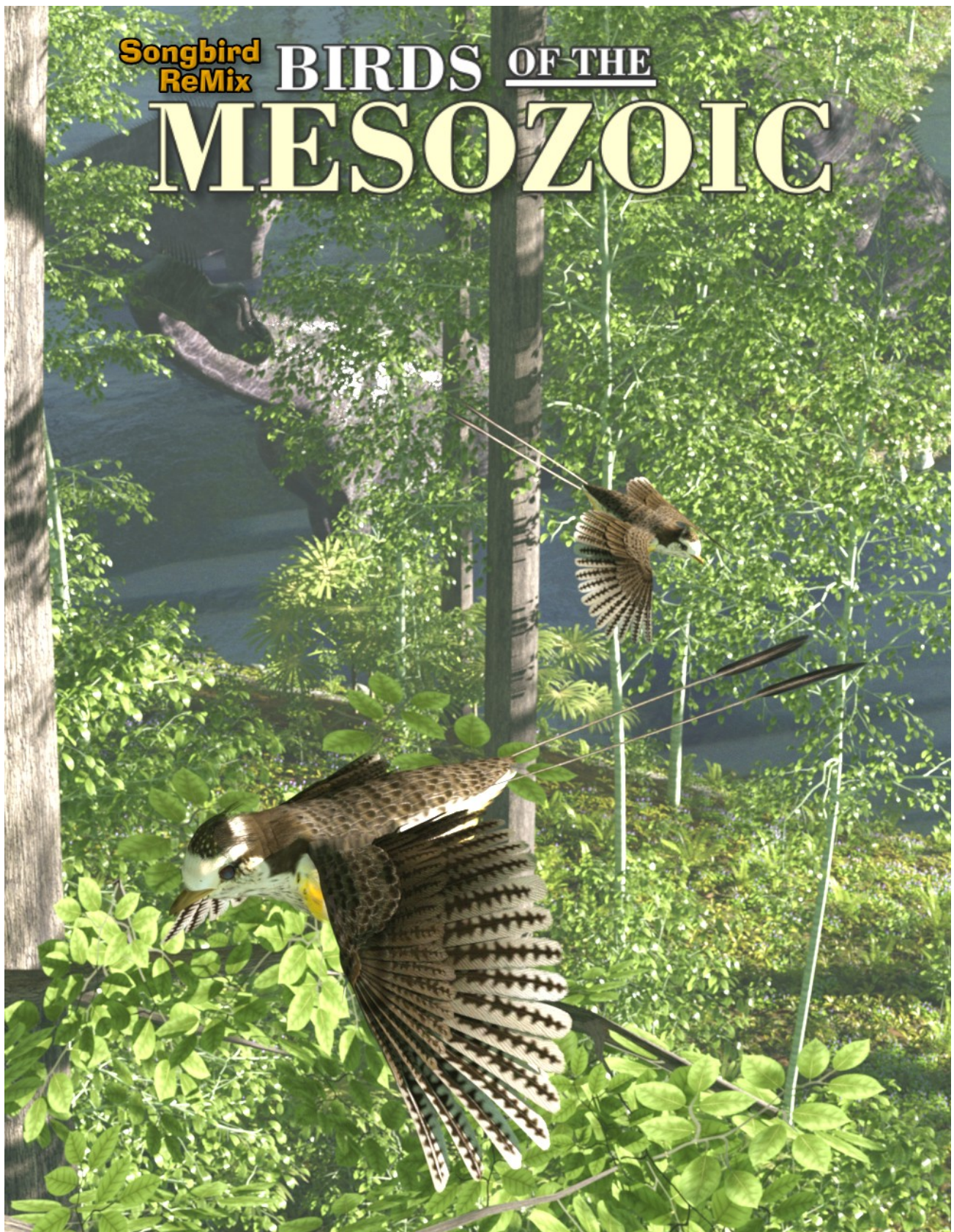




Avian Models for 3D Applications

Characters and Texture Mapping by Ken Gilliland

Songbird ReMix

Birds of the Mesozoic

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Songbird ReMix

Birds of the Mesozoic

Introduction

Birds are actually a group of living *Theropod* dinosaurs, meaning they are the only surviving dinosaurs today, and their evolution from *theropod* ancestors is supported by fossil evidence and shared anatomical features. The Mesozoic era (252 to 66 million years ago) has shown the fossil evidence that birds began their evolution to their modern-day counterparts. The Mesozoic era contains the Triassic (252-201 ma), Jurassic (201-143 ma), and Cretaceous (143-66 ma) periods. The first human fossils are dated 6-2 ma.

Songbird ReMix "Birds of the Mesozoic" has a selection of species which are ancestors of many of the birds we see today. Most of the included species were chosen specifically because they have certain characteristics that give a hint to their modern-day lineage. For instance, Cooper's Fan-tail Bird, in many ways, resembles today's jay family, or Cyril's Mystery Bird, a modern-day duck. This is a collection of what today's bird ancestors might have looked like rather than a set of feathered dinosaurs.

The base models include most of the normal Songbird ReMix features from folding wings, working facial features to a host of controls and morphs to alter the bird in hundreds of ways. They also include some specific Mesozoic features, like serrated beaks, wing-claws and raptorial toes.

There are two versions of this set for native support in Poser and DAZ Studio. Materials have been tuned to support Iray, 3Delight, Superfly and Firefly renderers.

Overview and Use

The set is located within the **Animals : Songbird ReMix** folder. Here is where you will find a number of folders, such as **Bird Library**, **Manuals** and **Resources**. Let's look at what is contained in these folders:

- **Bird Library:** This folder holds the actual species and poses for the "premade" birds. Birds are placed into a "type" folder (such as "Birds of Prey (Order Falconiformes)" which for example would hold falcons, hawks and eagles). The birds for this set can be found in the following folder(s):
 - **Mesozoic Era**
- **Manuals:** Contains a link to the online manual for the set.
- **Props:** Contains any props that might be included in the set
- **Resources:** Items in this folder are for creating and customizing your birds
 - **Bird Base Models:** This folder has the blank, untextured model(s) used in this set. These models are primarily for users who wish to experiment with poses or customize their own species of bird. When using physical renderers such as Iray

and Superfly, SubD should be turned to at least “3”. For DAZ Studios 3Delight renders, the SubD must be turned from the “High Resolution” setting to the “Base” setting (otherwise some areas will render incorrectly transparent).

- **Conforming Parts** (All Conforming Crests have alphabetical Icons in the lower right corners such as “C10”. 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 cover 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 its counterpart in the head part of the Conforming Crest.

Poser Use

Select **Figures** in the **Runtime** Folder and go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer *Firefly or Superfly* folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**.

DAZ Studio Use

Go to the **Animals : Songbird ReMix** folder. Select the bird from the renderer (*3Delight or Iray*) folder you want and simply click it to load. Some birds in the Songbird ReMix series may load with attached parts (*Conformers*) such as tail or crest extensions. Some of these parts have specific morphs. You will need to click on the attached part to access those controls. Associated poses can be found in the same folder- **Bird Library : (Type) : Poses**. **Note:** Using the "Apply this Character to the currently selected Figure(s)" option **will not** properly apply the correct scaling to the bird selected. It is better to delete the existing character first and load the one you want to use.

Where to find your birds

Type Folder	Bird Species
Mesozoic Era	All Species

Where to find your poses

Type Folder	For what species?
Mesozoic Era	All Species

Physical-based Rendering

Iray and **Superfly** requires more CPU and memory horsepower than the legacy renderers because of ray-trace bounces and higher resolution meshes needed for displacement. Poser's **Superfly** renderer will require that the "Min Transparent Bounces" be set to **at least 16** and that the "Max Transparent Bounces" be set to **at least 32** in render settings. Superfly renders may show artifacts in the head area. This is a known Poser issue and may be addressed in the future. Increasing the SubD may minimize this issue.

Transparency Layer Striping

With certain lighting and camera angles the seams where the transparency "Fluff" planes may become visible on renders. One of the easiest ways to resolve this is to simply hide the offending transparency section. This solution can be found in the Correction Controls options. Another solution is to adjust the "Fluff" in "Fluff Controls" section of the "Action Controls" menu.

Posing & Shaping Considerations

This volume has various species, so when using generic poses not every pose will work perfectly with every bird. You may find that some minor alteration on the stock poses may be warranted.

There are certain poses in this set that relate to a specific species. Look for the number in the lower left corner of the icon. For instance, all poses with "Mesozoic3.." in their name are only used with Cyril's Mystery Bird (which has a "3" in the lower left corner of the icon).

Unlabeled birds working with the "Mesozoic1..." filenames in the set. Most of the poses in the "Perching Birds (Order Passeriformes)" will also work with them since the Mesozoic Base model is a hybrid of the Songbird Base model. In addition, Mesozoic2 can use Gamebird/Pigeon poses and Mesozoic3, Duck poses with some slight alterations.

There is sometimes an issue with the eyelids of Mesozoic1/2 birds when the wrong bird base pose is applied (e.g. "Mesozoic2 Zero Pose" applied to a Mesozoic1 bird). This will use an irreversible issue with the bird since hidden coding on the eyelid controls is changed. In these cases, it's best to reload the bird and use the "correct" poses.

Here are some of the most common alterations you may need to make:

- Birds will not be flat on the zero plane due to leg size and overall scale.

Specific Bird Controls

There are several controls with the **Action Controls** section of the model that are specific to certain species of bird.

- **Raptor Toes**... Some birds in this set, use the **Raptor Toe** morph. The poses are generic and do not account for this. It's best to zero the two index toe parts after applying the pose. There is a partial pose included to correct this.

- **Raise Upper Beak** (*in Action Controls*):
 - This morph is a “one size fits all” control. Because of the variety of beak shapes. It may not work with all birds.
- **Tongue poke-through** (especially when the beak is open). This can be easily solved by using the **Throat-Fuller1 & 2** morphs (*found in Creation Control/Head Shapes*).

Conforming Parts

There are two conforming parts on three of the birds featured on this set. First, Jiufotang Slender Bird has a conforming crest. This part is attached to the head and has no posing adjustments. Just leave it alone.

There is a Paddle-like tail conforming part for both the Gonzalez's Vulture Roost Robber and Stripe-crested Dragon. This part does have some posing morphs as well as the normal x-y-z rotations. Click the conforming tail and then “tailfeathers” part to use these. Since this paddle tail is a replacement for the existing tail on the model, the “tailfeathers” part on the base model had been hidden and the x-y-z rotations on the part have been locked at zero to prevent poses from using the hidden part.

When saving a character using conforming parts select the base character. In Poser, select saving the “whole” figure rather than the selected part. In DAZ Studio, select save as a Scene Subset with the all the figure items selected.

IK Concerns

Some poses may go askew when IK is turned on. By default, Poser’s IK feature is turned off when loading a bird. To turn it on, select the “Figure” category from the main tool bar and “Use Inverse Kinematics” from the submenu.

By default, DAZ Studio’s IK feature is turned on when loading a bird. This will cause the thigh and shin rotations change when the character is moved. The **CTRL K** keypress will turn IK on and off in DAZ Studio. If you don’t want to deal with IK in DAZ Studio, I suggest selecting the character in the **Scene tab** and simply deleting the two IK body parts to remove IK.

How IK works in DAZ Studio... I’ll be the first to admit I never spend too time time with DAZ Studio IK. I fooled around a little, nothing worked, so I always assumed it was broken (at least with my models and uses). It isn’t, I finally realized what I was doing wrong. So here it goes:

1. First, select and load a bird
2. Now select a “perched” pose for that bird and load something for it to perch on.
3. Move the bird until it’s feet align with the perching item. This is where “IK” appears to go crazy in DS-- it’s okay, don’t worry about it.
4. Select the Scene TAB and the bird and expand the actor tree until you see the “IK” parts of the model and select one of those.
5. Now for my mistake-- I never bothered to look at the “Parameters” Tab. Go to that and select “Inverse Kinematics” from the Parameters tree.
6. Turn OFF “Pin Translation” and “Pin Rotation” to pose the feet and “ON” when posing the rest of the bird.

Songbird ReMix
Birds of the Mesozoic
Field Guide

Stripe-crested Dragon
Slender Near Protopter
Thorn-nosed Dapingfang Bird
Cooper's Fan-tail Bird
Yang's Shenyang Bird
Jiufotang Slender Bird
Cyril's Mystery Bird
Grabou's Yixian Bird
Archibald's Bird Lizard
Gonzalez's Vulture Roost Robber

Common Name: Stripe-crested Dragon
Scientific Name: *Banji long*

Period/Time: 66 million years ago (late Cretaceous Period)

Location: Guangdong Province, China.

Habitat: The Red Beds of the Nanxiong Formation.

Size: 65 cm (25 inches) length; unknown wingspan

Description: Banji was an oviraptorid from the Maastrichtian age of the Late Cretaceous. It was a small, lightly built, ground-dwelling, bipedal carnivore. It had a tall, crested skull like other members of its family, and it had vertical striations along its crest, sort of like stripes. It had a very long nasal opening, as well. It was small and lightly built, and the only known specimen was that of a juvenile.



Common Name: Slender Near Protopter
Scientific Name: *Paraprotpteryx gracilis*

Period/Time: 124.6 million years ago (early Cretaceous Period)

Location: Liaoning province, China

Habitat: Lower Yixian Formation. Temperate conifer and ginkgo forested areas set among a series of lakes fed by streams and runoff from a nearby range of active volcano mountains.

Size: 20 cm (8 inches) length; 22 cm (9 inches) wingspan

Description: In 2007, this species was named and described by Zheng Xiaoting, Zhang Zihui and Hou Lianhai. The generic name means "near Protopteryx", in reference to a presumed similarity with that genus. The specific name is intended to mean "beautiful".



The specimen consisted of a skeleton with skull on a plate and counterplate. The investigation preceding the description of the species proved that fossil traders had added the skull of a different individual to the torso. The description is based on the rump parts. Feathers have been preserved. The rump represents a subadult individual.

Though initially reported to be from the Early Cretaceous Yixian Formation, later investigation showed that the fossil actually came from the Qiaotou Member of the Huajiyang Formation of Fengning, Hebei Province, China, and is therefore of uncertain age. While much of the Huajiyang Formation underlies the Yixian Formation, Ji and colleagues suggested in 2008 that the Qiaotou Member correlates with the Dawangzhangzi beds of the Yixian Formation

Common Name: Thorn-nosed Dapingfang Bird
Scientific Name: *Dapingfangornis sentisorhinus*

Period/Time: 120 million years ago (early Cretaceous Period)

Location: Liaoning province, China.

Habitat: Lower Yixian Formation. Temperate conifer and ginkgo forested

areas set among a series of lakes fed by streams and runoff from a nearby range of active volcano mountains.

Size: 20 cm (8 inches) length; 22 cm (9 inches) wingspan

Description: A complete skeleton has been found in the Jiufotang Formation. It was small to medium-sized early enantiornithine bird. It had a sternum with both long and short lateral processes, an unique thorn-like process on its nares and ornamental tail feathers much like today's motmot species.



Common Name: Cooper's Fan-tail Bird
Scientific Name: *Shanweiniaio cooperorum*

Period/Time: 66 million years ago (late Cretaceous Period)

Location: Liaoning province, China

Habitat: Lower Yixian Formation. Temperate conifer and ginkgo forested areas set among a series of lakes fed by streams and runoff from a nearby range of active volcano mountains.

Size: 32 cm (12 inches) length; 32 cm (12 inches) wingspan



Description: The genus name *Shanweiniaio* (扇尾鳥) means "fan-tailed bird" in Chinese. The lack of wingclaws indicate that this species probably perched on branches rather than hooking to foliage and tree trunks with wingclaws. This bird is the only known enantiornithean with a tail surface capable of generating lift, as in modern birds. These tail feathers would have granted higher maneuverability when flying among dense foliage and allowed more precise landings.

In 2016, some dispute was given to its flight abilities due to the incomplete fossil records. It was suggested that the species had rachis-dominated tail feathers (similar to feathers present in game-birds), which means the bird was capable of only short burst of flight.

Common Name: Yang's Shenyang Bird
Scientific Name: *Shengjingornis yangi*

Period/Time: 120 million years ago (early Cretaceous Period)

Location: Liaoning province, China

Habitat: Jiufotang Formation.



Size: 20 cm (7.8 inches) length; 22 cm (8.6 inches) wingspan

Description: It is considerably larger when compared to other longipterygids; combined with its poorly-preserved skull and bizarre claw and digit anatomy similar to both those of birds of prey and ground birds, its lifestyle is unclear.

Common Name: Jiufotang Slender Bird
Scientific Name: *Gracilornis jiufotangensis*

Period/Time: 110 million years ago (early Cretaceous Period)

Location: Liaoning Province, China

Habitat: Jiufotang Formation.

Size: 13 cm (5 inches) length; 30 cm (12 inches) wingspan



Description: It is known from a nearly complete skull and postcranial skeleton. It was first named by Li Li and Hou Shilin in 2011. The generic name is derived from Latin *gracilis*, "slender" and Greek *ornis*, "bird", and refers to its slender skeleton. It is possibly related to *Eocathayornis* and may have been similar in habits. The halo of long feathers along the crown of the head resembles a crest and while in may have simply decomposition in the fossil record, most interpretations use it as a speculative distinguishing feature.

Common Name: Cyril's Mystery Bird
Scientific Name: *Mystiornis cyrili*

Period/Time: 125 million years ago (early Cretaceous Period)

Location: Siberia, Russia.

Habitat: Shestakovo Formation

Size: 20 cm (8 inches) length; unknown wingspan

Description: It is known from an isolated foot bone that indicates it was about the size of a thrush. It had long and slender toes, indicating that it may have been a bird specialized for swimming - a niche usually occupied by the Euornithines, rather than the Enantiornithines, implying that it diversified into a rather unusual niche. It was probably closely related to Avisaurus, thus indicating a surprising divergence in the Avisaurus family group.



Common Name: Grabou's Yixian Bird

Scientific Name: *Yixianornis graboui*

Period/Time: 120 million years ago (early Cretaceous Period)

Location: Chaoyang, China.

Habitat: Jiufotang Formation

Size: 19-20 cm (7.5-7.9 inches) length; 40 cm (16 inches) wingspan



Description: The type specimen (and only specimen found to date) is one of the most well-preserved bird fossils known from the Jehol group. It is nearly complete and, unlike many other fossils, the bones are mostly uncrushed and were not split in half when the stone slabs were initially separated. It is also one of the few known Mesozoic bird specimens that preserve clear impressions of the wing and tail feathers. Even with a complete skeleton, conjectures as to what this species may have looked like are wildly different; from a vicious-looking jay to a docile pigeon-like bird.

While there is no indication that this species had webbed feet, some have suggested that this bird may have been semi-aquatic due to its toe structure which could have been used in diving.

Common Name: Archibald's Bird Lizard

Scientific Name: *Avisaurus archibaldi*

Period/Time: 65.5 million years ago (late Cretaceous Period)

Location: Montana, United States.

Habitat: Hell Creek Formation. Forested near-coastal flood plains dominated by flowering shrub species and coniferous trees.

Size: 45 cm (18 inches) length; unknown wingspan

Description: This species is only known by its foot bones and an undescribed partial skeleton. The inward pointing toe and short, robust tarsus in some ways resembles that of *eudromaeosaurs*. These may have had a raptorial function used for pinning and seizing prey.



Common Name: Gonzalez's Vulture Roost Robber
Scientific Name: *Buitreraptor gonzalezorum*

Period/Time: 94 million years ago (mid-Cretaceous Period)

Location: Neuquen, Argentina.

Habitat: Calenderos Formation

Size: 130 cm (52 inches) length; 70+ cm (27 inches) wingspan

Description: A small flightless paravian theropod with relatively large wings. The bill/snout was extremely long and narrow. Relatively long legs with a raptor-like claw. Buitreraptor got its name from the Spanish word "buitre" meaning vulture, and the Latin "raptor," meaning seizer or thief. This name pays homage to La Buitrera, the region where it was first discovered, and reflects its predatory nature. It probably waded the shores of shallow waterways hunting fish and small terrestrial vertebrates.



Acknowledgments:

Thank-you to my betatesters...

Alisa, Arthur and FlintHawk

Species Accuracy & Reference Materials

The author has tried to make these species as accurate to their real life counterparts as possible. Of course, being that no one has ever seen these birds other than in fossil records, what is accurate is very problematic. Their coloration, feathering and even in some cases, their shape are prone to a significant divergence in interpretation. Most interpretations are based on fossilized fragments of the species. In some cases, just a partial skull fossil is what the bird is based on, so every Mesozoic bird depicted is highly speculative in its depiction.

This package tries to emulate the colors, markings and shapes in the most commonly depicted as well as what simply looks good, and follows extant bird patterning. The artist favored the interpretations found in “A Field Guide to Mesozoic Birds and other Winged Dinosaurs” by Matthew P. Martyniuk in this set.

The model was created in Modo. The model rigs in Poser and DAZ Studio. The texture maps were created in Painter.

Field Guide Sources:

- [Birds of the Mesozoic](#) by Juan Benito and Roc Olivé. Princeton University Press 2024
- [A Field Guide to Mesozoic Birds and other Winged Dinosaurs](#) by Matthew P. Martyniuk. Pan Aves Publishers. 2012
- **Wikipedia** (<https://www.wikipedia.com>)
- **Birds of the World** (<https://birdsoftheworld.org>)

Articles:

- [“It’s Official. Birds are Literally Dinosaurs. Here’s How We Know...”](#) by Bird-Life International
- [“How Dinosaurs Shrank and Became Birds”](#) by Emily Singer and Quanta Magazine (Scientific American)
- [“Why are birds the only surviving dinosaurs?”](#) by the Natural History Museum, London, UK
- [“The Origin of Birds”](#) Wikipedia.com

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