

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

Songbird ReMix Shorebirds

Volume Three: Small Waders

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Songbird ReMix Shorebirds

Volume Three: Small Waders

Introduction


“Songbird ReMix Shorebirds Volume Three: Small Waders” is the final part of a three volume set encompassing birds commonly found in freshwater and coastal wetlands and marshes throughout the world. “Small Waders” features most of the common smaller birds such as Avocets, Curlews, Godwits, Plovers and Sandpipers.

Overview and Use for Poser Users

Select **Figures** in Poser and go to the **Songbird ReMix** folder. Here you’ll find an assortment of files that are easily broken into 2 groups: **Conforming Parts** and **Bird Base models**. Let’s look at what they are and how you use them:

- **Bird Base Models**
 - **<WF7> Waterfowl 7 Base Model** - This model is used with semi-palmate (partially webbed) footed birds with a “Shorebird” rear toe in this package. See the “WF7” icon in the lower right corner? This corresponds with characters in the Pose folders. All MAT/MOR files with the “WF7” icon use this model. Load this model first and then the appropriate *Conforming Parts* if needed.
- **Conforming Parts** - No conforming parts are needed for this Shorebirds volume. It is possible that with future add-on volumes and/or future free download Birds that they *may* be needed.

Conforming Crest Quick Reference

Load Model(s)	To Create... (apply MAT/MOR files)
 The icon shows a red bird with a long beak. Above it is the text 'Waterfowl 7 Base' and below it is a circular logo with 'WF7' and 'Songbird ReMix'.	<ul style="list-style-type: none">• All birds included in this volume.

Creating a Songbird ReMix Bird

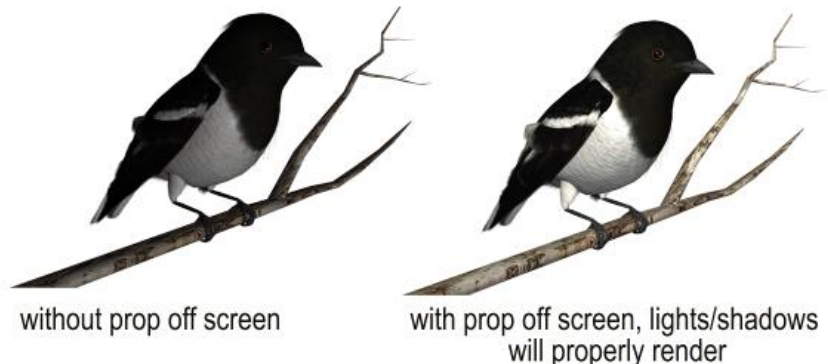
1. Choose what you want to load. For this example, we'll create a Curlew species.
2. Load Poser or DAZ Studio and select **FIGURES** and the Songbird ReMix folder. DAZ Studio users will select the "Poser Formats" → "My Library" → "FIGURES" → "Songbird ReMix".
3. Because all of the Curlews use the "WF7" base model we'll load that.
4. Go to the **POSES** folder and **Songbird ReMix** Master folder, then select the appropriate Songbird Remix library. This again, for DAZ Studio users will be found in the "Poser Formats" file section.
5. Select one of the Curlew Species and load/apply it by clicking the mouse on to our loaded Songbird ReMix base model. This species pose contains morph and texture settings to turn the generic model into the selected Curlew. It will automatically apply the correct DAZ Studio material settings if you are using DAZ Studio.

Displacement in Poser 5+

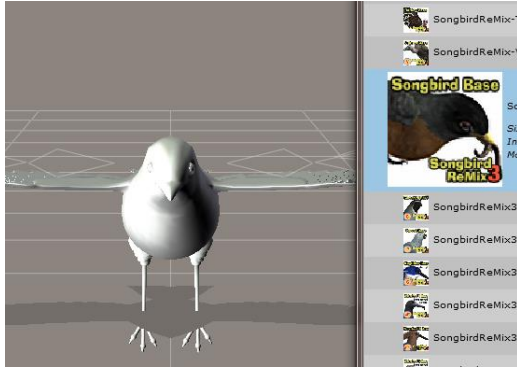
In Poser, several settings will help to bring out the best in this bird set. Under "Render Settings" (CTRL+Y) make sure you check "**Use Displacement Maps**" and (in some rare cases) the "**Remove Backfacing Polys**" boxes. In some poses, the wing morphs will expose backfacing polygons which tend to render black. Clicking the "Remove Backfacing Polys" fixes this.

Scaling and Square Shadows in Poser

All the birds in this package have to scaled proportionally to DAZ 3D's Victoria and Michael models. The smallest of the included birds **MAY** render with a Square shadow or improper lighting. This is a bug in Poser. Poser can't figure out how to render a shadow for something really small, so it creates a square shadow. The solution is to put a larger item that casts a normal Poser shadow in the scene (even if it is off camera) and the square shadows will be fixed or **BODY** scale the bird to a larger size.

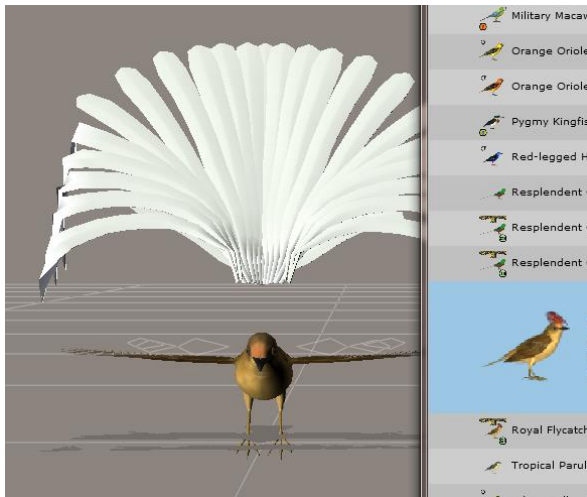
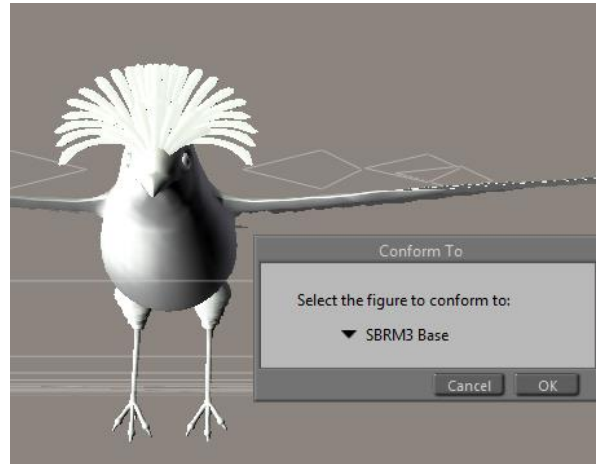


How to build a Songbird ReMix Character with a Conforming Crest in Poser



1. In the Figures section, load a Bird base Model. Then load the appropriate conforming part for the bird you're trying to create.
2. **Conform it** to the bird base model.

3. Select the Base Model and go to **POSES**. Select and apply the appropriate Character/Material pose setting for the bird you're creating.



4. The Conforming part will look wrong. That's okay—we're going to fix that now. Select the conforming part and apply appropriate Character/Material pose for the part.

5. Voila! Your bird is done. Just remember to select the bird base when posing and often there are additional morphs in the conforming part you can use.



Updates and Freebies

The Songbird ReMix series is constantly growing and improving. New morphs and additions to upcoming and future products often end up benefiting existing sets with new geometry, morphs and textures.

Songbirdremix.com always has the latest updates and additions to existing Songbird ReMix products (often months before they are updated at DAZ), plus the latest digital and real bird news, tutorials, videos, all the Field Guides, free bird characters, props and much more...

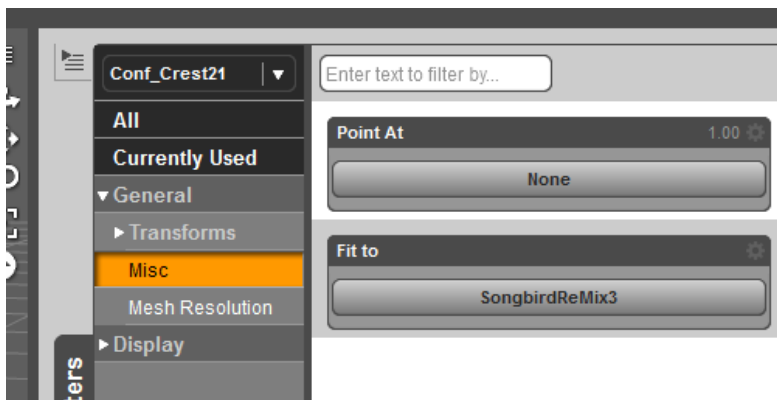
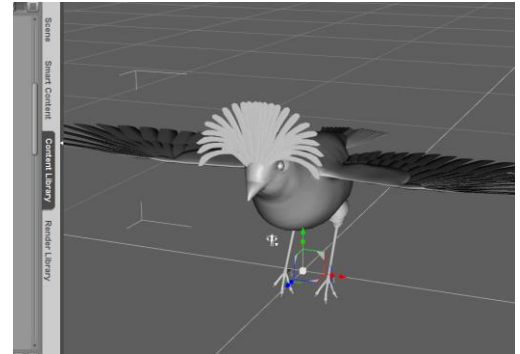
[Songbird ReMix.com](http://SongbirdReMix.com)



How to build a Songbird ReMix Character with a Conforming Crest in DAZ Studio

In the **Runtime** folder, select **Figures** and load the Songbird ReMix Model and the appropriate Conforming Crest in Studio. Select the Conforming Crest by selecting on the screen or in the **Scene** Tab.

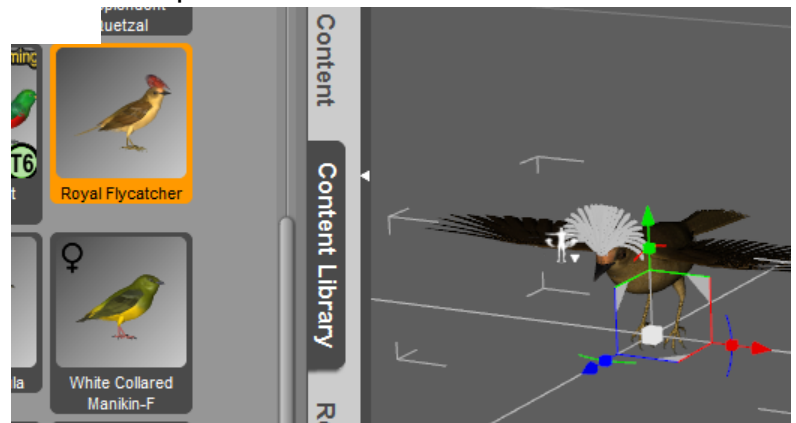
Now, using the “FIT TO” command in the Parameters Tab, Select the Songbird ReMix Model. Go back to the **Scene** Tab and select the Songbird ReMix Model.



Select the Studio **Content** Folder and go to the **Animals : SBRM : !CreateYour Own : Characters** folder and select the appropriate Songbird Remix library. Apply the Character setting to the bird base. It will probably reduce the size significantly and change the shape of the bird.

Now that the bird is sized, select the conforming part and apply the conforming part character settings.

Voila! Your bird is done. Just remember to select the bird base when posing and often there are additional morphs in the conforming part you can use.



Birds in Flight

Thigh Smoothing for Flight

When the thighs are pulled back, often they appear 'lumpy' in the model. Each Thigh section has to '**SmoothThigh4Flight**' morph to correct this. This morph is used in the flight poses that are provided.

Wing Length

Because the Waterfowl models is a 'generic' model that allows a large variety of birds, it not always be exact in the wing length of certain species. The **WingFold** morph does not allow the **WingLength** to be altered. The preset poses included turn the **WingLength** to "0" will the **WingFold** morph is used. The **WingLength** is set to "1.5" in the included flight poses. While the "1.5" setting is a good balance of the species included in this package, you may want to increase or reduce the wingspan to be totally accurate in your bird renders depending on species.

Other Tips

Small Wader Fake Injury Poses

Some small waders such as Plovers and Killdeer will feint a broken wing in order to distract predators from their nearby nests.



Songbird ReMix Shorebirds

Volume Three: Small Waders

Field Guide

Small Waders

Snowy or Kentish Plover

Killdeer

American Avocet

Black-neck Stilt

Greater Yellowlegs

Whimbrel

Long-billed Curlew

Eurasian Curlew

Black-tailed Godwit

Ruddy Turnstone

Wandering Tattler

Least Sandpiper

Spoon-billed Sandpiper

Great Knot

Dunlin

Long-billed Dowitcher

Common Name: Snowy or Kentish Plover
Scientific Name: *Charadrius alexandrinus*

Size: 5-7 inches (13-18 cm)

Habitat: North and South America, Europe, Africa, and Asia; In North America it is restricted to the Gulf and Pacific coasts of the United States, and scattered inland localities from Saskatchewan to California and Texas. Found on beaches, lagoons, and salt-evaporation ponds on coasts and barren to sparsely vegetated salt flats and braided river channels inland.

Status: Threatened. **Global population:** 300,000-460,000. Despite this species' breeding tenacity, its numbers are small. Only about 21,000 individuals inhabit the United States; numbers in the rest of North America are largely undocumented but probably small. Along the U.S. Pacific and Gulf coasts, the population is shrinking because of habitat degradation and expanding recreational use of beaches. The spread of European beachgrass has reduced nesting habitat along the coast.



The Pacific Coast population (*Charadrius alexandrinus nivosus*) has been listed as threatened by the U.S. Fish and Wildlife Service since 1973. This plover is a Bird Species of Special Concern in California. Snowy plovers were listed as endangered under Washington Department of Game Policy No. 402 in 1981, and as threatened by the Oregon Fish and Wildlife Commission in 1975. The threatened status in Oregon was

reaffirmed in 1989 under the Oregon Endangered Species Act.

Each summer, breeding populations of the Western Snowy Plovers are monitored by State Parks, Audubon chapters, PRBO Conservation Science, Department of Defense, and many others. Hundreds of volunteers, including many Audubon members, have assisted with nesting season data collection and community outreach and restoration. In California, protection efforts for breeding birds which have halted the decline documented in the 1980s can be attributed to habitat restoration, predator management, leash laws, symbolic fencing, and

controlled off-road vehicle use. Despite some local success stories, plovers remain at risk from habitat loss, predation, and disturbance, and are still absent from many locations in their historic range.

Diet: Small crustaceans, mollusks, marine worms, and insects. They typically forage by pausing, running, and pecking at the ground.

Nesting: Snowy Plovers breed in loose colonies, and they are gregarious in winter. During courtship, the male displays for the female by scraping a nest and bowing next to the female while flashing the white on his tail. Breeding adults defend their nesting territory, but may forage away from defended areas with other Snowy Plovers.

Snowy Plovers nest in the open on the ground. Males construct a shallow scrape nest on open, bare ground, sometimes near a clump of grass or piece of driftwood. The nest is lined with shell fragments and other bits of debris. Females typically lay three eggs, and both parents incubate. Males incubate at night and females during the day. Their clutches frequently are destroyed by predators, people, or weather, but they renest readily after these losses, up to six times in some locations. Double brooding is common and triple brooding regular where the breeding season is long. In such circumstances, females desert their mates and broods about the time the chicks hatch and initiate new breeding attempts with other mates.

Pairs typically separate following hatching, and the female finds a new mate to breed with for a second brood that season. Adult Snowy Plovers usually run when approached by humans or predators, but may fly if startled. Adults sometimes feign injury to distract intruders away from nests or chicks.

Cool Facts: The Snowy Plover, known as the Kentish Plover in Europe, is a cosmopolitan species with at least five races over a range that includes portions of North and South America, Europe, Africa, and Asia.

Young Snowy Plovers leave their nest within three hours of hatching. They flatten themselves on the ground when a parent signals the approach of people or potential predators. They walk, run, and swim well and forage unassisted by parents, but require periodic brooding for many days after hatching.

Common Name: Killdeer

Scientific Name: *Charadrius vociferus*

Size: 8-11 inches (20-28 cm)

Habitat: North and Central America; across most of Canada, the United States, and Mexico, with isolated populations in Costa Rica and in the Pacific coast of South America. They are migratory in northern areas and winter as far south as northern South America. They are rare vagrants to Western Europe, usually late in the year. Common to open ground with low vegetation (or no vegetation at all), including lawns, golf courses, driveways, parking lots, and gravel-covered roofs, as well as pastures, fields, sandbars and mudflats. Generally the vegetation in fields inhabited by Killdeer is no taller than one inch. This species is one of the least water-associated of all shorebirds.

Status: Least Concern. **Global population:** 1,000,000. The Killdeer is one of the most successful of all shorebirds because of its fondness for human modified



habitats and its willingness to nest close to people. Because they live so close to people, however, they are vulnerable to pesticide poisoning and collisions with cars and buildings. The Killdeer is protected under the Migratory Bird Treaty Act of 1918.

Diet: Invertebrates, such as earthworms, snails, crayfish, grasshoppers, beetles, and aquatic insect larvae. It will follow a farmers' plow in hopes of retrieving any unearthed worms or insect larvae. Will also

eat seeds left in agricultural lands. An opportunistic forager, Killdeer have been observed hunting frogs and eating dead minnows.

Nesting: The nest is a shallow depression scratched into the bare ground, typically 3-3.5 inches across. Its type of nest is called a scrape. Killdeer may make several scrapes not far away from each other before choosing one to lay in. The

duplication may help to confuse predators. Eggs are buff-colored, heavily marked with blackish-brown and usually 4-6 are laid.

The male and female of a mated pair pick out a nesting site through a ritual known as a scrape ceremony. The male lowers his breast to the ground and scrapes a shallow depression with his feet. The female then approaches, head lowered, and takes his place. The male then stands with body tilted slightly forward, tail raised and spread, calling rapidly. Mating often follows.

After egg-laying begins, Killdeer often add rocks, bits of shell, sticks, and trash to the nest. Curiously, these items tend to be light colored, and this tendency was confirmed in one experiment that gave Killdeer the choice between light and dark sticks. Some of these items they pick up as they are leaving and toss over their shoulder into the nest. In one nest in Oklahoma, people found more than 1,500 pebbles had accumulated this way

Cool Facts: Killdeer get their name from the shrill, wailing kill-deer call they give so often. Eighteenth-century naturalists also noticed how noisy Killdeer are, giving them names such as the Chattering Plover and the Noisy Plover.

Killdeer spend their time walking along the ground or running ahead a few steps, stopping to look around, and running on again. When disturbed they break into flight and circle overhead, calling repeatedly.

Their flight is rapid, with stiff, intermittent wingbeats.

While the Killdeer is a well-known denizen of dry habitats, it is actually a proficient swimmer. Adults swim well in swift-flowing water, and chicks can swim across small streams.

Gravel rooftops attract Killdeer for nesting, but can be dangerous places to raise a brood. Chicks may be unable to leave a roof because of high parapets and screened drain openings. Adults eventually lure chicks off the roof, which can be dangerous – although one set of chicks survived a leap from a seven-story building.

Killdeer like other plover's will faint injury to protect their nests. The broken-wing act leads predators away from a nest, but doesn't keep cows or horses from stepping on eggs. To guard against large hoofed animals, the Killdeer uses a quite different display, fluffing itself up, displaying its tail over its head, and running at the beast to attempt to make it change its path.

The oldest known Killdeer was 10 years 11 months old.

Common Name: American Avocet
Scientific Name: *Recurvirostra americana*

Size: 18 inches (45.7 cm)

Habitat: North America; winters on the southern Atlantic and Pacific coasts of Mexico and the United States. Shallow fresh and saltwater wetlands.

Status: Least Concern. **Global population:** 100,000 - 1,000,000. Populations declined in the 1960s and 1970s, largely from the loss of wetlands from water diversion for human use. Contamination of wetland habitat with selenium caused increased developmental abnormalities and mortality. Since 1995, owners of selenium-contaminated sites in northern California have been required to provide safe wetland habitat for the species. Breeding success on the newly created sites has been much greater than initially expected, but long-term prospects for

breeding at these sites are not clear. Avocets are protected under the Migratory Bird Treaty Act of 1918.



Diet: Crustaceans and insects. Forages in shallow water or on mud flats, often sweeping its bill from side to side in water

Nesting: Breeding Coloration: The neck and head are cinnamon colored in the summer and gray in the winter.

The breeding habitat is marshes, beaches, prairie ponds, and shallow lakes in the mid-west and on the Pacific coast of North America.

A scrape styled nest in the ground, lined with grass or other vegetation, feathers, pebbles, or other small objects, or completely unlined.

Avocets nest in small groups, sometimes with other waders. A pair will rear one brood per season, with both male and female providing parental care for the young.

Cool Facts: This avocet has long, thin, gray legs, giving it its colloquial name, "blue shanks".

In response to predators, the American Avocet sometimes issues a series of call notes that gradually changes pitch, simulating the Doppler Effect and thus making its approach seem faster than it actually is.

Nesting American Avocets aggressively attack predators, sometimes physically striking Northern Harriers or Common Ravens.

A female American Avocet may lay one to four eggs in the nest of another female, who then incubates the eggs. American Avocets may parasitize other species' nests too; single American Avocet eggs have been found in the nests of Mew Gulls. Other species may also parasitize avocet nests. Avocets have incubated mixed clutches of their own eggs and those of Common Terns or Black-necked Stilts. The avocets reared the stilt hatchlings as if they were their own.

American Avocet chicks leave the nest within 24 hours after hatching. Day-old avocets can walk, swim, and even dive to escape predators.

Common Name: Black-necked Stilt
Scientific Name: *Himantopus mexicanus*

Size: 14 inches (35.5 cm)

Habitat: North and South America; from the coastal areas of California through much of the interior western United States and along the Gulf of Mexico as far east as Florida, then south through Central America and the Caribbean to NW Brazil SW Peru, E Ecuador and the Galápagos Islands. The northernmost populations, particularly those from inland, are migratory, wintering from the extreme south of the USA to southern Mexico, rarely as far south as Costa Rica; on the Baja California peninsula it is only found regularly in winter.

Found along the edges of shallow water in open country at Shallow fresh and saltwater wetlands, including salt ponds, rice fields, shallow lagoons, and mangrove swamps.



Status: Least Concern. **Global population:** 200,000 to 2,000,000. While populations are increasing in United States, the stilt remains vulnerable to habitat alteration. Hawaiian subspecies was reduced to about 200 birds in 1940s, but now up to about 1,500, but still listed there as federal Endangered Species. Stilts are protected under the Migratory Bird Treaty Act of 1918.

Diet: Mainly crustaceans and other arthropods, and mollusks – and small fish, tadpoles and very rarely plant seeds. Feeds in shallow water, while wading or swimming. Locates food by sight and snaps it up, sometimes sticking head completely underwater, or swipes the head and bill through water.

Nesting: Males have a greenish gloss to the back and wings,

particularly in the breeding season. This is less pronounced or absent in females, which have a brown tinge to these areas instead. Otherwise, the sexes look alike.

Stilts chooses mudflats, desiccated lacustrine verges, and levees for nest locations, as long as the soil is friable. Reproduction occurs from late April through August in North America, with peak activity in June while tropical populations usually breed after the rainy season. The nests are typically sited within one kilometer of a feeding location, and the pairs defend an extensive perimeter around groups of nests, patrolling in cooperation with their neighbors. Spacing between nests is approximately 65 ft (c.20 m), but sometimes nests are within 7 ft (2 m) of each other and some nests in the rookery are as far as 130 ft (40 m) from the nearest neighbor. The Black-necked Stilt is actually classified as semicolonial since the nests are rarely found alone and colonies usually number dozens, rarely hundreds of pairs. The nests are frequently established rather close to the water edge, so that their integrity is affected by rising water levels of ponds or tides. This is particularly a hazard in the case of managed salt ponds where water levels may be altered rapidly in the salt pond flooding process.

The clutch size generally is 3-5 eggs with an average of four. For 22–26 days both sexes take turns incubating the eggs. The young are so precocial that they are seen swimming within two hours after hatching and are also capable of rapid land velocity at that early time. In spite of this early development the young normally return to the nest for resting for one or two more days. They fledge after about one month but remain dependent on their parents for some more weeks. Birds begin to breed at 1–2 years of age.

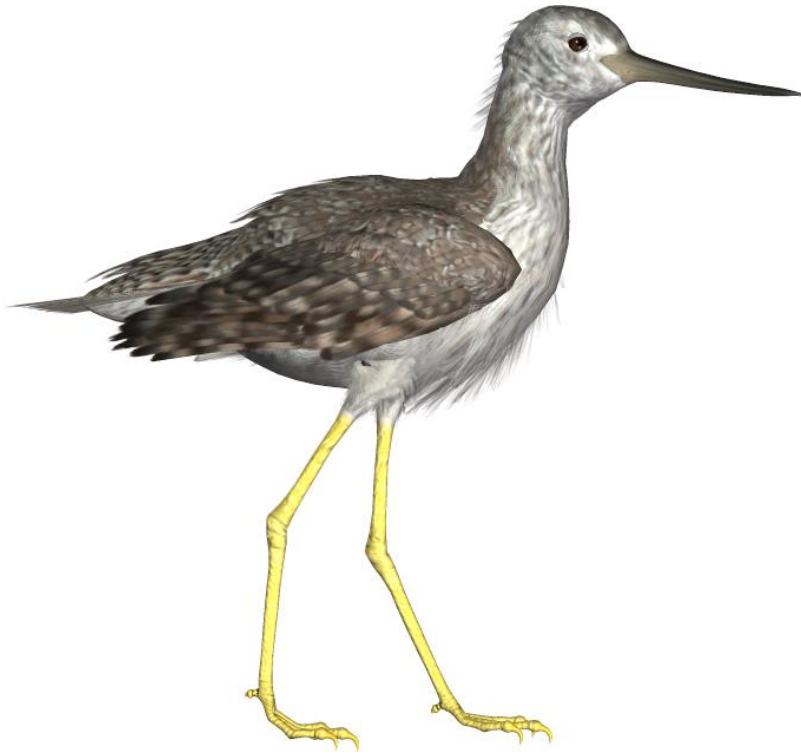
Cool Facts: Five species of rather similar-looking stilts are recognized in the genus *Himantopus*. They have the second-longest legs in proportion to their bodies of any bird, exceeded only by flamingos. The Hawaiian subspecies of Black-necked Stilt has the black of its neck reaching much farther forward than the mainland forms. Habitat loss and hunting led to the decline in its numbers. It uses primarily the few freshwater wetlands found on the Hawaiian Islands.

The stilt call is a sharp yipping which is given continuously when disturbed.

Common Name: Greater Yellowlegs
Scientific Name: *Tringa melanoleuca*

Size: 11 ½ -14 inches (29-35.5 cm)

Habitat: North America; They migrate to the Atlantic and Pacific coasts of the United States and south to South America. They are very rare vagrants to Western Europe. Breeds in muskeg, wet bogs with small wooded islands, and forests (usually coniferous) with abundant clearings. Winters in wide variety of shallow fresh and saltwater habitats.



Status: Least Concern.
Global population: 100,000. Yellowlegs are protected under the Migratory Bird Treaty Act of 1918.

Diet: Small aquatic and terrestrial invertebrates, small fish, frogs, and occasionally seeds and berries. Foraging behavior: Wades in water and picks up prey it sees, sweeps bill side-to-side through water to catch prey by feel.

Nesting: Their breeding habitat is bogs and marshes in the boreal

forest region of Canada and Alaska. They nest on the ground, usually in well-hidden locations near water in a shallow scrape or depression in moss or peat on ground, lined with dead leaves, lichens, grasses, and short, thin spruce twigs. They lay 3-4 eggs. The incubation period is 23 days. The young leave the nest within 24 hours of hatching and then leave vicinity of the nest within 2 days.

Cool Facts: The two yellowleg species are very similar. Size is marked different when they appear together and can be compared against each other. Greater Yellowlegs's bill appears slightly upturned and blunt-tipped, while Lesser Yellowlegs's bill is straight and sharp-pointed. Lesser's bill is always dark, while Greater's bill is grayish at the base in nonbreeding season. Voice is best distinguishing character: Greater gives three or four piercing notes, Lesser two rapid, softer short whistles (sometimes two or three).

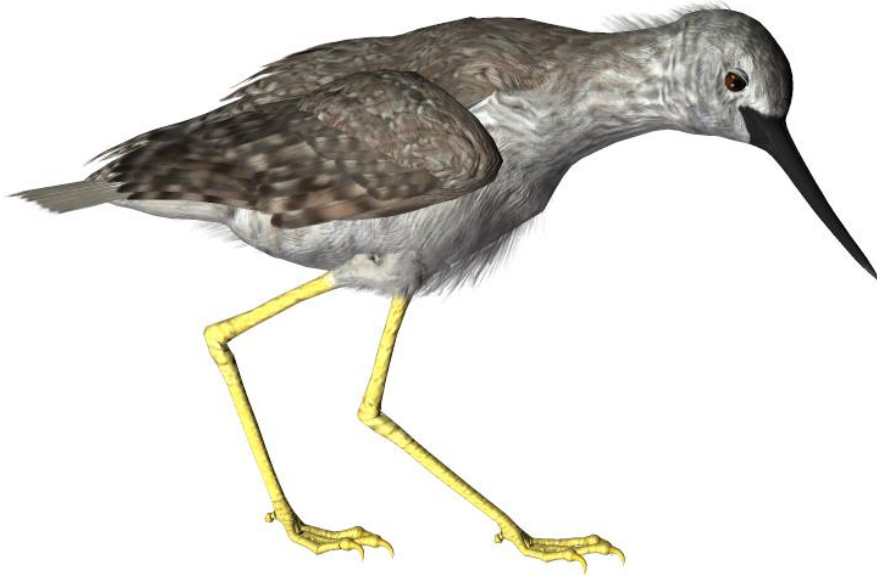
Common Name: Lesser Yellowlegs
Scientific Name: *Tringa flavipes*

Size: 9-10 inches (23-25 cm)

Habitat: North America; breeding habitat from Alaska to Quebec. This species is a regular vagrant to Western Europe, and the odd bird has wintered in Great Britain. Breeds in open boreal forest with scattered shallow wetlands. Winters in wide variety of shallow fresh and saltwater habitats..

Status: Least Concern. **Global population:** 400,000. Yellowlegs are protected under the Migratory Bird Treaty Act of 1918.

Diet: Insects, small fish and crustaceans. These birds forage in shallow water, sometimes using their bill to stir up the water.



Nesting: Their breeding habitat is bogs and marshes in the boreal forest region of Canada and Alaska. They nest on the ground, usually in well-hidden locations near water. The nest is a scrape, a depression in ground or moss, lined with dry grass, decayed leaves, spruce needles or other debris, placed

on dry, mossy ridges or hummocks, next to fallen branches and logs, and underneath low shrubs. They lay 3-4 eggs. The incubation period is 23 days. The young leave the nest within 24 hours of hatching and then leave vicinity of the nest within 2 days. Both the male and female Lesser Yellowlegs provide parental care to the young, but the female tends to leave the breeding area before the chicks can fly, thus leaving the male to defend the young until fledging.

Cool Facts: The two yellowleg species are very similar. Size is marked different when they appear together and can be compared against each other. Greater Yellowlegs's bill appears slightly upturned and blunt-tipped, while Lesser Yellowlegs's bill is straight and sharp-pointed. Lesser's bill is always dark, while Greater's bill is grayish at the base in nonbreeding season. Voice is best distinguishing character: Greater gives three or four piercing notes, Lesser two rapid, softer short whistles (sometimes or or three).

Common Name: Whimbrel

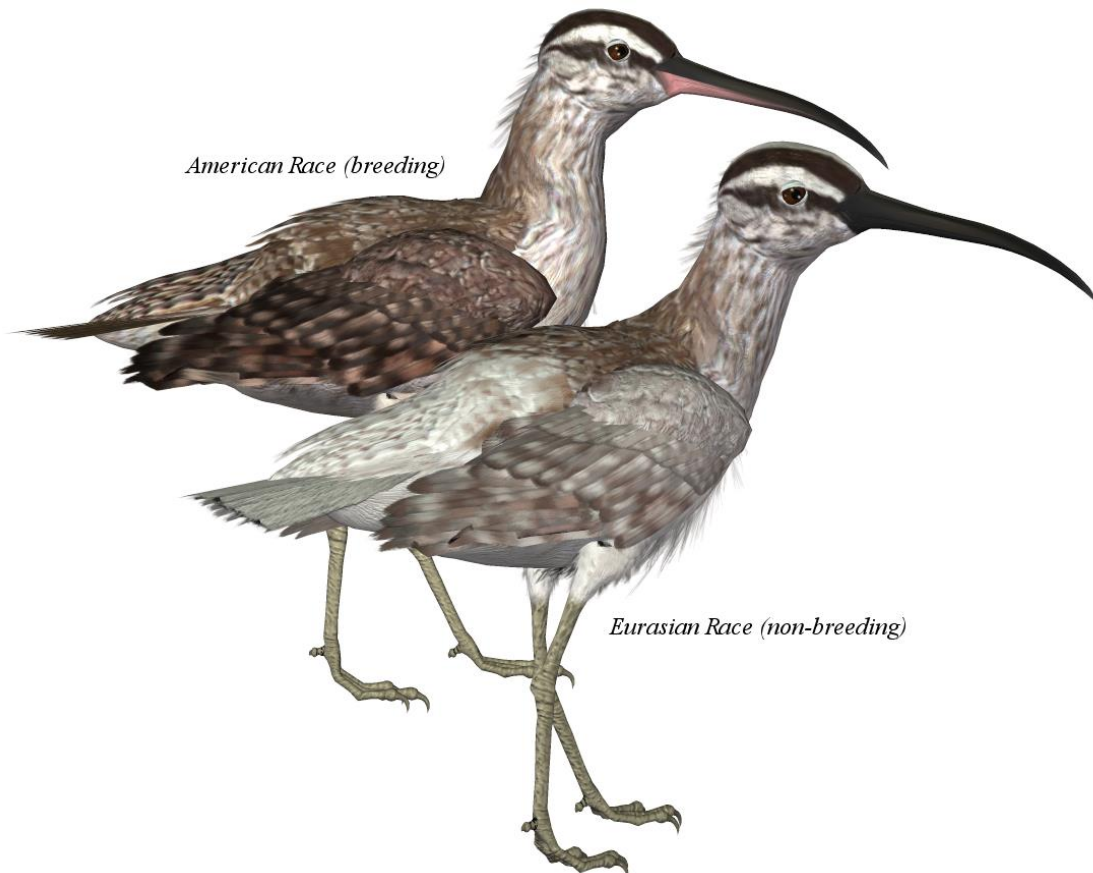
Scientific Name: *Numenius phaeopus*

Size: 17.5 inches (44.5 cm)

Habitat: Worldwide; breeds in the Arctic in the eastern and western hemispheres, and migrates to South America, Africa, south Asia, and Australia. Breeds in various tundra habitat, from wet lowlands to dry heath. In migration, frequents various coastal and inland habitats, including fields and beaches. Winters in tidal flats and shorelines, occasionally visiting inland habitats.

Status: Least Concern. **Global population:** 1,000,000-2,300,000. Numbers declined sharply during 19th century, because of hunting for sport and food. No definitive information is available on current population trends. The greatest current threat to the species is loss of coastal wetland habitat; environmental contamination, including cadmium wastes from mining in Chile, also poses increasing risks to the species. The species is susceptible to avian influenza so may be threatened by future outbreaks of the virus. Whimbrels are protected under the Migratory Bird Treaty Act of 1918 in the US.

Diet: Primarily marine invertebrates, especially small crabs, but also insects, berries, and even flowers during breeding season. It uses its long, down-curved



bill to probe deep in the sand of beaches for invertebrates and it picks berries with tip of bill, then releases and catches the berry in its throat.

Nesting: Both sexes are similar with the female being larger. The immature are similar to the adult. During breeding season, lower beaks turn pinkish.

Nest is a shallow bowl on the ground, usually lined with leaves. 2-5 Blue-green or brown to buff eggs are laid. Adults are very defensive of nesting area and will even attack humans who come too close. It is fairly gregarious outside the breeding season.

Cool Facts: It is the one of the most widespread of the curlews, breeding across much of subarctic North America, Europe and Asia as far south as Scotland.

There are four distinct subspecies of Whimbrel are recognized: one breeds in North America, one from Iceland to northwest Siberia, one in southern Russia, and one in eastern Siberia. The American form was formerly considered a separate species, the Hudsonian Curlew. Whereas the Eurasian forms have white backs, and some white rumps, the American form has a brown rump and back.

Some migrating Whimbrels make a nonstop flight of 4,000 km (2,500 miles) from southern Canada or New England to South America.

In many regions, the primary winter food of the Whimbrel is crab. The curve of the Whimbrel's bill nicely matches the shape of fiddler crab burrows. The bird reaches into the crab's burrow, extracts the crab, washes it if it is muddy, and sometimes breaks off the claws and legs before swallowing it. Indigestible parts are excreted in fecal pellets.

Common Name: Long-billed Curlew
Scientific Name: *Numenius americanus*

Size: 19 ¾ - 25 ½ inches (50-65 cm)

Habitat: North America; native to central and western prairie regions of the Canada and the United States. In the winter, the species migrates southwards, as well as towards the coastline, end up in the southern USA and Mexico, with birds occurring irregularly in Guatemala, Honduras, El Salvador and Costa Rica. Breeding habitat is grasslands in west-central North America.

Status: Least Concern. **Global population:** 50,000-123,000 with a decreasing trend. The population was significantly reduced at the end of the 19th century by hunting. Numbers have rebounded somewhat in more recent times. It was formerly classified as a Near Threatened species by the IUCN, but new research has confirmed that the Long-billed Curlew is again common and widespread. Consequently, it is downlisted to Least Concern status in 2008. New threats are constant. Sea-level rise may reduce the amount of available intertidal wintering habitat in future, while the loss and conversion of large areas of short grass prairie into agricultural land within its range has presumably had a major impact upon the species and is likely to be the most important threat at present. Long-billed



Curlew are facing increasing threats in the grasslands and prairies of North America, both on their breeding and wintering grounds. In addition, Long-billed Curlew range contractions on the eastern edge of their range continue to cause concerns. It is protected under the Migratory Bird Treaty Act of 1918 in the US.

Diet: Crabs and various other small invertebrates, grasshoppers, beetles and other insects. This bird has occasionally been known to eat the eggs of other birds. It probes the mud using its long bill foraging for suitable food, usually feeding in flocks.

Nesting: This species exhibits sexual dimorphism, The female Long-billed Curlew's bill is longer than the male's, and is a different shape. Hers is flatter on top with a more pronounced curve at the tip. His is gently curved throughout its length. The juvenile's bill is distinctly shorter than the adults' during its first few months, but it may be equal to the male's length some time in its first year.

The species displays an elaborate courtship dance during breeding season. Fast and looping display flights are also common. A small hollow is lined with various weeds and grasses to serve as the nest. Ordinarily, four eggs are laid. The eggs vary in hue from white to olive. The Long-billed Curlew is a precocial bird, and the chicks leave the nest soon after hatching. Both the male and female Long-billed Curlew incubate the eggs, and both are aggressive in defense of nests and young. The female typically abandons the brood two to three weeks after hatching and leaves brood care to her mate. Despite this abandonment the same male and female often pair with each other again the next year.

Cool Facts: This species was also called "sicklebird" and the "candlestick bird". Candlestick Point in San Francisco was named after this indigenous bird, and subsequently Candlestick Park stadium inherited the name. Ironically, the species had dramatically declined in the San Francisco area by the early 20th century already, being "practically extinct" in San Mateo County in 1916. By the time the stadium was constructed in the 1950s, the last remnants of the flocks of "candlestick birds" - which formerly numbered in the thousands - were being slaughtered by hunters until, at least temporarily, none were left.

Common Name: Eurasian Curlew
Scientific Name: *Numenius arquata*

Size: 21 ½ inches (50-57 cm)

Habitat: Europe and Asia; widely distributed, breeding across Europe from the British Isles, through north-western Europe and Scandinavia into Russia extending east into Siberia, east of Lake Baikal. It winters around the coasts of north-west Europe, the Mediterranean, Africa, the Middle East, the Indian Subcontinent, South-East Asia, Japan and the Sundas. The species breeds on upland moors, peat bogs, swampy and dry heathlands, fens, open grassy or boggy areas in forests, damp grasslands, meadows, non-intensive farmland in river valleys, dune valleys and coastal marshlands. Non-breeding: During the winter the species frequents muddy coasts, bays and estuaries with tidal mudflats and sandflats, rocky and sandy beaches with many pools, mangroves, saltmarshes, coastal meadows and muddy shores of coastal lagoons, inland lakes and rivers. It also utilizes wet grassland and arable fields during migration.

Status: Near Threatened. **Global population:** 770,000-1,065,000 with a decreasing population trend. Threatened by the loss and fragmentation of moorland habitats as a result of afforestation and of marginal grassland habitats



as a result of agricultural intensification and improvement (e.g. drainage, inorganic fertilization and reseeded). The species also suffers from high egg and chick mortalities (due to mechanical mowing) and higher predation rates if nesting on improved grasslands. Conversely populations in the central Asian steppes have declined following abandonment of farmland and subsequent increases in the height of vegetation, rendering large areas unsuitable for nesting. It has also suffered population declines as a result of hunting, and is susceptible to avian influenza so may be threatened by future outbreaks of the virus. The European Commission have commissioned a management plan for the species which has been updated for 2007-2009. The species occurs in a large number of protected areas throughout its range and features in several national monitoring schemes. This is one of the species to which the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) applies.

Diet: Annelid worms and terrestrial insects (e.g. Coleoptera and Orthoptera) especially during the summer, although it will also take crustaceans, mollusks, polychaete worms, spiders, berries and seeds, as well as occasionally small fish, amphibians, lizards, young birds and small rodents. It feeds by probing soft mud for small invertebrates.

Nesting: Males and females look identical, but the bill is longest in the adult female. The nest is a shallow depression on the ground or on a mound in the open or in the cover of grass or sedge often far from water.

Cool Facts: This species is often referred to just as "the Curlew", and in Scotland a colloquial name is "whaup".

It is generally wary during breeding season but highly gregarious outside of the breeding season.

Scientists believed the Eurasian Curlew to be rarer than generally assumed. Following the evaluation of its population size, this was found to be correct, and it is consequently uplisted to Near Threatened status in 2008; though it is still a rather common bird, its numbers are noticeably declining.

Common Name: Black-tailed Godwit
Scientific Name: *Limosa limosa*

Size: 15¾ - 17¼ inches (40-44 cm)

Habitat: Worldwide; it has a large discontinuous breeding range extending from Iceland to the Russian far east, with wintering populations in Europe, Africa, the Middle East and Australasia. Found in cattle pastures, hayfields, lowland wet grasslands, grassy marshland, raised bogs and moorland, lake margins and damp grassy depressions in steppe. Subspecies *islandica* shows a distinct preference for large patches of dwarf-birch bog and marsh, particularly with abundant sedge-pools. Extensive farmland habitats are of critical importance for breeding Western European populations. After the young have fledged, adults

and fledgelings often move to secondary habitat which more closely resembles that of their non-breeding range, including wet damp areas around fish-ponds and sewage farms, tidal marshes, mud flats and salt-water lagoons. *Non-breeding* Subspecies *limosa* tends to winter in freshwater habitats, including swampy lake shores, pools, flooded grassland and irrigated rice fields. Subspecies *islandica* and *melanuroides*, however, often winter in brackish habitats such as sheltered estuaries and lagoons with large intertidal mudflats, sandy beaches, salt-marshes and salt-flats



Status: Near Threatened. **Global population:** 630,000-805,000 with a decreasing trend. Loss of nesting habitat owing to wetland drainage and agricultural intensification, and conversely, abandonment, are the most significant threats. Detrimental activities include the conversion of wet meadows to arable land, increased fertilization and drainage of grassland, artificial flooding of nesting habitats, earlier and more frequent cutting, spring burning and overgrowing by scrub. On intensively grazed pastures, trampling is a major cause of nest loss. Habitat fragmentation may cause particular problems for this species, which nests in dispersed colonies and sub-colonies as protection against predators and may be unlikely to breed successfully in small areas of habitat. Hunting is another significant threat. In the European Union (EU), only France continues to legally hunt this species, although a small amount of illegal

hunting occurs elsewhere. Annual bag statistics indicate that c. 1,000 Black-tailed Godwits are shot each year, down from >100,000 per year in 1980-1990. Outside the EU, for example on the African wintering grounds, hunting is known to occur but its scale and impact is unknown. Water pollution is probably an issue in parts of the species' range, and drought in the West African wintering quarters may have had negative impacts on the mainland European population. The Icelandic population is potentially at risk from the policy of the Icelandic government to encourage afforestation of the lowland habitats where they breed. Juvenile birds which select good wintering sites also select good breeding sites¹⁴, therefore maintaining high quality wintering sites is crucial to raising productivity on breeding grounds and slowing the rate of decline. There is a marked decrease in the density of breeding birds near to roads, particularly those with heavy traffic. The occurrence of natal philopatry means that a decrease in local recruitment could prove catastrophic for individual breeding sites.

An EU Management Plan for 2007-2009 has been adopted, and an AEWA Action Plan is in preparation. Intensive management of breeding habitat has been carried out in some Western European countries, and a number of agri-environment schemes focus on this species, although results have been mixed. It occurs in a number of protected areas.

Diet: Adult and larval insects (especially beetles), annelid and polychaete worms, mollusks, ragworms, crustaceans, spiders, fish eggs, and the spawn and tadpoles of frogs. On the breeding grounds grasshoppers and other orthopterans are often prevalent in the diet. Particularly during the winter and on migration it will also take plant material including berries, seeds and rice grains

Nesting: The nest is placed on the ground in short, often luxurious vegetation. It consists of a shallow scrape 12-15cm in diameter, lined with a thick mat of stem grass, leaves and other available vegetation. Breeding birds show a high degree of nest site fidelity¹ and some degree of natal philopatry. It breeds from April to mid-June in loose, semi-colonial groups of up to 3 pairs. Non-breeding birds remain in flocks, often near to the breeding colonies.

Cool Facts: This species is highly gregarious and migrates on a broad front, making long-distance flights, often overland between relatively few staging and wintering areas. As soon as the young fledge, breeding birds begin to congregate in loose flocks of up to 500 individuals. The species migrates southwards between late-June and October. During the autumn migration it may roost in flocks of tens of thousands in favored sites, and many adults pause in North Morocco in July to molt. The return passage occurs between February and April, and birds arrive at the breeding grounds in groups of 5-30 individuals. Many one-year-old birds remain in the wintering range during the summer. During the winter and migration the species usually forages gregariously.

Common Name: Ruddy Turnstone
Scientific Name: *Arenaria interpres*

Size: 8 $\frac{3}{4}$ - 9 $\frac{1}{2}$ inches (22-24 cm)

Habitat: Northern Hemisphere; Breeding range from northern Alaska and in Arctic Canada as far east as Baffin Island. to western Alaska, Ellesmere Island, Greenland, Norway, Denmark, Sweden, Finland, Estonia, northern Russia, Baltic coast of Germany and has possibly bred in Scotland and the Faroe Islands. In Europe it winters in western regions from Iceland, Norway and Denmark southwards. Only small numbers are found on Mediterranean coasts. In Africa it is common all the way down to South Africa with good numbers on many offshore islands. In Asia it is widespread in the south with birds wintering as far north as southern China and Japan (mainly in the Ryukyu Islands).



In the Americas, the species winters on coastlines from Washington and Massachusetts southwards to the southern tip of South America although it is scarce in southern parts of Chile and Argentina and is only an unconfirmed vagrant in the Falkland Islands. It occurs south to Tasmania and New Zealand and is present on many Pacific islands. Some non-breeding birds remain year round in many parts of the wintering range, with some of those birds still taking on breeding plumage in the spring and summer.

It can survive in a wide range of habitats and climatic conditions from Arctic to tropical. The typical breeding habitat is open tundra with water nearby. Outside the breeding reason, it is found along coasts, particularly on rocky or stony shores. It is often found on man-made structures such as breakwaters and jetties. It may venture onto open grassy areas near the coast. Small numbers sometimes turn up on inland wetlands, especially during the spring and autumn migrations. Birds are often faithful to particular sites, returning there year after year.

Status: Least Concern. **Global population:** 460,000 - 800,000. The species suffers nest predation from feral American mink and is susceptible to avian influenza so may be threatened by future outbreaks of the virus. The turnstone is protected under the Migratory Bird Treaty Act of 1918 in the US.

Diet: Insects, crustaceans, mollusks (especially mussels or cockles), annelids, echinoderms, small fish, carrion and birds eggs. *In breeding season:* Diptera (especially adult and larval midges) as well as larval Lepidoptera, Hymenoptera, Coleoptera and spiders, occasionally also taking vegetable matter.

Nesting: At all seasons, the plumage is dominated by a harlequin-like pattern of black and white. Breeding birds have reddish-brown upper parts with black markings. The head is mainly white with black streaks on the crown and a black pattern on the face. The breast is mainly black apart from a white patch on the sides. The rest of the underparts are white. In flight it reveals a white wingbar, white patch near the base of the wing and white lower back, rump and tail with dark bands on the uppertail-coverts and near the tip of the tail. The female is slightly duller than the male and has a browner head with more streaking.

Non-breeding adults are duller than breeding birds and have dark grey-brown upperparts with black mottling and a dark head with little white. Juvenile birds have a pale brown head and pale fringes to the upperpart feathers creating a scaly impression.

It is a monogamous bird and pairs may remain together for more than one breeding season. The nest is a shallow scrape, often with a lining of leaves. It is about 11 cm across and 3 cm. It may be built amongst vegetation or on bare stony or rocky ground. Several pairs may nest close together.

A single clutch of two to five eggs is laid with four being most common. The eggs measure about 41 mm by 29 and weigh around 17.9 g They are smooth, slightly glossy and oval to pear-shaped. They are variable in color but are commonly pale green-brown with dark brown markings, densest at the larger end. Incubation begins when the first egg is laid and lasts for about 22–24 days. The female is mainly responsible for incubating the eggs but the male may help towards the end.

Cool Facts: Birds of the subspecies *Arenaria interpres morinella* are smaller with darker upperparts and less streaking on the crown.

The Ruddy Turnstone has a staccato, rattling call and also a chattering alarm-call which is mainly given during the breeding season.

Common Name: Wandering Tattler
Scientific Name: *Heteroscelus incanus*

Size: 10¼ - 11¾ inches (26-30cm)

Habitat: North America, South America and Australia; Migration from Alaska and northwest Canada to the southern California coast and beyond, with some birds crossing the Pacific Ocean to spend the winter in Australia and on islands in the South Pacific. Found on rugged, rocky coastlines, jetties, and breakwaters, but during migration may be found on sandy beaches and coastal estuaries.

Status: Least Concern. **Global population:** 10,000 - 25,000. Although the global population of this species is small, it is widespread and therefore more immune



to regional threats. Protected under the Migratory Bird Treaty Act of 1918.

Diet: Various adult and larval flies, especially caddisflies and crane flies during the breeding season. On wintering grounds, forages by probing among the kelp and rocks of outer coast marine habitat for crustaceans, marine worms, small mollusks and small animals

that scramble among the rocks. Occasionally wades in deep water, and may immerse its head completely to catch food.

Nesting: The nest of the Wandering Tattler is located on the ground in a hollow in rocks or gravel, usually near a stream. It is a shallow depression that may or may not be lined with small twigs, rootlets, or leaves. Both parents help incubate. Four olive or green eggs marked with brown are laid. Incubation ranges from 23 to 25 days and is carried out by both parents. Once hatched the young leave the

nest within a day and can feed themselves immediately. Both parents tend the young, although within a week or two, one parent leaves. The remaining parent tends the young until they are independent.

Cool Facts: The name "wandering" refers to its widespread occurrence over vast portions of ocean. "Tattler" refers to its voice; its practice of giving alarm calls when perceived threats are nearby, alerting other shorebirds to the danger. Its call is a series of clear, hollow whistles, all on one pitch. It is believed that hunters named the bird for these calls, which warn other birds of approaching danger.

A group of tattlers are collectively known as a "whisper" of tattlers.

A characteristic bird of the rocky Pacific Coast, they bob and teeter while feeding, and move nervously and quickly over rocks, probing for active prey on the surface. On the breeding grounds, they walk or wade along streams to find food.

Wandering Tattlers are basically solitary birds, on the ground and especially in flight.

Common Name: Least Sandpiper
Scientific Name: *Calidris minutilla*

Size: 5-6 inches (13-15 cm)

Habitat: North and South America; breeding habitat is the northern North American continent. They migrate to the southern United States and northern South America. They occur as very rare vagrants in Western Europe. Breeds in mossy or wet grassy tundra, occasionally in drier areas with scattered scrubby bushes. Migrates and winters in wet meadows, mudflats, flooded fields, shores of pools and lakes, and, less frequently, sandy beaches.

Status: Near Threatened. **Global population:** 700,000. It is protected under the Migratory Bird Treaty Act of 1918.

Diet: Crustaceans, insects and snails. They forage on mudflats, picking up food by sight, sometimes by probing.



Nesting: In winter, Least Sandpipers are grey above. The juveniles are brightly patterned above with rufous coloration and white mantle stripes.

Their breeding habitat is the northern North American continent on tundra or in bogs. They nest on the ground near water. The female lays 4 eggs in a shallow scrape lined with grass and moss. Both parents incubate; the female leaves before the young birds fledge and sometimes before the eggs hatch. The young birds feed themselves and are able to fly within two weeks of birth.

Cool Facts: The Least Sandpiper is the smallest shorebird in the world.

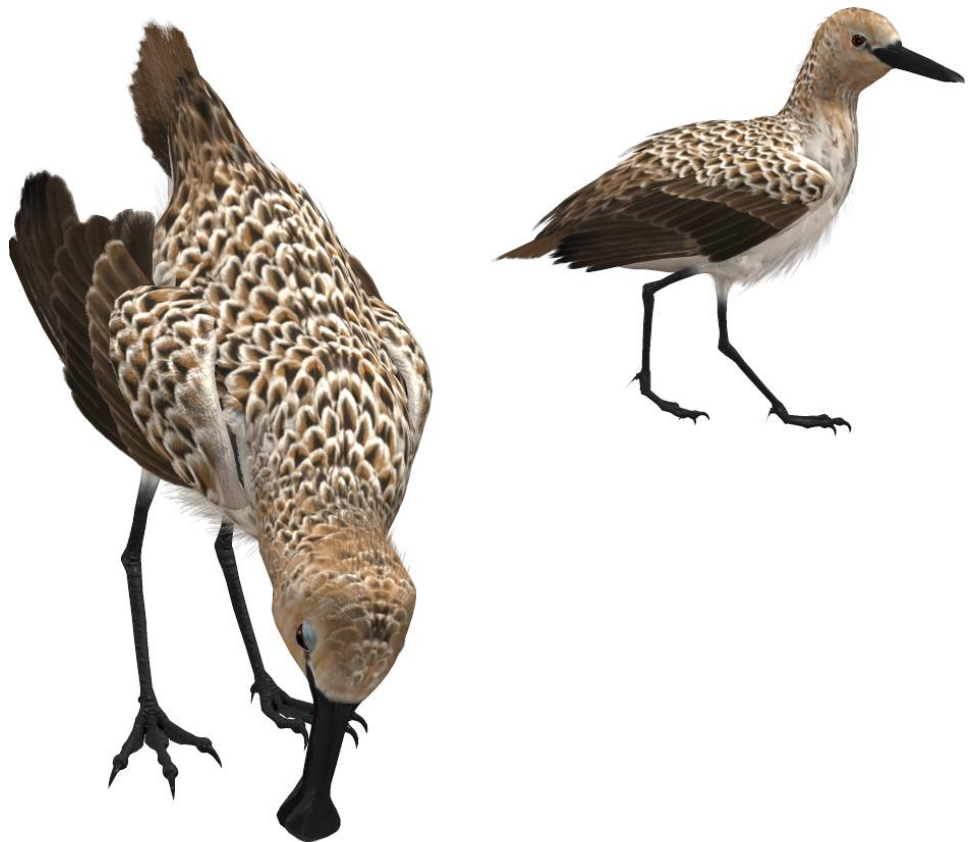
Although it is a relatively numerous shorebird, the Least Sandpiper tends to occur in flocks of dozens or hundreds, rather than thousands like some other sandpipers. It also tends to forage at the upper edge of mudflats or along drier margins of inland ponds than other related small sandpipers.

Common Name: Spoon-billed Sandpiper
Scientific Name: *Eurynorhynchus pygmeus*

Size: 5½ - 6¼ inches (14-16 cm)

Habitat: Asia; it has a limited breeding range on the Chukotsk peninsula and southwards up to the isthmus of the Kamchatka peninsula, in north-eastern Russia. It migrates down the western Pacific coast through Russia, Japan, North Korea, South Korea, mainland China, Hong Kong (China) and Taiwan (China), to its main wintering grounds in Bangladesh and Myanmar. Wintering birds have also been recorded from India, Bangladesh, Sri Lanka, Myanmar, Thailand, Vietnam, the Philippines, Peninsular Malaysia and Singapore. Found almost exclusively at sea-coasts where there are sandy ridges sparsely vegetated by mosses, dwarf willows and grasses, interspersed with or neighboring to salt marshes and brackish ponds.

Status: **Critically endangered.** **Global population:** 450-1,000 with a decreasing trend. Breeding success is very low: average productivity was 0.66 young fledged per nest in 2005, and much lower in 2007, and this is compounded by a very low rate of juveniles and adults returning to the breeding grounds. The species now has an ageing and rapidly declining population with little recruitment.



Throughout its migratory and wintering ranges, tidal flats are being reclaimed for industry, infrastructure and aquaculture and are becoming increasingly polluted. The important staging area at Saemangeum and Geum estuary, South Korea, including the Mangyeung and Tongjin estuaries, has already been reclaimed, and remaining wetlands are under serious threat of reclamation in the near future. Although not specifically targeted, it is regularly caught in nets set to catch other waders for food in the

key wintering areas of Bangladesh and Myanmar. There are no immediate threats to the breeding grounds, but nests are sometimes destroyed by dogs. Human disturbance, both by residents and researchers, may cause increased levels of nest desertion and predation by foxes and skuas. Shorebirds, including this species, are also occasionally killed by children with slingshots; one male was also shot by a Russian hunter near the Chinese border in 2008. Small but significant numbers of birds and their eggs have been collected for scientific purposes in the last 20 years, with one small colony completely wiped out due to this activity. 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 57% of the breeding habitat for this species could be lost by 2070.

Protected areas in its breeding, staging and wintering areas include Moroshechnaya and several local wildlife refuges on the Chukotsk peninsula (Russia), Yancheng and Chongming Dongtan (China), Mai Po (Hong Kong), Lanyang estuary (Taiwan), Point Calimere and Chilka lake (India), and Xuan Thuy Nature Reserve (Vietnam). Annual surveys are undertaken of breeding sites on Chukotka and over 450 adults and young have been ringed on the breeding grounds since 2000. Local support groups have been established in some breeding areas and negotiations have taken place to reduce short-term hunting pressure at one of the key wintering sites in Myanmar. A Species Action Plan was produced in 2008.

Diet: Insects, crustaceans, worms, mollusks, and seeds. It feeds in shallow water or wet mud, sweeping the spatulate bill from side to side much like larger spoonbills do.

Nesting: Sexes appear alike; Females slightly larger. During breeding season, plumage around the throat and head have an orange brown tint. It has a very specialized breeding habitat, using only lagoon spits with crowberry-lichen vegetation or dwarf birch and willow sedges, together with adjacent estuary or mudflat habitats that are used as feeding sites by adults during nesting. The species has never been recorded breeding further than 5 km from the sea shore. Breeding birds are very site faithful and monogamous. Nesting occurs in June and July. Clutches contains usually four eggs and incubation occurs in 18–20 days, by both parents. Females leave when chicks are four to six days old, leaving the males to rear the young.

Cool Facts: With its spatulate bill the Spoon-billed Sandpiper is unique among waders. It is the only globally threatened sandpiper breeding in the Arctic.

Spoon-billed Sandpipers are very territorial; the male's display flight includes hovering, circling and diving, and uttering a buzzing trill.

Common Name: Great Knot
Scientific Name: *Calidris tenuirostris*

Size: 9 ½ - 10 ½ inches (24-27 cm)

Habitat: Asia and Australia; this species is a long-distance migrant that largely travels along the coast making few stopovers but utilizing different routes in the autumn and the spring. It breeds from late-May to late-June, departing the breeding grounds in July and arriving on the wintering grounds between August and October. The return migration to the breeding grounds takes place from March to April although juvenile non-breeders often remain in the tropical parts of the wintering range for the breeding season. The species forages in large flocks of one hundred to several thousand at favored sites on passage, but during the winter it typically forages in small groups. The species breeds on gravelly areas

covered with lichen and patches of herbs, heather, Empetrum spp., Dryas spp. and Vaccinium spp., or alternatively on areas with a continuous layer of lichen and scattered stunted larch Larix spp. or dwarf pine Pinus pumila. It occurs on plateaus or gentle slopes with montane tundra in the subarctic at heights of 300-1,600 m. Non-breeding In its wintering range the species occurs in sheltered coastal habitats such as inlets, bays, harbors, estuaries and lagoons with large



intertidal mud and sandflats, oceanic sandy beaches with nearby mudflats, sandy spits and islets, muddy shorelines with mangroves and occasionally exposed reefs or rock platforms. It roosts in refuges such as shallow water in sheltered sites, on coastal dunes or on saltflats amongst mangroves during high tides. On passage the species stages in estuaries and on intertidal mudflats.

Status: Least Concern. **Global population:** 380,000 - 390,000. While this species is not officially “threatened” there are threats... In the Chinese, North Korean and South Korean regions of the Yellow Sea (a major stopover area) the species is threatened by the degradation and loss of wetland habitats through environmental pollution (e.g. oil contamination of intertidal mudflats), reduced river flows and human disturbance (e.g. from off-road vehicles, tourists and hunters).

Great Knot are listed as threatened on the Victorian Flora and Fauna Guarantee Act (1988) and endangered on the 2007 advisory list of threatened vertebrate fauna in Victoria, in Australia.

Diet: Diet depends on the breeding cycle. Breeding adults diet consists predominantly of plant material such as berries (*Empetrum nigrum*) and pine kernels of dwarf pines (*Pinus pumilla*). Small chicks feed exclusively on insects and spiders. Non-breeding Knots during the winter and on passage the species takes bivalves up to 36 mm long from intertidal mudflats as well as gastropods, crustaceans (such as crabs and shrimps), annelid worms and echinoderms (such as sea cucumbers) These birds forage on mudflats and beaches, probing or picking up food by sight.

Nesting: Nests may be an open depression in moss, but very few nests have been found

Cool Facts: It is the largest of the calidrid species.

Common Name: Dunlin
Scientific Name: *Calidris alpina*

Size: 8 ½ inches (21.6 cm)

Habitat: Northern Hemisphere; fully migratory circumpolar breeder in Arctic or subarctic regions. Birds that breed in northern Europe and Asia are long-distance migrants, wintering south to Africa and Southeast Asia. Birds that breed in Alaska and the Canadian Arctic migrate short distances to the Pacific and Atlantic coasts of North America, although those nesting in Northern Alaska overwinter in Asia.

In the breeding season this species frequents moist boggy ground interspersed with surface water, such as tussock tundra and peat-hummock tundra in the arctic, as well as wet coastal grasslands, salt marshes and wet upland moorland. In the non-breeding season this species mainly prefer estuarine mudflats, but



also frequent a wide variety of freshwater and brackish wetlands, both coastal and inland, including lagoons, muddy freshwater shores, tidal rivers, flooded fields, sewage farms, salt-works, sandy coasts, lakes and dams. For roosting during high tides and at night this species prefers large fields of naturally fertilized short pasture or soil-based crops with few vertical structures that could be used by predators.

Status: Least Concern. **Global population:** 4,600,000-6,500,000. This species is significantly threatened by the loss of its breeding habitat through afforestation of moorland. It may also suffer from nest predation by introduced mammals (e.g. European hedgehog *Erinaceus europeaus*) on some islands. Baltic Sea coastline adjacent to the Kaliningrad region of Russia are threatened by petroleum pollution, wetland drainage for irrigation, peat-extraction, reedbed mowing and burning, and abandonment and changing land management practices leading to scrub and reed overgrowth. The Dunlin is one of the species to which the Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) applies.

Diet: Mostly adult and larval insects (dipteran flies, beetles, caddisflies, wasps, sawflies and mayflies), and also spiders, mites, earthworms, snails, slugs and plant matter (usually seeds).

Nesting: Juveniles are brown above with two whitish "V" shapes on the back. They usually have black marks on the flanks or belly and show a strong white wingbar in flight.

Its nest is a scrape or shallow depression in the ground, concealed in vegetation and sometimes in a tuft or tussock (and thus raised slightly off the ground). Typically four eggs are laid and incubated by the male and female parents. Chicks are precocial, however are brooded during early development. They start to fly at approximately three weeks of age. The majority of brood care is provided by the male, as the female deserts the brood and often leaves the breeding area.

Cool Facts: The species breeds dispersed or aggregated in loose colonies, and travels in group sizes of up to 1,500 on passage, remaining in large groups (up to hundreds of thousands of birds) throughout the non-breeding season.

The species is active both diurnally and nocturnally

Common Name: Long-billed Dowitcher
Scientific Name: *Limnodromus scolopaceus*

Size: 11.5 inches (29.2 cm)

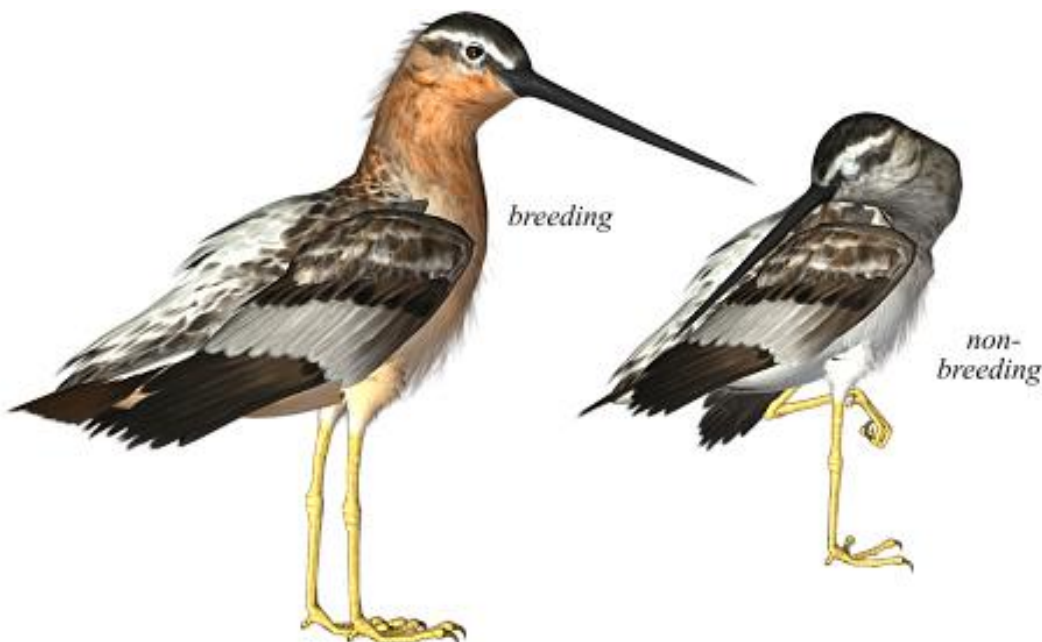
Habitat: North and South America, Asia; **Breeding Range:** far north of North America and eastern Siberia. **Migration:** They migrate to the southern United States and as far south as Central America. Long-billed Dowitcher is a rare but regular visitor to western Europe, with some individuals staying for long periods.

Status: Least Concern. **Global population:** 400,000. It is protected under the Migratory Bird Treaty Act of 1918 in the US.

Diet: Insects, mollusks, crustaceans and marine worms, but also eat some plant material. They forage by probing in shallow water or on wet mud to the depth of the bill, sometimes submerging the head. Short jabbing and probing in distinctive "sewing machine" motion.

Nesting: They nest on the ground, usually near water. The nest is a deep depression in grass or moss, lined with grasses and small leaves. Often damp at bottom. The egg color is a light olive-greenish or bluish with brown spotting, denser at the large end. Although both sexes share incubation of the eggs, only the male takes care of the young once they hatch. Downy chicks able to walk immediately leave nest when all are hatched and are not fed by their parents.

Cool Facts: They are more likely to be seen near fresh water than the Short-billed Dowitcher.



Most Siberian breeding Long-billed Dowitchers likely migrate to the Americas during the winter.

Special Thanks to...

....my beta testers (Bea, Jan, Kelvin, Nancy, Rhonda, Sandra and Walter)

Species Accuracy and Reference Materials

Many birds of the same species do vary considerably in color. This package tries to emulate the colors and markings in the most commonly found variants.

The author-artist has tried to make these species as accurate to their real life counterparts as possible. With the use of one generic model to create dozens of unique bird species, some give and take is bound to occur. The texture maps were created in Painter with as much accuracy as possible. Photographic references from photographs from various Internet searches and several field guides were used.

Field Guide Sources:

- **“The Sibley Guide to Birds”** by David Allen Sibley (<http://www.sibleyguides.com/>)
- **All About Birds/Cornell** (<http://www.birds.cornell.edu/AllAboutBirds/>)
- **Wikipedia** (<http://www.wikipedia.com>)
- **BirdForum.net** (<http://www.birdforum.net>)
- **Birdlife International** (<http://www.birdlife.org>)
- **International Crane Foundation** (<http://www.savingcranes.org/>)
- **Natureworks** (<http://www.nhptv.org/natureworks>)
- **Smithsonian National Zoological Park** (<http://nationalzoo.si.edu>)
- **Threatened Birds of Asia**
(http://birdbase.hokkaido-ies.go.jp/rdb/rdb_en/gorsgois.pdf)

Other Resources:

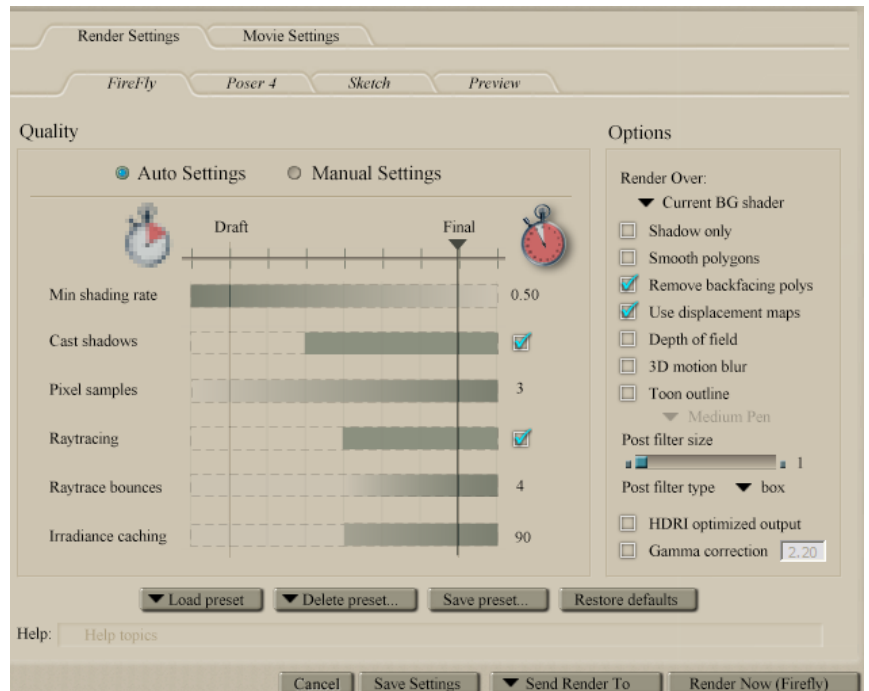
- **Songbird ReMix Central** (<http://www.songbirdremix.com>)
- **Songbird ReMix “Bird Brains” User Group and Forum**
(<http://artzone.daz3d.com/groups/songbirdremix>)

Rendering Tips

In POSER 5+...

In Poser, several settings will help to bring out the best in this bird set.

Under “Render Settings” (CTRL+Y) make sure you check “**Use Displacement Maps**” and (in some rare cases) the “**Remove Backfacing Polys**” boxes. In some poses, the wing morphs will expose backfacing polygons which tend to render black. Clicking the “Remove Backfacing Polys” fixes this.



In VUE...

Vue has trouble with back-facing polygons which tend to show-up in certain wing and “Fluff” poses. The easiest and fast solution is to limit the amount of bending in the Forearm, Hand and Feather controllers and the hide or limit the ‘Fluff’ used

Bake it! The better (but much slower solution) is to in “Polygon Mesh Options”, **bake the model**. You might also click “Force double-sided baking” as well as playing with the Max smoothing angle and checking Dynamic Subdivision. Put Quality boost into the + area. Then bake it—“baking” will take hours on most computers.

The “Eye” material uses a Poser reflection map; since Vue has a built-in environment, it’s better to use the Vue one and cut down the reflection to 20-50% depending on light in the scene.

I also often find it better to also cut down the “Highlight Global Intensity” to 40% and “Highlight Global Size” to 50% on Plumage, Wings and Beak materials in the “Highlights” section.

The Songbird ReMix Store



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