Birds of the Yucatan Pennisula

JCATÁN

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

Songbird ReMix YUCATÁN

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Songbird ReMix YUCATÁN

Introduction

Songbird ReMix Yucatán journeys into the deep rainforests and ancient empires of the Mayans and Aztecs. Here, the diversity of birds is simply amazing. The Yucatán is home to the smallest of the Kingfishers, the Pygmy, and the largest of the Macaws, the Military. From the stately and true to its name, Elegant Trogon, to the incredible crest of the Royal Flycatcher to what many consider the most beautiful bird in the world, the Resplendent Quetzal, these are all worthy centerpieces in any form of imagery.

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):
 - Trogons and Quetzals (Order Trogoniformes)
 - Parrots and Cockatoos (Order Psittaciformes)
 - Kingfishers (Order Coraciiformes)
 - Perching Birds (Order Passeriformes)
 - Woodpeckers and Toucans (Order Piciformes)
- **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).

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**. <u>Note:</u> 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.

One Folder to Rule Them All

When I reworked the entire Songbird ReMix library starting in 2018, I decided to abandon the way the birds were sorted (by product name) and choose an Ornithological approach. All birds are found in the Bird Library folder and are arranged by type of bird. This approach is hopefully easier for most to find what bird they are looking for. Admittedly, it will take some getting use to for some longtime users, but I've always approached the Songbird ReMix series as a learning tool as well as a graphics tool, so hopefully some knowledge will rub off by seeing how birds are grouped.

Probably the most deceiving subfolder in the **Bird Library** is **"Perching Birds (Order Passeriformes)".** This is folder you probably will end up "favoriting" because this one folder (Passeriformes) **holds more than 50% of all birds.** Perching birds range from cardinals and jays to chickadees, crow and swallows.



Finding the bird you want within the "**Perching Birds (Order Passeriformes)**" folder can be daunting, even for an experienced birder (such as myself), so I've included an online reference tool within this folder that helps to make your search easier. Click the "**Perching Birds Finder**" icon and when loaded, look at the first column and search for the type of bird you want. For example, I

want a "manakin" (a bird common to Central and South America). Scroll down the first column alphabetically and stop on "manakin". Looking across to the second column, you will now know that manakins can be found in the "Tyrant Flycatchers & their Allies" subfolder.

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 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.

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.

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.
- Because of the numerous beak shapes, closing the beak may range from 0.5 to 1. Usually 0.8 is about right.
- **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.

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. IK doesn't work that well in Studio, so I suggest selecting the character in the **Scene tab** and simply deleting the two IK body parts to remove IK.

Complex Birds (with conformers added)

There a a few birds which load with one or more conformers added to them. These conformers are usually add-on crests for the head of the bird or add-on tail sections. In the case of tail conformers, usually the birds TailFeathers section is hidden and the conforming TailFeathers part takes its place. When posing the TailFeathers part on XYZ rotations, click on the Bird Model hidden part for the best results.

For initial posing always select the main bird model, then select the conformers BODY section to see what additional morph and posing controls are available. Here is a detailed list of the Birds that use conforming parts and what additional options are available:

Black-throated Magpie-jay

Jay Crest for SBRM Birds (Crest/Head conformer) Action Controls

- First Feather Bend- Bends only the front first feather
- Fan Forward- Fans entire crest forward
- Lower Crest1- Lowers crest 3/4 of the way
- Lower Crest2- Lowers crest entirely (Adjust Crest PositionY if it doesn't sit right)
- Bend Tips Forward- Just bend the tips of the crest forward

Creation Controls

- Crest Height- Controls the height of the crest
- Group Feathers Closer-Compacts the the crest forward
- Longer Feather Shafts- Lengthens the feather shafts so everything attaches to the head
- Crest PositionY- Moves the entire crest on the Y-axis
- Crest PositionZ- Moves the entire crest on the Z-axis

Tail04 for SBRM birds (Tail conformer)

Action Controls

- Spread Tail Feathers- Folds/unfolds Tail Feathers
- Sway Right-Left- Move entire Tail feathers side-to-side
- Bend Down- Bends Down or slightly up Tail Feathers
- Cup Feathers- Cups outer rectices
- Feathers Flutter- adds a slight S-Curve to the center streamer feathers
- Center Feather Curve Left- Curves in the right center streamer feather
- Center Feather Curve Right- Curves in the right center streamer feather
- Center Feather Tip Down Left- Bends down the left center streamer feather
- Center Feather Tip Down Right- Bends down the right center streamer feather
- Second Center Feathers Down- slightly bend the second set of streamer feathers
- Gravity- Gives a natural feel of gravity to the tail feathers from start to tip. This is set to "1" by default.

Creation Controls

• Center Feathers Length- Controls the length of the streamer, and to a lesser extent other rectrices.

Royal Flycatcher

Royal Flycatcher for SBRM Birds (Crest/Head conformer)

Action Controls

- Bend Crest Forward- Bends entire crest forward
- Fold Crest- Folds entire crest (actives Crest1 & Crest2- Use Crest Position-Y if crest isn't entirely hidden)
- Fold Front Crest Only (Crest1) Folds only front row of feathers
- Fold Back Crest Only (Crest1) Folds only rear row of feathers

Creation Controls

- Rotate Crest- Rotates Crest on the X-axis
- Crest Position-Y- Moves the entire crest on the Y-axis
- Crest Position-Z- Moves the entire crest on the Z-axis
- Extend Base- Extends feather shafts so they all appear attached to the head

*Poser 11-12 known issue- There is a bug in Poser 11-12 that affects the Left Eye Wink Control on all Superfly birds that have Conforming Parts attached to them. This control vanishes for unknown reasons on these pre-built birds. A work-around has been employed in this version. The "EyeLidWinkL1" parameter has been renamed to "EyeLidWinkL2" to get it to work. The only issue this may cause is already made poses that use "EyeLidWinkL1" will need to be adjusted.

Where to find your birds

Type Folder	Bird Species
Trogons and Quetzals (Order Trogoniformes)	Elegant Trogon Resplendent Quetzal
Parrots and Cockatoos (Order Psittaciformes)	Military Macaw
Kingfishers (Order Coraciiformes)	Lesson's Motmot American Pygmy Kingfisher
Woodpeckers and Toucans (Order Piciformes)	Chestnut-colored Woodpecker
Perching Birds (Order Passeriformes) Cardinals, Tanagers & their Allies	Red-Legged Honeycreeper
Perching Birds (Order Passeriformes) Swallows & their Allies	Mangrove Swallow
Perching Birds (Order Passeriformes) Crows, Jays and their Allies	Black-throated Magpie-jay Yucatán Jay
Perching Birds (Order Passeriformes) NW Warblers & their Allies	Tropical Parula
Perching Birds (Order Passeriformes) Orioles, Blackbirds & their Allies	Orange Oriole
Perching Birds (Order Passeriformes) Thrushes, Oxpeckers & their Allies	Cozumel Thrasher
Perching Birds (Order Passeriformes) Tyrant Flycatchers & their Allies	Royal Flycatcher White-collared Mannikin

Where to find your poses

Type Folder	For what species?
Look in the species corresponding pose folders. For Perching Birds (<i>Order</i> <i>Passeriformes</i>), poses can be found in "Universal Poses" and in their corresponding subcategory pose folders	All Birds in this set

Songbird ReMix YUCATÁN Field Guide

Military Macaw Elegant Trogon Resplendent Quetzal Lesson's Motmot American Pygmy Kingfisher Chestnut-colored Woodpecker Royal Flycatcher White-collared Mannikin Mangrove Swallow Black-throated Magpie-jay Yucatán Jay Cozumel Thrasher Red-Legged Honeycreeper Tropical Parula Orange Oriole



Common Name: Military Macaw **Scientific Name:** *Ara militaris*

Size: 27.5–28 inches (70-71 cm)

Habitat: Central and South America. It is found from western and northeastern Mexico to the northwestern corner of South of America.

It prefers dry montane evergreen and tropical deciduous forests gallery woodlands and pine-oak formations at elevations from 600–2600 m. It may go into humid forests, thorn forests and other habitats in lowland areas seasonally. Its local presence is dictated by sites for nesting and roosting in cliffs.

Status:

Vulnerable. **Global Population:** 10,000-19,999 mature individuals. The population and distribution of the



Military Macaw has been decreasing over the past fifty years. The abundance of the Military Macaw has now decreased to less than 10,000 globally. This decrease is mostly due to deforestation and the capturing of wild birds for the pet trade industry. Military Macaws are now listed as Vulnerable on the 2006 IUCN Red List Category **Diet:** Seeds, fruits, nuts, berries and other vegetation found on treetops. In particular, this macaw enjoys *Jessenia bataua* palm, Melia azedarach fruit, and ficus figs. During breeding season, it prefers foods that are rich in protein and lipids. Macaws have been seen drinking the water off of large leaves in the canopy such as from bromeliads (*Tillandsia grandis*).

Nesting: Its forehead is red with a bare patch on the face extending over eye which is white (often flushed pinkish-red) with dark transverse feather lines. The rest of its crown, nape and body are green, except for the olive-yellow on the throat and pale blue on the lower back, rump and tail-coverts. The wings have an olive green tone, and the flight-feathers are mostly blue above and olive-yellow below. The tail is blue above with red at its base, and olive-yellow below. Immatures are similar.

It is monogamous and mates for life. Breeding season occurs from March in Mexico. They will nest in the tops of trees in a nest hole or more often, in cliff-faces over 600 ft. above the ground. One to two eggs are laid.

Cool Facts: Military Macaws live in large flocks and can live about 50-60 years in the wild.

Macaws are known to eat clay, which is believed to work as an antidote to the poisonous seeds they eat. The chemicals in the clay mix with the poison allowing it to pass through the bird's digestive system without harming the bird.

International trade in Macaws is illegal under the CITES agreement. Only captive born birds may be sold as pets.

There are three races:

- *A. m. militaris*. The nominate subspecies is found in the Santa Marta Mountains, Sierra de Perijá and Coastal Range of northern Venezuela southward through the Andes of Colombia, eastern Ecuador, Peru and western Bolivia.
- *A. m. mexicanus*. It is found in western and northeastern Mexico from central Sonora to Oaxaca and from eastern Nuevo León to eastern San Luís Potosí (now vanished from most of this range). This race is slightly larger than the nominate race.
- *A. m. bolivianus.* It is found on the eastern slope of the Andes in central Bolvia (western Santa Cruz) to northern Argentina (North Salta). It has an indistinct brown throat patch, spreading onto the upper breast.

Common Name: Elegant Trogon **Scientific Name**: *Trogon elegans*

Size: 11-11³/₄ inches (28-30 cm)

Habitat: North and Central America. Found from southeastern Arizona (United States) to northwestern Costa Rica.

It is found in the canopy of arid or semi-arid open woodlands, pine-oak forests, deciduous riparian woods in pine zones, scrubby woodlands and second growth, thorn-forests. It is less frequently seen in humid evergreen forest, at least in the northern part of its range. It prefers the lowlands to 2400 m in Arizona and Mexico (vertical range apparently wider in south than in north). It is often seen on the hillsides and in the ravines and gullies.



Status: Least Concern. Global Population: 200,000 mature individuals with a slight declining population trend. One of the biggest threats is the loss of trees for nesting sites. Nesting boxes have been installed to help protect this species but are rarely used, preferring natural cavities to nest in.

Diet: Insects, often taken in flight, and occasionally fruit.

Adults rarely seen on ground, preferring to perch upright in a tree or shrub.

Breeding: Sexes are dimorphic. Shared

male and female characteristics include a round head with large eyes, a short yellow bill. It is broad at the base with the edges toothed. The gape is well covered with bristle-tipped feathers. The eyelids are red to orange and the iris is dark brown. The heterodactyl feet are yellowish brown and the wings are short, rounded, and concave underneath. The tail longer than wing. The nominate race male has black face and throat with iridescent green upper parts and breast. Its red belly and under tail-coverts are separated from green breast by white band. It has a mottled gray wing panel and the primaries have long white outer webs. Its tail is square with an iridescent copper green central rectrices tipped in black. The under tail is white, with fine black speckling or fine black barring (*elegans* group). The adult female has similar pattern, but its head and upper parts are grayish brown, lacking black or green, with a bold white bar behind the eye and a white mark in front of the eye. The under parts are a paler red than on the male, and the central rectrices lack the green.

Juveniles are similar to the adult female but less boldly marked, with brownish white underparts (lacking the red). Their wing coverts appear browner than in adults (appear gray in adult male and grayish brown in adult female) and have large buffy white spots. The immature under tail is more coarsely barred than in adult female. Immatures intermediate between juvenile plumage and adult plumage of their sex.

In Arizona, some adults may be paired upon arrival on breeding grounds in April. Nest building occurs from April through June. Nests are built 2-6 m high in an unlined shallow cavity, usually selecting an old woodpecker hole, with a typical clutch of 2-3 eggs.

Cool Facts: Although a trogon is a fast flier, they are reluctant to fly any distance. They typically perch upright and motionless, with their long narrow tail hanging nearly straight down.

The usual call is a croaking "co-ah co-ah co-ah". The trogon will also include some chattering notes.

There are five subspecies:

Coppery-tailed Group

- *T. e. canescens.* First reported by Van Rossem in 1934. It is found in the oak-pine woodlands of southern Arizona and southwestern New Mexico. It is a resident in northwestern Mexico south to northern Sinaloa. The wing and tail slightly longer than in the nominate race. On adult males, the red of under parts is lighter and more scarlet (less spectrum red or geranium red). The females are paler and grayer (less brownish) and the red is paler and less extensive on the posterior under parts, especially the flanks and longer under tail coverts.
- *T. e. goldman.* First reported by Nelson in 1898. It is found on the border of the southern United States (southern Arizona and southwestern New Mexico) and northwestern Mexico (Sonora, northern Sinaloa and western Chihuahua. It is a resident of the Tres Marías Islands off of western Mexico). The northern populations are migratory. The male is greener above, with a little

coppery iridescence. The female and young have ashy backs and paler rufous middle tail feathers. The exposed scapulars, tertials, and wing coverts gray, with fine, wavy black lines and a slight indication of brown forming main color in races *ambiguus* or *canescens*.

• *T. e. ambiguus.* First reported by Gould in 1835. It is considered rare north to southern Texas and resident in Mexico from Tamaulipas west to Nayarit and south to Oaxaca. Its upper surface of the tail is coppery in appearance. The females are grayer.

"True" Elegans Group

- *T. e. elegans.* First reported by Gould in 1834. The nominate race is found in Guatemala (Motagua Valley), extending into El Salvador and southwestern and central Honduras.
- *T. e. lubricus.* First reported by Peters in 1945. It is found from Honduras to Costa Rica. It differs from the nominate race in that the outer webs of lateral rectrices have more numerous and broader black bars and the female and immature male plumage is a warmer, more brown-yellowish shade shade (not dull gray-brown).

Common Name: Resplendent Quetzal **Scientific Name:** *Pharomachrus mocinno*

Size: 14 -16 inches (36-40 cm); Tail streamers measures between 31 cm (12 in) and 100.5 cm (39.6 in), with the average being 75 cm (30 in) of tail streamer for the male

Habitat: North America; The southern race *costaricensis* inhabits Costa Rica and the western highlands of Panama, while nominate race *mocinno* occurs in



southern Mexico, Honduras, eastern El Salvador, and northcentral Nicaraugua.

It prefers montane evergreen cloud forests. Ornithologists believe this preference is closely tied to the existence of fruitbearing trees of the laurel family (Lauraceae), which includes the wild avocado. The amount of quetzal abundance in habitats of southeastern Mexico appears to be correlated with the total number of fruiting tree and plant species. Quetzals are not seen in areas where the heavy woodland was removed.

Other quetzal species similarly are found in the cloud forests at generally the same elevation as the Resplendent Quetzal, but some are less specialized on the mature forest and the higher elevations. **Status:** Near Threatened. **Global Population:** 20,000-49,999 Mature individuals. Populations continue to decline, owing largely to widespread deforestation throughout its range. The main problem for the Costa Rican Monteverde population is the fragmentation and destruction of forests to which it descends in the non-breeding season. This is probably applicable to many populations. Some poaching probably still occurs, particularly in south Mexico, but this appears to have diminished. Although it is an important symbol for conservation in Central America, and reserves have been established to facilitate its protection, these tend to be small and include limited representations of critical habitat.

Diet: Fruits, especially wild avocados and laurel fruit. Fruit from the *Lauraceae* family make up over half its diet. It will also feed on wasps, ants, larvae and small frogs.

The Resplendant Quetzal forages primarily by sallying for fruit, plucking it from trees on the wing. They are found in the canopy or subcanopy and rarely, if ever, venture to the forest floor.

Nesting: Sexes are dimorphic. The males upper parts, head, neck, and chest are an iridescent or golden green. The green may appear more blue-green in darker light. The lower breast, belly, and under tail coverts are bright red. The greater wing coverts are elongated with black at the ends, and the greater secondary and primary wing coverts and the six middle rectrices are black. The three outer rectrices are white with black shafts and black or gray bases. The thigh feathers are black, with the lower ones showing some green. The feathers on the head form a crest, from the forecrown to the rear of the head. The upper tail coverts are also green and are greatly elongated beyond the tail. The coverts cross above the end of the tail. The bill and feet are yellow. As do other trogons and quetzals, the Resplendent Quetzal has the unique heterodactyl toe arrangement (third and fourth toes in front; first and second toes in rear).

The appearance of the female is duller and less dramatic. It lacks the long tail and resembles a trogon more than the male of the species. The crown, head, back, scapulars, wing coverts, rump, and upper tail coverts are iridescent, golden green. The crest feathers are less developed than the male, with the northern race *mocinno* exhibiting more of a crest than in race *costaricensis*. The upper tail coverts of the female do not extend beyond the tip of the tail. The belly and sides mostly gray with the under tail coverts being red. The tail is black with the three outer rectrices on both sides barred in white and black. The primaries are edged with buff. The throat is gray-brown. The thighs are black with the gloss of green as in the male.

Immatures are similar to the adult female with the immature male being a little brighter and its bare parts appearing more in line with the color of the adult male. The immature female is more bronze to dull green than the adult female, and its

bill is more yellowish. The rectrices of the immature male and female are more pointed than the adult female.

Quetzals live alone except during breeding season. Females carve a hole in the rotten tree and built a nest within. She then lays two pale blue eggs and both parents take turns at incubating. Often one sees their long tail-covert feathers hanging out of the nest cavity. Incubation lasts about 18 days with the male incubating the eggs during the day and the female at night. Both parents take parts providing food to their young. Female often neglects and sometimes abandons their young before fledging, leaving it up to the male to continue care until the young are ready to survive on their own.

Cool Facts: The Resplendent Quetzal plays an important role in Mesoamerican culture. The Resplendent Quetzal was considered divine and associated with the "feathered serpent god", Quetzalcoatl by Mixtec, Toltec, Aztec, Teotihuacan and Mayan civilizations. In several Mesoamerican languages, the term for *quetzal* means *precious*, *sacred*, or *erected*. Rulers and nobility used Quetzal feathers to adorn their headdresses which symbolically connecting them to Quetzalcoatl. In these cultures, it was a crime punishable by death to kill a quetzal. Birds were captured, their long tail feathers plucked, and then set free.

Mayans: The first sound engineers? In the city of Chichen Itza, the Mayan Temple of Kukulkan contains a series of oddly high, narrow steps. An acoustician, David Lubman, discovered that if you stand in front of the staircase and clap your hands, the returned echoed sound is reminiscent of the descending chirp of the Resplendent Quetzal. Modern day Mayans who are familiar with this echo, often refer to it as "la cola del Quetzal," or the Quetzal's tail. It is not inconceivable that the ancient Maya may have experienced this picket-fence effect from another staircase and refined the spacing of the stairs to match the pitch of the Quetzal, but of course without written evidence, this may forever remain fascinating speculation.

Quetzals are important in avocado and laurel seed dispersal; the birds swallow the fruit whole before regurgitating the pits, which in turn disperse the seeds for these trees.

- *P. m. mocinno.* The nominate subspecies is known as the "Northern" or Guatemalan Resplendent Quetzal. It is found in southern Mexico (Oaxaca and Chiapas), Guatemala, Honduras, eastern El Salvador and north-central Nicaragua.
- *P. m. costaricensis.* The "Southern" or Costa Rican Resplendent Quetzal is found in Costa Rica (except Cordillera de Guanacaste) and the western highlands of Panama (eastward to Veraguas). This race is generally is

smaller and the upper tail coverts of the male are shorter and narrower and overall, it is less golden in tone.

Common Name: Lesson's Motmot Scientific Name: Momotus lessonii

Size: 15-17 inches (38-43 cm)

Habitat: Central America; southern Mexico and the Yucatán peninsula.

It is found in many different wooded habitats, including tropical rainforest, drier woodland (occasionally pine forest in Belize), wooded ravines, taller second growth, hedgerows, well-wooded gardens and shade-coffee plantations.

Status: Least Concern. **Global Population:** 5000,000 - 5,999,999 mature individuals with a decreasing population trend. The decline is thought to be caused by ongoing habitat destruction and fragmentation. It is common to fairly common in Mexico and common in much of its Costa Rican range (except dry northwestern of country, where species is restricted to the gallery forest, is uncommon to rare at lower middle elevations on northern slope of Central Cordillera and absent from most of the Caribbean lowlands), and reasonably or



at least locally common in the rest of its Central American range. It adapts to somewhat degraded habitats, apparently persisting in small tracts of trees provided some undergrowth remains. It occurs in numerous protected areas (e.g. Montes Azules Biosphere Reserve in southern Mexico).

Diet: Insects and other invertebrates; including snails, centipedes and earthworms. It will eat occasionally small reptiles and mammals (e.g. shrews, bats, rice rats and rarely small birds and nestlings). It regularly eats fruit such as Mayan banana (Cymbopetalum mayanum).

Nesting: It is a mid-sized to large motmot with blue on crown, a tail that is ong and racquet-tipped outer feathers. Sexes are alike. The bill is slightly decurved, with both mandibles hazing coarse serrations along most of length of cutting edges.

The juvenile resembles the adult, but has its entire crown suffused greenish blue and indistinct borders. It has a smaller and sootier-colored black mask and lacks any breast-spots or tail racquets. Its iris is dark brown.

Egg laying begins in April through June in southern Mexico, and from March to May in Costa Rica and February to March in western Panama. It creates an unlined nest-burrow is excavated usually in earth bank (e.g. beside road or stream). The burrow is very variable in length, from 1.5 m to 4 m and is not always a straight line tunnel. The entrance is often well concealed. It may also tunnel on the side of pit or hollow in ground, often locally in archaeological ruins. The same site may be used in consecutive seasons, and even shared with other birds, nesting at different times of year. The egg clutch 3–5 white eggs in Yucatán, 3–4 in Costa Rica with an incubation period of about 21 days. Chicks fledge in 29–32 days.

Cool Facts: Motmots often sit still and, in their dense forest habitat, can be difficult to see, despite their size. They are most commonly found by their distinctive call, "whoop, whoop....whoop, whoop".

Until recently, this species was considered to be part of the "Blue-crowned Motmot" (*M. momota*) family which stretched from Mexico down to the northern half of South America. Apart of location differences, the appearance and its clearly distinct song, in which the two notes are separated by a much longer interval, made it stand apart from its South American cousin. The Blue-crowned family was broken up regionally into distinct species of Motmots with this species becoming "Lesson's Motmot" (*M. lessonii*) and the "Blue-crowned Motmot" (*M. momota*) being renamed to the Amazonian Motmot".

Races vary only slightly with nominate having mostly pale olive-green under parts:

- *M. I. lessonii.* The nominate subspecies is found in southern Mexico (Chiapas) southeast to western Panama.
- *M. I. goldmani.* It is found in eastern Mexico (Veracruz, northern Oaxaca, Tabasco) and neighbouring Guatemala (Petén). It is paler than the nominate race.
- *M. I. exiguus.* It is endemic to the Yucatán Peninsula. It is similar but smaller than the nominate race.

Common Name: American Pygmy Kingfisher **Scientific Name:** *Chloroceryle aenea*

Size: 5 inches (13 cm)

Habitat: Central and South America, southern Mexico south through Central America to western Ecuador, and then around the northern Andes cordillera in the east to central Bolivia and central Brazil. The species occupies the entire Amazon Basin and the Tocantins River drainage adjacent in Pará state Brazil. It also occurs on Trinidad.

It found along small stream, rivers and pools with dense overhanging marginal vegetation, in the dense gallery forest and rainforest, ditches in plantations, open water in swamps, tidal channels in mangrove thickets. It is most common in shaded habitats.



Status: Least Concern. **Global Population:** 500,000 - 4,999,999 mature individuals.

Diet: Small fish (such as *Characidae* or *Cyprinodontidae*), tadpoles and small frogs, also some insects such as damselflies.

It perches low over water, frequently bobbing its head and pumping its tail. It catches its prey by diving steeply into deep water or splashing in shallower water. It frequently changes its foraging position. This kingfisher prefers perches that are in trees and shielded by foliage or snags with only 1 or 2 prominent bare branches showing.

Nesting: The male of the nominate race has a black lore with a narrow rufous supraloral line, narrow rufous collar; dark glossy green head and upperparts with golden wash, tail bluer green, golden spots and tips on upperwing-coverts; chin and throat rufous, deeper on breast and flanks, centre of belly and undertail-coverts white; bill black, pale yellow base of lower mandible; iris dark brown; legs and feet fleshy to dark grey. Differs from very similar C. inda in much smaller size, white belly. Female has dark green breastband with white tips of feathers. Juvenile paler and duller underparts, buffy spots on wing, male green-black streaks on breast and flanks, female narrow often broken breastband.

Females create an unlined nest in a horizontal tunnel up to 40 cm long made in a river bank, earth heap, or occasionally an arboreal termite nest. The female lays three, sometimes four, white eggs.

Cool Facts: It's the smallest of the kingfishers and only weighs 18g. Pygmy Kingfishers perch quietly on low branches near the edge of stream banks, patiently waiting for a small fish or tadpole to come by.

- *C. a. stictoptera.* It is found in southern Mexico (Puebla, Veracruz, Yucatán, Chiapas) to northern and central Costa Rica. It has three to four obvious lines of small white spots on the secondaries (reduced and less white in nominate), and larger amount of white hidden in rump feathers.
- *C. a. aenea.* The nominate race is found in central Costa Rica to northern Colombia, southward on the western side of the Andes to western Ecuador and, east of Andes, eastward to Venezuela, the Guianas and Trinidad and southward to eastern Ecuador, eastern Peru, northern Bolivia, Paraguay, northeastern Argentina (Misiones) and south-central Brazil (São Paulo).

Common Name: Chestnut-colored Woodpecker **Scientific Name:** *Celeus castaneus*

Size: 8.5 -9.5 inches (21.5-24 cm)

Habitat: Central America; a resident on the Caribbean slope, from southern Mexico (north to southern Veracruz) south through Belize, northern Guatemala, northern Honduras, Nicaragua, and Costa Rica to western Panama (in western Bocas de Toro)

It found in humid evergreen and semideciduous forests and forest edges. It prefers dense forest, forest edge, and trees with dense foliage and epiphytes in semi-open. In Panama, also occasionally is seen in mangroves, and it reportedly enters both mangroves and coastal scrub in Belize in the non-breeding season.

Status: Least Concern. **Global Population:** 20,000 - 49,999 mature individuals with a stable population trend. As is true of other forest species, Chestnut-colored Woodpecker is vulnerable to habitat loss or degradation.

Diet: Primarily ants and termites and less commonly, fruit and seed.

It typically forages in the canopy and subcanopy descending lower along forest edges. It forages by pecking into tunnels and from Cecropia trunks, as well as by prying off flakes of bark). It regularly clings to foliage, sometimes moving sideways along twigs. Some ornithologists have observed one Chestnut-colored Woodpecker pulling on dead, loose bracts at the base of a flower stem, causing many small black ants to emerge, some of which fell some 30 cm to another flower cluster; a second woodpecker fed upon the ants that fell, while the first woodpecker continued feeding above.

Nesting: The sexes are dimorphic. The males head is generally ochre or tawny in color. The feathers of the rear crown and nape are



elongated and pointed, forming a crest. The sides of the head from the lores to just behind the eye, and down to the upper margin of the throat are bright red (some red also may be mixed into the feathers of the chin and upper throat). The back, wings, and upper tail coverts are rufous-chestnut. The back and upper tail coverts barred with black. The inner webs of remiges are cinnamon-rufous, and the tips of remiges are dusky brown. The rump is cinnamon to cinnamon-buff. The rectrices are chestnut at base and dull black distally. The under parts are chestnut, heavily scalloped with "V" or "U" shaped black bars. The density of the black barring, especially on the upper parts, is variable among individuals. The adult female is similar to male, but lacks red on the head. Immatures are generally duller and darker on average. There are few black marks on the under parts, and these markings are more irregular in in adults. The malar area is indistinctly mottled with dusky color.

Breeding season extends from March-June in Oaxaca, April-July in Belize, February-August in Guatemala, May-June in Nicaragua, February-May in Costa Rica, and May-July in Panama. Nest holes are often excavated in dead trees. Both sexes excavate the nest. One clutch in Belize consisted of 4 eggs are laid.

Cool Facts: Woodpeckers have zygodactyl feet (two toes pointing forward, two backwards). These feet are adapted for clinging to a vertical surface, but can be used for grasping or perching as well.

The woodpecker's tongue, which is often as long as the woodpecker itself, can be darted forward to capture insects. The tongue often ends in a barb so that the woodpecker skewers its prey and draws them out of the tree trunk. A woodpeckers' tongue is not attached to the head in the same way as it is in most birds, but instead it curls back up around its skull, which allows it to be so long. Woodpeckers also have extra tissue around their brains that acts as shockabsorbers to counter-act their hammering on wood.

Common Name: Royal Flycatcher **Scientific Name:** Onychorhynchus coronatus

Size: 6¹/₂-7 inches (16.5-18 cm)

Habitat: Central and South America; Mexico, south through most of Central America, to north-western Colombia and far western Venezuela.

Across most of its range, Royal Flycatcher occupies the mid-story of humid lowland evergreen forest and adjacent tall second growth, often near stream and varzea forests. In Venezuela, it can occur in mixed mangrove and palm swamps. It avoids forests that had been recently logged. It can sometimes been seen in citrus orchards (predominantly oranges) in Panama during the winter months.



Status: Least Concern. **Global Population:** 500,000-4,999,999 with a declining population trend. The species is tentatively assessed as being in decline due to habitat loss. The isolated population in western Ecuador and adjacent Peru (race

occidentalis) is rated as Vulnerable (BirdLife International in 2015), and the same status is accorded to the equally isolated population in southeastern Brazil (Race *swainsoni*) (BirdLife International in 2015).

Diet: Flying insects; rarely fruit and seed. Identified prey items include ticks, aphids, scale insects, cicadas, and leafhoppers, butterflies and moths, dragonflies and damselflies, and grasshoppers, locusts and crickets.

Royal Flycatcher has an erect posture when perched, with the tail held perpendicular to the ground. It captures prey with sallies. Usually there is only one attack, before moving to a new location. The search time for the Royal Flycatcher is generally quite long, as it spends more time searching for prey than actually catching it. The wings of larger prey are removed, by beating the prey



against a branch, before the prey is swallowed.

Nesting: It is a medium sized tyrant flycatcher with a long bill and tail, long rictal bristles, and a mostly brown body. The most distinctive feature is the long ornate

crest. The feathers of the crest are long and red or orange red (male) to orange (female), with black and blue terminal spots. This crest usually is recumbent, giving the flycatcher an odd hammerhead appearance; when erected, it is flared laterally, forming a large, brightly colored fan across the top of the head.

It has a long crest on the crown, usually held closed and retracted, but when erect forms a large, semicircular fan across the top of the head. The feathers of the crest are scarlet, with steel blue tips and a subterminal black bar. The sides of crown are otherwise dark brown, with an indistinct buffy supraloral streak and broken buffy eye ring. The back is dark brown, with narrow black and buffy barring on lower back. The rump and rectrices are a cinnamon rufous with the rectrices turning darker and browner towards the tips. The wing is dark brown with small buff terminal spots at the tips of the wing coverts and tertials. The throat whitish transitioning to a warm buff, with narrow black barring on breast and belly. The adult female is similar to the adult male, but its crest yellow or orange, not scarlet, as in the males. Immatures are more heavily barred than adults on the breast and under parts. It has black subterminal bands outlining buffy fringes to the feathers of the back, tertials, and rectrices. The crest is poorly developed.

Female crest displays occur with preening and head-waiving when a male approaches during the building a nest or attending its eggs. Often this is accompanied with quivering of the crest, in aggressive or defensive social encounters, and a partial display by a female inside a nest. It was then thought crest displays might have a role in courtship. A courtship (described by Chaves in 2006) involved a male showing his crest first, then both birds keeping their crests shown while partaking in quivering and fan like movements. The male flew to the female and copulation started and lasted for around 5 seconds, afterwards the two separated. The male then flew to the female, fluttering in front of her face with his and her crest fully shown. Crest displays occurred before, during, and after copulation, with no head movement before. This indicates that crest displaying may indeed be part of courtship in this species.

Female royal flycatchers incubate eggs in an enclosed niche, which is entered through a vertical slit in a loosely constructed hanging nest. Males do not incubate eggs or feed the young but continue to defend the nesting territory throughout the nesting period.

Cool Facts: The Northern Royal Flycatcher is usually inconspicuous and quiet, but sometimes gives a repeated sharp clear "pree-o" or "key-up", sounding rather like a manakin.

The Royal Flycatcher's fan-shaped crest is rarely seen. It is used only in last resort intimidation of predators (such as a biologist banding the birds or a nosy photographer) and defending nesting territory.

Royal Flycatcher exhibits significant geographic variation across its range.

Northern Royal Flycatcher Group:

- O. c. mexicanus. It is found in southern and eastern Mexico (southern Veracruz, northern and southeastern Oaxaca) southward to Panama. The body plumage is brown and the crest of the male is red or orange red (but not scarlet as in the South American races). The rump and tail are cinnamon buff (not cinnamon rufous) and the under parts are buffy yellow, with less barring on the breast.
- O. c. fraterculus. It is found in Mexico. The differences between races *mexicanus* and *fraterculus* are very slight; *fraterculus* is slightly smaller, and perhaps slightly paler on the under parts.

Amazonian Royal Flycatcher Group:

- O. c. coronatus. The nominate race is found in southern and eastern Venezuela (except southern the Negro and Tapajós Rivers). The "Amazonian" group are the smallest of the Royal Flycatchers. The body plumage also is the darkest brown, and with the greatest extent of barring on the breast.
- O. c. castelnaui. This race is found east of the Andes, from southeastern Colombia and extreme southern Venezuela (south Amazonas) southward to eastern Ecuador, eastern Peru, western Amazonian Brazil (east to the Negro River and Madeira River) and northern Bolivia. It appears the same as the nominate.

Pacific Royal Flycatcher Group:

• O. c. occidentalis. It is found in western Ecuador (patchily from Esmeraldas southward to El Oro) and extreme northwestern Peru (Tumbes). This is another large and bright subspecies. The upper parts are pale brown. The under parts are bright ochraceous buff, and unmarked. The rectrices are tawny.

Swainson's Royal Flycatcher Group:

• O. c. swainsoni. It is endemic to southeastern Brazil. It is a paler brown, although not as bright as occidentalis, with an unspotted breast, ochraceous buff underparts, and a cinnamon buff rump and tail. The crest of the male is red.

Common Name: White-collared Manakin **Scientific Name:** *Manacus candei*

Size: 4.25-4.5 inches (11-12 cm)

Habitat: Central America; Southeastern Mexico to Costa Rica and the extreme west of Panama. Found in the lowlands and foothills of the Caribbean slope up to 700 m.

It has a wide habitat tolerance and does not require undisturbed primary forests.

Status: Least Concern. **Global Population:** 50,000 - 499,999 mature individuals with a stable population trend.

Diet: Small fruits and insects, plucked or snatched from vegetation in aerial sally.



Nesting: The male has a black cap, the rest of the head and forebody (to upper back and upper breast) is white. The throat feathers are elongated (projected forwards well beyond bill tip in display). Its back, wings and tail are black with an olive lower back patch to the upper tail-coverts. The outer primaries are thin and curved, the secondaries with thickened shafts. It is yellow from the lower breast downwards to the tail. The iris is dark brown, the bill blackish and legs are electric range. The female is olive-green, blending to yellower on the belly with slightly darker olive green on the wings and tail. The juvenile resembles the

female. The immature male has a pale gray throat and upper chest and may acquire full adult plumage at about one year old.

Breeding season occurs from April through August in Costa Rica. The male displays with others at lek, each clearing a small "court" in which several vertical stems are present, displays involve mainly jumps between stems with "aboutface" on landing. There is also occasional crouching with head retracted, body swaying and wings beating, and with throat feathers projected forwards. When a female visits, both sexes perform coordinated to-and-fro jumps between mating stem and an adjacent one, the two crossing in mid-air, female finally landing on mating perch, male then giving pre-mating display involving jump to ground, leap up to mating stem and slide down stem.

Nests are built at the edges of moist forests, tall second growth and old cacao plantations. The female lays two brown-speckled white eggs in a shallow cup nest 1-3 m high in a horizontal tree fork. Nest-building, incubation for 18-21 days, and care of the young are undertaken by the female alone, since manakins do not form stable pairs.

Cool Facts: White-collared Manakins hybridize extensively with the Goldencollared Manakins in a limited area in Bocas del Toro Province, Panama. The hybrids, which show a lemon yellow collar in males, were at one time considered a distinct species, the Almirante Manakin

Common Name: Mangrove Swallow **Scientific Name:** *Tachycineta albilinea*

Size: 5 inches (13 cm)

Habitat: Central America; a resident from southern Sonora and southern Tamaulipas, Mexico, south along the coast through Central America to eastern Panama. Present in Mexico, Guatemala, Belize, El Salvador, Honduras, Costa Rica, and Panama



They are a common coastal and lowland species and are mostly are associated with mangrove forests, freshwater lakes and ponds, rivers, and pastures. They are also found around marshes, coastal beaches, and meadows. In Honduras, they are common along the coast, on wet grassy savannas in the coastal pine ridges, and along large inland rivers while in Panama, they are found around the Panama Canal, Gatun Lake, and bays along the coast but are rare in the highlands.

Status: Least Concern. **Global Population:** 500,000 – 4,999,999 mature individuals.

Diet: Flying insects; including dragonflies and bees.

Foraging is performed aerially and is usually low over the surface of water; however, they may forage up to 100 ft above water surface, or over marshes and wet meadows. Flight is rapid and direct, with some gliding.

Adults spend most of their time foraging during the early morning and late afternoon, while foraging less in the middle of the day.

Nesting: Sexes are alike. The crown, sides of the head, nape, back, scapulars, and wing coverts are steel-blue with a greenish gloss. The upper parts are greener in fresh plumage. There is a distinct white, short line above the lores. The rump is white or grayish white and these feathers usually have a narrow,

dusky shaft line. The upper tail coverts are dusky in color, glossed with bluish green, and often with white or pale grayish margins. The remiges and rectrices dull black, with a faint greenish gloss. The outer webs and tips of the tertials have broad white margins. The malars and under parts are white. The upper breast usually faintly shaded with some gray. The under wing coverts white or grayish white. The tail is slightly forked.

Juveniles are similar in pattern to the adults, but duller. Grayish above, sometimes faintly glossed with greenish. There is a white supraloral line, as in adults. The rump and under parts are white with a brown wash across the breast. The outer under wing coverts are banded with dull gray.

They are socially monogamous. The Mangrove Swallow's bulky cup nest is built in natural or artificial cavities near water, usually below 2 m in height. Sites include tree holes and crevices in rock or bridges. The clutch is three to five white eggs which hatch in 17 days. The nestlings are fed by both parents for 23-27 days to fledging. Like the related Tree Swallow, this species is very aggressive to other swallows when breeding, and nests are several hundred meters apart.

Cool Facts: There is a swallow in coastal Peru that resembles the Mangrove Swallow, but lacks the white head stripe. Some consider it as possibly a subspecies, but the geographical separation suggests that this little known form is a distinct species.

The flight of the Mangrove Swallow is typically direct and low over the water. It frequently perches. Its call is a rolled *'jeerrrt'*.

Common Name: Black-throated Magpie-Jay **Scientific Name:** *Calocitta colli*

Size: 22.8-30.3 inches (58-77 cm)

Habitat: Central America; NW Mexico from S Sonora and SW Chihuahua S through Sinaloa to Jalisco and Colima; several records in extreme W Michoacán.



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Magpie-jays forages at the top of trees or in bushes, and in more open areas. It often forages in company of large passerines, such as Yellow-winged Cacique (*Cacicus melanicterus*).

Nesting: The sexes are similar, but the female has a shorter tail than the male. It is an exceptionally long-tailed with long black feathers on forehead (about 80 mm in length) which are sometimes tipped white or blue. When erect, they form a slightly recurved crest. The crown, lores, side of head and the sides of the neck are black. The throat and breast are sepia-black (the throat may be partly or mostly white in north of range, and south at least to Sinaloa). There is an elongated white patch (washed cobalt-blue) above eye, sometimes connecting with sides of nape. There is a large cobalt-blue malar patch, quite broad in region just below eye as well, bordered at base by narrow white band. The nape and hindneck are cobalt-blue, heavily washed with white. On some individuals, there is a narrow cobalt-blue band that borders black area of the sides of necks and sepia area of the breast. The upper parts are cobalt-blue, sometimes tinged gray. The upper wings are bright cobalt with the outer margins of the primaries being cerulean-blue and the inner margins turning brownish. The tail is very long tail and graduated with the two central feathers being entirely bright cobalt-blue; the outer feathers also cobalt-blue but with wide whitish terminal band. The under parts below breast are white, somewhat tinged with gray. The under wing is white with a brownish tinge with the under wing-coverts white. The under side of the tail feathers are brownish-blue. The iris is dark brown with the bill and legs black.

The juvenile has a whitish throat and breast (but chin is black), with sepia color only on side of neck and in U-shaped collar enclosing the breast. The malar stripe and eye spots not so clearly defined as on the adult. The upper parts are lighter and duller, tail shorter, with the bill and legs paler. Second-year jays has some white tips (as well as blue tips) on crown feathers.

Nests are usually in trees made of a big cup of sticks lined with softer material. The female lays 3 to 7 whitish eggs with brown and gray spots.

Cool Facts: This species has been known to hybridize with the White-throated Magpie-jay in Jalisco and Colima

The calls are quite rich in repertoire. The scolding call a short and repeated "*keu-keu*". Among the incredible variety of sounds that may be heard are harsh ("rrrrik" or "krrrrup" and "rroik"), whistled ("wheeoo") and "squeaking-gate" ("kyooh") notes, besides liquid, trilled and rattled ones, which sometimes combined. Each individual seems to emit large variety of sounds over short period. Raucous cries may resemble those of parrots.

Common Name: Yucatán Jay **Scientific Name:** *Cyanocorax yucatanicus*

Size: 12.2–13 inches (31–33 cm)

Habitat: Central America; it is endemic to the Yucatán peninsula found in Belize, Guatemala, and southern Mexico.

It prefers subtropical or tropical dry forests and heavily degraded former forest. In Belize, the species is less common but will inhabit dense pine ridges and the swampy regions bordering them.

Status: Least Concern. **Global Population:** 50,000 – 499,999 mature individuals with an increasing population trend.



Diet: It is an opportunistic omnivores with a diet that varies from season to season, making use of temporary abundance of food items. Seeds and fruit comprise about 68% of the diet with beetles, larvae, spiders, ants and slugs making up the reminder.

When foraging, they will sometimes perch 1–5 m above an army ant column and eat invertebrates flushed by the ants. They will often travel near the forest edges

in groups, flying and hopping from perch to perch at levels ranging from near the ground to the top of the canopy. They move slowly and deliberately, searching the foliage and branches for fruit and insects.

Nesting: Sexes are alike, although females tend to be slightly larger in length. The adults head, neck and under parts are uniformly black. The under tail coverts are a dusky blue. The back and wings are a deep turquoise blue. The tail is a deeper blue, nearly cobalt, and the tertials have almost a greenish tint. The under tail coverts are dusky blue. This, the definitive plumage, is attained in the second year, but the bare parts do not attain the adult aspect until the third or fourth year.

The juveniles head and under parts are white. The back, wings, and tail are a grayish blue. The under side of the tail is gray and the rectrices (except for the central pair) have broad white tips. The iris is lighter than the adults. Immatures is similar to the plumage to the adult, but differs in the retention of the white-tipped juvenile rectrices on the tail, the light iris, and in bare part colors (yellow-eye rings and yellowish beaks).

They breed in cooperative groups which usually consist of one breeding pair and other adults, 2-year olds and 1-year olds. Nests are placed within about 5 m of the forest edge and 4–9 m above the ground. It is a flimsy platform with a shallow cup constructed of sticks inlaid with some coarse plant fiber. The lead male and female appear to build the nest, with the helper birds being tolerated or chased off.

Incubation lasts for 17 days. Yucatán Jays have an interesting behavior often seen in the adult attending birds called "nest inspecting," where much time is spent probing the nest above and below, picking and probing with the bill. It is assumed this to be the attending birds removing the larvae of parasitic flies which may parasitize the nestlings because the behavior was not seen before hatching.

The feeding of nestlings is a communal effort and the method of food delivery can differ with sometimes the helper bringing food give it directly to the nestlings, and other times, it being handed off to an intermediary, which in turn, feeds the young.

Cool Facts: They are highly gregarious birds, found in flocks throughout the year, averaging 8 to 12 members. Yucatán Jays display ritualized behavior in both breeding and non-breeding flocks. The threat display of these jays is a sleek-feathered, rigid upright posture or a head forward posture directed toward the victim. This posturing may be followed by actual aggression aimed towards the tarsi and face of the victim.

The "up-fluffing" behavior works as a signal of appeasement and is believed to be the reason that aggressive behavior is so rare in these jays. In the behavior, the neck is extended and the feathers of the neck and head are erected slowly, revealing the pinkish skin of the neck. The behavior varies in intensity, with the most extreme form being to point the bill downward and away from the recipient while erecting the neck feathers. The action solicits positive feedback in the form of "peck-preening," a type of affectionate mutual preening. In a captive flock, up-fluffing was seen 29 times in five minutes in a flock of 6 jays, with 11 cases being mutual.

There is an extreme form of submissive behavior known as "appeasement gaping" where the victim crouches, fluffs all head feathers, and gapes at another bird. It is most frequently seen in first-year birds and the behavior is released when the aggressor pecks at the face or tarsi. It is not usually seen in established social groups of mature wild birds. Mutual feeding by one bird to another is seen between members of different age and sex groups and is not a pair-bonding behavior, but rather a group bonding behavior.

- *C. y. rivularis.* First reported by Brodkorb in 1940. It occurs in southeastern Mexico, in Tabasco and southwestern Campeche. It is similar to the nominate racw, but the blue of the upper parts somewhat brighter and its overall size is significantly larger.
- *C. y. Yucatánicus.* First reported by Dubois in 1875. The nominate race is found on the Yucatán Peninsula (except for southwestern Campeche), northern Guatemala, and northern Belize.

Common Name: Cozumel Thrasher **Scientific Name:** *Toxostoma guttatum*

Size: 8¹/₂ -9¹/₂ inches (21.5-24 cm)

Habitat: Central America; endemic to the Island of Cozumel off the Mexican Coast.

It is found in dense, scrubby and thorny woodlands. It is also seen at semideciduous and deciduous forest edges and the lowlands.

Status: Critically endangered-presumed extinct. Global Population: <10 mature individuals optimistically but feared extinct by most. It had a population of up 10,000 individuals estimated in mid-20th century. The numbers drastically reduced following a very severe hurricane in 1988, and only three individuals found during ensuing seven years. After another severe hurricane occur in 1995, this species not recorded at all in annual surveys, and feared extinct by some.

In June 2004, a single individual was discovered, the first thrasher seen in almost nine years.

The last credible sighting of the thrasher was in seen in 2006.

Although the two hurricanes assumed responsible for the species' demise, Cozumel Island must have suffered similar meteorological phenomena at relatively frequent intervals prior to 1988



It would be expected that this thrasher could be expected to have evolved means of surviving the huge damage wrought by such events. It was earlier reported as inhabiting scrubby woodland and dense undergrowth, and the edges of tropical forest, but the three individuals found in 1994 and 1995, were well away from scrub (two in deciduous forest, one in semi-deciduous forest). Thorough investigation of this species' ecology may help to provide further explanation for its exceedingly rapid decline. Four other Cozumel endemic bird taxa have similarly declined during the same period. The role of introduced predators, such as Boa constrictors, were introduced to the island in 1971 and which aligns with their population decline. It is considered an "Endangered" species in Mexico and Critically Endangered by Birdlife International.

Diet: Seed and some insects.

Like most thrashers, it rarely flies in the open, preferring to keep hidden in dense brush. Therefore, while it is common throughout much of its range, it is rarely seen. They forage on the ground, using their strong legs and long tail for leverage as they sweep the bill through leaf litter to uncover insects and other prey.

Nesting: Sexes are similar. The plumage is rufous-brown above with the cheeks that are grayish, a pale supercilium, wings that have with two white wingbars and a rufous tail. The throat is white with a dark malar stripe. The underparts are white and boldly streaked black with the largest spots being on the flanks. The belly and crissum are whitish to buffy. The iris is an amber color and the bill is slate gray. The legs are dark gray-brown. It is distinguished from the similar looking Long-billed Thrasher (*T. longirostre*) by its much smaller size and location (endemic to Cozumel Island).

Breeding season occurs from May to July. It is believed to have the same breeding behavior as other thrashers. Thrashers form long-term pair bonds. Courtship behavior is hard to observe in their dense habitat, but seems to involve males chasing females, which perch, raise the tail and head, and flutter the wings. In the early part of the breeding cycle, females sometimes join their mates in song. Pairs regularly forage together year-round as well. Both male and female defend the territory, year-round, occasionally chasing or fighting neighboring pairs while giving low chup calls. Pairs typically raise two broods of young per year. The parents chase away the young of their first brood as they prepare to nest a second time, although the male sometimes feeds young from the first brood as the female builds a second nest.

Cool Facts: It gives a rich, varied warbling-type song, sometimes scratchy with little repetition.

Common Name: Red-legged Honeycreeper **Scientific Name:** *Cyanerpes cyaneus*

Size: 4.25–5 inches (11-13 cm)

Habitat: Central America; It is found in southeastern Mexico to northern Columbia.

It is found in humid evergreen and semi-deciduous forests.



Status: Least Concern. **Global Population:** 5,000,000 - 50,000,000 mature individuals with a stable population trend.

Diet: Flower nectar, fruits and some insects.

It is seen in pairs when breeding, but otherwise found in variably sized, usually single-species groups of up to 15 individuals. It is rarely seen in larger groups and regularly forages with mixed-species flocks. Its appearance is hyperactive, moving nervously through foliage, hopping, flying back and forth, constantly flicking wings, and frequently behaving aggressively towards other honeycreepers. It mostly forages mostly at the middle to upper levels in trees and is infrequently seen any lower than that.

Nesting: This species is dimorphic. The male (nominate race) in breeding plumage is mainly bright purple-blue, including the scapulars. It crown is a contrasting azure-blue with black lores and large black triangular patch on the mantle. The upper wing-coverts, upper side of flight-feathers, and the tail are black. The under wing-coverts and the under sides of the remiges are a bright yellow. The iris is dark brown and the bill black. Both sexes have a long (13–25 mm), slender and distinctly decurved bill, and red legs (usually duller in female). The tail is short, but longer than those of other members of its genus. The male post-breeding plumage ("eclipse") resembles the female, except for the black wing and tail feathers, which do not molt. The yellow of the under wing also retained throughout year. In Costa Rica, the male acquires "eclipse" plumage mostly between about July to October, and for the last few months of year almost all adult males are in "eclipse". Males in some stage of greenish transitional plumage are present in every month except through breeding season (March-May).

The female is dull olive-green above, including the crown and nape to the rump. The dull whitish supercilium rather ill-defined, with the dusky green lores extending back through the eye to form a narrow postocular line. The tail is dusky, tinged and edged in olive-green, the upper wing-coverts are dusky, broadly edged with olive-green. The flight-feathers and tertials are also dusky, edged with olive-green and the tertials have broader pale green edges. The sides of head are yellow-tinged white, smudged and narrowly streaked olive-green. The throat is a dull gray-white and the under parts a dull light yellow with faintly and narrowly streaks that are green-olive. The under tail-coverts are light yellow and the legs are dull reddish but turn brighter during breeding, especially feet.

The juvenile male is initially olive-green (including its wings and tail), and is indistinguishable from the female except for its shorter bill. By the next plumage sequence, it acquires its black wings and tail but retains olive-green female-like plumage (may be retained for extended period of time, as much variation in molt sequence). By the end of the first year, the male shows patches of blue, as do molting adult males in "eclipse" plumage.

Females build a small cup nest in a tree, and incubate the clutch of two brownblotched white eggs for 12-13 days, with a further 14 days to fledging. **Cool Facts:** It is the largest of the Cyanerpes honeycreepers. It is often seen in pairs or small groups in the forest canopies, especially in flowering trees.

It responds readily to the call of the Ferruginous Pygmy Owl, which is often imitated by various birds.

Races differ only minimally, mainly in body size and bill length.

- *C. c. carneipes.* It is found in southeastern Mexico (from San Luis Potosí on the Gulf slope and Oaxaca on the Pacific slope) south including Cozumel Island (off the northeastern Quintana Roo) to Panama, including Coiba Island and Pearl Islands, and northwestern Colombia (upper Sinú Valley, at the north end of the western Andes, in Córdoba). It is very similar to the nominate race, but the pale blue area on the crown of the male is smaller and more widely separated from black of the back. The female is more yellow below, especially at the throat and center of the breast to the belly.
- *C. c. gemmeus.* It is endemic to Serranía de Macuira (Guajira Peninsula), in northern Colombia. It is the largest race, with the heaviest bill. The male differs from nominate race with a darker blue crown while the female is more gray above (less green).
- *C. c. pacificus.* It is found in western Colombia (Pacific coast south from the Baudó Mountains) and west Ecuador (south to Pichincha). It differs in being smaller and with a darker blue crown patch. Also, it has a much paler yellow under wing.
- *C. c. gigas.* Gorgona Island, off western Colombia. The male is much like race *pacificus* (including the pale yellow under wing), but darker and more purplish. The female is darker and has a deeper yellow below.
- *C. c. eximius*. It is found in North Colombia (Santa Marta region, Sierra de Perijá, and western slope of the eastern Andes in Santander) and western and northern Venezuela (western Zulia, base of both slopes of the Andes, the mountains of north Falcón and Yaracuy, and coastal cordillera from Carabobo eastward to Sucre). It is also found on Margarita Island. The male differs from the nominate race in being decidedly longer with a more decurved bill and the blue area on the crown is paler, slightly larger, and extends to nape.
- *C. c. dispar.* It is found in Colombia, east of the Andes (from Meta and Negro River to Guainía River region) east to southwestern Venezuela (Amazonas), northwestern Brazil (east to Negro River and Juruá River), east Ecuador (rare), and northeastern Peru (south to Yarinacocha). It differs in having a much shorter and thicker bill than the nominate race, and its pale blue crown shading gradually into darker nape.
- *C. c. tobagensis.* It is endemic to Tobago. It differs from the nominate race in being much larger, including the wing and tail (both longer), also the bill is heavier at the base and less decurved. The female is also darker, less yellowish below, with the green streaking more clearly defined.

- *C. c. cyaneus.* The nominate race is found in eastern Venezuela (Monagas, Delta Amacuro and Bolívar east of the Caura river). It is also found in Trinidad, the Guianas and northwestern Brazil (south to the Negro River and the mouth of the Amazon River).
- *C. c. brevipes*. It is found in middle and the lower Amazon river from at least Manacapuru east to middle portion of the Tocantins river. It is much smaller than nominate race.
- *C. c. holti.* It is found in coastal eastern Brazil from Alagoas south to Rio de Janeiro. It differs from the nominate in having a pale crown patch reduced in extent, the under parts and rear upper parts are darker and more intensely colored.
- *C. c. violaceus.* It is found in southeastern Peru, north Bolivia, and western Brazil (east to Mato Grosso). It differs from the nominate race in that the wing and tail on averages longer, the bill on averages shorter, and blue color of the male (except cap) more violet tinted. The female is a duller yellow on inner margins of remiges.

Common Name: Tropical Parula **Scientific Name:** *Setophaga pitiayumi*

Size: 4–4¹/₄ inches (10.8–11.4 cm)

Habitat: The Americas. In southern Texas (United States), it is fairly common in oak woodlands of Kenedy County and a sporadic and rare breeder in Hidalgo (mainly), Willacy, and Brooks Counties. It has been seen as far north as Colorado.



In Mexico and Central America, it is common (but local) on the Pacific slope of Mexico (sea level to 1,800 m) from east-central Sonora and southwestern Chihuahua to southwestern Oaxaca. It can be found on on Tres Marías and Socorro Islands. On the Atlantic slope (mainly above 500 m south of northern Veracruz), it can be found from Tamaulipas and eastern Nuevo León to northern Oaxaca, and in central Veracruz. In the interior; from northern Chiapas to west-central Guatemala and from western Honduras to west-central Nicaragua. In Costa Rica, it is a fairly common resident on Caribbean slope (600–1,850 m), on the Pacific side from Cordillera de Guanacaste south, excluding Valle Central. In western Panama, it is common to fairly common (300–1,500 m) in forest borders and second-growth woodland in foothills and lower highlands of Chiriquí and Bocas del Toro, Veraguas, the western side of the Azuero Peninsula, and Coiba

Island. In eastern Panama, it can be found in the lowlands of the upper Bayano River valley (sea level to 1,050 m) in the foothills of Darién.

In South America, it is common in Guyana and Suriname (in forest in Brownsberg from 450 to 500 m), extreme northern Brazil, much of Venezuela, western Colombia (but not in the lowlands east of the Andes), western and eastern Ecuador (in east only on the Andean slopes), northwestern and eastern. Peru (on the Pacific slope south to Lambayeque and western Cajamarca, on eastern slope only in Andes), northern and eastern Bolivia, Paraguay, southern and eastern Brazil (north to Piauí, Maranhão, Goiás, and Mato Grosso), Uruguay, and northern Argentina (south to La Rioja, San Luis, Córdoba, and noerthern Buenos Aires). It is common on Trinidad, but there are no recent records for Tobago.

Winter Range: It is mostly a resident throughout its range, but largely withdraws in winter from range in the United States and Northern Mexico south to Sinaloa and southern Tamaulipas in Mexico.

Status: Least Concern. Global Population: 20,000,000 mature individuals.

Diet: Insects and spiders; sometimes berries.

Nesting: It is a small warbler with the male being slightly larger than female. The adult male is mostly deep blue gray above, with a short black mask. The under parts mostly yellow, with variable orange wash on lower throat, upper breast, and flanks. The remaining under parts yellowy-white. It has white tail-spots and two white wing-bars. The adult female is similar to the male, but the gray is slightly bluer and the yellow is duller. There is no black around the eye, and it generally lacks the orange wash on the breast. The immature is similar to the female, but the upper parts and the edges of remiges are more greenish, the yellow on the under parts is often duller and the wing-bars may be faint or lacking completely. Its plumages are similar throughout year, but the "Basic" plumage is slightly duller and more greenish than the "Alternate" plumage.

It nests in clumps of epiphytes in a tree, laying usually two eggs in a scantily lined domed nest. Incubation is 12-14 days, mainly by the female.

Cool Facts: It has been formerly called Sennett's Warbler, Olive-backed Warbler, Pitiayumi Warbler, and Tropical Parula Warbler. The Tropical Parula is closely related to the Northern Parula, and the two have been considered one species. Recent genetic data, however, indicate that the Northern and Tropical parulas are sister taxa derived within the genus Setophaga. The species name, *pitiayumi*, is derived from a Guarani (Paraguayan) name meaning "little yellow chest"

The Tropical Parula has about 9 subspecies, with a wide range of plumage tones. Some (especially insular ones) have been considered separate species by some authorities.

- *S. p. nigrilora.* First reported by Coues in 1878. It is largely resident in eastern Mexico and rarely or uncommonly to southern Texas, where breeding records extend north to the Austin area, from northern Tamaulipas south to central Veracruz and eastern Oaxaca. Its dorsum is medium blue. The olive patch on the mantle is extensive. The lores are black, the malar is yellow and the white tips to median and greater wing coverts wide, form two distinct wingbars. The breast is a rich yellow while the abdomen and flanks are white. The white subterminal spots on the rectrices are large. It intergrades with race *inornata* and that occurs on the Gulf slope of Oaxaca.
- S. p. pulchra. First reported by Brewster in 1889. It is largely resident in western Mexico from northern Sonora southward to western Oaxaca. Most breeders in, at least, Sonora move south for the winter, and vagrants have reached north to southeastern Arizona. It is similar to race *nigrilora* but its flanks are rusty, pale chestnut, or warm grayish and the white wingbars thicker. The tail is shorter than most other races. The bird itself averages larger and with its ventrum a brighter yellow.
- *S. p. insularis*. First reported by Lawrence in 1871. A resident on Isabela and Tres Marias Islands, off Sinaloa and on adjacent mainland, from southern Sinaloa to central Nayarit. It is similar to race *pulchra* but its lores are grayish, the flanks and subterminal spots on the tail are small. The tail is long and the bird, itself, is the largest of the subspecies, on average.
- *S. p. graysoni*. First reported by Ridgway in 1887. "Grayson's Warbler" is endemic to Socorro Island (in the Revillagigedo Islands., Mexico). It is nearest race *insularis* in size and plumage color, but grayer overall. The yellow in malar restricted, the dorsum is washed olive; the cheeks, crown, breast and flanks are pale yellow, and the white on rectrices confined to edge of the inner webs.
- *S. p. inornata.* First reported by Baird in 1864. It is a resident, chiefly in the highlands of southern Mexico and northern Central America, from south Veracruz and northern Chiapas to northwestern. Colombia. It is similar to race *nigrilora* but the white on the median and greater wing coverts is reduced or absent (at most forming a single wingbar, on the greater coverts), the dorsum is a deeper blue, the abdomen and flanks are yellow to orange-yellow (not white), and the olive mantle patch is reduced. Birds in most of Honduras and Nicaragua are intermediates between race *inornata* and "*speciosa*," a pattern that suggests a smooth, north-to-south clinal variation in dorsal color (slate-blue to purer blue) and ventral color (yellower to oranger). The size may also decrease clinally.
- *S. p. cirrha*. First reported by Wetmore in 1957. It is endemic on Isla Coiba in Panama. It is like race *inornata* but its color is more saturated, with the ventrum, it is a deeper orange and the blue-black auriculars are more

extensive. The white tips to, at least, the greater wing coverts are always distinct.

- *S. p. pacifica*. First reported by Berlepsch and Taczanowski in 1884. It is a resident in the Andes from southwestern Colombia southward to through Peru to western Bolivia. Like race *inornata*, but its dorsum is indigo blue and the median wing coverts tipped with white, forming two narrow wingbars.
- *S. p. alarum*. First reported by Chapman in 1924. It is a resident in the highlands of eastern Ecuador and northeastern Peru (west of the Amazon Basin). It is like race *pacifica*, but the white tips to median wing coverts faint or absent.
- *S. p. pitiayumi*. First reported by Vieillot in 1816. The nominate subspecies is a resident from northern Colombia east across Venezuela, including Isla Margarita, Trinidad, and Tabago, through the Guianan Shield to French Guiana and northern Brazil and south through Amazonia to eastern Bolivia, northern Argentina, and Uruguay. Similar to race *pacifica*, but its dorsum is duller blue, the wingbars are broad, and the ventrum is yellower (less orange). There is a clinal variation in dorsal color, with a deep blue to grayer blue from north to south of its range.

Common Name: Orange Oriole **Scientific Name:** *Icterus auratus*

Size: 7-7¹/₂ inches (18-19 cm)

Habitat: Central America; endemic to southeastern Mexico (Yucatán Peninsula south to south-central Campeche) and extreme northeastern Belize. It is also found on the islands of Mujeres and Cozumel, off northeastern Quintana Roo.

It is found in subtropical or tropical dry forests and heavily degraded former forests (second growth) and abandoned റ് farmland. It is found mostly in the lowlands. Status: Least Concern. Global **Population:** 20,000-49,999 mature individuals with a declining population trend. It is common to fairly common. It is found in Sian Ka'an and Calakmul Biosphere Reserves, in Mexico and commonly seen around protected Maya ruins.

Diet: Fruit, nectar, flowers and some insects. It commonly feeds on fruits of Wild Guaya (*Talisia olivaeformis*) and less frequently on fruits of medicinal tree Poisonwood (*Metopium brownei*).

The Orange oriole forages singly and in pairs, often with other orioles. The task of obtaining Guaya fruit requires use of its bill and legs to extract inner pulp from the harder shell.

Nesting: Orioles are dimorphic. The male has black lores and a black median throat stripe extending to the upper breast. The remainder of the head is a bright orange with the body transitioning to a more orange-yellow above and below. The scapulars are black, tipped with orange, the upper wing is black, and the lesser are coverts orange. The median and greater coverts are white, with the

secondaries and tertials edged white, and the primaries edged white at bases, forming small white patch when the wing id folded. The tail is black with indistinct gray tips. The iris is a dark brown amd the bill is straight and black. The basal half of lower mandible is bluish-gray. The legs are blue-gray.

The female is duller than male, more yellow than orange with a tint of olive wash. It can be sometimes streaked on the back. The immature looks like the female, but is more washed with olive, and with an olive tail (not black).

Breeding season occurs in July. It nests in colonies, usually 25-35 nests in a 60-80 x 25-30 m area. The nests are woven of fine blackish plant fibers and in places are so thin that light passes readily through the walls. Typically, nests are slung between slender branches, often near the top of a tree or bush, at heights of 1-10 m above the ground. Most Orange Oriole nests have been near or over water.

Cool Facts: The orange oriole will often associate itself which other species of orioles. The orange oriole doesn't migrate and is only found in the Yucatán Peninsula.

Special Thanks to...

...my beta teams

2008 original release: Bea, Gary George, Jan, Kelvin, Nancy and Sandra
2011 re-release: FlintHawk, Kat, Linda, Jan, and Sandra
2021 re-release: Alisa, FlintHawk and Tparo

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:

- **"Behavioral Ecology of the Yucatán Jay"** by Ralph J. Raitt and John William Hardy
- "The Sibley Guide to Birds" by David Allen Sibley.
- "A Guide to the Birds of Mexico and Northern Central America" by Steve N. G. Howell and Sophie Webb
- Wikipedia (<u>http://www.wikipedia.com</u>)
- Birdlife International (http://www.birdlife.org)
- Handbook of the Birds of the World Alive (https://www.hbw.com)
- Neotropical Birds (https://neotropical.birds.cornell.edu)

