles of their nest.


© Steve Pelton

Light-mantled Sooty Albatross

South Georgia's light-mantled sooty albatrosses *(Phoebetria palpebrata)* have a breeding population of between 5,000 and 8,000 pairs. More light-mantled sooty albatrosses breed on South Georgia than on other sub-Antarctic islands. Considered by many to be the most beautiful albatross, the light-mantled sooty is known for an aesthetic tandem aerial display over its nesting grounds where its mournful flight calls echo over the hillsides. It nests biennially—every other year.

South Georgia Whaling History

Whaling in the waters of South Georgia spanned 60 years. From the establishment of the first whaling station at Grytviken in 1904 until the final closure of Leith Harbour station in 1965, South Georgia was at the center of the whaling industry in the Antarctic. By 1912, seven whaling stations were built where deep, sheltered harbors gave access to flat shorelines.

Humpback whales were harvested in South Georgia's krill-rich waters before their population declined dramatically and commercial whaling interests expanded to other species. In 1925, pelagic whaling radically changed the entire industry. Shore-based stations were eclipsed by the efficiency of the floating factory ships which processed carcasses on the open sea. Blue whales and fin whales—larger and faster oceanic species—became the focus as larger factory ships and faster catcher vessels were built. Expansion of whaling continued in the boom years of the late 1920s. In the early 1930s, as overproduction by pelagic whaling resulted in the collapse of populations and world market prices for whale oil fell sharply, all of the land stations, except Grytviken, were closed for a season. Following WWII, as oil prices again rose, Leith Harbour and Husvik reopened and whaling fleets began to harvest sperm whales, sei whales and minke whales—until those populations also declined. Records show that a total of 175,250 whales were taken in South Georgia waters during the 60-year period of commercial whaling. Once largest in the world, the whale populations of the Southern Ocean were reduced to only a very small percentage of their original numbers.

The now-derelict whaling stations remain in evidence today—rusted shells of factory buildings and oil tanks still sit on the flat shores of protected bays. Grytviken station—cleared of hazardous materials and many buildings demolished—traces South Georgia's whaling past in its rusting ruins, white Grytviken church and whalers' cemetery.

Norwegian Lutheran Church 1913, Grytviken. Left: © Hollice Looney. Right: © Jo Ann Crebbin

Stromness whaling station. © Jo Ann Crebbin

Ernest Shackleton's grave, Grytviken. © Christian Peter

Stromness whaling station. © Steve Pelton

Top: © Christian Peter

Bottom: Whaling ship Petrel, Grytviken. © Christian Peter

Sealer's grave, Ocean Harbour. © Fabienne Peter

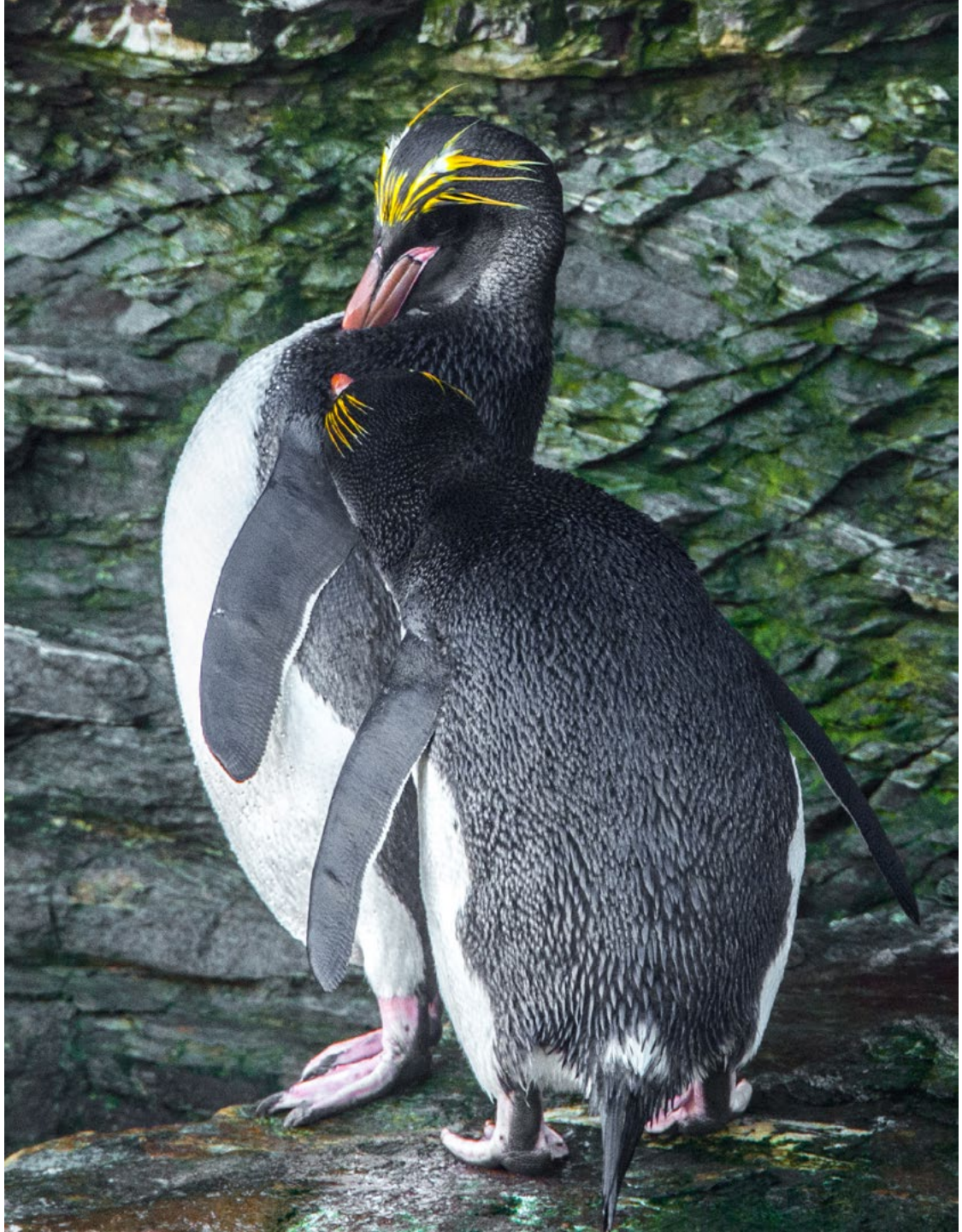
Left: Godthul. © Hollice Looney. Middle: Grytviken. © Paul Steeves. Right: Grytviken. © Valdemar Ascencio.

South Georgia Pipit

The endemic South Georgia pipit *(Anthus antarcticus)* once bred throughout the island and its small islets. It is the southernmost "songbird" in the world! Currently its status is "near-threatened" with 3,000–4,000 breeding pairs. Today it is confined to South Georgia's rodent-free offshore islands and islets, but also breeds in the few remaining tussock grass areas of the main island that are isolated from rats by glaciers. The pipit is a species that will benefit greatly from rat removal.

Macaroni Penguin

The most numerous of all the world's penguins, the macaroni penguin *(Eudyptes chrysolophus)* was named for the flamboyant plumage of its golden-orange forehead crest. Mid-18th century British explorers were reminded of an outlandish clothing fashion trend of their day called "macaroni." "Macaroni" was also incorporated into the famous American Revolutionary War tune, "Yankee Doodle" [who] "stuck a feather in his hat and called it macaroni." The phrase was co-opted from a British military tune that was used to mock the disheveled, disorganized and "naive" "Yankees" the British served with in the French and Indian War. Researchers estimate that upwards of 11 million breeding pairs of macaroni penguins populate the Southern Ocean. While the breeding numbers of the species are still relatively high, researchers have noticed an alarming decline in the population.This is possibly due to climate change and its effect on penguin food supplies, or competition from other penguins and fur seals—krill being the major component of their diet. Macaroni penguin numbers on South Georgia have dropped by 50% in the past 25 years from 4 million pairs to 2 million pairs.



Other Birds and Wildlife

In addition to many iconic species, South Georgia is home to a great variety of smaller birds, some tricky to identify and several—whose numbers are in the millions—flying to and from their islet burrows during the night. These "nocturnal" seabirds are among the most vulnerable to rat predation on the island. They include Antarctic prion *(Pachyptila desolata)*, blue petrel *(Halobaena caerulea)*, common and South Georgia diving petrel *(Pelecanoides urinatrix* and *P. georgicus)*, Wilson's storm-petrel *(Oceanites oceanicus)* and white-chinned petrel *(Procellaria aequinoctialis)*, plus a host of rarer species.

Larger, and easier to see, bird species include South Georgia (yellow-billed) pintail *(Anas georgica)*, chinstrap penguin *(Pygoscelis antarcticus)*, black-browed and grey-headed albatross *(Thalassarche melanophrys* and *T. chrysostoma)*, Cape (pintado) petrel *(Daption capense)*, snow petrel *(Pagodroma nivea)*, northern and southern giant petrel *(Macronectes halli* and *M. giganteus)*, South Georgia shag *(Phalacrocorax georgianus)*, brown (Antarctic) skua *(Stercorarius antarcticus)*, kelp gull *(Larus dominicanus)* and Antarctic tern *(Sterna vittata)*. All of these birds suffer, to one degree or another, from direct rat predation on chicks and eggs or from habitat destruction of tussock grass and other plants from grazing reindeer.

Reindeer were introduced to South Georgia in the early 20th century by Norwegian whalers as a supply of fresh meat and for sport hunting. Adapted

Introduced reindeer, Ocean Harbour. © Steven Shaw

to an Arctic environment, the reindeer thrived on this island without predators. The reindeer damaged large areas, destroying bird breeding habitat by eating cover vegetation for nests and chicks. Most reindeer have been removed from South Georgia—some taken to the Falkland Islands to establish a breeding stock and others harvested for their meat—and they will be completely gone from the island as of late 2014.

It is estimated that with the eradication of rats and the removal of introduced reindeer, the bird population on South Georgia could swell by 100 million birds in time.

South Georgia shags. © Paul Steeves

South Georgia shags. © Sam Schaen

Antarctic tern. © Christian Peter

Top: South Georgia (yellow-billed) pintail. © Brian Jones
Bottom: Brown (sub-Antarctic) skua. © Robert McRae

This page: Black-browed albatross. © Christian Peter
Next page: Cape (pintado) petrels. © Ellie Van Os

Clockwise from top left: Southern giant petrel. © Joycee Smith
Southern giant petrel. © Christian Peter
Northern giant petrel. © Paul Steeves
Brown (sub-Antarctic) skua. © Kenneth Kelly

South Georgia Landscape

Drygalski Fjord. © Ellen Goff

This page: Near Drygalski Fjord. © Raymond Juncosa
Next page: Risting Glacier, Drygalski Fjord. © Paul Steeves

Left: Bull kelp. © Francoise Delepine-Alain Lenartz
RIght: Landscape above Stromness. © Steve Pelton

Near Grytviken. © Christian Peter

Near Stromness. © Raymond Juncosa

Near Grytviken. © Andrew Lerman

Risting Glacier, Drygalski Fjord. © Steve Pelton

Landscape above Jason Harbour. © Andrew Lerman

Cooper Bay. © Raymond Juncosa

How you can help

DONATE

Visit one of these two websites to make a donation to the South Georgia Habitat Restoration project:

- UK and World Residents outside the United States: www.sght.org
- US Residents*: www.fosgi.org

*A 501(c)(3) charitable organization has been set up in the US, so your contributions may be tax deductible.

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