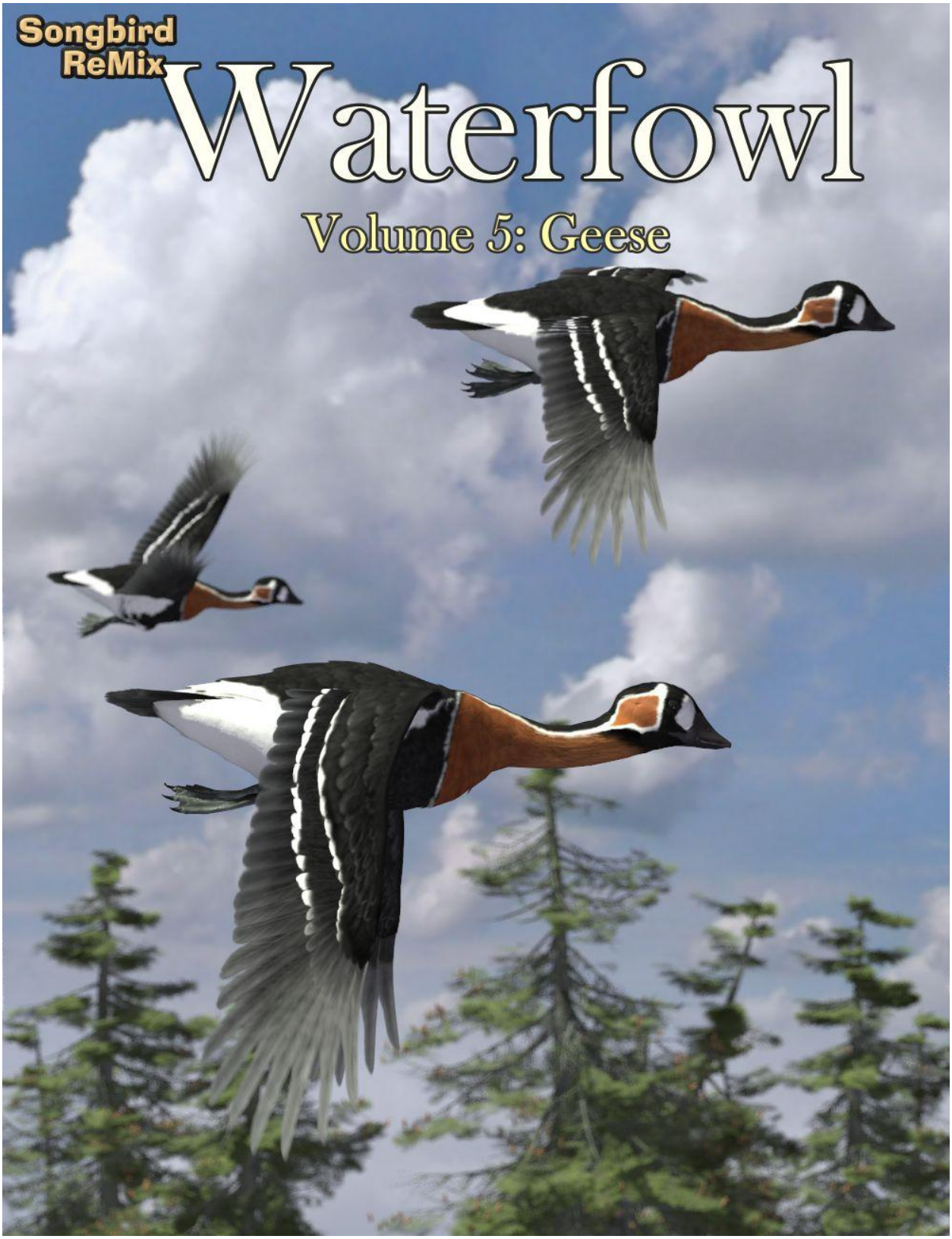

Avian Models for 3D Applications

Characters and Texture Mapping by Ken Gilliland

Songbird ReMix

Waterfowl: Geese

Contents

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Songbird ReMix

Waterfowl: Geese

Introduction

Many people associate geese with popular sayings such as “your goose is cooked” (a setback or misfortune), a “wild goose chase” (useless, futile waste of time and effort), getting “goosed” (a grab on the rear end) or “What is good for the goose is good for the gander” (an appropriate treatment for one person is equally appropriate for someone else).

So what is a goose and a gander? The term ‘goose’ applies to the female in particular, while ‘gander’ applies to the male in particular. The young are called ‘goslings’.

There are three main families of Geese; *Anser* (gray geese), *Branta* (black geese) and *Chen* (white geese). Some other waterfowl, mostly related to the shelducks, have "goose" as part of their names.

Songbird ReMix Waterfowl: Geese include many of the most popular species found throughout the world from all three families of gray, black and white geese.

Overview

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):
  - **Waterfowl (Order Anseriformes)**
- **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. With 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**. **Note:** 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 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.

Where to find your birds

Type Folder	Bird Species
Waterfowl (Order Anseriformes)	Pink-footed goose Swan goose Bar-headed goose Ross's (or White) Goose Brant Goose or Dark-bellied Brant Barnacle goose Red-brested Goose Nēnē or Hawaiian Goose Cape Barren goose Snow Goose Blue-winged Goose Orinoco goose

Where to find your poses

Type Folder	For what species?
Waterfowl (Order Anseriformes)	All Geese

Morphs and their Use

All Songbird ReMix models have morphs that change the look of the loaded model to achieve additional movements and expressions that joint movements can't achieve. These are referred to in the Songbird ReMix model as "Action Morphs". Other morphs that are included can subtly or sometimes dramatically, alter the model to resemble specific waterfowl species. These morphs are referred to as "Creation Morphs".

Here is a brief explanation of where the morphs are found and what they do:

BODY section:

- **Action Morphs**
  - **Common Controls**
    - BillOpenClose- Controls the opening and closing of the bill
    - EyesFwdBack - Controls the forward and backward movement of the eyes
    - EyesUpDwn - Controls the up and down movement of the eyes
    - EyeLidsCloseOpen - Controls the opening and closing of both eyelids
    - Unspread (left and right) Feet- Brings the webbed feet to a folded position (as they'd be, for instance in flight).
    - WingsFold- Puts both Wings into a folded position. The control activates the CoverWingFold fluff morph.
  - **Wing and Tail Controls**
    - These controls allow both wings and each individual wing to perform numerous wing actions and also the Tail feather actions like fanning, cupping and bending.
  - **Neck Bending**
    - These controls allow global bending, twisting and moving side–to-side of the seven neck sections. Partial bending controls can also be found in each individual neck section.
  - **Head Controls**
    - Exp-Smile- Creates a smile expression
    - Exp-Frown- Creates a frown expression
    - **Bill Movement Section**- has individual controls for upper and lower mandibles. The BillOpenClose uses both of the morphs in this section and these morphs *will NOT work* unless BillOpenClose is set to 0.
    - **Eyelid Movement Section**- has individual controls for upper and lower eyelid on both eyes, as well as EyeWink controls for both eyes. The EyeWink controls use the upper and lower eyelid morphs and the EyeLidsCloseOpen control uses BOTH EyeWink controls.
    - **Tongue Movement Section**- various morphs control the movement of the tongue.
  - **Fluff Morphs**
    - CrestLength- Controls the Length of the crest (top of bird's head)
    - CrestFrontUp- Pulls the forehead part of the crest forward/up
    - CrestTopUp- Pulls the middle part of the crest forward/up
    - CrestBackUp- Pulls the back part of the crest forward/up
    - JowlFluffOut- Pulls the feathers under the eye area (jowls) out.

        - ThroatFluff- Pulls the feathers on the throat area out.
        - Back Ruffle- Ruffles the transparency feathers on the back of the bird
        - BreastFluff- Controls the transparency feathers on the breast of the bird
        - ThighFluff- Controls the transparency feathers on both thighs of the bird
        - RumpTopFluff- Controls the transparency feathers on the topside rump/tail of the bird
        - RumpBtmFluff- Controls the transparency feathers on the underside rump/tail of the bird
        - RumpSidesFluff-Reduces the Fluff on the sides of the rump
        - **Fluff Over Folded Wings**
            - CoverWingFold- Moves Breast and Flank Fluffs to partially cover the lower edge of the folded wings. It is automatically turned on with the WingsFold control. You can also turn off this control by dialing it to -1.
            - FlankFluffOut- Pulls the feathers on the flanks (below each wing) out.
            - FlankFluffExpand- Enlarges the Flank Feathers to better hide the folded wing edges (see Tutorial)
            - FlankFluffDroop- Droops Flank Feathers
            - PullTopFlankFeathers & 2- Pulls tops of Flank Feathers in and out
        - **Fluff Under Folded Wings**
            - TuckAllFluff- Tucks all Fluff Controls found in this section under the wings
            - TuckBreastFluff- Tucks Breast Fluff sides in under the wings
            - TuckBackFluff- Tucks Back Fluff sides in under the wings
            - TuckFlankFluff- Tucks Flank Fluff sides in under the wings
            - TuckRumpFluff- Tucks Rump Fluff sides in under the wings
    - **Correction Morphs**
        - Adj-BackHeadIn- This control brings the back of the neck and head in; especially useful when the head is stretched out for flight.
        - Adj-ThroatIn- This control thins the throat; especially useful when the head is stretched out for flight.
        - Adj-BHLRemove- fills a dip in the back of the head that might occur in some poses, especially when the head is stretched out for flight.
        - Adj-RumpThinner- thins the Rump, hip and tail sections to prevent folded wing intersections that might occur in some poses.

- **Creation Morphs**
    - NeckLength- Allows retracting and extending of the neck.
    - LegLength- Allows lengthening of the legs.
    - ThinnerNeck- Allows thinning of the neck.
    - StubbyTalons- Decreases or increases the length of the talons on the webbed feet.
    - BreastCrease- Creates a center crease on the breast.
    - RumpTopWidth- Controls the transparency feathers on the topside rump/tail of the bird width.
    - RumpBtmExtend- Controls the transparency feathers on the underside rump/tail of the bird length.
    - RumpSleeker- Controls the size of the rump.
    - RumpShorten- ZScales the length of the Rump

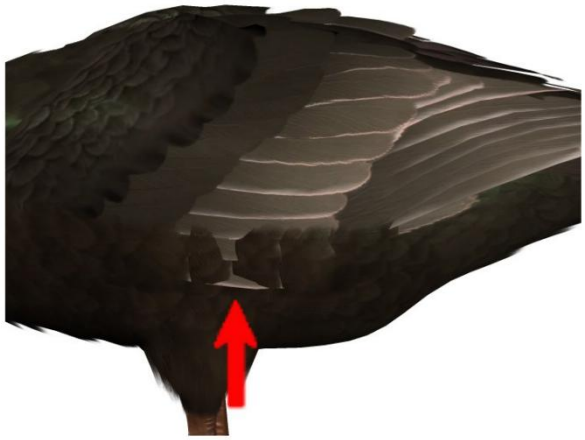
- Nene Feet- Shapes the shape of the feet
- Hide WD Material- Hides the "Wood Duck" crest materials
- **Species Shapes**- These morphs create very specific looks to resemble certain species of waterfowl.
- **Head Shaping**
  - **Head Shapes**- These morphs control the shape of the head.
    - Hd-BrowsOut- Pulls the area above each eye outwards.
    - Hd-BackSq- Adds mass to the back of the Head.
    - Hd-BackDown- Lowers the back of the Head.
    - Hd-CrownUp- Raises the Crown of the Head.
    - Hd-ForeheadLow- Reduces the forehead extending to the bill.
    - Hd-ForeheadFwd- Adds to the forehead extending to the bill.
    - Hd-ForehdCtrOut- Adds to the forehead center between the bill.
    - Hd-JowlsExpand- Expands the cheeks of the duck.
    - Hd-HideEar- Removes the ear holes.
  - **Eye Shapes**- These morphs can change the appearance of the eyes.
    - EyesDilate- Controls the pupil size of the eyes
  - **Bill Shapes**- These morphs can change the appearance of the bill.
    - Bill-Length- Controls the length of the entire bill.
    - Bill-UprLength- Controls the length of the upper bill.
    - Bill-LwrLength- Controls the length of the lower bill.
    - Bill-Point- Brings the end of the bill to a point.
    - Bill-Merganser- Creates the narrow bill of a Merganser.
    - Bill-Scaup- Creates the bill of a Scaup.
    - Bill-Scoter- Creates the bill of a Scoter.
    - Bill-Shoveler- Creates the bill of a Shoveler.
    - Bill-Raise Upper- Raises the upper bill.
    - Bill-Slope- Adds or reduces the slope of the upper bill.
    - Bill-TipFoward- Extends the center portion of the tip of the upper bill.
    - Bill-TipBulb- Creates a bulbous tip on the upper bill.
    - Bill-TipBulbTop- Makes the bulbous tip on the upper bill more pronounced.
    - Bill-TipHook- Creates a stronger hook on the upper bill.
    - Bill-NoseBridge- Lessens the slope of the bill to the forehead.
  - **Nostril Shapes**
    - Nostril-Fwd- Moves the nostrils on the bill forward.
    - Nostril-Size- Controls the size of the nostrils on the bill.
    - Nostril-Ridge- Adds a ridge to the nostrils on the bill.
    - Nostril-Slit- Creates slit-shaped nostrils on the bill.
    - Nostril-Tear- Creates tear-shaped nostrils on the bill.
  - **Tongue Shapes**
    - Tng-Length- Controls the length of the tongue.
    - Tng-Width- Controls the width of the tongue.
- **Wing Shapes**- These morphs control the shape of the wings.
  - WingSpan- Allows control of Wing Length
  - WingsPoint- Brings the tips of the wings to a point

- lWingSpan- Brings the tip of the left wing to a point
- rWingSpan- Brings the tip of the right wing to a point

- **Tail Shapes**- These morphs control the shape of the tail feathers
  - Round- Rounds the Tail feathers.
  - Length- Controls the length of the Tail feathers.
  - Width- Controls the width of the Tail feathers.
  - PointEnds- Makes Tail feathers have pointed ends.
  - SquareEnds- Makes Tail feathers have square ends.
- **Scale**- Controls the size of the model

Working with Fluff Controls

In this example we see that the Flank Fluffs haven't adequately covered the folded wings. To correct this, go under the **"Feather Fluff Controls"** and select the **"FlankFluffExpand"** morph.



Songbird ReMix

Waterfowl: Geese

Field Guide

Arctic Circle
Brant Goose or Dark-bellied Brant
Barnacle Goose

Europe, Asia and Africa
Pink-footed Goose
Swan Goose
Bar-headed Goose
Red-breasted Goose
Blue-winged Goose

The Americas
Ross's (or White) Goose
Snow Goose
Orinoco Goose

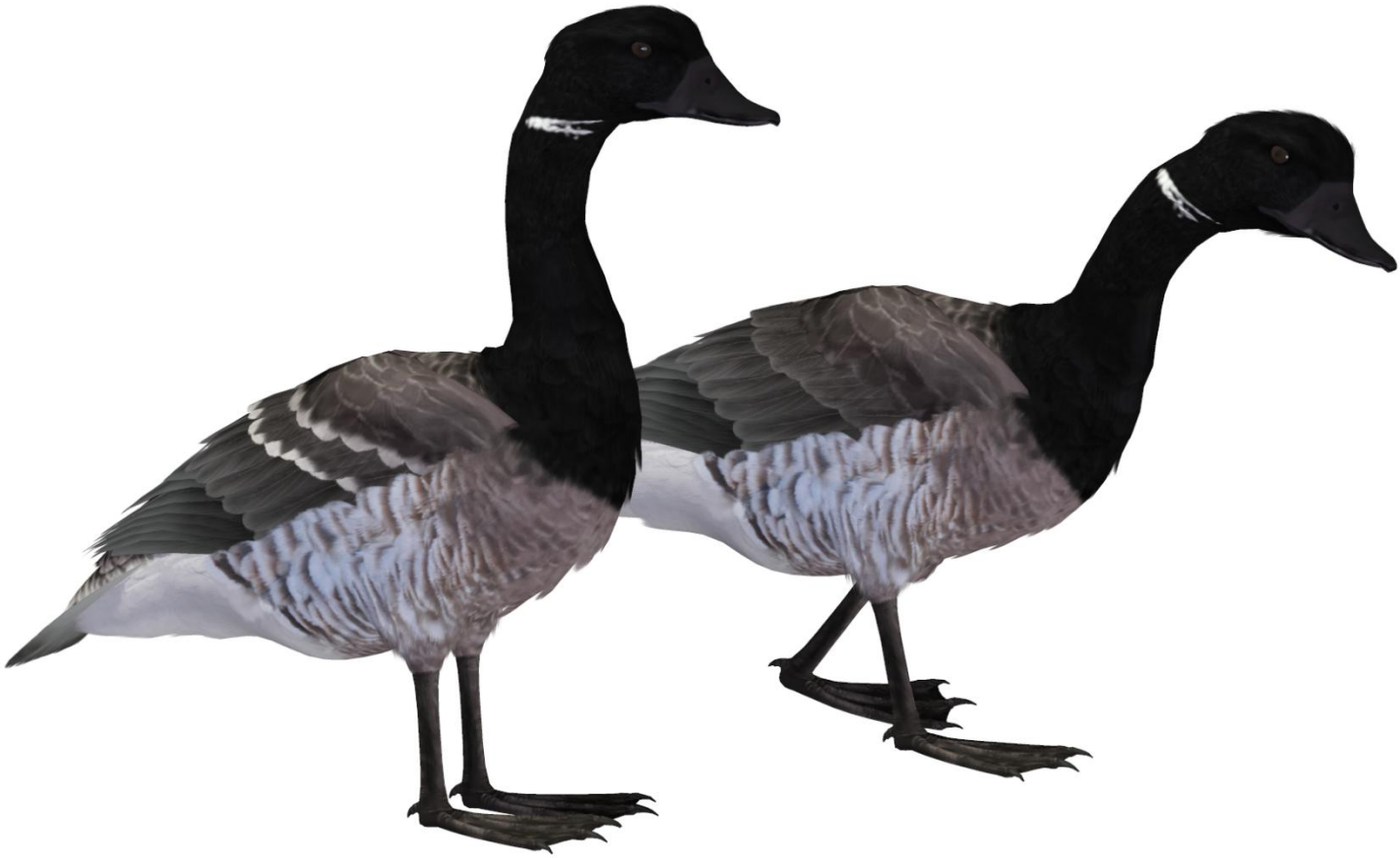
Australia and Oceania
Cape Barren Goose
Nēnē or Hawaiian Goose

Common Name: Brant Goose or Dark-bellied Brant
Scientific Name: *Branta bernicla*

Size: 22-26 inches (55-66 cm); Wingspan: 41.4-47.6 inches (106-121 cm)

Habitat: Arctic Circle; breeds in Scandanavia, Northern England, Ireland, Greenland, Canada and the Northern United States,and Siberia. It winters in Northern Europe, mid-Altantic and west coastal United States and Japan.

It prefers low-lying wet coastal tundra for both breeding and feeding, but in recent years, has moved short distances inland to agricultural areas rich in grasses and cereal-based crops.



Status: Least Concern. **Global population:** 560,000-650,000 adult individuals. The overall population trend is uncertain, as some populations are decreasing, while others are stable, have unknown trends or are increasing.

On the east coast of North America, the inclusion of sea lettuce, a recent change to their diet, was brought about by a 1931 blight on eelgrass, which had resulted in the near extermination of the Brant. The few that survived changed their diet to include sea

lettuce until the eelgrass eventually began to return. Brants have maintained this diet ever since as a survival strategy.

The brant goose is one of the species to which the Agreement on the Conservation of African-Eurasian Migratory Waterbirds applies.

Diet: Herbivorous; feeds on eel-grass (*Zostera marina*) and the seaweed, sea lettuce (*Ulva*). In recent decades, it has started using agricultural land a short distance inland, feeding extensively on grass and winter-sown cereals.

Nesting: Sexes are alike. The body of the Dark-bellied Brant is a fairly uniform dark gray-brown, with the flanks and belly not significantly paler than the back. The head and neck are black, with a small white patch on either side of the neck. It breeds on the Arctic coasts of central and western Siberia and winters in western Europe, with over half the population in southern England, the rest between northern Germany and northern France.

The Pale-bellied Brant's has a black head, neck and breast, with dark-brown upper-parts, which present a marked contrast with the flanks and belly which are significantly paler. The head and neck are black, with a small white patch on either side of the neck. It breeds in Franz Josef Land, Svalbard, Greenland and northeastern Canada, wintering in Denmark, northeast England, Ireland and the Atlantic coast of the U.S. from Maine to Georgia.

The Black Brant has a uniformly dark sooty-brown back, similarly colored underparts (with the dark color extending furthest back of the three forms of this bird) and a prominent white flank patch; it also has larger white neck patches, forming a nearly complete collar. It breeds in northwestern Canada, Alaska and eastern Siberia, and winters mostly on the west coast of North America from southern Alaska to California, with some also in east Asia, mainly Japan.

The nest is bowl-shaped, lined with grass and down, in an elevated location, often in a small pond.

Cool Facts: The Brant Goose has the shortest tail of any goose. Brants are long distance migrators. Some fly 3,000 miles from their nesting grounds on the coast of the Arctic Ocean to the coast of Mexico.

The species is divided into three subspecies:

- *B. b. bernicla* (Linnaeus, 1758). The nominate species is known as the Dark-bellied brant.
- *B. b. hrota* (Müller, 1776). Known as the Pale-bellied brant (or the “Atlantic brant” in North America*)*
- *B. b. nigricans* (Lawrence, 1846). Known as the Black brant (or the “Pacific brant” in North America)

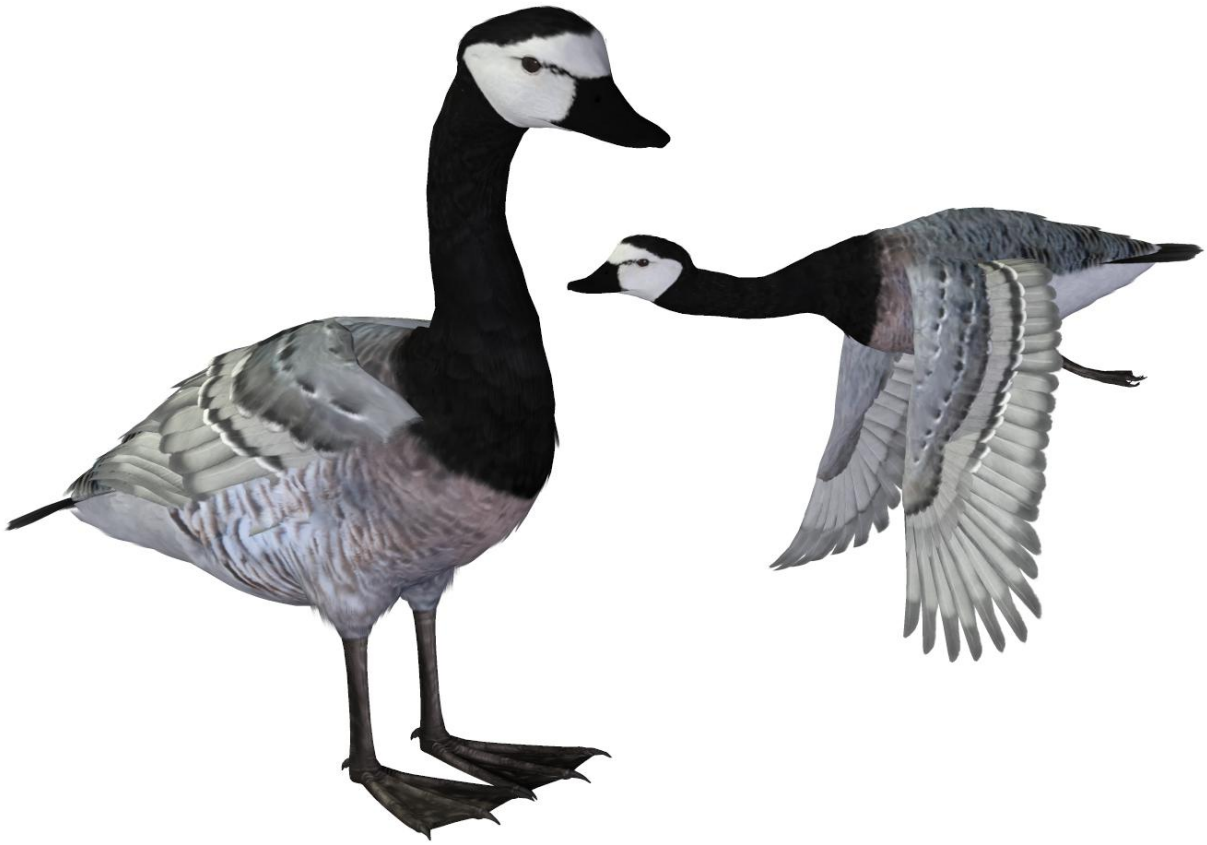
Common Name: Barnacle Goose
Scientific Name: *Branta leucopsis*

Size: 22-28 inches (55-70 cm); Wingspan: 51-57 inches (130-145 cm)

Habitat: Arctic Circle; breeding mainly on the Arctic islands of the North Atlantic. There are four populations, with separate breeding and wintering ranges; from west to east.

- Breeding in eastern Greenland, wintering on the Hebrides of western Scotland and in western Ireland.
- Breeding on Svalbard, wintering on the Solway Firth on the England/Scotland border.
- Breeding on Novaya Zemlya, wintering in the Netherlands.
- Breeding on the islands and coasts of the Baltic Sea (Estonia, Finland, Denmark, and Sweden), and wintering in the Netherlands.

Status: Least Concern. **Global population:** 880,000 adult individuals. The overall trend is suspected to be increasing. Today, the species is fully protected throughout its



range, although adults, eggs and down were once exploited by humans. The species faces possible threats from persecution (disturbance) by farmers as in winter it favors grasslands and pastures used for grazing livestock. The species also suffers from nest predation by the Arctic fox.

Diet: Mostly herbivorous; grasses, sedge, roots, moss and herbs. When vegetarian fare is not available; crustaceans, insects and small fish are taken.

Nesting: This goose has a white face and black head, neck, and upper breast. Its belly is white. The wings and its back are silver-gray with black-and-white bars. During flight a V-shaped white rump patch and the silver-gray under-wing linings are visible.

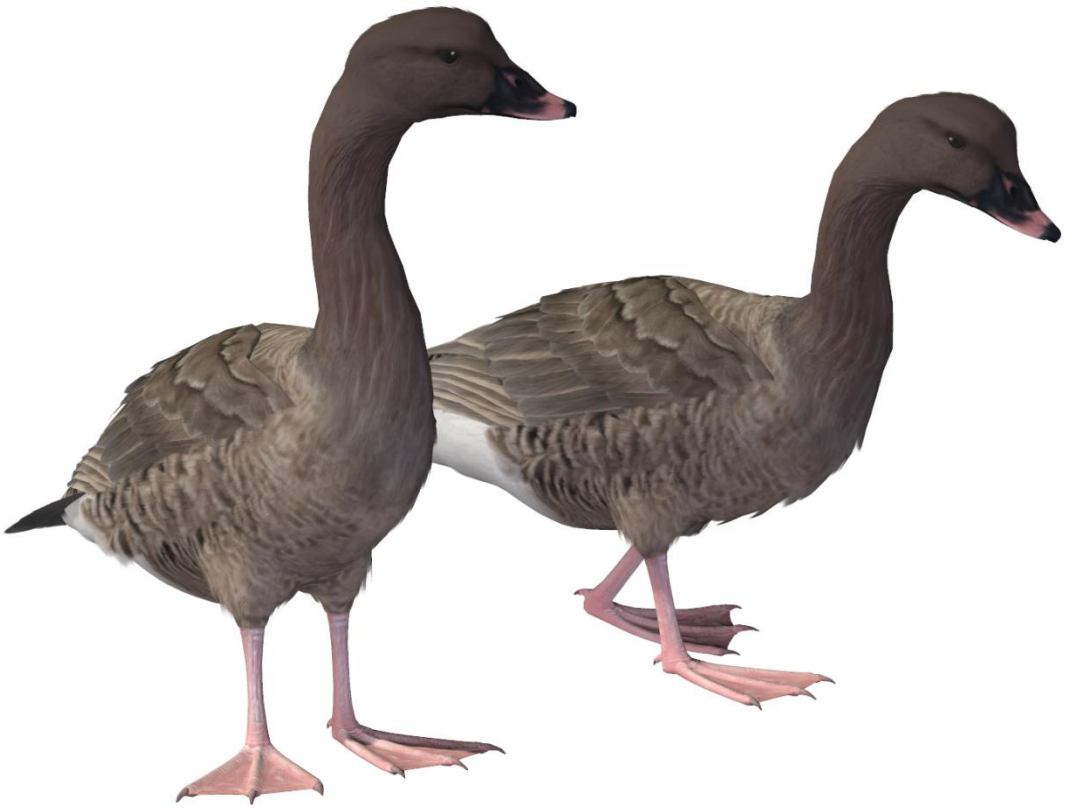
Barnacle geese frequently build their nests high on mountain cliffs; away from predators (primarily Arctic foxes and polar bears) but also away from food. Like all geese, the goslings are not fed by the adults. Instead of bringing food to the newly hatched goslings, the goslings are brought to the ground. Unable to fly, the three-day-old goslings jump off the cliff and fall; their small size, feathery down, and very light weight helps to protect some of them from serious injury when they hit the rocks below, but many die from the impact.

Cool Facts: The “barnacle” naming can be dated back to at least the 12th century when Gerald of Wales claimed to have seen these birds hanging down from pieces of timber, creating the legend that Barnacle geese were born out of driftwood. William Turner, the famous English naturalist, accepted the theory, and John Gerard, a noted botanist, claimed to have seen the birds emerging from their shells. These inaccurate theories and myths continued until they were disproven at the end of the 18th century. In County Kerry, until relatively recently, Catholics could eat this bird on a Friday because it counted as fish.

Common Name: Pink-footed Goose
Scientific Name: *Anser brachyrhynchus*

Size: 24-30 inches (60-75 cm); Wingspan: 53–67 inches (135–170 cm)

Habitat: Arctic Circle & Europe; this species is fully migratory between its separate breeding and wintering grounds. It breeds from mid-May to late-June or early-July in territorial pairs which may form loose colonies of about ten pairs. After breeding, the species undergoes a flightless molting period in July and August that lasts for about 25 days. During this period, it remains close to open water. Icelandic non-breeding flocks migrate to staging areas in east Greenland to molt, whereas breeding birds from Svalbard, Greenland and Iceland remain near their breeding areas. After molting, the species departs from its breeding and staging grounds from August to mid-September, with most arriving on their wintering grounds in October. Outside of the breeding season, the species remains highly gregarious, generally forming large concentrations (commonly up to 5,000 in the UK) in the autumn and winter. These aggregations are usually loose however, with large roosting flocks dispersing into smaller foraging groups by day. During the winter the species roosts on water by night and forages in nearly all hours of daylight.



The species breeds on rocky outcrops, crags, steep river gorges, cliffs, riverbanks and snow-free hummocks near areas of lush vegetation in open arctic tundra (especially near seabird colonies). Later in the summer the species forages chiefly on damp sedge-meadows, and while molting and flightless it remains close to the sea, or early-thawing lakes. The species winters on extensive areas of saltmarsh, in estuaries and on flat agricultural land.

Status: Least Concern. **Global population:** 410,000 individuals. The overall trend is suspected to be increasing. The species is hunted illegally in the spring in Iceland which may become a threat. Disturbance from hunting on spring staging grounds in Norway has major negative impact on breeding success, and persecution (shooting and disturbance) of the species by farmers is likely to increase in the future if populations increase (due to the species's impact on agricultural grassland). It may be threatened by land-management changes (such as a reduction in the intensity of management and land abandonment), and by future habitat loss such as the development of hydroelectric projects on interior rivers in Iceland.

The pink-footed goose is one of the species to which the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) applies.

Diet: Herbivorous; during breeding season, its diet consists of the leaves, stems, roots, berries and seed-heads of sedges, mosses, lichens and grasses. In its wintering areas, the species is more reliant on grass, grain, vegetables such as carrots, sugar beets and potatoes grown on farm land.

Nesting: Sexes are alike. It has a short bill, bright pink in the middle with a black base and tip, and pink feet. The body is mid-gray-brown, the head and neck a richer, darker brown, the rump and vent white, and the tail gray with a broad white tip. The upper wing-coverts are of a somewhat similar pale bluish-gray as in the greylag goose, and the flight feathers blackish-gray.

The nest is a low mound of vegetation on cliffs, rocky outcrops or snow-free hummocks often near seabird colonies. The species nests in territorial pairs which may from loose colonies. Neighboring nests can be spaced as little as 5 m apart but are usually more than 75 m apart .

Cool Facts: There are two largely discrete populations of pink-footed goose. The Greenland and Iceland population winter in Great Britain, while the Svalbard population winters in the Netherlands and Denmark, with small numbers also in Norway (where it is common on migration), northern Germany, and Belgium.

Studies in the Vejlerne nature reserve in Denmark found that wind turbines placed in lines or small clusters cause less disturbance to the species than large clusters (small clusters may be placed in conjunction with existing physical elements such as roads, wind-breaks or buildings, and are therefore less likely to coincide with grasslands areas used for grazing by the species).

The Pink-footed goose was one of the “grail” birds in the movie, “The Big Year”. It’s sighting within the movie is actually a goof; the North Atlantic species does occasionally wander from its European breeding range to the Northeastern coastal states, but it has never been seen as far west as Colorado as shown in the film.

Common Name: Swan Goose
Scientific Name: *Anser cygnoid*

Size: 31-37 inches (81-94 cm); Wingspan: 63-73 inches (160-185 cm)

Habitat: Asia; it breeds in Russia, Mongolia and mainland China. It winters in North Korea, South Korea, central China, and occasionally in Japan and Taiwan (China).

It breeds in wetlands in the steppe and forest-steppe zones, including river deltas, river valleys with meadows, the margins of brackish and freshwater lakes, and in mountainous areas along narrow, fast-flowing rivers. In winter, it occurs in lowland lakeside marshes, rice-fields, estuaries and tidal flats. Recent research involving the satellite tagging of individuals has revealed that birds migrate in stages, stopping at a number of sites en route between breeding and wintering grounds. Birds gather in large flocks to molt in late July prior to migration.

Status: Vulnerable. **Global population:** 60,000-90,000 adult individuals. Substantial declines have been observed in the population of this species in parts of its breeding

range in eastern Russia and Mongolia, as well as its wintering areas in China. The global population is suspected to have decreased rapidly, in line with levels of hunting and wetland conversion for agriculture and development, with both of these threats operating on the breeding and wintering grounds. An increase in the population estimate following surveys in January 2011 is unlikely to represent an actual increase in the population.

It is legally protected in Russia, Mongolia and South Korea and some provinces in China. Several important sites are protected in Russia, Mongolia and China.

Diet: Herbivorous; birds wintering at Shengjin Lake, China, have been observed feeding on below-ground tubers of *Vallisneria asiatica* and above-ground vegetation of sedges *(Carex spp.)* and canary grass *(Phalaris arundinacea)*.

Nesting: A large goose with bi-colored neck and an all black bill. It has a dark brown crown, nape and hind-neck which contrasts strongly with its pale creamy-brownish lower sides of head and fore-neck. The adult has a whitish band from lores across the forehead, bordering base of bill, while juveniles have a duller crown, nape and hind-neck and lack the whitish face-band. Males have a knob on the beak similar to that of the Mute Swan. Females are slightly smaller with shorter bill and neck.

Breeding starts in latter half of April, sometimes not until late May. Hatching mainly occurs in late May to June and most young will have fledged by late August. They pair in winter and are long-term monogamous.

Females builds shallow nest of plant matter on ground, lined with dry grasses and down, and usually sited in dense vegetation. Usually 5–6 white eggs are laid and the incubation is done by the female alone, while the male stands guard. Chicks have yellowish-buff heads and under-parts with a broad blackish eye-patch and dusky brown upper-parts. Sexual maturity occurs in 2–3 years.

Cool Facts: Its voice is a prolonged, resounding honk, ending at a higher pitch. It gives repeated, short, harsh notes when alarmed.

Common Name: Bar-headed Goose
Scientific Name: *Anser indicus*

Size: 28-30 inches (71–76 cm); Wingspan: 55–62 inches (140–160 cm)

Habitat: Asia; breeds in Central Asia in colonies of thousands near mountain lakes and winters in South Asia, as far south as peninsular India.

The summer habitat is high-altitude lakes where the bird grazes on short grass. The species has been reported as migrating south from Tibet, Kazakhstan, Mongolia and Russia before crossing the Himalaya.

Status: Least Concern. **Global population:** Unknown amount of adult individuals. The population has suffered a severe reduction in numbers owing to over-hunting, unsustainable levels of egg collecting and habitat destruction.

Diet: Herbivorous; feeds on barley, rice and wheat, and may damage crops.

Nesting: Sexes are alike. The bird is pale gray and is easily distinguished from any of the other gray geese of the genus *Anser* by the black bars on its head. It is also much paler than the other geese in this genus.

It lays three to eight eggs at a time in a ground nest.

Cool Facts: The bar-headed goose is one of the world's highest-flying birds, having been heard flying across Mount Makalu – the fifth highest mountain on earth at 8,481 m (27,825 ft) – and apparently seen (unverified) over Mount Everest – 8,848 m (29,029 ft). Bar-headed geese have a slightly larger wing area for their weight than other geese, which is believed to help them fly at high altitudes.

The bar-headed goose has been suggested as being the model for the Kadamb in ancient and medieval Sanskrit literature.

Common Name: Red-breasted Goose
Scientific Name: *Branta ruficolli*

Size: 21-22 inches (53-56 cm); Wingspan: 45.7-53.2 inches (116-135 cm)

Habitat: Eurasia; This species breeds on the Taimyr (70% of the population), Gydan and Yamal peninsulas in Russia. The wintering area then rapidly shifts to the western Black Sea coast, where 80-90% of the birds congregate in January/February at 5-10 roost sites, particularly at Shabla Lakes and Durankulak Lake, Bulgaria, Razelm-Sinoe

lagoons, Romania, and in the coastal area between the rivers Danube and Dniester in Ukraine. Small numbers also winter in Azerbaijan. The precise distribution in winter varies according to the severity of the weather from the Crimean peninsula to the Dobrudzha region of Bulgaria. In cold weather, small numbers are occasionally found on the Aegean shore of Greece and Turkey.

This goose breeds in tundra or scrubby 'wooded' tundra, in close proximity to rivers and gullies. It favors high and dry areas on steep river banks and precipices, low hills, rock outcrops and rocky islands.

Status: Vulnerable. **Global population:** 56,860 adult individuals. Variations in survey intensity and coverage historically makes the determination of current population trends difficult to assess, but data representing a decline of more than 50% since the late 1990s clearly give concern.

Deliberate hunting of birds occurs in Russia and Kazakhstan, and results from a recent tagging study suggest mortality owing to hunting could be very high - possibly up to 40%. Following land privatization, and especially the residential and tourist development boom in winter roosting and feeding areas, the quality of roosting areas has decreased. Climate change and associated habitat shifts are expected to impact negatively on this species and others dependent on tundra habitat for breeding. Modeling indicates that 67% of the habitat for this species could be lost by 2070.

The Red-breasted Goose is one of the species to which the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) applies.

Diet: Herbivorous; feeds on grasses, leaves and seeds.

Nesting: Sexes are alike. An unmistakable red, black and white goose. It has a chestnut-red fore-neck, breast and the sides of the head are bordered white. There is a white flank-stripe and black belly. The rear belly is white and the tail black. Juveniles are generally duller than adults. Its short neck and dark belly stand out in flight.

The species nests in hollows and fissures in the ground, usually 50-80 mm deep and 200 mm in diameter. They are often constructed near to the eyries of birds of prey, since breeding success may depend on nesting Peregrine Falcon, Snowy Owl and Rough-legged Buzzards providing protection from predators like the Arctic Fox and Taimyr Gulls.

The male red-breasted goose stands guard at a distance while the females generally hide on the nest.

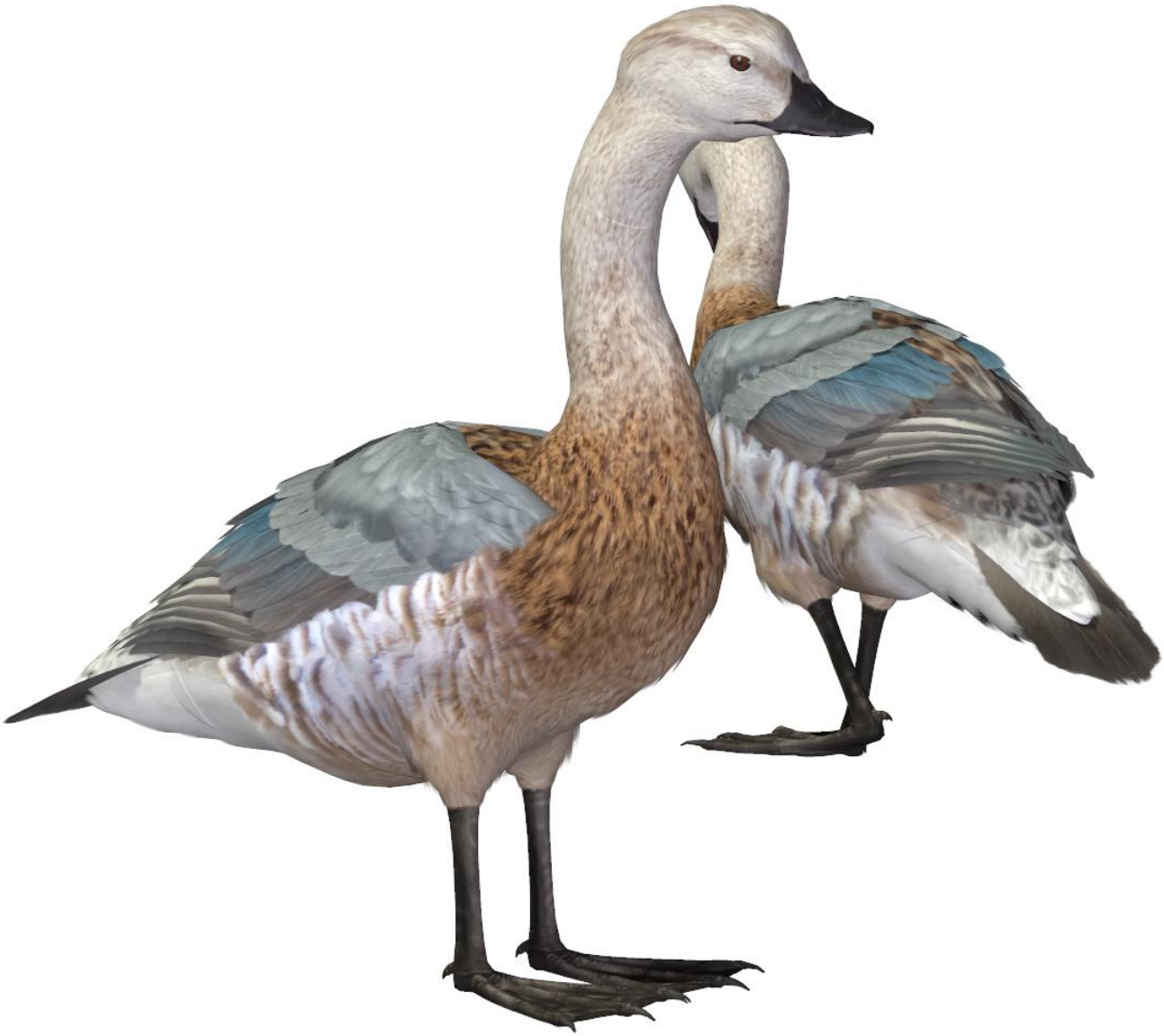
Cool Facts: Successful breeding seasons are also associated with good lemming years, and it has been suggested that this may be because predators are sated by the lemming population and so predation of geese is much lower.

Their call is a repeated, jerky “*kik-yoik, kik-yik”* in flight.

Common Name: Blue-winged Goose
Scientific Name: *Cyanochen cyanoptera*

Size: 28 inches (70 cm); Wingspan: 55 inches (140 cm)

Habitat: Africa; endemic to the highlands of Ethiopia. This species breeds in open Afro-alpine moorland. It winters on the banks of highland rivers and lakes with adjacent meadows of short grass. It is also found at the edges of highland lakes, marshes, bog pools, swamps and streams with abundant grassland surroundings. It is rarely seen in overgrown areas and does not venture into deep water.



Status: Vulnerable. **Global population:** 4,500-10,500 individuals. It is thought to be declining as suitable breeding habitats are lost. Important breeding areas in the Bale Mountains National Park and Guassa Community Conservation Area are protected.

Diet: Mostly herbivorous; grazing on grasses, sedges and other herbaceous vegetation. It is also reported to take worms, insects, insect larvae, freshwater mollusks and even small reptiles.

It feeds by grazing, and is apparently largely nocturnal, loafing during the day. It can swim and fly well, but this terrestrial bird is reluctant to do either, and is quite approachable.

Nesting: This is a stocky grey-brown bird with a slightly paler head and upper neck. It has a small black bill and black legs. In flight, this species shows a pale blue fore wing. Sexes are similar, but immature birds are duller.

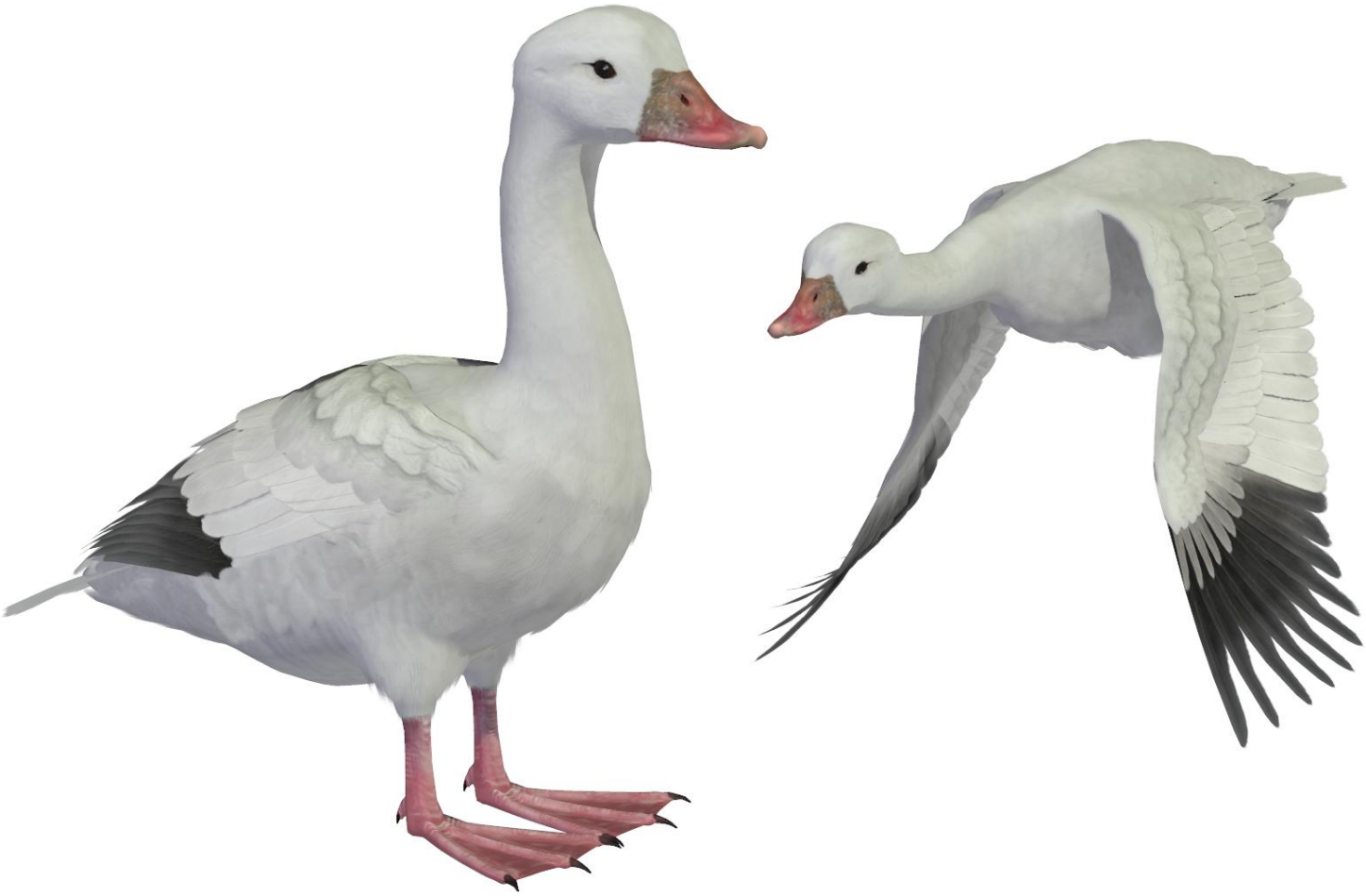
They breed during the dry season months of March-June, and break into dispersed single pairs or small groups. The nest is built on the ground concealed in the vegetation.

Cool Facts: The relations of this species among the waterfowl is unresolved. It is morphologically close to shelducks, and particularly the South American sheldgeese, which have highly similar courtship displays. However, the DNA sequence analysis indicates that it might belong to a very distinct and ancient "duck" family (Hartlaub's duck). The wing color pattern, a good morphological indicator of evolutionary relationships in waterfowl, is similar in these two species, and very different from any other waterfowl.

Common Name: Ross's (or White) Goose
Scientific Name: *Anser rossii*

Size: 22.4-25.2 inches (57-64 cm); Wingspan: 44.9 inches (114 cm)

Habitat: North America; breeds in northern Canada, mainly in the Queen Maud Gulf Migratory Bird Sanctuary, and winters much further south in the continent in the southern United States and occasionally northern Mexico.



Status: Least Concern. **Global population:** Unknown amount of adult individuals. This species has undergone a large and statistically significant increase over the last 40 years in North America (8900% increase over 40 years, equating to a 207% increase per decade.

Diet: Herbivorous; grasses, sedges, legumes, and domestic grains.

Nesting: The plumage of this species is all-white except for black wing tips. It has a stubby pink bill and legs. A very rare “Blue morph” can occur. This morph is mostly gray-brown with a white head and white under the tail. The flight feathers are also edged with white in this morph. Both morphs can be confused with the Snow Goose. The Snow Goose is larger with a bigger bill and has a black line along the lower bill.

The nest is a scrape in the ground lined with plant material and down feathers. 2-6 white eggs are laid. The female Ross's Goose does all of the incubation of the eggs. The male stays nearby and guards her the whole time. The female covers the eggs with down when she leaves the nest. The down keeps the eggs warm while she is away and may help hide them from predators.

Cool Facts: This species is named in honor of Bernard R. Ross, a Hudson's Bay Company factor at Fort Resolution in Canada's Northwest Territories.

Prior to the 1950s the Ross's Goose was confined to well-defined breeding and wintering areas, with few seen as strays. Since that time the species has been expanding eastward, both on the breeding and wintering grounds. The change in breeding distribution has resulted in more contact and subsequent hybridization with the Snow Goose.

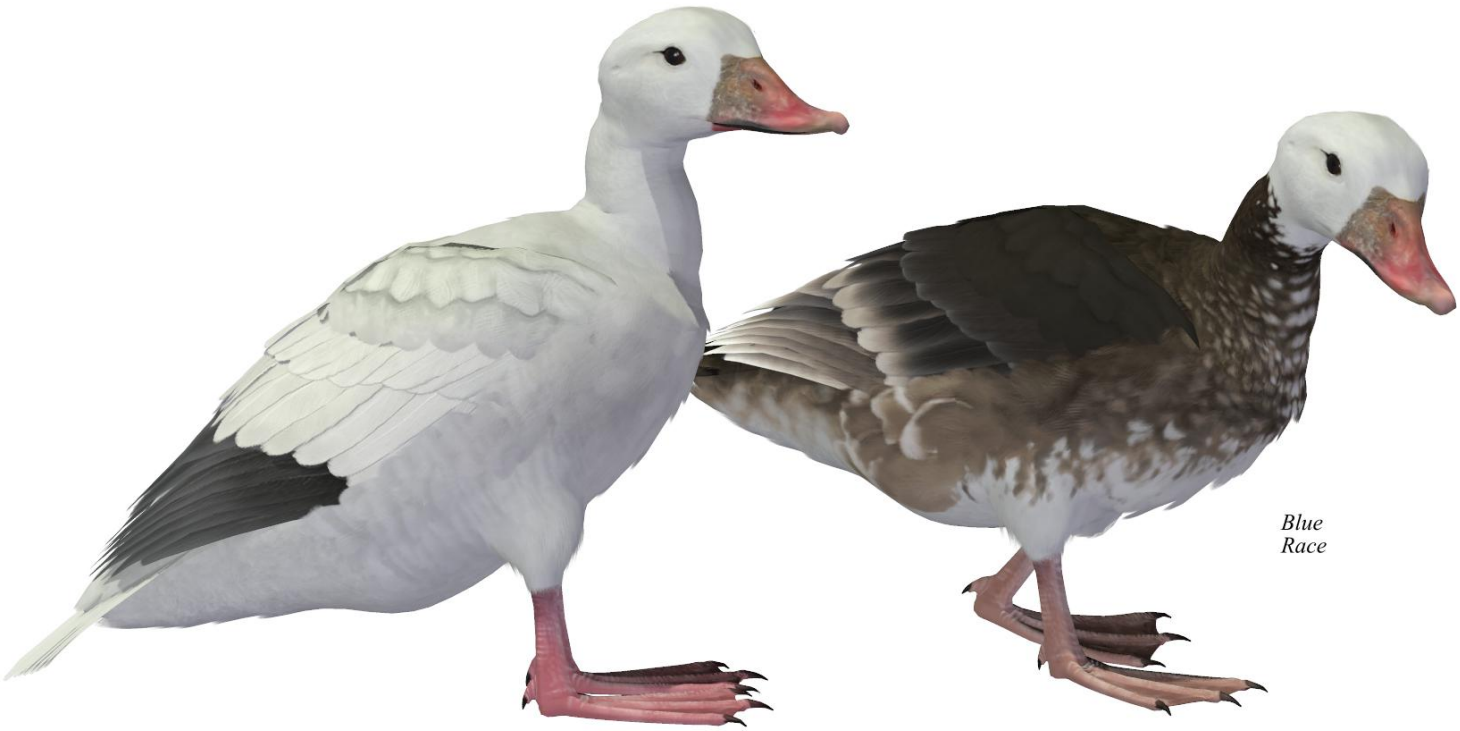
Common Name: Snow Goose
Scientific Name: *Chen caerulescens*

Size: 27.2-32.7 inches (69-83 cm); Wingspan: 54.3 inches (138 cm)

Habitat: North America; breed in colonies on Canadian and Northern Alaskan tundra in the vicinity of the coast, from the high arctic to the subarctic. They winter on all four of the North America flyways; California and the American southwest, Mexico, along the Mississippi, and New England.

They have adapted quickly to use agricultural fields, which is one reason their populations are doing so well. During winter and migration, they are found in plowed cornfields or wetlands. They are also found in lakes, ponds, and marshes where they roost and bathe along shorelines and in open water.

Status: Least Concern. **Global population:** Unknown amount of adult individuals. Snow Goose hunting in the eastern United States was stopped in 1916 because of low population levels. Hunting was allowed again in 1975 after populations had recovered. Since then, their populations have continued to grow, to the point that some areas of tundra nesting habitat are starting to suffer. Snow Geese have skyrocketed in numbers and are now among the most abundant waterfowl on the North American continent. About 400,000 Snow Geese are now hunted annually in the U.S. and Canada. Like many waterfowl, Snow Geese can suffer from lead poisoning when they ingest fallen lead shot while foraging. This problem can be reduced by switching to steel shot or



other non-toxic ammunition.

Diet: Herbivorous; grasses, sedges, rushes, forbs, horsetails, shrubs, and willows. They will consume nearly any part of a plant—including seeds, stems, leaves, tubers, and roots—either by grazing, shearing plants off at ground level, or ripping entire stems from the ground. In winter and during migration they also eat grains and young stems of farm crops, along with a variety of berries. Goslings may eat fruits, flowers, horsetail shoots, and fly larvae.

Nesting: A medium-sized goose with a hefty bill and long, thick neck. It is all white except for black wingtips that are barely visible on the ground but noticeable in flight. The pink bill has a dark line along it, often called a "grinning patch" or "black lips" (the space between cutting edges of mandibles). The Ross Goose can be confused with the Snow Goose, but the Snow Goose is larger and has the ‘grinning’ line. There is a dark morph Snow Goose, which is called a "Blue Goose". It has a white face, dark brown body, and white under the tail. This morph is common in the nominate race.

Juveniles are slightly smaller than adults in the fall, and this can be noticeable in flocks during fall and early winter.

The creamy white eggs of Snow Geese stain easily. People can sometimes tell what order the eggs were laid in, just by the color of the shells (the dirtiest shells belong to the oldest eggs). Snow Geese chicks are well developed when they hatch, with open eyes and down-covered bodies that already show whether the adult will have white or dark plumage. Within a few days they are able to maintain a constant body temperature on their own. They grow very quickly, with the males outpacing the females. Within the first three weeks of hatching, goslings may walk up to 50 miles with their parents from the nest to a more suitable brood-rearing area. Molting Snow Geese can outrun many predators.

Cool Facts: The dark color of the blue morph Snow Goose is controlled by a single gene, with dark being partially dominant over white. If a pure dark goose mates with a white goose, the offspring will all be dark (possibly with white bellies). If two white geese mate, they have only white offspring. If two dark geese mate, they will have mostly dark offspring, but might have a few white ones too.

Females forage up to 18 hours a day once they arrive at breeding grounds, but eat little once they begin incubating the eggs.

Food passes through the Snow Goose’s digestive tract in only an hour or two, generating 6 to 15 droppings per hour. The defecation rate is highest when a goose is grubbing for rhizomes, because such food is very high in fiber and the goose inevitably swallows mud.

There are two subspecies:

- *A. c. caerulescens* (Linnaeus, 1758) – The nominate race, it is found off North-Eastern Russia, Northern Alaska and North Canada. It winters in the Western and South-central United States and Northern Mexico.
- *A. c. atlanticus* (Kennard, 1927) – Found in North-western Greenland and islands in North Baffin Bay, Canada. It winters in the Central-eastern United States.

Common Name: Orinoco Goose
Scientific Name: *Neochen jubata*

Size: 24-30 inches (61-76 cm); Wingspan: 53–67 inches (135–170 cm)

Habitat: South America; widespread in South America east of the Andes, from east Colombia and Venezuela, Ecuador, Guyana, Suriname, south through Amazonian Brazil, extreme east Peru, Bolivia and west Paraguay.

It inhabits forest-covered banks of tropical rivers and damp clearings, wet savannas and muddy and sandy margins of large freshwater wetlands, from lowlands to 500 m, occasionally to 2,600 m

Status: Near Threatened. **Global population:** 10,000-25,000 adult individuals. The current decline is attributed to heavy and continuing hunting pressure; although availability of foraging habitat may limit numbers locally, the abundance of the species

on certain private reserves where it is well protected indicate that hunting is the primary reason for its decline. In Venezuela, conversion of former private reserves for rice production may threaten previously well-protected populations of the species.

Diet: Herbivorous; grasses, sedges, legumes, and domestic grains.

Nesting: The sexes are identical in plumage, though the males are larger. It has a pale head and neck, chestnut flanks and mantle and blackish wings with a white speculum. The legs are red and the bill is black and pinkish.

Juveniles have duller plumage than adults.

The Orinoco goose is a very territorial species in the breeding season, and usually nests in hollow trees, only occasionally on the ground. The male has a high pitched whistling call, and the female cackles.

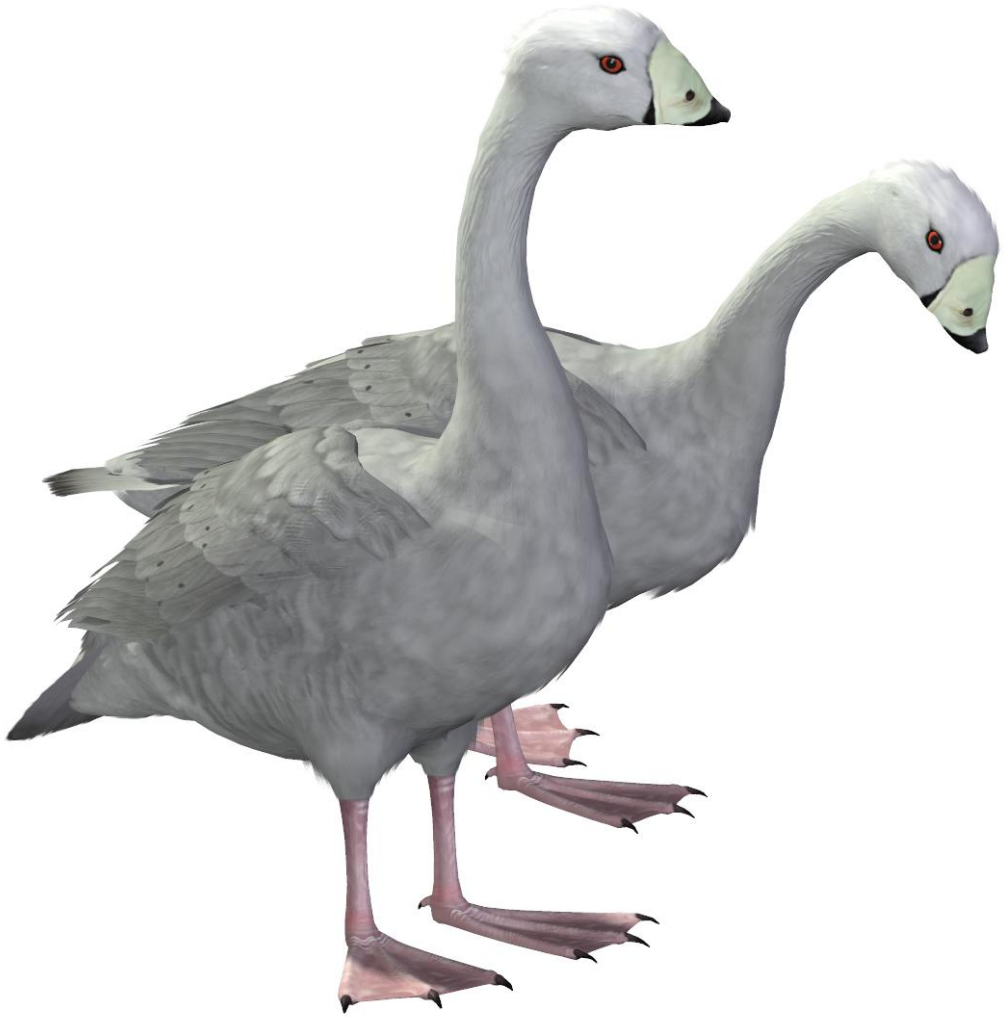
Cool Facts: Three fossil relatives have been described from Pleistocene sites: *Neochen pugil* from Brazil, *Neochen debilis* from Argentina and *Neochen barbadiana* from Barbados.

Common Name: Cape Barren Goose
Scientific Name: *Cereopsis novaehollandiae*

Size: 30-39 inches (75-100 cm); Wingspan: 59-75 inches (150-190 cm)

Habitat: Australia; found along the southern coast of Australia from the islands of the Recherche Archipelago in Western Australia, Kangaroo Island and the Sir Joseph Banks Islands of South Australia, the Victorian coastal islands around Wilsons Promontory.

They are also found in the islands of Bass Strait including the Hogan, Kent, Curtis and Furneaux Groups. A small population is to be found at Cape Portland in Tasmania, and birds have been introduced to Maria Island off Tasmania's southeast coast and the Hunter group of islands off northwest Tasmania.



They can be seen mostly on the small, windswept and generally uninhabited offshore islands. Occasionally, they will venture to adjacent mainland farming areas in search of food in the summer.

Status: Least Concern. **Global population:** 11,000-12,000 adult individuals. The population is suspected to be stable in the absence of evidence for any declines or substantial threats. A previous decline in numbers appears to have been reversed as birds in the east at least have adapted to feeding on agricultural land. The breeding areas are grassy islands off the Australian

coast, where this species nests on the ground in colonies. It bears captivity well, quite readily breeding in confinement if large enough paddocks are provided.

Diet: Herbivorous; predominantly common island tussock (*Poa poiformis)* as well as spear grass, various herbs and succulents. They also eat pasture grasses including barley grass and clover.

This bird feeds by grazing and rarely swims.

Nesting: Sexes are alike, but the male is larger. A bulky goose with a uniformly gray plumage which has rounded black spots that are unique among geese. The tail and flight feathers are blackish and the legs are pink with black feet. The short, decurved black bill and green cere are unmistakable.

Geese lay eggs in nests in the tussocks found in the open grassland areas in which they live. Each pair of geese establishes a territory in autumn, prepares a nest site and defends it noisily and determinedly against other geese. About five eggs are laid and the eggs take about a month to hatch. The goslings develop rapidly during the winter, and by the end of spring are able to fly. At this time they join the flocks of non-breeding geese which have also spent the winter on the breeding island.

By early summer, the breeding islands dry off and grass ceases to grow. There is generally sufficient feed for the breeding birds to survive the summer, but the non-breeding geese usually leave these small islands and move to larger islands nearby where they feed on improved pasture. When the autumn rains come the flocks return to the breeding islands.

Cool Facts: Their ability to drink salt or brackish water allows numbers of geese to remain on offshore islands all year round. They are one of the rarest of the world's geese. They are gregarious outside the breeding season, when they wander more widely, forming small flocks.

In Australia, 19th-century explorers named a number of islands "Goose Island" due to the species' presence there. The smaller population of Cape Barren goose in Western Australia is described as a subspecies, *Cereopsis novaehollandiae grisea*, and named for the group of islands known as the Recherche Archipelago.

Common Name: Nēnē or Hawaiian Goose
Scientific Name: *Branta sandvicensis*

Size: 25 inches (64 cm)

Habitat: Oceania; restricted to Hawai‘i, Maui, Moloka‘i, and Kaua‘i. Historically, it was also found on Kaho‘olawe and Lāna‘i.

The Nēnē is an inhabitant of shrubland, grassland, coastal dunes, lava plains, and related anthropogenic habitats such as pasture and golf courses from sea level to as much as 2,400 m. Some populations migrated between lowland breeding grounds and montane foraging areas.

Status: Vulnerable. **Global Population:** 2,500. It is believed that it once was common, with approximately 25,000 Hawaiian Geese living in Hawai‘i when Captain James Cook arrived in 1778. However, hunting and introduced predators, such as Small Asian Mongooses, pigs, and cats, reduced the population to 30 birds by 1952.

Other threats include disease and parasites, inbreeding depression, loss of adaptive skills in captive-bred birds and dietary deficiencies. Feral cats carry a protozoan organism (*Toxoplasma gondii*) which causes toxoplasmosis, a disease that can be fatal in the species. Road-kills are an important threat on Hawai`i and probably on Maui. Indeed road-kills were found to be the most common cause of known adult mortality on Hawai`i from 1989 to 1999.

While breeding in captivity has been successful, recruitment in the wild is low in this species. Yearly average hatching success was only 55% (range 44-77%), probably because of introduced predators rather than inbreeding. A yearly average of only 30% (range 0-50%) of nestlings fledged, with most lost to starvation, dehydration and predation. Recruitment into the breeding population is low, with only 42% of tracked fledglings eventually attempting to breed. An average of 35% of the population breed each year, probably limited by food availability, which affects the females condition.

Diet: Herbivorous; leaves, seeds, fruit, flowers of grasses and shrubs.

Breeding: The male and female of the species look similar with the exception that males are 10% larger.

The breeding season of the Nēnē, from August to April, is longer than that of any other goose; most eggs are laid between November and January. Unlike most other waterfowl, the Nēnē mates on land. Nests are built by females on a site of their choosing, in which one to five eggs are laid (average is three on Maui and Hawai‘i, four on Kaua‘i). Females incubate the eggs for 29 to 32 days, while the male acts as a sentry. Goslings are precocial, able to feed on their own; they remain with their parents until the following breeding season.

Cool Facts: The Nēnē evolved from the Canada Goose (*Branta canadensis*), which most likely migrated to the Hawaiian islands 500,000 years ago, shortly after the island of Hawai‘i was formed. This ancestor is the progenitor of the Nēnē as is the prehistoric Giant Hawai‘i Goose and Nēnē-nui (Branta hylobadistes). The Nēnē-nui was larger than the Nēnē, varied from flightless to flighted depending on the individual, and inhabited the island of Maui. Similar fossil geese found on O‘ahu and Kaua‘i may be of the same species. The Giant Hawai‘i Goose was restricted to the island of Hawai‘i and measured 1.2 m in length with a mass of 8.6 kg, making it more than four times larger than the Nēnē. It is believed that the herbivorous Giant Hawai‘i Goose occupied the same ecological niche as the goose-like ducks known as moa-nalo, which were not present on the Big Island. Based on mitochondrial DNA found in fossils, all Hawaiian geese, living and dead, are closely related to the Giant Canada Goose (*B. c. maxima*) and Dusky Canada Goose (*B. c. occidentalis*).

Nēnē’s strong toes are padded and have reduced webbing, an adaptation that allows it to swiftly traverse rough terrain such as lava plains.

The Hawaiian name, Nēnē refers to the birds’ call.

Special Thanks to…

….my betatester (FlintHawk), Alisa and the rest of the Hivewire3D QAV team.
…and Nerd3D (for his invaluable help in special Poser coding)

Species Accuracy and Reference Materials

The author-artist has tried to make these species as accurate to their real life counterparts as possible. Birds of the same species vary considerably, just as all others do in nature. The birds were created using the correct field markings and the most common similarities.

With the use of one generic model to create dozens of unique bird species, some give and take is bound to occur. In addition, 3D-models have many technical challenges, which make exact representations difficult, if not impossible. It's best to think of these birds represented as resembling the particular species, and they may not, in some cases, be 100% scientifically accurate.

The model and morphs were created using Luxology's Modo. The texture maps were created in Corel's Painter. The model was rigged in Smith-Micro's Poser and adapted for use in DAZ's DAZ Studio.

Field Guide Sources:

- **"The Sibley Guide to Birds"** by David Allen Sibley.
- **"The LeMaster Method to Waterfowl Identification"** by Richard LeMaster
- **"Birds of Europe"** by Killian Mullarney, Lars Svensson, Dan Zetterstorm and Peter J. Grant.
- **"Birds of Southeast Asia"** by Craig Robson.
- **"Birds of East Asia"** by Mark Brazil.
- **"Field Guide to the Birds of East Africa"** by Terry Stevenson and John Fanshawe

Internet Sources:

- **Cornell Lab of Ornithology (**http://www.birds.cornell.edu)
- **Wikipedia** (http://www.wikipedia.com)
- **Birdlife International** (http://www.birdlife.org)

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