

Songbird
ReMix

Waterfowl

Volume 4: Geese, Loons, Grebes & Coots



Avian Models for 3D Applications

Characters and Texture Mapping by Ken Gilliland

Songbird ReMix

Waterfowl IV: Geese, Loons, Grebes & Coots

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Waterfowl IV: Geese, Loons, Grebes & Coots

Introduction

Songbird ReMix Waterfowl IV encompasses the remaining waterfowl: Geese, Loons, Grebes and Coots; not found in the previous three volumes. This collection has a variety of geese found throughout the world from the iconic Canada goose to the exotic looking Egyptian goose to the common Greylag goose. Loons and Divers are represented by the Great Northern Loon whose haunting call is imprinted on woodland lake movie scenes and the Black-throated Diver of the Arctic. Grebes and Coots differ from Ducks because of their lobbed feet and thighs which set back further on the hip. Six species from around the world are included.

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
Cranes, Coots and Rails (Order Gruiformes)	American Coot Eurasian Coot Hawaiian Coot
Grebes (Order Podicipediformes)	Australasian Grebe Little Grebe Pied-billed Grebe Western Grebe
Loons (Order Gaviiformes)	Black-throated Diver Great Northern Loon
Waterfowl (Order Anseriformes)	Canada Goose Emperor Goose White-fronted Goose Greylag Goose Egyptian Goose

Where to find your poses

Type Folder	For what species?
Cranes, Coots and Rails (Order Gruiformes)	All Coots
Grebes (Order Podicipediformes)	All Grebes
Loons (Order Gaviiformes)	All Divers & Loons
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
- **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-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.



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Field Guide

Geese

Canada Goose
Emperor Goose
Greater White-fronted Goose
Greylag Goose
Egyptian Goose

Loons/Divers

Great Northern Loon
Black-throated Diver or Arctic Loon

Grebes

Little Grebe
Pied-billed Grebe
Western Grebe
Australasian Grebe

Coots

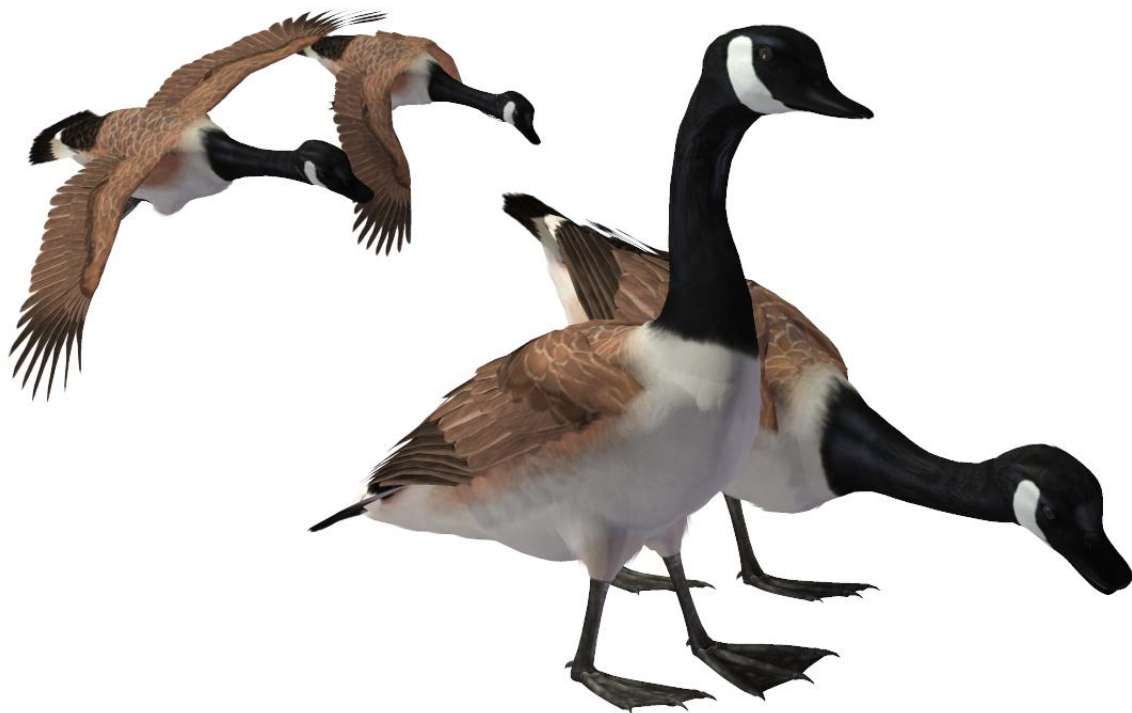
American Coot
Eurasian Coot
Hawaiian Coot

Common Name: Canada Goose
Scientific Name: *Anas platyrhynchos*

Size: 30-43 inches (75-110 cm); Wingspan: 50-73 inches (127-185 cm)

Habitat: North America; endemic to North America. It breeds in Canada and the northern United States in a variety of habitats. The Great Lakes region maintains a very large population of Canada Geese. Canada Geese occur year-round in the southern part of their breeding range, including most of the eastern seaboard and the Pacific coast. Between California and South Carolina in the southern United States and northern Mexico, Canada Geese are primarily present as migrants from further north during the winter. It also occasionally migrates to northern Europe, and has been introduced to Britain, New Zealand, and other temperate regions

Their preferred habitat is anywhere near lakes, rivers, ponds, or other small or large bodies of water, and in yards, park lawns, and farm fields.



Status: Least Concern. **Global population:** 5,500,000 to 5,900,000 individuals. Canada Geese are common and increasing in much of North America. The proliferation of lawns, golf courses, and parks offers Canada Geese such reliable habitat that in some areas the birds stay all year round instead of migrating like they used to do. Recently, some communities have had to begin considering some Canada Geese as nuisances (for eating grass or fouling lawns) or even hazards (around airports, where

collisions with planes can be very dangerous). Some 2.6 million Canada Geese are harvested by hunters in North America, but this does not seem to affect its numbers.

Diet: Green vegetation and grains. It eats a variety of grasses when on land. It feeds by grasping a blade of grass with the bill, then tearing it with a jerk of the head. The Canada goose also eats beans and grains such as wheat, rice, and corn when they are available. In the water, it feeds from silt at the bottom of the body of water. It also feeds on aquatic plants, such as seaweeds. In urban areas, they are also known to pick food out of garbage bins. It will occasionally eat small insects and fish.

Nesting: Sexes are alike. The black head and neck with a white "chinstrap" help set apart the Canada Goose from other Goose species. It has a light tan to cream breast and brown back.

During the second year of their lives, Canada Geese find a mate. They are monogamous, and most couples stay together all of their lives. If one dies, the other may find a new mate.

Their nest is usually located in an elevated area near water such as streams, lakes, ponds and sometimes on a beaver lodge. Its eggs are laid in a shallow depression lined with plant material and down. The female lays from 2–9 eggs with an average of five. The incubation period lasts for 24–28 days after laying. Both parents protect the nest while the eggs incubate, but the female spends more time at the nest than the male. As the annual summer molt also takes place during the breeding season, the adults lose their flight feathers for 20–40 days, regaining flight at about the same time as their goslings start to fly.

As soon as the goslings hatch they are immediately capable of walking, swimming and finding their own food (a diet similar to the adult geese). Parents are often seen leading their goslings in a line, usually with one adult at the front, and the other at the back. While protecting their goslings, parents often violently chase away nearby creatures, from small blackbirds to lone humans that approach. First they give a warning hissing sound, if the threat does not retreat or has seized a gosling, they will then attack with bites and slaps of the wings.

Cool Facts: Canada Geese tend to be smaller as you move northward; plumage tends to be darker as you move westward.

Canada Geese are known for their seasonal migrations. Most Canada Geese have staging or resting areas where they join up with others. Their autumn migration can be seen from September to the beginning of November. The Horicon Marsh in Wisconsin has one of the largest groups of Canada Geese in November. The early migrants have a tendency to spend less time at rest stops and go through the migration much faster. The later birds usually spend more time at rest stops.

Canada Geese fly in a distinctive V-shaped flight formation, with an altitude of 1 km (3,000 feet) for migration flight. The maximum flight ceiling of Canada Geese is unknown, but they have been reported at 9 km (29,000 feet).

Flying in the V formation has been the subject of study by researchers. The front position is rotated since flying in front consumes the most energy. Canada Geese leave the winter grounds more quickly than the summer grounds. Elevated thyroid hormones, such as T3 and T4, have been measured in geese just after a big migration. This is believed because of the long days of flying in migration the thyroid gland sends out more T4 which will help the body cope with the longer journey. The increased T4 levels are also associated with increased muscle mass (hypertrophy) of the breast muscle, also because of the longer time spent flying. It is believed that the body sends out more T4 to help the goose's body with this long task by speeding up the metabolism and temperature at which the body works. Also, other studies show levels of stress hormones like corticosterone rise dramatically in these birds during and after a migration

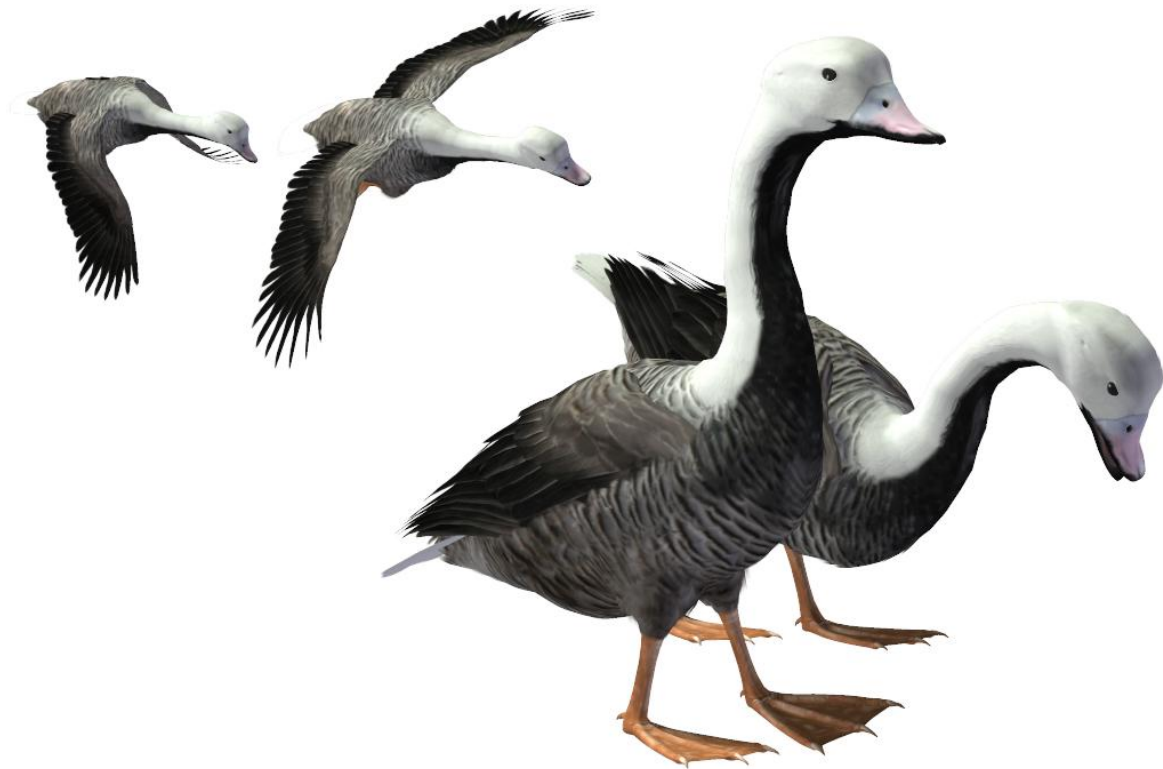
Common Name: Emperor Goose
Scientific Name: *Chen canagica*

Size: 26 inches (68.6 cm); **Wingspan:** 47 inches (119.3 cm)

Habitat: North America, the Arctic and Northern Eurasia; breeds around the Bering Sea, mostly in Alaska (United States), but also in Kamchatka (Russia). It is migratory, wintering mainly in the Aleutian Islands.

It breeds in coastal saltmarshes and winters along ice-free coasts.

Status: Near Threatened. **Global population:** 85,000 adult individuals. Factors affecting its population fluctuations are poorly understood, but subsistence hunting in Alaska and coastal oil pollution are considered to be contributory. 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 54% of the habitat for this species could be lost by 2070.

Diet: Shoreline grasses and other coastal plants. This species is much less gregarious than most geese, usually occurring in family groups.

Nesting: This goose has a stout gray body with subtle, fine barring, and a white head and hind neck, often stained orange from iron-rich waters. Unlike the blue-morph snow

goose, the white does not extend onto the front of the neck. The sexes are similar, but on immatures the head is the same color as the body.

Breeding birds molt near the breeding colonies, but non-breeders move to St. Lawrence Island to molt prior to the main migration to the rocky coastlines of the wintering grounds. It breeds on coastal tundra, laying 3–7 eggs in a ground nest.

Cool Facts: The American Ornithologists' Union places this species and the North American "white" geese in the genus *Chen*, rather than the more traditional "gray" goose genus *Anser*.

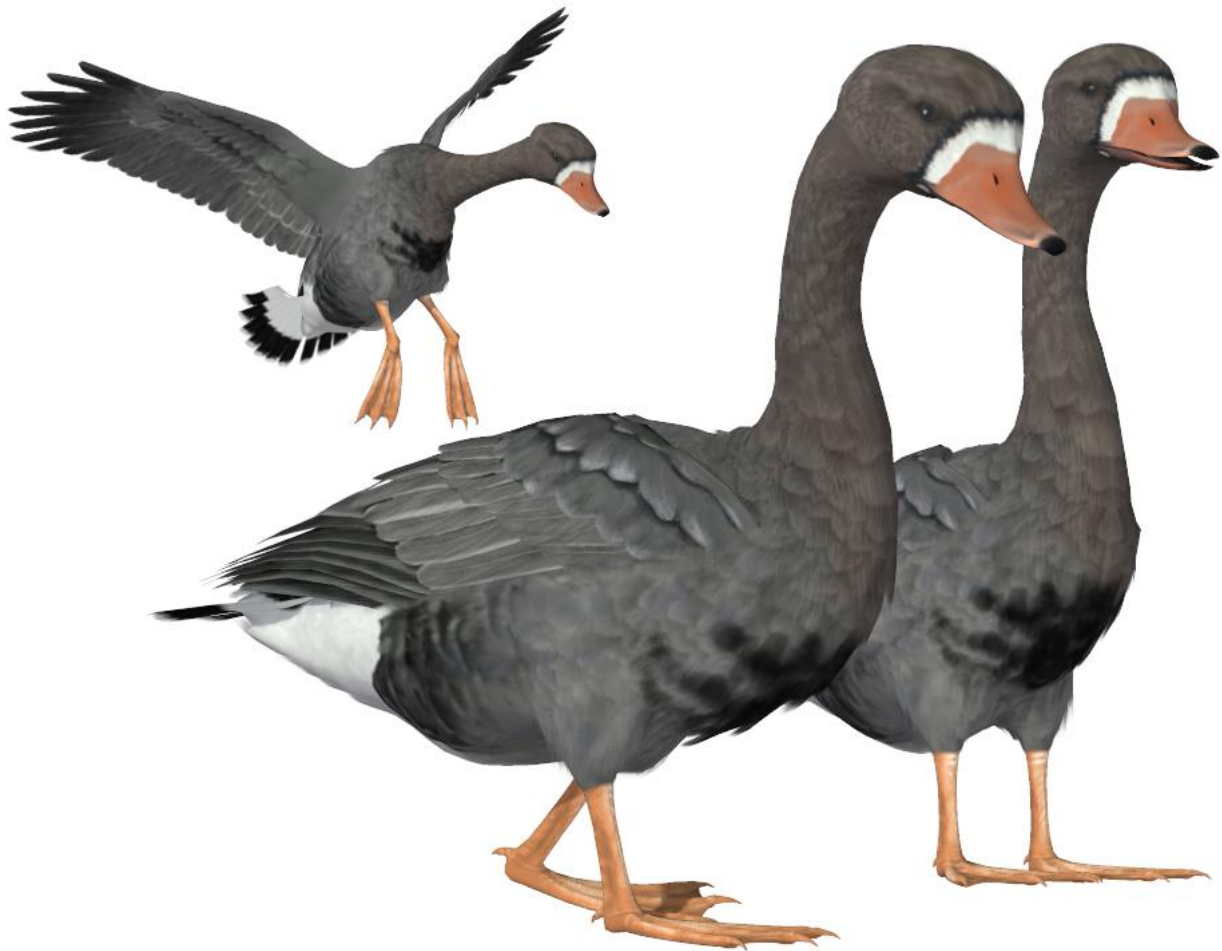


Common Name: Greater White-fronted Goose
Scientific Name: *Anser albifrons*

Size: 25-32 inches (64–81 cm); **Wingspan:** 51-65 inches (130-165 cm)

Habitat: North America, Europe and Asia, and winters further south and west in Europe.

Status: Least Concern. **Global population:** Unknown amount of adult individuals. The overall population trend is uncertain.



The North American midcontinent birds of the subspecies, *A. a. gambeli*, had a fall population of about 710,000 birds in 2010. It breeds from the Alaska North Slope across the western and central Canadian Arctic. These midcontinent geese gather in early fall on the prairies of western Saskatchewan and eastern Alberta, spending several weeks feeding before heading to wintering areas near the Gulf of Mexico and into northern Mexico. The Pacific white-fronted goose of the American Pacific coast, numbered approximately 650,000 birds in 2010. They migrate south down the Pacific coast, staging primarily in the Klamath Basin of southern Oregon and northern California and wintering, eventually, in California's Central Valley. The tule geese are estimated to

number 10,000 birds & nest in western Alaska. The tule goose is somewhat rare and has been since the latter half of the 19th century, presumably it was affected by destruction of its wintering habitat due to human settlement.

On the British Isles, two races overwinter: Greenland birds in Scotland and Ireland, and Russian birds in England and Wales. They gather on farmland at favored traditional sites, with a famous flock gathering at WWT Slimbridge, Gloucestershire, England. The Greenland birds also overwinter in Ireland and from late September and through the winter months, Ireland is home to almost 50% of the Greenland population of white-fronted geese.

A. a. albifrons and *A. a. flavirostris* are among the taxa to which the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) applies.

Diet: Submerged and emergent aquatic vegetation as well as insects and fish spawn.

Nesting: The male is typically larger in size than the female, but both sexes are similar in appearance. They are greyish brown birds with light grey breasts dappled with dark brown to black blotches and bars and they have brownish-grey upper wing-coverts. Both males and females also have a pinkish bill and bright orange legs and feet.

They are larger than the Lesser white-fronted goose, they lack its yellow eye-ring and the white facial blaze does not extend upwards as far as it does in the Lesser. Weather conditions are a key factor in the annual breeding success of white-fronted geese. In the Arctic, the window of opportunity for nesting, incubating eggs, and raising a brood to flight state is open briefly, for about three months. Arriving in late May or early June, white-fronted geese begin departing for fall staging areas in early September. This means that a delayed snowmelt or late spring storm can significantly reduce the birds' reproductive success.

Cool Facts: The Greater White-fronted Goose is closely related to the smaller Lesser White-fronted Goose (*A. erythropus*). In Europe it has been known as simply "white-fronted goose"; in North America it is known as the greater white-fronted goose (or "greater white-front"), and this name has been increasingly adopted internationally. It is named for the patch of white feathers bordering the base of its bill. But even more distinctive are the salt-and-pepper markings on the breast of adult birds, which is why the goose is colloquially called the "specklebelly" in North America.

The greater white-fronted goose is divided into five subspecies. All these races are similar in plumage, differing only in size.

The nominate subspecies *A. a. albifrons* breeds in the far north of Europe and Asia, and winters further south and west in Europe.

Three other restricted-range races occur in northern North America: *A. a. gambeli* in interior northwest Canada, winters on the coast of the Gulf of Mexico and is slightly

larger than the nominate form. Pacific white-fronted goose, *A. a. frontalis* and tule goose, *A. a. elgasi*, in southwest Alaska, both winter in California and they are the largest and longest-billed of all. All these races are similar in plumage, differing only in size.

The very distinct Greenland white-fronted goose, *A. a. flavirostris*, breeds in western Greenland and winters in Ireland and western Scotland. It is much darker overall, with only a very narrow white tip to the tail (being broader on the other races), more black barring on its belly, and usually has an orange (not pink) bill.

The appearance of European or Russian white-fronted geese, of the race *albifrons* and Greenland white-fronted geese, of the race *flavirostris*, differ in a number of ways. Greenland white-fronted goose, in all plumages, both at rest and in flight, is darker and more 'oily-looking' than European white-fronted goose. The following are the differences which apply to first-winter plumage:

- The mantle and scapulars of *flavirostris* have narrow, indistinct pale fringes creating a uniform appearance to the birds' upperparts, whereas *albifrons* has noticeable whitish fringes creating obviously barred upperparts
- The tertials of *flavirostris* have indistinct pale fringes, whereas these pale fringes are more noticeable on *albifrons*
- The lesser- and median-upperwing-coverts of *flavirostris* have narrow, indistinct pale fringes, creating a rather uniform appearance of the wing, whereas on *albifrons*, these fringes are prominent and broad, creating wingbars
- The greater-coverts of *flavirostris* are dark grey, with a narrow white tip, forming a narrow wing-bar; on *albifrons* they are blue-grey, with prominent white tips, forming a bold wing-bar
- The flank-line is narrow and white on *flavirostris*, but broad and bright white on *albifrons*
- The tail of *flavirostris* is dark brown, with a very narrow white tip and sides; that of *albifrons* is dark grey, and the white tip and sides are at least double the width of the corresponding areas on *flavirostris*
- The bill of *flavirostris* is orange-yellow with a dark nail, compared with the bright pink bill of *albifrons* which has only a hint of dark on the nail; in addition the bill of *flavirostris* is longer and appears slimmer than that of *albifrons*

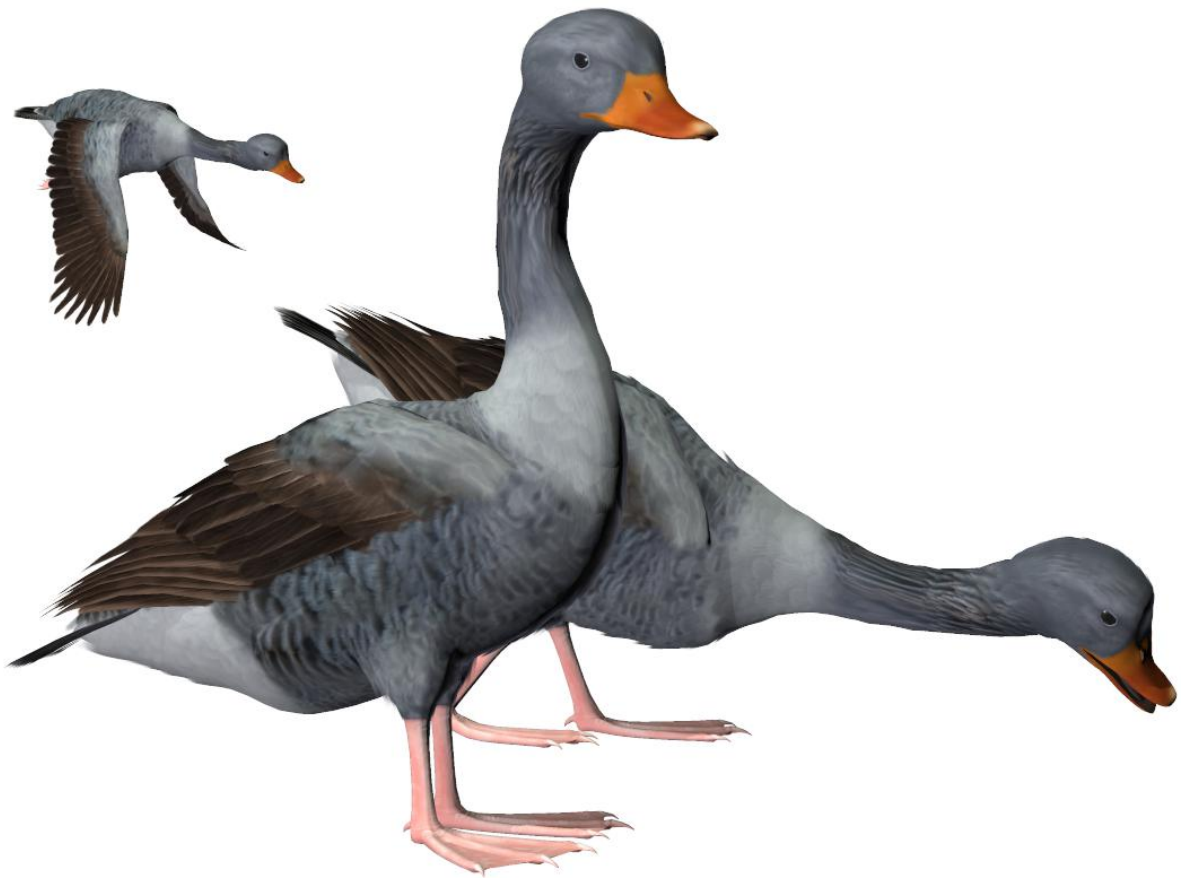
The belly-barring on adult birds is on average more extensive on *flavirostris* than on *albifrons*, but the individual variation in both forms renders this of limited use as an identification feature.

The bill of adult Greenland white-fronts are also orange-yellow at the base, but can be more pinkish-yellow on the outer-half, thus close in color to European white-fronts; the color difference is more easily determined in dull, flat light rather than bright sunshine

Common Name: Greylag Goose
Scientific Name: *Anser anser*

Size: 29-36 inches (74-91 cm); **Wingspan:** 16--19 inches (41-48 cm)

Habitat: Eurasia; found throughout Eurasia, apparently breeding where suitable localities are to be found in many European countries (although it no longer breeds in southwestern Europe). Eastwards, it extends across Asia to China. In North America, there are both feral domestic geese, which are similar to greylags, and occasional vagrants. The greylag goose has been introduced into Australia. This species is fully migratory although some populations in temperate regions are only sedentary or locally dispersive.



During the breeding season the species inhabits wetlands surrounded by fringing vegetation in open grassland, sedge or heather moorland, arctic tundra, steppe or semi-desert from sea-level up to 2,300 m. It nests near streams, salt marshes, river flood-plains, reedy marshes, grassy bogs, damp meadows, reed-lined freshwater lakes and estuaries close to potential feeding sites such as meadows, grasslands, stubble fields and newly sown cereal fields. It requires isolated islands in lakes or along the coast so that it will be out of reach of land predators while nesting.

In the autumn (before migration) the species also frequents agricultural land (e.g. sugar-beet, maize and cereal fields). During its non-breeding season in the winter the species inhabits lowland farmland in open country, swamps, lakes, reservoirs, coastal lagoons and estuaries.

Status: Least Concern. **Global population:** 1,000,000-1,100,000 adult individuals. This species is threatened by considerable hunting pressures across much of its range and is susceptible to poisoning from lead shot ingestion. It is also persecuted by farmers as it can cause considerable crop damage. The destruction and degradation of wetland habitats due to drainage, conversion to agriculture, petroleum pollution, peat-extraction, changing wetland management practices and the burning and mowing of reeds is also a threat, especially in breeding areas.

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

Diet: Herbivorous; its diet consisting of grass, the roots, shoots, leaves, stems, seedheads and fruits of other herbaceous marsh vegetation, aquatic plants, and agricultural grain and potatoes. The species is highly gregarious.

Nesting: Sexes are alike. It has a rotund, bulky body, a thick and long neck, and a large head and bill. Males are generally larger than females, with the sexual dimorphism more pronounced in the eastern subspecies *rubirostris*, which is larger than the nominate subspecies on average.

The plumage of the greylag goose is greyish-brown, with a darker head and paler belly with variable black spots. Its plumage is patterned by the pale fringes of its feathers. It has a white line bordering its upper flanks. Its coverts are lightly colored, contrasting with its darker flight feathers. It has pink legs and feet, and an orange or pink bill. Juveniles differ mostly in their lack of a black-speckled belly.

The nest is a shallow construction of plant matter placed on the ground among reed beds, in or at the base of trees, under bushes or in sheltered hollows on isolated wooded islands found in lakes or along coasts, as well as on rafts of vegetation in rivers. Although the species is only semi-colonial, nests may be concentrated within a small area.

Cool Facts: The greylag goose is most notable as being the bird with which the ethologist Konrad Lorenz first did his major studying into the behavioral phenomenon of imprinting.

It was in pre-Linnean times known as the wild goose ("*Anser ferus*"). This species is the ancestor of domesticated geese in Europe and North America. Flocks of feral birds derived from domesticated birds are widespread.

The greylag is the largest and bulkiest of the grey geese of the genus *Anser*.

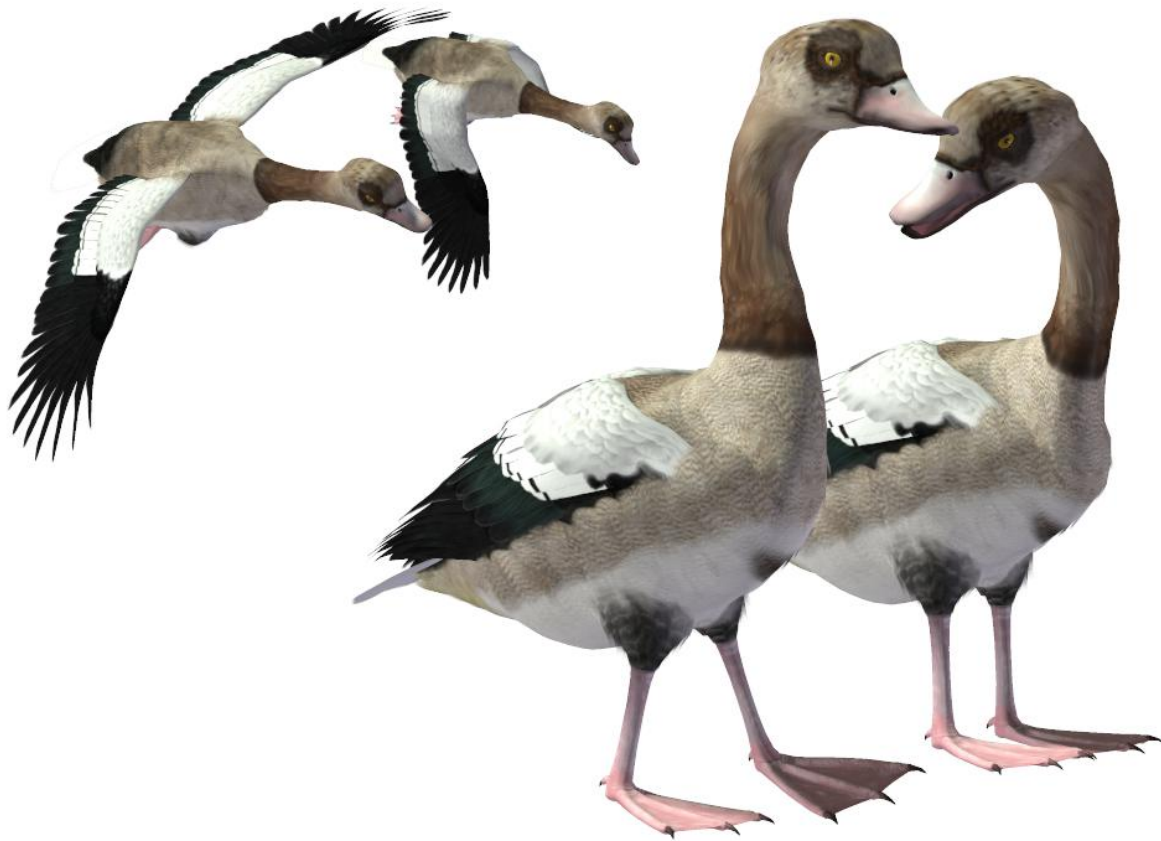
Common Name: Egyptian Goose
Scientific Name: *Alopochen aegyptiacus*

Size: 25-29 inches (63-73 cm); **Wingspan:** 73-98 inches (185-250 cm)

Habitat: Africa; found throughout Africa with the exception of the Sahara Desert.

This species is largely sedentary over much of its range, although it may make seasonal nomadic or dispersive movements related to water availability.

The species inhabits a wide range of freshwater wetlands in open country from sea level up to 4,000 m (Ethiopia) including reservoirs, dams, pans, lakes, large ponds, rivers, marshes, sewage works, estuaries and offshore islands (although it is generally



absent from coastal regions). It shows a preference for water-bodies with open shorelines and rich plant growth in close proximity to meadows, grassland and arable land for grazing generally avoiding densely forested areas.

Status: Least Concern. **Global population:** Unknown amount of adult individuals. The overall population trend is decreasing, although some populations may be stable. The

species is persecuted by shooting and poisoning in parts of its range where it is regarded as an agricultural pest.

Diet: Vegetable matter such as the seeds, leaves and stems of grasses and other terrestrial plants, crop shoots (e.g. maize, wheat, oats, lucerne, groundnuts and barley), potato tubers, algae and aquatic weeds, as well as some animal matter (worms, locusts and termite alates).

Nesting: Sexes are alike although the males average slightly larger. There is a fair amount of variation in plumage tone, with some birds greyer and others browner, but this is not sex or age related. A large part of the wings of mature birds is white, but in repose the white is hidden by the wing coverts.

The voices and vocalizations of the sexes differ, the male having a hoarse, subdued duck-like quack which seldom sounds unless it is aroused. The female has a far noisier raucous quack that frequently sounds in aggression and almost incessantly at the slightest disturbance when tending her young. Both sexes are aggressively territorial towards their own species when breeding and frequently pursue intruders into the air, attacking them in aerial "dogfights".

Egyptian geese usually pair for life. The male Egyptian goose attracts its mate with an elaborate, noisy courtship display that includes honking, neck stretching and feather displays. The nest is a shallow depression usually placed not far from water. Nest sites are highly variable but include dense vegetation on the ground, reedy vegetation, the ground under bushes or trees, burrows, holes or cavities in trees, cliff ledges and rural buildings, caves, and the abandoned nests of other large bird species up to 60 m above the ground.

The female builds the nest from reeds, leaves and grass, and both parents take turns incubating eggs. Both the male and female care for the offspring until they are old enough to care for themselves

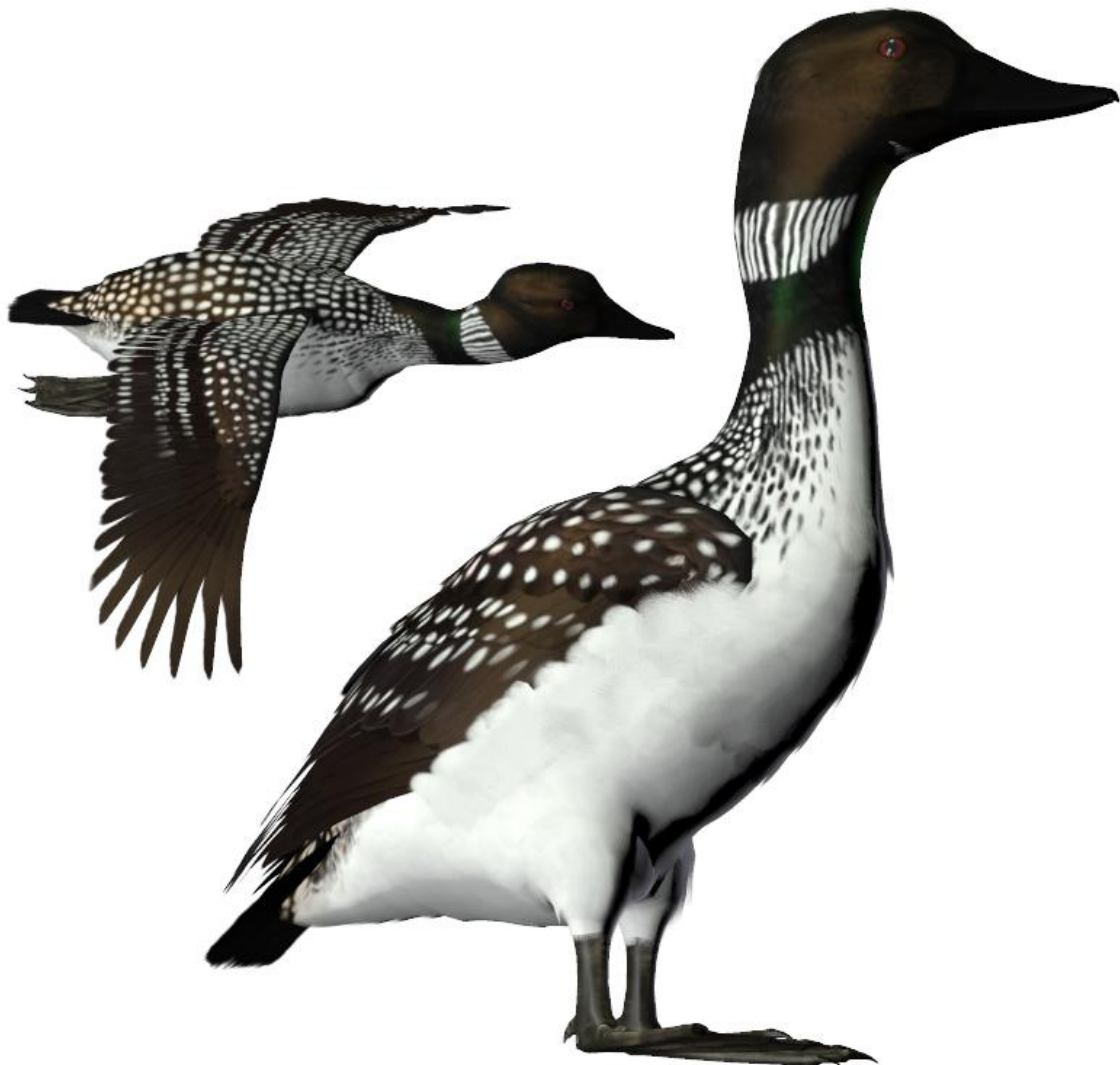
Cool Facts: Egyptian geese were considered sacred by the ancient Egyptians, and appeared in much of their artwork. They have been raised for food and extensively bred in parts of Africa since they were domesticated by the ancient Egyptians.

Common Name: Great Northern Loon

Scientific Name: *Gavia immer*

Size: 47-39 inches (61-100 cm); **Wingspan:** 48-60 inches (122-152 cm)

Habitat: Northern Hemisphere; breeds in much of Canada and Alaska, parts of northern United States, southern parts of Greenland to Denmark and in Iceland. It winters on sea coasts or on larger lakes over a wide area including the Atlantic coast of Europe from Finland to Portugal and the western Mediterranean, the Atlantic coast of North America down to northern Mexico, and the Pacific coast of North America from northern Mexico to the tip of Alaska.



Loons breeds on large, deep freshwater lakes in coniferous forest or on open tundra. They require clear water with visibilities of at least 3-4 m and small islands (less than

2.5 ha) for nesting. During its non-breeding season in the winter it is found along the coast on exposed rocky shores, sheltered bays, channels and sheltered inlets showing a preference for shallow inshore waters. They may also be found inland on lakes and reservoirs during this season, although this is largely influenced by the weather.

This species is strongly migratory, with inland breeding populations moving south or to the coast after breeding. The species breeds from May onwards in isolated solitary pairs, nesting later further to the north depending on the timing of the thaw. Adults become flightless for a short time in late-winter when they molt their flight feathers. During the winter the species occurs singly, in pairs or in small loose flocks in marine habitats, occasionally also forming large congregations of about 300 birds.

Status: Least Concern. **Global population:** Unknown amount of adult individuals. The overall population trend is decreasing, although some populations have unknown trends. When breeding the species is threatened by fluctuating water levels due to the building of dams, acidification of breeding lakes, heavy metal pollution due to industrial run-off and lead poisoning from ingested lead fishing weights. It is also highly sensitive to human disturbance such as shoreline development and may desert lakes after increases in human presence. During the winter the species is highly vulnerable to coastal oil spills, especially in areas where large congregations form, and entanglement in monofilament fishing lines (used for sport fishing) and commercial fishing nets cause significant mortality at sea and on larger lakes. The species is also susceptible to avian botulism so may be threatened by future outbreaks of the disease.

Protected under the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA).

Diet: Predominantly of fish, as well as crustaceans, mollusks, aquatic insects, annelid worms, frogs, other amphibians and plant matter (e.g. *Potamogeton spp.*, *Salix spp.* shoots, roots, seeds, moss and algae).

They are stealthy divers, submerging without a splash to catch fish. It swallows most of its prey underwater. The loon has sharp, rearward-pointing projections on the roof of its mouth and tongue that help it keep a firm hold on slippery fish.

Nesting: Sexes are alike. They are large, diving water birds with rounded heads and dagger-like bills. They have long bodies and short tails that are usually not visible. In flight, they look stretched out, with a long, flat body and long neck and bill. Unlike ducks and cormorants, their feet stick out beyond the tail, making them look like wedges.

In summer, adults have a black head and bill, a black-and-white spotted back, and a white breast. From September to March, adults are plain gray on the back and head with a white throat. The bill also fades to gray. Juveniles look similar, but with more pronounced scalloping on the back.

Pairs and groups often call to each other at night. In flight, notice their shallow wing beats and unwavering, bee-lined flight path. Loons are water birds, only going ashore to mate and incubate eggs.

Loons are monogamous, and pair bonds typically last about 5 years. If one year one of the mates doesn't return, the other will quickly pair up with another mate. The male defines his territory through yodeling. Courtship consists of swimming in circles and synchronous dives. Loons also perform a territorial display of lifting their body upright and flapping their wings vigorously.

The male selects the nest site. Loons nest in quiet, protected, hidden spots of lakeshore, typically in the lee of islands or in a sheltered back bay. Loons can't walk well on land, so nests are built close to a bank, often with a steep drop-off that allows the bird to approach the nest from underwater. They also use artificial nesting platforms, which people have offered as alternative habitat on lakes with extensive shoreline development. Many times a nesting pair of loons will reuse the same site the following year, refurbishing their old nest instead of building a new one.

Male and female build the nest together over the course of a week in May or early June, making a mound out of dead plant materials such as sedges and marsh grasses that grow along the lake's edge. Then one of the loons crawls on top of the mound and shapes the interior to the contours of its body. The finished nest is about 22 inches wide and looks like a clump of dead grasses by the edge of the water.

1-2 brown eggs with dark splotches are laid. If nesting is successful, loon chicks can be seen going for a ride around the lake on a parent's back.

Cool Facts: The North American name of "loon" is a reference to the bird's clumsiness on land, and is derived from Scandinavian words for lame, such as Icelandic "lúinn" and Swedish "lam".

Loons are best known for their eerie calls that echo across clear lakes of the northern wilderness, a common sound effect in almost any film taking place in or near a lake. Writer John McPhee described the call as "the laugh of the deeply insane". The voice and appearance of the great northern loon has made it prominent in several Native American tales. These include a Chippewa story of a loon which created the world; a Micmac saga describing Kwee-moo, the loon who was a special messenger of Glooscap (Glu-skap), the tribal hero; native tribes of British Columbia believed that an excess of calls from this bird predicted and even brought rain; and the tale of the loon's necklace was handed down in many versions among Pacific Coast peoples.

Folk names include big loon, black-billed loon, call-up-a-storm, ember-goose, greenhead, guinea duck, imber diver, ring-necked loon, and Walloon.

A hungry loon family can put away a lot of fish; Biologists estimate that loon parents and their 2 chicks can eat about a half-ton of fish over a 15-week period.

At times, loons can be seen sticking one foot up out of the water and wagging it—this may be a means of cooling off, as scientists have observed loons wagging their feet more often on sunny, midsummer days.

The great northern loon, where it is known as the common loon, is the state bird of Minnesota and the provincial bird of Ontario. The loon also appears on the one dollar Canadian coin called a “loonie”.

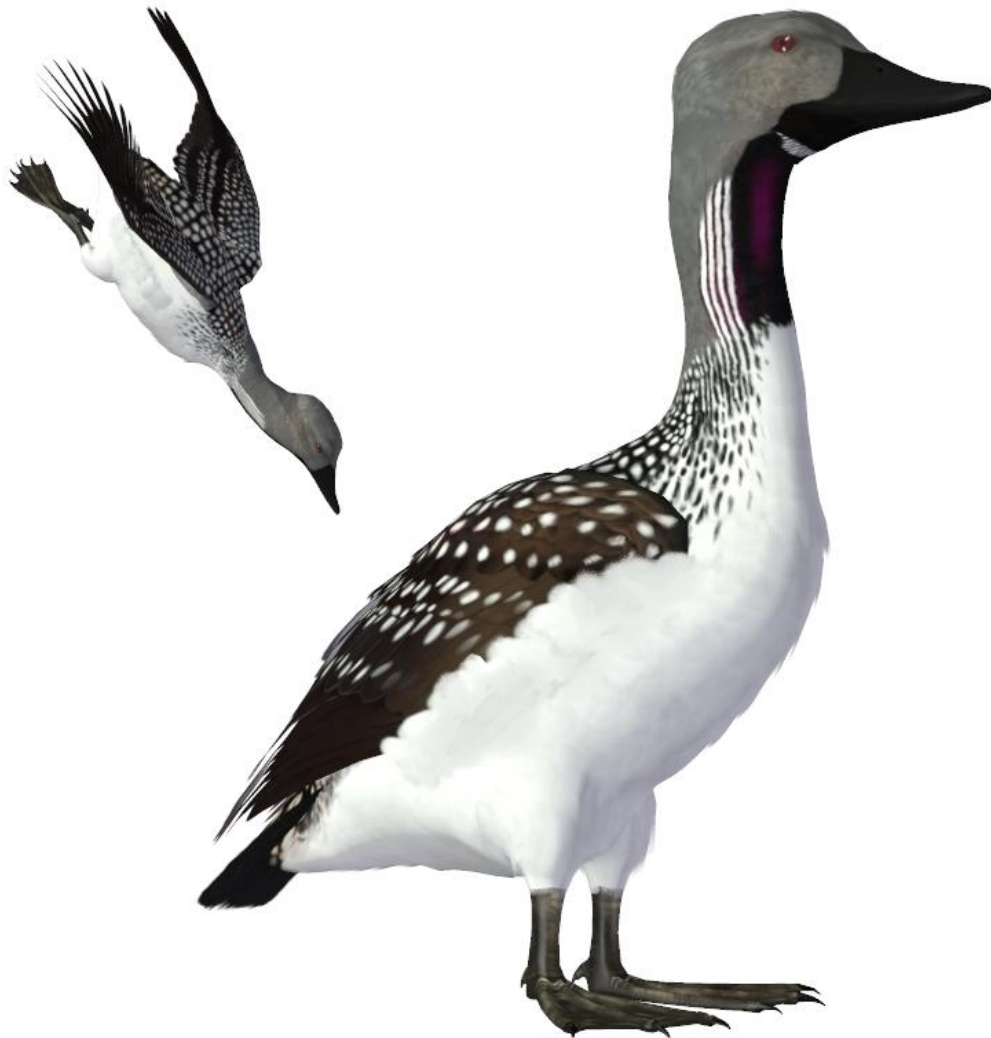


Common Name: Black-throated Diver or Arctic Loon
Scientific Name: *Gavia arctica*

Size: 23-30 inches (58-77 cm); **Wingspan:** 39-51 inches (100-130 cm)

Habitat: Northern Hemisphere; breeds in Eurasia and occasionally in western Alaska. It winters at sea, as well as on large lakes over a wide range.

It breeds on deep, productive, freshwater lakes or extensive pools with islets, peninsulas and other inaccessible nesting sites. During non-breeding season it can be found on inshore waters along sheltered coasts, occasionally also frequenting large inland freshwater bodies such as natural lakes or barrages, lagoons and large rivers.



Status: Least Concern. **Global population:** 280,000-1,500,000 adult individuals. The overall population trend is decreasing, although some populations have unknown trends.

During the breeding season the species is threatened by the acidification of breeding waters, heavy metal pollution and water level fluctuations especially during the incubation period. It also suffers from lower reproductive success due to human disturbance from tourists or wetland visitors and is indirectly affected by breeding habitat alteration such as afforestation. During the winter the species is highly vulnerable to coastal oil spills, especially in rich fishing grounds where large congregation may occur, and is commonly caught and drowned as by-catch in fishing nets. The species is also highly sensitive to disturbance from coastal wind farms (wind turbines) and is susceptible to avian influenza so may be threatened by future outbreaks of the virus

Protected under the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA).

Diet: Predominantly fish although aquatic insects, mollusks, crustaceans and some plant matter may also be taken.

Nesting: Sexes are alike. They have a grey head, black throat, white underparts and checkered black-and-white mantle. Non-breeding plumage is drabber with the chin and fore neck white. Its bill is dagger-shaped. In all plumages, a white flank patch distinguishes this species from all other divers including the otherwise almost identical Pacific diver. The calls include a yodeling high-pitched wail and harsh growls, similar but lower pitched than Pacific loon.

The nest is a heap of plant matter placed near the water's edge on islets or hummocks emerging from the water, sometimes also on clumps of grass on the shore

Cool Facts: The species is known as an Arctic loon in North America and the black-throated diver in Eurasia. Its current name is a compromise proposed by the International Ornithological Committee.

In 2007, RSPB Scotland and the Scottish Natural Heritage (SNH) stated that it was surprised by an increase in the last 12 years in the breeding figures in the UK for the red-throated diver and the rarer black-throated diver of 16% and 34% respectively due to the anchoring of 58 man-made rafts in lochs as part of its conservation efforts.

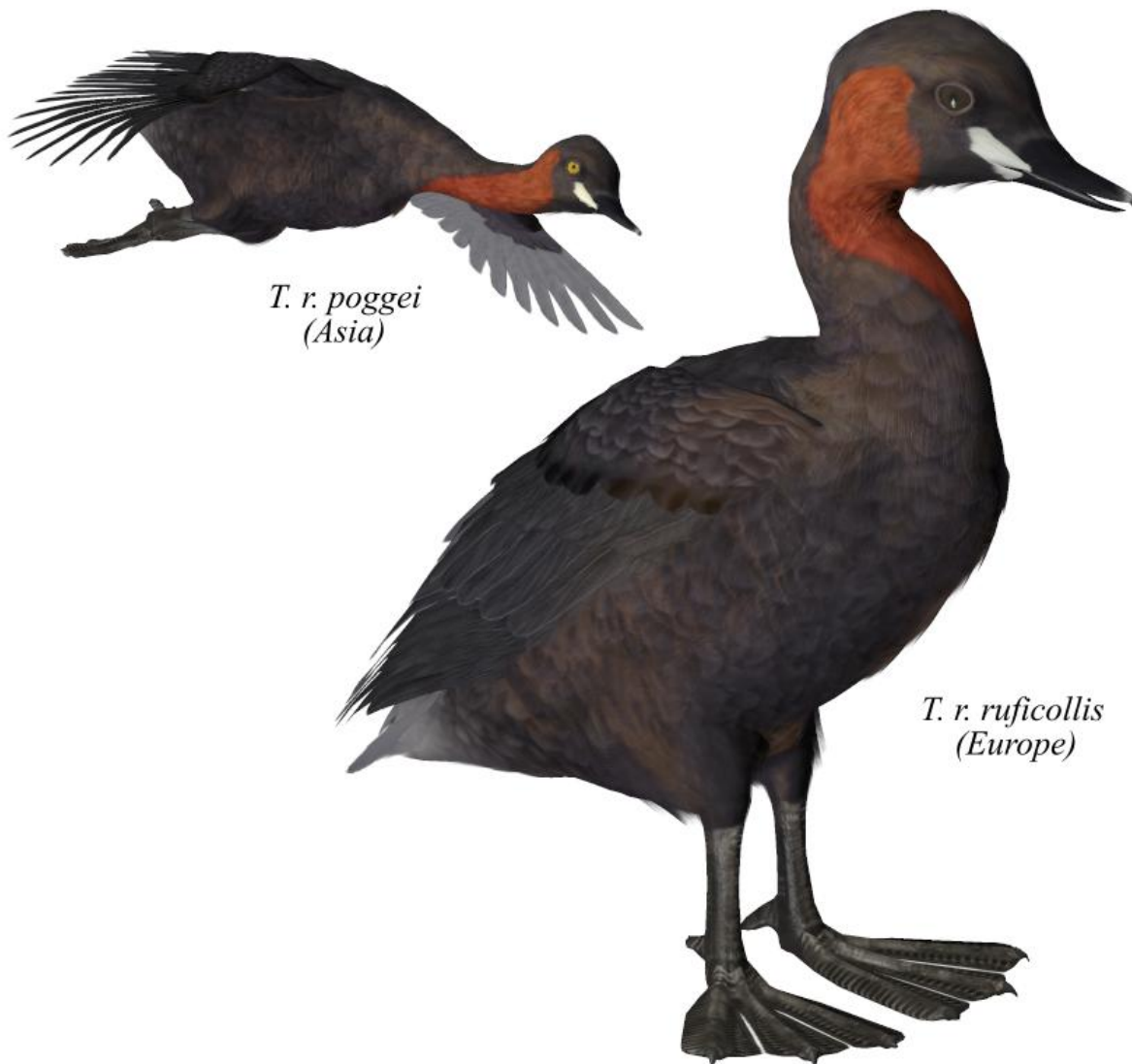
Common Name: Little Grebe

Scientific Name: *Tachybaptus ruficollis*

Size: 8-11.4 inches (23-29 cm); **Wingspan:** 10-14 inches (25.4-35.5 cm)

Habitat: Europe, Asia and Africa; found throughout most of Europe, much of Southern Asia down to New Guinea, and most of Africa.

This species is sedentary, locally dispersive or fully migratory depending on the winter temperatures of its breeding grounds. Some dispersive movements in Africa are also related to seasonal rains and the appearance of temporary wetlands. The species breeds in solitary pairs, the timing of breeding varying geographically and depending on the growth of emergent vegetation and water-levels. After breeding the species



undergoes a flightless wing-molting period during which it may assemble in loose groups (up to 700 individuals) in rich feeding areas. During the winter the species is largely solitary or occurs in small groups of 5-30 individuals.

The species inhabits a wide range of small and shallow wetlands usually less than 1 m deep with rich vegetation (floating, submerged and emergent) and high densities of aquatic invertebrates, generally avoiding waters with large predatory fish. Suitable habitats include small lakes, ponds, the sheltered bays and vegetated shores of larger freshwater, alkaline or saline lakes and reservoirs, slow-flowing rivers, canals, flood-plain oxbows, coastal brackish lagoons, seasonally inundated areas, swamps, gravel pits, sewage lagoons and rice-fields. Outside of breeding season it is common on more open waters and is occasionally observed along the coast in estuaries or sheltered bays protected from strong wave action. When molting the species requires rich feeding areas.

Status: Least Concern. **Global population:** 610,000-3,500,000 adult individuals. The overall population trend is decreasing, although some populations may be stable and others have unknown trends.

Diet: Predominantly of adult and larval insects, especially mayflies, stoneflies, water bugs, beetles, flies, caddisflies and dragon flies, as well as freshwater snails, crustaceans, adult and juvenile frogs and newts and occasionally small fish.

It is an excellent swimmer and diver and pursues its fish and aquatic invertebrate prey underwater. It uses the vegetation skilfully as a hiding place.

Nesting: Sexes are alike but females are smaller. The adult is unmistakable in summer, predominantly dark above with its rich, rufous colored neck, cheeks and flanks, and bright yellow to white gape. In winter, its size, buff plumage, with a darker back and cap, and “powder puff” rear end enable easy identification of this species. The Iris is red-brown in Europe and red-brown or yellow in East Asia. The rufous is replaced by a dirty brownish grey in non-breeding and juvenile birds. Juveniles also have a yellow bill with a small black tip, and black and white streaks on the cheeks and sides of the neck. This yellow bill darkens as the juveniles age, eventually turning black in adulthood.

The Little Grebe's breeding call, given singly or in duet, is a trilled repeated *weet-weet-weet* or *wee-wee-wee* which sounds like a horse whinnying.

The nest is a floating platform of aquatic plant matter anchored to emergent vegetation, submerged branches or bushes close to the edge of shallow wetlands. Usually four to seven eggs are laid. When the adult bird leaves the nest it usually takes care to cover the eggs with weeds. This makes it less likely to be detected by predators. The young leave the nest and can swim soon after hatching, and chicks are often carried on the backs of the swimming adults.

Cool Facts: There are nine currently-recognized subspecies of Little Grebe, separated principally by size and coloration.

- *T. r. ruficollis* is found from Europe and western Russia south to North Africa.
- *T. r. iraquensis* is found in southeastern Iraq and southwestern Iran.
- *T. r. capensis* is found in Sub-Saharan Africa, Madagascar, Sri Lanka, and the Indian subcontinent, extending east to Burma.
- *T. r. poggei* is found from southeastern to northeastern Asia, Hainan, Taiwan, Japan, and south Kuril Islands.
- *T. r. philippensis* is found in the northern Philippines.
- *T. r. cotobato* is found on Mindanao.
- *T. r. tricolor* is found from Sulawesi to New Guinea and the Lesser Sundas.
- *T. r. volcanorum* is found from Java to Timor.
- *T. r. collaris* is found from northeastern New Guinea to Bougainville.

It does not normally interbreed with the larger grebes in the Old World, but a bird in Cornwall mated with a vagrant North American Pied-billed Grebe, producing hybrid young.

Common Name: Pied-billed Grebe
Scientific Name: *Podilymbus podiceps*

Size: 11.8-15 inches (30-38 cm); **Wingspan:** 17.7-24.4 inches (45-62 cm)

Habitat: North and South America; found in the continental United States through to the northern tip of South America and the southern portion of South America. It will summer in Canada where they are a resident to short-distance migrant. Individuals in northern North America and the Great Plains, where bodies of water freeze, migrate south as far as northern Central America. Populations in the southern U.S. and Mexico do not migrate. Migrants tend to move at night, landing on the nearest body of water at dawn.



Pied-billed Grebes live on bodies of flat or sluggish, fresh to slightly brackish water, at altitudes from sea level to about 8,000 feet.

Status: Least Concern. **Global population:** Unknown amount of adult individuals. Pied-billed Grebes are widespread and fairly common in most of the U.S. and southern Canada, though their populations experienced a small decline between 1966 and 2010, according to the North American Breeding Bird Survey.

Diet: Fish, invertebrates and some plant material. They catch small fish and invertebrates by diving or simply slowly submerging.

Nesting: Sexes are alike. These are brown birds, slightly darker above and more tawny-brown on the underparts. During spring and summer, the crown and nape are dark and the throat is black. While breeding, the bill is whitish with a black band (“pied”), but otherwise is yellow-brown. Juveniles have striped faces.

Both male and female may take part in selecting the nest site. Habitat types include freshwater wetlands, wet fields, bays, sloughs, marshes, lakes, slow-moving rivers, and even sewage ponds. Pied-billed Grebes can nest in moderately to heavily populated areas. They occupy similar habitats during migration and winter, favoring locations with water deeper than about 9 inches, which allows for escape, feeding, and nest platform construction. They create an open bowl nest on a platform of floating vegetation. The crude circular platform may be placed atop a lily leaf or built up from buoyant material, such as the stems of bulrushes and water lilies. Other added material may include Eurasian water-milfoil, sago pondweed, stonewort, cattails, and small sticks. Both sexes build the nest, and in as little as 1 day can construct a platform that will support an egg. Construction normally starts 3 to 5 days before egg-laying and continues during and after laying. The birds collect soft, flexible, fresh or partly decomposed plant material from beneath the water and clip off stiffer material near the surface. The nest bowl is 4–5 inches in diameter and about an inch deep, and may be expanded during egg-laying period to accommodate additional eggs.

Pied-billed Grebe chicks typically leave the nest the first day after hatching and spend much of their first week riding around on a parent’s back. They usually spend most of their first 3 weeks on or near the nest platform.

Cool Facts: The Latin genus name for “grebe” means “feet at the buttocks” which is an apt descriptor for these birds, whose feet are indeed located near their rear ends. This body plan, a common feature of many diving birds, helps grebes propel themselves through water. Lobed (not webbed) toes further assist with swimming. Pied-billed Grebes pay for their aquatic prowess on land, where they walk awkwardly.

Pied-billed Grebes can trap water in their feathers, giving them great control over their buoyancy. They can sink deeply or stay just at or below the surface, exposing as much or as little of the body as they wish. The water-trapping ability may also aid in the pursuit of prey by reducing drag in turbulent water.

Like other grebes, the Pied-billed Grebe eats large quantities of its own feathers. Feathers may at times fill up more than half of a grebe’s stomach, and they are

sometimes fed to newly hatched chicks. The ingested plumage appears to form a sieve-like plug that prevents hard, potentially harmful prey parts from passing into the intestine, and it helps form indigestible items into pellets which they can regurgitate.

Common Name: Western Grebe

Scientific Name: *Aechmophorus occidentalis*

Size: 22-30 inches (55-75 cm); **Wingspan:** 31-40 inches (79-102 cm)

Habitat: North America; breeds from British Columbia, Saskatchewan, and Minnesota south to southern California; sparsely in Arizona, New Mexico, and Colorado. They winter along the Pacific Coast from southeastern Alaska to California, on the Gulf Coast of Louisiana and Texas, and on large river systems in the West.

In winter, Western Grebes are found mostly on saltwater bays. During the breeding season they are found on freshwater wetlands with a mix of open water and emergent vegetation. The breeding areas are located in the central arid steppe and Big Sage/Fescue zones stretching from California north and east to south-central Canada.

Status: Least Concern. **Global population:** 80,000. Populations may be declining. Around 1900, Western Grebes were extensively hunted for their silky white breast and



belly feathers, which were used in clothing and hats. This aquatic species is also sensitive to pesticides, to other causes of poor water quality, and entanglement in fishing line. Western Grebes nest in colonies and can be flushed by boaters that approach too closely, leaving their nests vulnerable to gulls and other predators. On

their coastal wintering grounds they are vulnerable to oil spills and are caught in gill nets. According to NatureServe, their status is of particular concern near the edges of their range, in Kansas, Oklahoma, Wisconsin, and British Columbia, Canada.

Diet: Mostly fish such as carp, herring, mollusks, crabs, and salamanders.

Nesting: Sexes are alike. Western Grebes are large and slender with long necks and long, thin bills. Plumage is dark gray above and white below, with a clear color division. The top of the face is black, and the bottom white. The black extends below the eye in the Western Grebe. (In the closely related and similar-appearing Clark's Grebe, the black ends above the eye.) The bill of the Western Grebe is yellowish to dull olive.

The mating display of the Western Grebe is spectacular, with both members of a pair paddling vigorously and churning across the surface of the water in an upright posture. Sometimes many pairs in a colony display simultaneously.

Together, the male and female Western Grebe build a floating nest made of heaps of plant material anchored to emergent vegetation in a shallow area of a marsh. The female lays three to four bluish-white eggs, stained brown or buff, on a floating nest anchored to reeds., and both parents incubate. Once hatched, the young leave the nest almost immediately and ride on the backs of the parents. Both parents feed the young. Young are plain gray and white, not striped like the young of other grebes.

Cool Facts: Folk names include "dabchick", "swan grebe" and "swan-necked grebe".

Common Name: Australasian Grebe

Scientific Name: *Tachybaptus novaehollandiae*

Size: 9.8-10.6 inches (25-27 cm); **Wingspan:** 11-15 inches (28-38 cm)

Habitat: Australia/Oceania; greater Australia, New Zealand and on nearby Pacific islands.

The Australasian Grebe is found in freshwater ponds or small waterways.

Status: Least Concern. **Global Population:** Unknown amount of adult individuals. The overall population trend is increasing, although some populations may be stable and others have unknown trends.



Diet: Small fish and water insects. Prey is normally caught during deep underwater dives, but some is taken on the surface.

Nesting: Breeding plumage: Both sexes are dark brown above with a glossy-black head and neck and a striking chestnut facial stripe, extending from behind the eye to the

base of the neck. The eye is yellow, with a prominent pale yellow face spot below. Non-breeding plumage: Both sexes are generally duller, with no chestnut stripe, the face spot whiter, and throat and front grey-white. It is similar to non-breeding hoary-headed grebe which shares a similar range.

The Australasian Grebe may have up to three successive broods in a season. The pale blue eggs are laid in a nest which is a floating mound of vegetation, normally anchored to a submerged branch or reed. The striped downy chicks are able to swim from birth and are cared for by both parents. Both parents will raise the chicks; however, the male will leave after a couple of months when the chicks are about three-quarters grown. Initially the young will ride on the parents back, hidden between their slightly raised wings. When the chicks begin to dive and feed themselves (at about 10 weeks) the mother may leave too, although mothers have been known to return soon after, apparently to check on the chicks.

When parents start breeding again, however, the young of the previous brood are driven away. The parents are very protective and will try to drive away other water birds (ducks, herons) by confronting them and flapping their wings wildly or using their wings to splash water at the intruders.

Cool Facts: It is one of the smallest members of the grebe family, along with the least grebe and little grebe.

The Australasian grebe is an excellent swimmer and diver, and usually dives immediately when alarmed and swims away under water.

Like other grebes, the Australasian Grebe is often seen eating its own feathers and feeding them to its young. This behavior is thought to help prevent injury from any sharp fish bones that are swallowed.

They are not strong flyers and will fly distances only at night, presumably to avoid predators. They tend not to leave their home base if there is sufficient food. If disturbed, they will dive and re-surface 10–15 meters away rather than fly.

Common Name: American Coot
Scientific Name: *Fulica americana*

Size: 13-17 inches (34-43 cm); **Wingspan:** 23-28 inches (58-71 cm)

Habitat: The Americas; the breeding habitat extends from marshes in southern Quebec to the Pacific coast of North America and as far south as northern South America. Birds from temperate North America east of the Rocky Mountains migrate to the southern United States and southern British Columbia. It is often a year-round resident where water remains open in winter. The number of birds that stay year-round, near the northern limit of the species' range, appears to be increasing.



Autumn migration occurs from August to December, with males and non-breeders moving south before the females and juveniles. Spring migration to breeding ranges occurs from late February to mid-May, with males and older birds moving North first. There has been evidence of birds travelling as far north as Greenland and Iceland.

American Coots are found near water reed-ringed lakes and ponds, open marshes, and sluggish rivers. They prefer freshwater environments but may temporarily live in saltwater environments during the winter months.

Status: Least Concern. **Global population:** 6,000,000 adult individuals. This species has undergone a small or statistically insignificant decrease over the last 40 years in North America. They are common and widespread, and are sometimes even considered a pest. They are rarely the targets of hunters since their meat is not considered to be as good as that of ducks; although some are shot for sport, particularly in the southeastern United States. Because they are found in wetlands, scientists use them to monitor toxin levels and pollution problems in these environments.

Diet: Omnivorous diet consisting of algae and other aquatic vegetation. During breeding season, coots are more likely to eat aquatic insects and mollusks—which constitute the majority of a chick's diet. They usually dive for food but can also forage and scavenge on land.

Nesting: Females and males have similar appearances, but they can be distinguished during aggressive displays by the larger ruff (head plumage) on the male. Females are also smaller in size than males. Adults have a short, thick, white bill and white frontal shield, which usually has a reddish-brown spot near the top of the bill between the eyes. The bill has a small black stripe towards its end. It has yellow/grayish legs and feet.

The Coot mating season occurs during May and June. Coot mate pairings are monogamous throughout their life, given they have a suitable territory. The American Coot typically has long courtship periods. This courtship period is characterized by billing, bowing, and nibbling. Males generally initiate billing, which is the touching of bills between individuals. As the pair bond becomes more evident, both males and females will initiate billing only with each other.

After a pair bond is cemented, the mating pair looks for a territory to build a nest in. A pair bond becomes permanent when a nesting territory is secured. Copulation behavior among Coot pairs always falls under the same general pattern. First the male chases the female. The female then, moves to the display platform, and squats with her head under the water. The male then mounts the female, using his claws and wings to balance on the females' back while she brings her head above the water and copulation occurs in a few seconds.

Coots generally build floating nests at well-concealed locations in tall reeds. The female lays 8–12 eggs per clutch. Egg and brood nests are actually elaborate rafts, and must be constantly added to in order to stay afloat. Females typically do the most work while building.

Incubation start time in the American Coot is variable, and can begin anywhere from the deposition of the first egg to after the clutch is fully deposited. Male and female Coots share incubation responsibility, but males do most of the work during the 21-day incubation period.

Regardless of clutch size, eight is the typical maximum size of a brood. Egg desertion is a frequent occurrence among Coots because females will often deposit more than eight eggs. Brood size limits incubation time, and when a certain number of chicks have hatched the remaining eggs are abandoned. The mechanism for egg abandonment has not yet been discovered. Food resource constraints may limit the number of eggs parents let hatch, or the remaining eggs may not provide enough visual or tactile stimulation to elicit incubation behavior. In scientific studies, coots have been forced to hatch more eggs than are normally laid. These additional offspring, however, suffer higher mortality rates due to inadequacy in brooding or feeding ability.

Cool Facts: Coots are not ducks. Unlike the webbed feet of ducks, coots have broad, lobed scales on their lower legs and toes that fold back with each step in order to facilitate walking on dry land.

Groups of coots are called covers or rafts. The oldest known coot lived to be 22 years old.

Studies have found that mothers will preferentially feed offspring with the brightest plume feathers, a characteristic known as chick ornaments. American Coots are also susceptible to conspecific brood parasitism and have evolved mechanisms to identify which offspring are theirs and which are from parasitic females.

On the Louisiana coast, the Cajun word for coot is *pouldeau*, from French for "coot", poule d'eau – literally "water hen". Coot can be used for cooking; it is somewhat popular in Cajun cuisine, for instance as an ingredient for gumbos cooked at home by duck hunters.

Common Name: Eurasian Coot

Scientific Name: *Fulica atra*

Size: 13-17 inches (32-42 cm); **Wingspan:** 23-28 inches (58-71 cm)

Habitat: Eurasia and Africa; most populations in warm and temperate regions are resident, often making nomadic dispersive movements according to changing water levels and seasonal rainfall. Populations in northern Eurasia are fully migratory however, migrating on a broad front through continental Europe and across the Sahara. Southward movements occur from mid-August to November, with the return passage occurring from late-February to May. The species has recently expanded its range into New Zealand.



The species inhabits large, still or slow-flowing waters and shows a preference for shallow water with adjacent deeper water for diving, and muddy substrates, marginal, emergent, floating or submergent vegetation. It frequently exploits temporary pools and seasonally inundated marshes when breeding in Africa, and may extend to quiet estuaries or inshore waters in the winter. It generally avoids closely overgrown, narrowly confined and very shallow waters, and those overshadowed by trees when it flocks. If the bird is solitary, however, it will prefer more cover.

Status: Least Concern. **Global population:** 8,900,000-9,800,000 adult individuals.

The overall population trend is decreasing, although some populations are stable, fluctuating or have unknown trends. This species suffers disturbance and mortality from

hunting, and is poisoned by ingesting lead shot. It is also threatened by oil and petroleum pollution in the Kaliningrad region of Russia, and by habitat degradation and loss due to agricultural drainage schemes in Pakistan, wetland drainage, peat-extraction, changing wetland management practices (decreased grazing and mowing in meadows leading to scrub over-growth) and the burning and mowing of reeds. The species is often drowned in freshwater fishing nets with mesh sizes greater than 5 cm in China, and suffers predation from American mink in eastern Europe.

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

Diet: Omnivorous diet consisting of vegetable matter, such as algae, the vegetative parts of aquatic and terrestrial plants (e.g. waterweeds, bulrushes, reeds and grasses), the seeds of waterweeds, sedges, water-lilies, grasses and cereal crops, club moss *Selaginella* and aquatic fungi. Animal matter in its diet includes mollusks, adult and larval insects (especially flies, caddisflies, *Odonata*, *Lepidoptera*, beetles and bugs), worms, leeches, shrimps, spiders, small fish, fish eggs, frogs, birds and bird eggs, and small mammals.

Nesting: Sexes are alike with males being larger than females. Adult coots are entirely black with the exception of a white frontal shield on the bill and forehead. It has yellowish legs and gray feet. Juveniles are paler than adults with a whitish breast, and lack the facial shield. The adult black plumage develops when about 3–4 months old and the white shield appears at about one year old.

Coots are noisy birds with a wide repertoire of crackling, explosive, or trumpeting calls, often given at night.

The species nests in dispersed solitary pairs, although it is largely gregarious with flocks, sometimes of several thousand individuals, frequently forming during the migration. Adults undergo a post-breeding flightless molt period, with flocks of molting birds congregating from June-September. The species is diurnally active and roosts at sunset solitarily or in flocks.

The nest is a platform of vegetation that may be resting on the bottom of shallow water, floating or on a foundation of trampled plant matter in emergent vegetation. The species may also nest on artificial platforms, islands, rafts, tree stumps, tree forks or in bushes up to 3 m above the water. Up to 10 eggs are laid but nest predation from herons and gulls significantly reduce the amount of young who survive.

Cool Facts: The saying “Old Coot” and “Bald as a Coot” (*circa 1400 AD*) refers to the white patch on the beak and forehead of the coot.

Coots can be very brutal to their own young under pressure such as the lack of food. They will bite young that are begging for food and repeatedly do this until it stops

begging and starves to death. If the begging continues, they may bite so hard that the chick is killed.

Coots are reluctant to fly and when taking off, run across the water surface with much splashing. They do the same, but without actually flying, when travelling a short distance at speed in territorial disputes. As with many rails, its weak flight does not inspire confidence, but on migration, usually at night, it can cover surprisingly large distances. It bobs its head as it swims, and makes short dives from a little jump.

Hawaiian Name: 'ālae ke'oke'ō
Common Name: Hawaiian Coot
Scientific Name: *Fulica alai*

Size: 13-16 inches (30-40.6 cm); **Wingspan:** 23-28 inches (58-71 cm)

Habitat: Oceania; the Hawaiian Islands. On Kaua'i, Hawaiian Coot are usually found in lowland valleys, while the O'ahu populations are on the coastal wetlands. Maui Nui (Maui, Moloka'i and Lana'i) has the second largest population in the state (O'ahu is first). They are found at the islands' two largest wetlands: Kealia Pond National Wildlife Refuge and Kanaha Pond State Bird Sanctuary. The Big Island populations are found at 'Aimakapa and 'Opae'ula Ponds on the Kona coast, and at Waiakea and Loko Waka Ponds in Hilo.



Its natural habitats are freshwater lakes, freshwater marshes, coastal saline lagoons, and water storage areas.

Status: Endangered. **Global population:** 1,500-2,000 adult individuals. The Hawaiian Coot was listed as an endangered species in 1967 under the Federal Endangered Species Act.

On Oahu, Maui, Molokai and Kaua'i, the Hawaiian Coot was previously abundant in coastal brackish and fresh-water ponds, streams, and marshes; however, the first censuses conducted in the 1950s and 1960s detected fewer than 1,000 birds statewide. Since the 1960s, the inter-annual population size has fluctuated from less than 1,000 birds to over 3,000, and appears to be gradually increasing. Biannual surveys conducted by the Hawaiian Department of Land and Natural Resource's Division of Forestry and Wildlife (DOFAW) found that between 1998 and 2003 the inter-island coot population averaged 2,100 birds, ranging between 1,500 and 3,000 birds. Recent surveys estimated winter populations fluctuating around 1,500 birds and a summer population fluctuating around 2,000 birds.

Throughout its range, wetlands have been destroyed by drainage for cultivation and developments such as hotels, housing areas, golf courses, shopping centers, landfill sites, military installations, roads and industrial sites. Some water-bodies have become overgrown by introduced plants. On O`ahu, artificial wetlands associated with sugarcane plantations have disappeared as these industries have declined on the island.

Introduced predators are an additional threat including the black rat (*Rattus rattus*), brown rat (*Rattus norvegicus*), domestic cats and dogs, Asian mongoose (*Herpestes javanicus*) and Cattle Egret (*Bubulcus ibis*). The Asian mongoose is known to take the eggs, young birds and nesting adults of wetland bird species. Predation appears to be a serious problem on golf courses, where the Hawaiian Coot is most abundant. The species may be poisoned by insecticides and herbicides used to treat water channels on agricultural land and golf courses, as well.

Diet: Omnivorous diet consisting of seeds and leaves of aquatic plants, insects, tadpoles, and small fish. They usually dive for food but can also forage and scavenge on land.

Nesting: Sexes are alike with males being larger than females. Adult coots are dark slate gray with a white bill and a large frontal shield (patch on top of head). The frontal shield is usually white but can vary from bluish white to yellow to dark blood red. The bill has a small black stripe towards its end. They have white under-tail feathers that are seen when swimming or during their courtship displays. This coot has grayish, yellow tinged feet.

Their calls include a variety of short, harsh croaks, often given at night.

Adults undergo a post-breeding flightless molt period, with flocks of molting birds congregating from June-September. The species is diurnally active and roosts at sunset solitarily or in flocks.

The nest is a platform of vegetation that may be resting on the bottom of shallow water, floating or on a foundation of trampled plant matter in emergent vegetation. The species may also nest on artificial platforms, islands, rafts, tree stumps, tree forks or in bushes

up to 3 m above the water. Up to 10 eggs are laid but nest predation from herons and gulls significantly reduce the amount of young who survive.

Cool Facts: The Hawaiian Coot was once a popular game bird, but waterbird hunting was banned in 1939. State and Federal effort in protecting wetlands, enforcing strict hunting laws, educating, and working with private organizations and landowners, play an important role in ensuring the livelihood of the Hawaiian Coot and many other waterfowl.

Special Thanks to...

....my betatesters (FlintHawk and Rhonda)

...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.
- **"Gooses of the World: In Nature, History, Myth & Art"** by Alice L. Price
- **"Birds of Europe"** by Killian Mullarney, Lars Svensson, Dan Zetterstorm and Peter J. Grant.
- **"Birds of East Asia"** by Mark Brazil.
- **"Handbook of Australian, New Zealand and Antarctic Birds"** by S. Marchant and P. J. Higgins
- **"Waterbirds of Australia"** by J.D. Pringle

Internet Sources:

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

Appendix

Maps Used on the Waterfowl in this Set

Duck Species	Main Map Diffuse	Main Map Bump, Displacement & Specular	Wing Map Diffuse	Wing Map Bump, Displacement & Specular	Tail Map
American Coot	AmerCootM1.JPG	AmerCootM1_b.JPG AmerCootM1_d.JPG	AmerCootM2.JPG	sbrm_d2_b.JPG	AmerCootM3.jpg
Eurasian Coot	EurCootM1.JPG	EurCootM1_b.JPG EurCootM1_d.JPG	AmerCootM2.JPG	sbrm_d2_b.JPG	AmerCootM3.jpg
Hawaiian Coot	HawCootM1.JPG	EurCootM1_b.JPG	AmerCootM2.JPG	sbrm_d2_b.JPG	HawCootM3.jpg
Black-throated Diver	BTLoonM1.JPG	BTLoonM1_b.JPG BTLoonM1_s.JPG	GNLoonM2.JPG	sbrm_d2_b.JPG GNLoonM2_s.JPG	BWDuck3.JPG
Canada Goose	canadagooseM1.JPG	canadagooseM1_b.JPG canadagooseM1_s.JPG	canadagooseM2.JPG	canadagooseM2_b.JPG canadagooseM2_s.JPG	canadagooseM4.JPG
Egyptian Goose	egyptgooseM1.JPG	GreylagGooseM1_b.JPG GreylagGooseM1_s.JPG	EgyptGooseM2.JPG	canadagooseM2_b.JPG canadagooseM2_s.JPG	NSMDuck3.JPG
Emperor Goose	EmpGooseM1.JPG	GreylagGooseM1_b.JPG GreylagGooseM1_s.JPG	EmpGooseM2.JPG	canadagooseM2_b.JPG canadagooseM2_s.JPG	NSMDuck3.JPG
Greylag Goose	GreylagGooseM1.JPG	GreylagGooseM1_b.JPG GreylagGooseM1_s.JPG	GreylagGooseM2.JPG	canadagooseM2_b.JPG canadagooseM2_s.JPG	NSMDuck3.JPG
White-fronted Goose	WFGooseM1.JPG	GreylagGooseM1_b.JPG GreylagGooseM1_s.JPG	WFGooseM2.JPG	canadagooseM2_b.JPG canadagooseM2_s.JPG	WFGoose3.JPG
Australasian Grebe	LittleGrebeMb1.JPG	LittleGrebeM1_b.JPG LittleGrebeM1_s.JPG	LittleGrebeM2.JPG	sbrm_d2_b.JPG LittleGrebeM2_s.JPG	NSFDuck3.jpg
Little Grebe1	LittleGrebeM1.JPG	LittleGrebeM1_b.JPG LittleGrebeM1_s.JPG	LittleGrebeM2.JPG	sbrm_d2_b.JPG LittleGrebeM2_s.JPG	NSFDuck3.jpg
Little Grebe2	LittleGrebeMa1.JPG	LittleGrebeM1_b.JPG LittleGrebeM1_s.JPG	LittleGrebeM2.JPG	sbrm_d2_b.JPG LittleGrebeM2_s.JPG	NSFDuck3.jpg
Pied-billed Grebe	PBGrebeM1.JPG	PBGrebeM1_b.JPG PBGrebeM1_s.JPG	PBGrebeM2.JPG	sbrm_d2_b.JPG PBGrebeM2_s.JPG	NSFDuck3.jpg
Western Grebe	WestGrebeM1.JPG	WestGrebeM1_b.JPG pbGrebeM1_s.JPG	WestGrebeM2.JPG	sbrm_d2_b.JPG pbGrebeM2_s.JPG	WestGrebeM3.JPG
Great Northern Loon	GNLoonM1.JPG	GNLoonM1_b.JPG GNLoonM1_s.JPG	GNLoonM2.JPG	sbrm_d2_b.JPG GNLoonM2_s.JPG	BWDuck3.JPG

Poser Rendering with Ambient Occlusion Lighting

Because of the high use of specular maps and quirks in Poser rendering in the Waterfowl series, ambient occlusion lighting may produce unexpected results such as seams, grid patterns and odd shadowing. Seams appear to show up on neck lines when rendered at a distance, but not when close-up. Grids sometimes appear on close-up renders but not at distances.

The Ambient Occlusion lighting does not appear to add to the realism in rendering of the waterfowl so it is suggested that it not be used, if these issues appear.

Songbird ReMix Merchandise



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