

Avian Models for 3D Applications
Characters and Texture Mapping by Ken Gilliland

Songbird ReMix

“Second Edition”

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Opinions expressed on this booklet are solely that of the author, Ken Gilliland, and may or may not reflect the opinions of the publisher, DAZ 3D.

Songbird ReMix “SECOND EDITION” Manual & Field Guide

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Introduction

Songbird ReMix “Second Edition” adds 13 different birds to the Songbird ReMix library. This collection offers a wide variety of species not found in other Songbird ReMix volumes such as hummingbirds, pigeons and even a cockatoo.






Overview and Use

Select **Figures** in Runtime Folder 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 included in this volume:**
 - **Songbird ReMix3 Base** - This model is used with all songbirds.
 - **Songbird ReMix3 Gamebird Base** – This model is used with all Doves, Pigeons and other Gamebirds and is identified with the “**G**” icon.
 - **Songbird ReMix3 Parrots Base** – This model is used with all Parrots and Cockatoos and is identified with the “**P**” icon
 - **Songbird ReMix3 Syndactyl Base** – This model is used with all Kingfishers and Kookaburras and is identified with the “**S**” icon
- **Conforming Parts** (All Conforming Crests have alphabetical Icons in the lower right corners such as “C10”, “C13” or “C20”. This corresponds with characters in the Pose folders. All MAT/MOR files with the same icon use that particular Conforming Part. ***Be sure to read this:*** Most conforming parts are Crest which covers the head part. When posing the Base Model, the Conforming Part will follow any Bend, Twist or Rotate Commands. It will not obey any **SCALE** or **MORPH** commands you give the Base Model. You must manually scale the Conforming Part and with morphs such as “OpenBeak” you must also set it’s counterpart in the head part of the Conforming Crest. So Now let’s look at what’s included in Conforming Parts:

- **<C13> Conforming Hummingbird Gorget.** For use with the Hummingbird Full Body Morph in the regular SBRM2 Base. Again lots of morphs in the Head and Neck parts.
- **<C15> Conforming Raven Crest.** This adds beak hairs and can be used by either base. There's positioning and length morphs in the Head part.
- **<C29> Crest 29.** This model is used for tall crested Cockatoos mostly. It contains several crest shaping morphs in the HEAD section. It is identified with the "**C29**" icon.

Conforming Crest Quick Reference

Load Model(s)	To Create... (apply MAT/MOR files)
 <p>Songbird Base + Conforming Gorget for Hummers Songbird ReMix 3 + Songbird ReMix C13</p>	<ul style="list-style-type: none"> • Anna's Hummingbirds • Ruby-throated Hummingbirds
 <p>Songbird Base + Conforming Raven Crest Songbird ReMix 3 + Songbird ReMix C15</p>	<ul style="list-style-type: none"> • Common Raven
 <p>Gamebird Base G Songbird ReMix 3</p>	<ul style="list-style-type: none"> • California Quail • Rock Doves (Feral Pigeon)
 <p>Parrot Base + Conforming Crest 29 P Songbird ReMix 3 + Songbird ReMix C29</p>	<ul style="list-style-type: none"> • Lesser Citron-crested Cockatoo
 <p>Kingfisher Base S Songbird ReMix 3</p>	<ul style="list-style-type: none"> • Blue-winged Kookaburra • Laughing Kookaburra

Creating a Songbird ReMix Bird with Poser

Here's a step by step to create a bird in POSER:

1. Choose what you want to load. For this example, we'll create an "American Robin".
2. Load Poser and select **FIGURES** and the Songbird ReMix folder. Because the "American Robin" uses the basic "Songbird" base model we'll load that.
3. Go to the **POSES** folder and select the appropriate Songbird Remix library. In this case, we'll select the "American Robin" pose and apply it to our loaded Songbird ReMix base model. This pose contains morph and texture settings to turn the generic model into an "American Robin". As explained earlier in the Character Base Section, the Alphabet letter appearing on the base of a bird's Icon refers to what model it expects to adhere to. Thus the "Parrot" character is going to want the <P> Parrot Base Songbird ReMix Model. Birds with no icon usually want the Songbird Base.

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 (such as the Robins) **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.

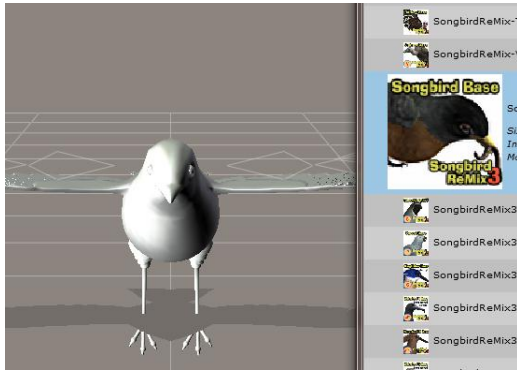


without prop off screen



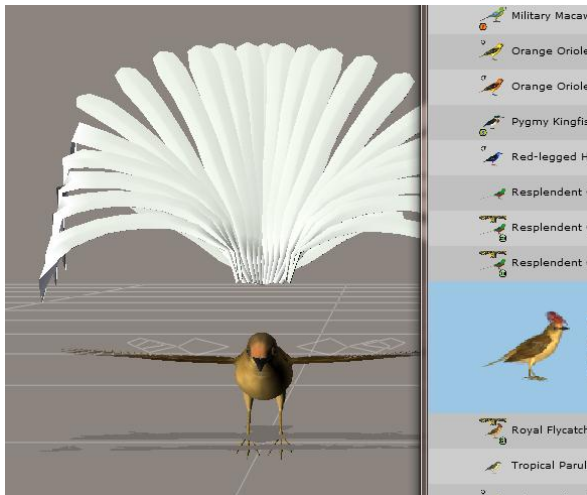
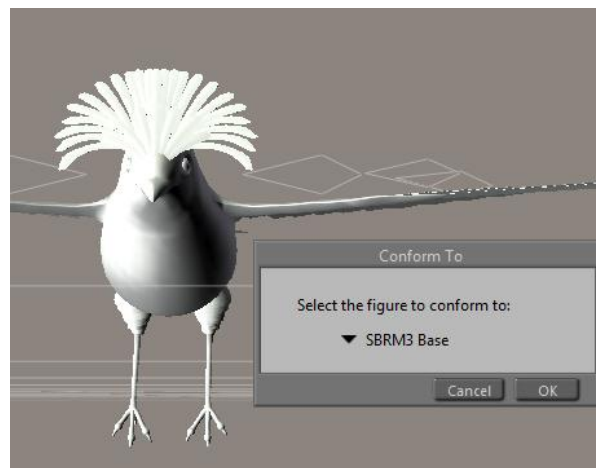
with prop off screen, lights/shadows will properly render

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.



Creating a Songbird ReMix Bird with Studio

Here's a step by step to create a bird in DAZ Studio:

1. Choose what you want to load. For this example, we'll create an "American Robin".
2. Load DAZ Studio and in Studio's **Runtime** Folder, select **FIGURES** and the Songbird ReMix folder. Because the "American Robin" uses the basic "Songbird" base model we'll load that.
3. Now, select the Studio **Content** Folder and go to the **Animals : SBRM : !CreateYour Own : Characters** folder and select the appropriate Songbird Remix library. In this case, we'll select the "American Robin" pose and apply it to our loaded Songbird ReMix base model. This pose contains morph and texture settings to turn the generic model into an "American Robin". As explained earlier in the Character Base Section, the Alphabet letter appearing on the base of a bird's Icon refers to what model it expects to adhere to. Thus the "Parrot" character is going to want the **<P>** Parrot Base Songbird ReMix Model. Birds with no icon usually want the Songbird Base,

Known Issues with DAZ|Studio

Propagating Scale Issues

Some versions of DAZ|Studio have problems with the Propagating Scale of the Feet in Songbird ReMix. Unfortunately, the only current solution is to manually scale all the digits on each foot. To determine if manual scaling is needed, look at the SCALE settings on rFoot or lFoot parts in DAZ|Studio. If the amount is more than 100%, then all the digits (rPinky1, rPinky2, rMid1, etc.) will need to be scaled accordingly. The " ! Scale Feet" folder will automatically correct this for you.

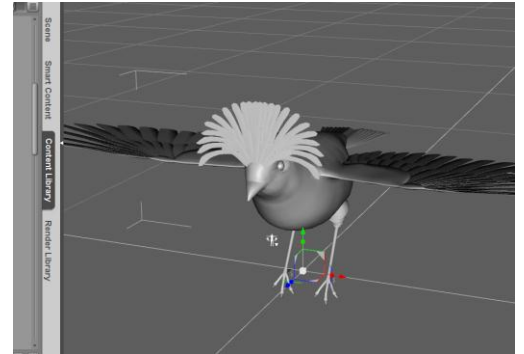
All the characters in this product have already been corrected.

Earlier DAZ Studio versions of this product used Studio's scene files (.daz) to create pre-built birds. Unfortunately the programmers of Studio decided not to support "backwards compatibility" so older pre-built birds saved in .daz may no longer work. It is best to delete the older version of this product.

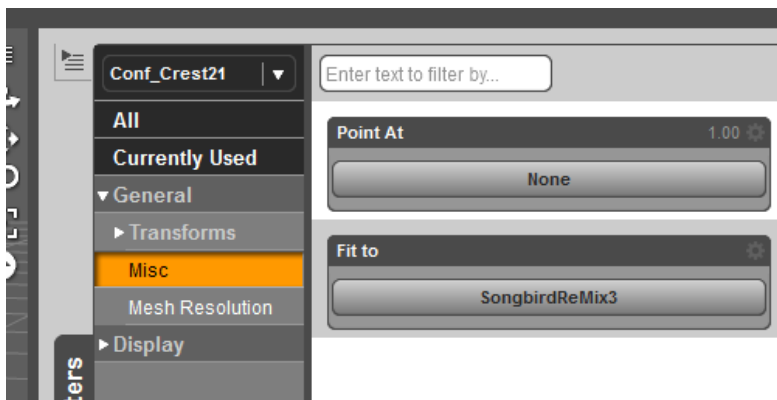
For more troubleshooting, visit the [Songbird ReMix FAQ](#)

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**.



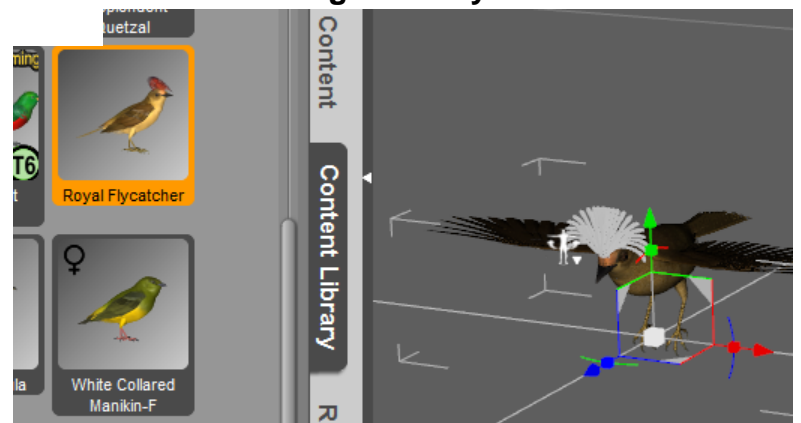
Now, using the **"FIT TO"** command in the **Parameters Tab**, Select the **Songbird ReMix Model**. Go back to the **Scene Tab** and select the **Songbird ReMix Model**.



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.



Creating Imagery Birds Tutorial

It's possible with SBRM2 and Poser 5+ or DAZ Studio

Here's an example:

1. In "Characters", load the Base model and the Quail Crest
2. In "Poses", apply the Anna's Hummingbird MAT to the Base Model. Apply the appropriate Quail Crest MAT (Male or Female) to the Quail Crest.
3. Select the Quail Crest and in the BODY parameters SCALE and position using Z and Y to fit atop the hummingbird head.
4. Depending on the program used do the following:
 - a. Poser: In "Figure" at the top of the toolbar, chose "Set Parent Figure". Select the Hummingbird's HEAD.
 - b. DAZ Studio: Move the Quail Crest onto the Hummingbird's HEAD using "Scene" Box
5. Depending on the program used do the following:
 - a. Poser: In the "Material Room", go to the SBRM2 folder and apply the Quail materials to the Hummingbird Base and the Quail Crest.
 - b. DAZ Studio: In "Surfaces", go to the SBRM2 folder in DAZ Studio Content's Folder (not Poser's Runtime) and apply the Quail materials to the Hummingbird Base and the Quail Crest.
6. Now pose and do a great image... and what will be next... a Quail Parrot or a Cockatoo Hummingbird?



Songbird ReMix

Second Edition

Field Guide

Laughing Kookaburra

Blue-winged Kookaburra

Lesser Citron Cockatoo

California Quail

Rock Dove

Common Raven

Anna's Hummingbird

Ruby-throated Hummingbird

Common Name: Laughing Kookaburra
Scientific Name: *Dacelo novaeguineae*

Size: 17 inches (40-45 cm)

Habitat: Australia; found throughout eastern Australia. They have been introduced to Tasmania. There is some overlap in Queensland with the Blue-winged kookaburra, although this species is more coastal. Common habitat includes open forests, woodlands and coastal scrub.

Status: Least Concern. **Global population:** 65,000,000 mature adults.

Diet: Insects, worms and crustaceans, although small snakes, mammals, frogs and birds may also be eaten. Prey is seized by pouncing from a suitable perch. Small prey is eaten whole, but larger prey is killed by bashing it against the ground or tree branch



Breeding: Laughing Kookaburras are believed to pair for life. The nest is a bare chamber in a naturally occurring tree hollow or in a burrow excavated in an arboreal (tree-dwelling) termite mound. Both sexes share the incubation duties and both care for the young. Other Laughing Kookaburras, usually offspring of the previous one to two years, act as 'helpers'

during the breeding season. Every bird in the group shares all parenting duties. Two to four white eggs are laid in September through January.

Cool Facts: If you've ever seen a "Jungle" movie you've heard the characteristic call of the Laughing Kookaburra. Hollywood has made the Kookaburra almost synonymous with what you expect to hear in the jungle. The laugh is actually a warning call to other Kookaburras.

C. H. Eden in 1872 described the Kookaburra by its other, more "colorful" common name, "*At daylight came a hideous chorus of fiendish laughter, as if the infernal regions had been broken loose- this was the song of another feathered innocent, the laughing jackass- not half a bad sort of fellow when you come to*

know him, for he kills snakes, and is an infallible sign of the vicinity of fresh water..."

The Kookaburra is also the star of a popular Australian nursery rhyme written by Marion Sinclair, "Kookaburra sits in the old gum tree".

*Kookaburra sits in the old gum tree
Merry, merry king of the bush is he
Laugh, Kookaburra! Laugh!
Gay your life must be*

*Kookaburra sits in the old gum tree
Eating all the gum drops he can see
Stop, Kookaburra! Stop!
Leave some there for me!*

*Kookaburra sits in the old gum tree
Counting all the monkeys he can see
Stop, Kookaburra! Stop!
That's not a monkey that's me*

*Kookaburra sits on a rusty nail
Gets a boo-boo in his tail
Cry, Kookaburra! Cry!
Oh how life can be!*

Kookaburras method of parenting is unique among birds and is only found with two others species within the animal kingdom, primates and humans. Once their young have fledged, they stay around the nest and help the parents with the next clutch. In fact, if a parent dies, one of its children will take up its responsibilities. Most other birds will leave the nest to mate and start their own families.

Kookaburras are also known for their adaptation skills, surviving on what foodstuffs are available. Being in the Kingfisher family, of course it displays similar behaviors such as hovering above water, searching for its prey and dive-bombing it. It also catches snakes and lizards by the head and drops them from great heights or beats them on tree limbs before consuming them. Many Kookaburras have learned to interact with humans and have become "tame" as their habitats give way to human populations.

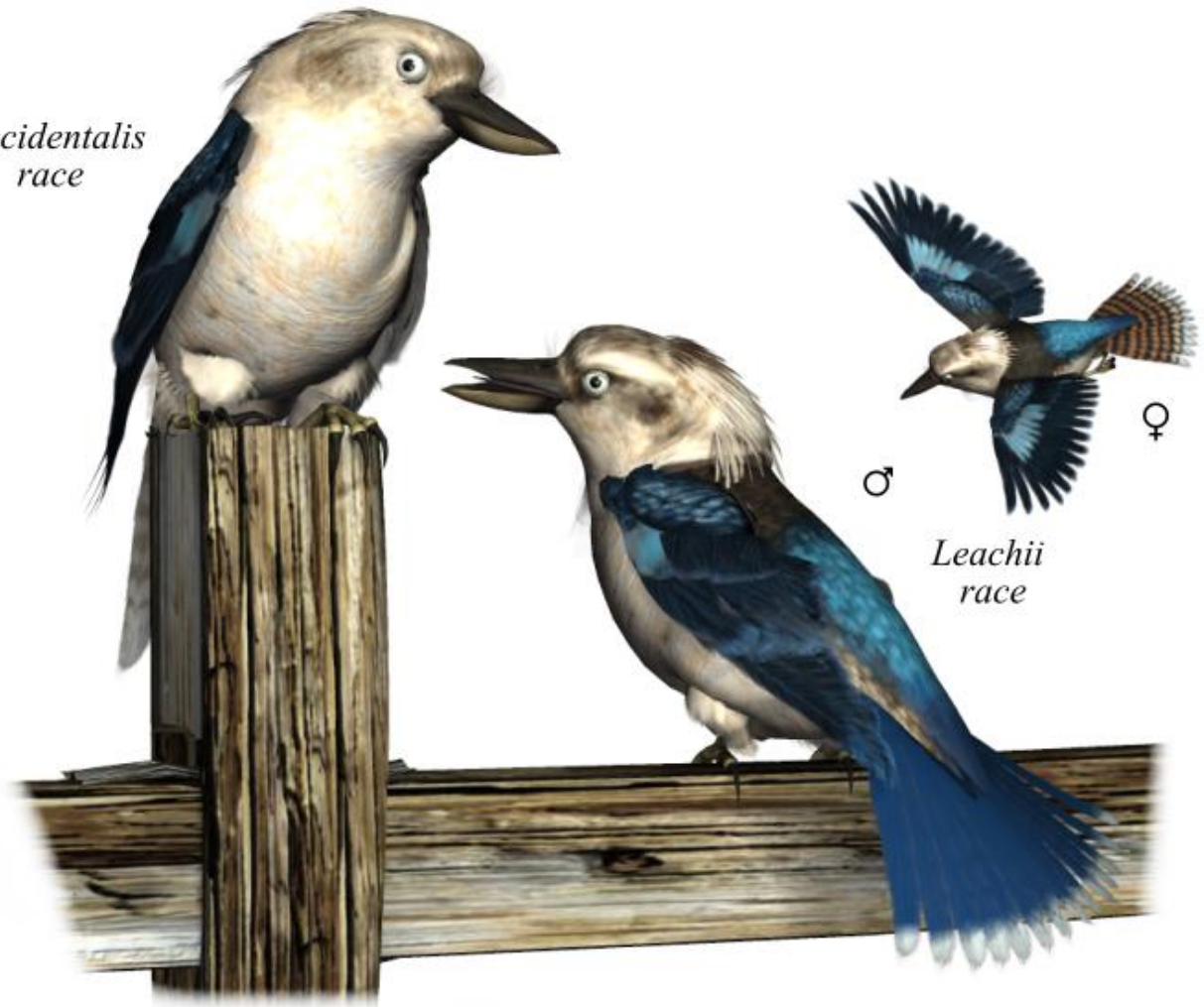
Common Name: Blue-winged Kookaburra
Scientific Name: *Dacelo leachii*

Size: 15 ½ inches (38-42 cm)

Habitat: Australia; endemic to coastal and subcoastal areas in northwest and northeast Australia, Torres Strait and Southern New Guinea. It is widespread in the Gulf Country of Queensland extending South to about Toowoomba. It is also widespread in the top end of Northern Territory. It is absent from the Eighty Mile beach area in Western Australia separating the Pilbara population. Typically found in tropical and subtropical open woodlands, paperbark swamps, timber on watercourses, clearings, canefields and farmlands

Status: Least Concern. **Global population:** Unknown. Blue-winged Kookaburras have suffered from loss of habitat resulting from land clearing, and are often killed on roads

Accidentalis
race



Diet: Mainly insects, reptiles and frogs in the wetter months, and fish, crayfish, scorpions, spiders, snakes, earthworms and small birds and mammals at other times. After a controlled dive with their bill open, food is grabbed from the ground. The bill has a special groove near the end of the upper mandible which helps in holding prey. After returning to a perch, the prey is beaten and then swallowed. They show extra care when snakes are the prey. Pellets of undigested items are regurgitated and found beneath daytime perches, roosting sites and nests.

Breeding: The nest site of the Blue-winged Kookaburra is mostly high (to about 25 m) up in natural tree hollows, sometimes in tree termite nests, or in a hole cut into the soft wood of a baobab tree. Typically, the floor of the chamber is lower than the entrance, with an overall length of 50 cm. The breeding pair share the incubation of the eggs and subsequent feeding, which extends for one to two months, and are often assisted by auxiliaries (helpers), mainly from the previous year's clutch. Two to four white eggs are laid in September through January.

Cool Facts: The scientific name commemorates the British zoologist William Elford Leach. Blue-winged Kookaburra family groups are often larger than those of the Laughing Kookaburra, with up to 12 members.

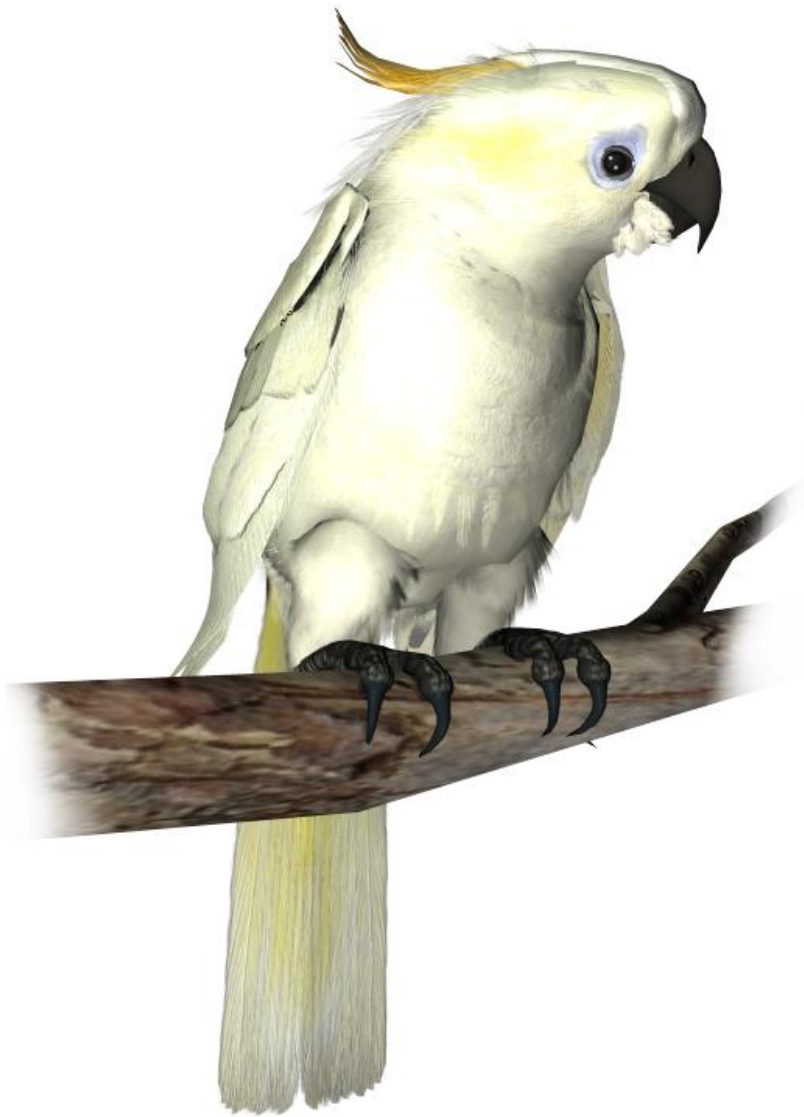
Their call is a loud maniacal screeching cackle developing into loud trills and then ending abruptly. Also a variety of trills, 'ow' notes, barks and hoarse screeches. Often call in groups from a high perch.

Common Name: Lesser Citron-crested Cockatoo
Scientific Name: *Cacatua sulphurea citrinocristata*

Size: 13-14 inches (33-35 cm)

Habitat: Asia; Indonesia's Lesser Sunda Islands and Sumba. It inhabits forest (including evergreen, moist deciduous, monsoon and semi-evergreen), forest edge, scrub and agriculture up to 500 m on Sulawesi, and 800 m (sometimes 1,500 m) in Nusa Tenggara. On at least some islands (e.g. Sumba), it appears heavily dependent on closed-canopy primary forest. On others, it survives

despite the total clearance of original vegetation, indicating that its habitat requirements are somewhat flexible.



Status: Critically endangered. **Global Population:** 2,500-9,999 Mature individuals. Its precipitous decline is almost entirely attributable to unsustainable exploitation for internal and international trade. Large-scale logging and conversion of forest to agriculture across its range has exacerbated the decline, and the use of pesticides since around 1989 is a further potential threat. At least formerly, the species was regarded as a crop-pest, and consequently persecuted. High rainfall years appear to limit productivity considerably resulting in very low recruitment. Conversely, rainfall on Komodo has been low in recent years leading to limited

availability of water sources. Competition for cavity nest sites with other parrots and owls in large trees (those targeted by logging activities) leads to low productivity.

A cooperative recovery plan has been developed and adopted. Populations occur in several protected areas, the most important being Rawa Aopa Watumohai and Caraente National Parks (on Sulawesi) which supports up to 100 individuals, Suaka Margasatwa Nature Reserve on Pulau Moyo, Komodo National Park and two national parks on Sumba: Manupeu-Tanahdaru and Laiwangi-Wanggameti. The declared Nini Konis Santana National Park in Timor holds an estimated 100 birds. Moratoria on international trade have been effective at allowing several subpopulations on Sumba to increase in number between 1992 and 2002, although densities remained below those typical of other cockatoo species

Diet: Fruits, berries, flowers, nuts and seeds.

Breeding: Cockatoo become sexually mature after two to four years. Two to five eggs are laid in September through May on Sumba. It nests in tree cavities with specific requirements. Eggs incubate for about three and half to four weeks and the fledgling period lasts eight to ten weeks.

Cool Facts: Cockatoos raise their crests when alarmed. This crest and flash of color acts much as the Native American's war bonnets, hopefully scaring off enemies. They may also extend their wings and flap them wildly and letting out ear-piercing shrieks to frighten off enemies. Cockatoos are the loudest of the parrot family. When content, they run their tongues across their ridged inner beaks creating a slurping-like sound. Their throat feather will also cover the majority of their lower beak. Cockatoos are particularly gregarious, traveling in small flocks. They generally mate for life, living sixty to eighty years.

They are very intelligent birds and are noted for their problem solving abilities. They love to play and chew on things. Cockatoos aren't great talkers among the parrot family. Their vocabularies tend to be between ten to twenty human words or phrases and as with all parrots, the words are usually backed by associations. While the illegal pet trade has harmed the wild population by poaching, captive breeding has made the Lesser Citron Cockatoo is favorite among bird breeders. Many countries (including the UK) require papers to authenticate that the bird was captively bred. While difficult to find, the Lesser Citron is an excellent companion bird for those who have the time to invest in a very social and needy pet.

This Songbird ReMix bird was inspired by Elsa, Ken Gilliland's (Songbird ReMix Creator) Lesser Citron. Visit [Elsa's Cockatoo Corner](#)

Common Name: California Quail
Scientific Name: *Callipepla californica*

Size: 9 -10 inches (23-25.5 cm)

Habitat: North America; The California Quail are primarily found in California though they can be found in southern Oregon and east into Nevada. They also have been imported as a game bird in the Hawaiian Islands Grasslands, foothills, woodlands, canyons and at the edge of deserts. It likes areas with lots of brush and in particular, *Atriplex lentiformis brewerii* also known as “Quail bush”

Status: Least Concern. **Global Population:** 990,000 mature individuals. Quail are not endangered in their range although continual development fragmenting their nesting and foraging areas is causing population declines. In the wild, they can live about 7 years, although they face many natural and manmade threats.

Diet: Seed and some insects

Breeding: Males compete for a mate and will mate with only one female. The female usually has only one brood a year. Females usually lay between 12-16 brown/cream speckled eggs. Their nest is usually a shallow bowl or hollow in the ground lined with

grasses. Incubation takes about three weeks. Both parents will care for the chicks, taking turns standing guard. The chicks leave the nest shortly after birth. They make their first attempts at flight when they are about 10 days old. They will stay on the ground for about a month and then will roost in trees with the rest of the flock.



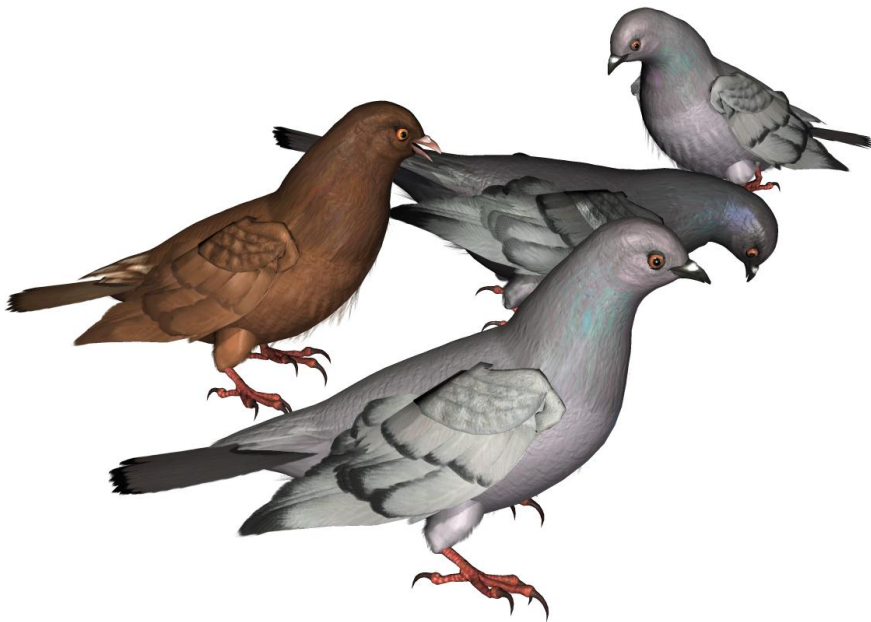
Cool Facts: The California quail lives in coveys of 10 to 200 birds in the winter. They will stay in these flocks until they pair off during mating season. Male California quails will perch on a tree or post and call out to claim their territory and will also stand guard watching vigilantly for predators. The scientific name *Callipepla californica* is thought to be derived from Greek Kallos “a beauty” + peplos “a robe”, and of course californica refers to the primary range.

Common Name: Rock Dove (Feral Pigeon)
Scientific Name: *Columba livia*

Size: 11-14 inches (30-35 cm)

Habitat: Worldwide; The Rock Pigeon has a restricted natural resident range in western and southern Europe, North Africa and into southwest Asia and throughout the Americas. Its habitat is natural cliffs, usually on coasts. In its domesticated form, the feral pigeon has been widely introduced elsewhere and is common, especially in cities, over much of the world. In Britain, Ireland, and much of its former range, the Rock Pigeon probably only occurs pure in the most remote areas. A Rock Pigeon's life span is anywhere from 3-5 years in the wild to 15 years in captivity, though longer-lived specimens have been reported.

Status: Least concern. **Global Population:** unknown. Rock Doves have adapted to humans and flourished.



Diet: Seeds and man-made food products.

Breeding: In the wild, the nest is usually on a ledge in a cave; it is a slight structure of grass, heather, or seaweed. Like most pigeons it lays two white eggs. The eggs are incubated by both parents for about 18 days. The nestling has pale yellow down and a flesh coloured bill with a dark band. It is tended and fed on "milk" like other doves. The fledging period is 30 days.

Cool Facts: Rock Doves come in five basic variations; Natural (shown above), Checkered, Brown, Dark and Pied. Many domestic birds have escaped or been released over the years, and have given rise to the feral pigeon. These show a variety of plumages, although some look very like the pure Rock Pigeons. The scarcity of the pure wild species is due to interbreeding with feral birds.

The pigeon was introduced to North America in 1604 by explorers and settlers.

Pigeons are one of the few birds that can swallow water without having to lift it's head back, allowing the bird to drink much more water.

Common Name: Common Raven
Scientific Name: *Corvus corax*

Size: 22-27 inches (56-69 cm)

Habitat: North America and Eurasia, southward into Central America and northern Africa.

Status: Least Concern. **Global Population:** 16,000,000 mature individuals. The Common Raven had nearly disappeared from the northeastern United States in the early part of the 20th century. Its numbers in that area increased markedly in the last half of the century, and it is reoccupying much of its former range.



Because of small population sizes in much of the East, it is listed as endangered or threatened in a number of states. Populations have been increasing all across the range, especially in the West where it has taken advantage of human-modified habitats.

Diet: Meat, eggs, insects, grain, fruit, garbage and carrion.

Breeding: The raven often uses sheep wool to line its nest. When the female leaves the nest for a while she may cover the eggs with the wool. The nest is

usually placed on a cliff or in tree, but has also been found in man-made structures such as telephone poles and abandoned cars.

Cool Facts: The largest of the songbirds, the raven is one of the most widespread species in the world. The raven is perhaps the smartest of all birds. It has been documented that Ravens carry “favorite” sticks with them that they use as tools to spear grubs. They are known to drop hard-to-crack nuts into crosswalks, let the cars run them over and then wait for a red light to collect their meal.

Breeding pairs will hold territories and try to exclude all other ravens throughout the year. Intruders who discover food within another bird’s territory may call to other ravens to swamp the territories defenses to steal the food.

Continued urban development has helped the raven populations to increase causing significant negative effects on the populations of endangered desert tortoises and Least Terns. Ravens have also been implicated in causing power outages by contaminating insulators on power lines, fouling satellite dishes at the Goldstone Deep Space Site, peeling radar absorbent material off buildings at the China Lake Naval Weapons center, pecking holes in airplane wings and even stealing golf balls.

Common Name: Anna's Hummingbird
Scientific Name: *Calypte anna*

Size: 4 inches (10 cm)

Habitat: North America; West coast from Canada to Mexico, but primarily California. They live in chaparral near open woodland, and urban and suburban areas.

Status: Least Concern. **Global Population:** 1,500,000 mature individuals. Range is expanding and numbers increasing due to exotic, non-native plants being introduced.

Diet: Pollen and small insects. At times hummingbirds will fly-catch by diving into clouds of gnats.

Breeding: Females construct tiny nests out of leafy material, feathers and are bound together with spider webs. The nests are placed on crotches of branches. Once the nest is completed, the female begins courtship with a male. Unlike most hummingbirds, the Anna's sings during courtship. After courtship, the male leaves and the female incubates two eggs. She cares for the hatchlings by herself. Young hummingbirds are born naked and blind and fledged after about three weeks.

Cool Facts: The Anna's Hummingbird was named after the 19th century Italian duchess Anna De Belle Massena. Naturalist, Rene Primevere Lesson, discovered the first specimen and named it after his patron's name. It is also the largest of the hummingbirds of North America.

The Anna's hummingbird is the only hummingbird that stays put. Though some winter in Mexico and some travel as far as Canada, most Anna's Hummingbirds stay year round in California.

Mishaps can occur trying to get lunch... bees and wasps may become impaled on the bill, causing the bird to starve to death. The male Anna's hummingbird is extremely territorial.



Common Name: Ruby-throated Hummingbird
Scientific Name: *Archilochus colubris*

Size: 3-3.75 inches (7.5-9cm)

Habitat: North America; Eastern United States to Central America. Migration follows favorite pollen and insect sources.

Status: Least Concern.

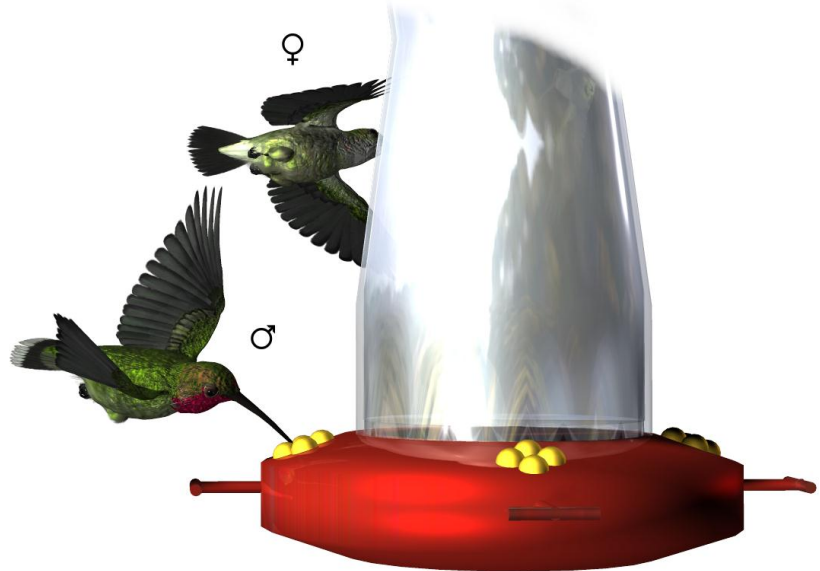
Global Population: 7,000,000 mature individuals. Populations are stable, however loss of key plant species could put this bird at risk.

Diet: Pollen and small insects. At times hummingbirds will fly-catch by diving into clouds of gnats.

Breeding: Ruby-throat's nesting is determined by the location of its key feeding plants. Females construct the tiny nest out of leafy material and are bound together with spider webs and tent caterpillar nests. They sometimes decorate their nests with lichens. The nests are placed on downward sloping limbs that are protected by other branches. Once the nest is completed, the female begins courtship with a male. After courtship, the male leaves and the female incubates two eggs. She cares for the hatchlings by herself. Young hummingbirds are born naked and blind and fledge after about three weeks.

Cool Facts: The northern migration of this hummingbird appears to be linked to the flowering of various plants in the spring. The red buckeye (*Aesculus pavia*), the Canadian columbine (*Aquilegia canadensis*) and the Clove currant (*Ribes odoratum*) are among its favorites. It is believed that up to 19 species of plant have evolved specifically to partner with the Ruby-throated Hummingbird, influenced by its pollination.

Ruby-throated Hummingbirds have one of the longest migration paths of any hummingbird. Wintering in Central America and migrating through Mexico and Texas in the Eastern US coast. It is believed that some Ruby-throated Hummingbirds do make the 500-mile shortcut across the Gulf of Mexico. During



the spring migration, males travel ahead of females to set up forging territories. Males are very territorial.

The Ruby-throated Hummingbird beats its wings 53 times a second and due to its extremely short legs it can't walk or hop. It will shuffle along a perch. Nonetheless, it can scratch its head and neck by raising its foot up and over its wing. It also doesn't care about the traditional red feeder and dyed-sugar water. Instead, it prefers specific feeder locations.



Special Thanks to...

Barboo and Prodos... *without you two, and your Kookaburra request, the Songbird ReMix series would have been retired... instead it's been given new life*

....my beta testers (**Jan, Rhonda and Sandra**)

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.

Wikipedia (<http://www.wikipedia.com>)

BirdGuides.com (<http://www.birdguides.com>)

BirdLife International (<http://www.birdlife.org>)

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